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Visit the Configuration Guide for documentation on configuring databases and application servers. The Confluence User's Guide has information on how to use Confluence as a collaborative tool. Go to Documentation Home for links to more resources.

Download
You can download the Confluence Admin Guide in PDF, HTML or XML formats.

Site Administrator?
The Confluence Administrator's Guide provides information to site administrators on how to manage their Confluence instances. If you still have a question that hasn't been answered, write and tell us about it.

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Cache Statistics

Confluence provides statistics about its internal caches that allow you to track the size and hit ratio of each cache and tune it for better performance (if necessary). See Performance Tuning for more information.

Configurable Caches

System administrators can change the sizes of Confluence's internal caches through the Administration Console and these changes will take effect without the need to first shut down and then restart Confluence. The maximum number of units for any of the defined cache regions can be adjusted individually.

Note that larger cache sizes will require more memory at runtime, so you should review the memory allocation of the Confluence Java process and the physical memory available on your server.

Viewing Cache Statistics and Modifying Cache Sizes
To view the cache statistics:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Cache Statistics' in the left-hand panel. There you will find a list of all objects cached within Confluence.
3. Click the 'Advanced' tab for more detail. Below is an example for one of the most frequently used caches, the 'Content Object' cache.

<table>
<thead>
<tr>
<th>Name</th>
<th>Percent Used</th>
<th>Effectiveness</th>
<th>Objects / Size</th>
<th>Hit / Miss / Expiry</th>
<th>Adjust Size</th>
<th>Flush</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content Object</td>
<td>80%</td>
<td>73%</td>
<td>4023 / 5000</td>
<td>374550 / 140460 / 55044</td>
<td>Adjust Size</td>
<td>Flush</td>
</tr>
</tbody>
</table>

About the generated numbers:

<table>
<thead>
<tr>
<th>Percent Used</th>
<th>(=\frac{\text{Objects}}{\text{Size}})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td>(=\frac{\text{Hits}}{\text{Hits + Misses}})</td>
</tr>
<tr>
<td>Objects / Size</td>
<td>The number of entries in the cache / the number of total possible entries allowed (configurable).</td>
</tr>
<tr>
<td>Hit / Miss / Expiry</td>
<td>The number of reads accessing cache where required content was found / the number of reads accessing cache where required content was not found / the number of objects evicted from the cache.</td>
</tr>
<tr>
<td>Adjust Size</td>
<td>Use this option to specify a different maximum cache size. Enter a new cache size and click the 'Adjust Size' button to set it.</td>
</tr>
<tr>
<td>Flush</td>
<td>Flushes the cache.</td>
</tr>
</tbody>
</table>

For instance, to calculate Percent Used:

\[
\text{Percent Used} = \frac{\text{Objects}}{\text{Size}} \\
\text{Percent Used} = \frac{4023}{5000} = 80\%
\]

To calculate Effectiveness:

\[
\text{Effectiveness} = \frac{\text{Hits}}{\text{Hits + Misses}} \\
\text{Effectiveness} = \frac{374550}{374550 + 140460} = 73\%
\]

The clustered versions of Confluence use distributed cache called Tangosol Coherence.

**Watching the Cache Contents**

To see the specific items in the caches, view the cache statistics at `<baseUrl>/admin/cachecontents.jsp`.

**Additional Notes about Configurable Caches**

Changes to cache size configurations persist across confluence restarts as they are saved in the `<confluence-home>/config/ehcache.xml` file (or `<confluence-home>/config/confluence-coherence-cache-config-clustered.xml` for a clustered instance). In most cases, a Confluence administrator will never need to know about these files. However, if it is necessary to tune cache options other than the maximum cache size, this can be done by manually editing these files. See Cache Performance Tuning for details.
Important note about clustered Confluence installations

The cache configuration file is stored in a home directory of each cluster node. When a Confluence administrator changes a cache size, all running cluster nodes will automatically update their own configuration files in their respective home directories. However, if a cluster node is not running when an administrator adjusts a cache size, the /config/confluence-coherence-cache-config-clustered.xml file in its home directory will not be updated. Since cluster caches are configured by the first node to start, if a node with an outdated cache configuration is the first to start up, the whole cluster would end up using the configuration of that node. However, copying this file from one node to another would resolve this issue.

Performance Tuning

If you need to tune your application when under high usage, you may like to review this document for suggestions.

Related Topics

No content found for label(s) system-information.

Confluence Data Directory Configuration

Here is a link listing important Confluence files.

The home directory defines the location of the directory where Confluence will store its data, including attachments, indexes and backups. Administrators can set this location by defining a value for the file <MY-INSTALL>/confluence/WEB-INF/classes/confluence-init.properties. To find what your home directory is currently set to, open this file and check the confluence.home property. It is unset on new installations.

Windows Configuration

On Windows, this path:

C:\confluence\data

will be written like so:

confluence.home=C:/confluence/data

Note that all backslashes (\) are written as forward slashes (/).

Linux/Solaris Configuration

On any Linux-based system, the property is defined using the normal directory syntax:

confluence.home=/var/confluence/

Symbolic links

If your confluence.home directory contains a symbolic link, you must define the absolute path.

Fixing the Confluence Configuration
The Confluence configuration file: `confluence-cfg.xml` inside the home directory may contain references to the original location of your Confluence home. You will need to edit this file to update these references to also point to the new location. The two properties in this file that need to change are:

- `daily.backup.dir` if you have not configured your backups to be placed elsewhere already
- `hibernate.connection.url` if you are using the embedded HSQL database.

Content Index Administration

The content indexes power Confluence's search functionality. They are also used for a number of related functions such as building email threads in the mail archive, the `space activity` feature and lists of recently-updated content. The Gliffy plugin also uses them for some of its functionality.

For reasons of efficiency, Confluence does not immediately add content to the index. New and modified Confluence content is first placed in a queue and the queue is processed once every minute (by default).

On this page:

- Viewing the Content Index Summary
- Rebuilding the Content Indexes
- Slow Reindexing
- Viewing the Index Browser
- More Hints and Tips

Viewing the Content Index Summary

To see information about your Confluence instance's content indexing,

1. Go to the Confluence 'Administration Console':
   - Choose `Browse > Confluence Admin`. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click `Confirm`. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click ‘Content Indexing’ under the heading ‘Administration’ in the left-hand panel.

Screenshot: Index summary

Rebuilding the Content Indexes
The content indexes are maintained automatically, but you may need to rebuild one or both of them manually under circumstances such as these:

- Your searching and mail threading are malfunctioning. (Rebuild the Search Index.)
- The Did You Mean feature is malfunctioning. (Rebuild the Did You Mean Index.)
- After an upgrade. If a content re-index is required after an upgrade, it will be noted in an upgrade subsection of the relevant Release Notes.

In new Confluence installations, the 'Did You Mean' feature is not initially activated. To activate it, you first need to build its index by clicking its 'Build' button on this page.

To rebuild either of the content indexes,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Content Indexing' under the heading 'Administration' in the left-hand panel.
3. Click the 'Rebuild' button in either the 'Search Index' or 'Did You Mean Index' sections on this page, depending on the particular index you want to rebuild.

   - If one of these indexes has not yet been built, its button will indicate 'Build' instead of 'Rebuild).
   - As shown in the image below, only one index can be (re)built at a time.

颚

Screenshot: Content Indexing

Search Index

The search index allows searching of Confluence content. If you are having troubles with search, you may need to rebuild the search index. Please note, rebuilding the search index can severely affect the performance of your instance - it can take hours for some large instances.

IN PROGRESS...

Did You Mean Index

You will need to build this index to make 'Did You Mean' work. After this has finished, 'Did You Mean' will be active. You cannot close and reopen this page until 'Did You Mean' has been activated. Did You Mean index build temporarily disabled while Search Index build is in progress.

Build

Slow Reindexing

Does the reindexing take a long time to complete? The length of time depends on the following factors:

- Number of pages in your Confluence instance.
- Number, type and size of attachments.
- Amount of memory allocated to Confluence.
It may help to increase the heap memory allocation of Confluence by following the instructions in the JIRA documentation.

If you are running an older version of Confluence and find that the index rebuild is not progressing, you may need to shut down Confluence, and restart it with the following Java system property set: `bucket.indexing.threads.fixed=1`. This will cause the re-indexing to happen in a single thread and be much more stable (but slower).

**Viewing the Index Browser**

Confluence uses a search engine called Lucene. If you need to see more details of the indexed pages in your Confluence site, you can download and run Luke. Luke is a development and diagnostic tool that accesses existing Lucene indexes and allows you to display and modify their content in several ways.

Start Luke and use it to open the index directory, located in your Confluence Home directory. For example:

```
c:\confluence\data\confluence-home\index
```

**More Hints and Tips**

- If you are still experiencing problems after performing the above rebuild, the next step might be to remove the index and rebuild it from scratch.
  - The space activity feature uses the index to store data. If you remove the index file, the existing activity data will disappear.
- A tip for the development community: If you have the Confluence source, you can look for references to the SmartListManager to find the screens and lists that rely on the content index.

**Finding Unused Spaces**

Sometimes, you want to know what is not being used. It's great to know what's getting most attention, but what about stagnant pages, or even entire spaces that are no longer active?

While viewing space activity can provide hints, it doesn't always provide enough detail. The simple way is to go directly to the database. We recommend DbVisualizer, and have basic instructions for connecting it to HSQLDB.

The following query identifies the last date on which content was modified in each space within a single Confluence instance:

```sql
SELECT spaces.spacename, MAX(content.lastmoddate) 
FROM content, spaces 
WHERE content.spaceid = spaces.spaceid 
GROUP BY spaces.spacename;
```

It returns a list of spacenames, and the last date and time at which any content was added or changed.

Alternatively, this one simply identifies spaces whose content hasn't changed since a specified date:

```sql
SELECT spaces.spacename 
FROM content, spaces 
WHERE content.spaceid = spaces.spaceid 
GROUP BY spaces.spacename 
HAVING MAX(content.lastmoddate) < '2006-10-10';
```

The result is a simple list of space names.

It's also possible to present the information in a wiki page, using the SQL plugin, which can be installed using the Plugin Exchange. You'll also need to define a database resource in `conf/server.xml` and `confluence/WEB-INF/web.xml`, as described here. Having done so, you can use wiki markup code like the following, replacing `confluenceDb` with the name of your own local datasource:
Space activity

```
{sql: dataSource=confluenceDS|output=wiki}
SELECT spaces.spacename AS Space, MAX(content.lastmoddate) AS LastModified
FROM content, spaces
WHERE content.spaceid = spaces.spaceid
GROUP BY Space;
{sql}
```

The result will be something like this:

<table>
<thead>
<tr>
<th>Space</th>
<th>LastModified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>2007-10-11 11:34:04.914</td>
</tr>
</tbody>
</table>

You can try the Chart plugin in combination with the SQL plugin to give more visually attractive results.

## Important Directories and Files

### The Installation Directory

The 'Confluence Installation directory' is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the 'Confluence Install directory'.

### Important Files and Directories

- **confluence/WEB-INF/classes/confluence-init.properties**: This file tells Confluence where to find the Confluence Home Directory. This file is modified by the administrator when installing Confluence.
- **confluence/WEB-INF/classes/osuser.xml**: This file is modified when connecting Confluence to an external user management system such as an LDAP server or JIRA instance in Confluence 2.0 and earlier. For more information, refer to Understanding User Management in Confluence.
- **confluence/WEB-INF/classes/atlassian-user.xml**: This file is modified when connecting Confluence to an external user management system such as an LDAP server or Crowd. For more information, refer to Understanding User Management in Confluence.
- **confluence/WEB-INF/lib/**: This directory is used when deploying plugins, especially those plugins that cannot automatically be loaded through the Administration Console.
- **confluence/WEB-INF/classes/log4j.properties**: Confluence's logging configuration file. See Working with Confluence Logs.
- **confluence/WEB-INF/classes/ehcache.xml**: This is where you can configure the size of Confluence's internal caches
- **confluence/WEB-INF/classes/styles/site-css.vm**: Confluence's main stylesheet, modify at your own risk
- **conf/server.xml**: SSL configuration.

### Memory Settings

The file used to edit JAVA_OPTS memory settings will depend on the method used to install Confluence, as well as the operating system used for your installation.

- **Windows Users**
  - Confluence Standalone — bin/setenv.bat
  - Confluence Installer — wrapperwin32.conf
- **Mac/Linux Users**
  - Confluence Standalone — bin/setenv.sh
  - Confluence Installer — wrapperosx.conf

### The Temp Directory

The temp directory is configured in the Java runtime and some Confluence components write temporary files or lockfiles into this directory. Typically, this directory is /tmp on Linux systems, or C:\Temp on Windows.

To change the location of this directory, you should start the Java Virtual Machine in which confluence is running with the argument:

```
-Djava.io.tmpdir=/path/to/your/own/temp/directory
```

### The Confluence Home Directory
The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.

Tip: Another term for ‘Home directory’ would be ‘data directory’.

Administrators can expect the Confluence Home Directory to grow quite large in a busy site.

The location of this directory is configured by the system administrator during installation (see confluence-init.properties above).

**Important Files and Directories**

- **confluence.cfg.xml**: Confluence's core configuration file; includes the configuration for connecting to its database.
- **default-formatting.properties**: Some auxiliary configuration data concerning default number and date formats.
- **attachments/**: All file attachments in the Confluence site are stored under this directory. This is the only place Confluence keeps attachment files.
- **backups/**: If Confluence is configured to produce daily backups, these are kept in this directory. Administrators should occasionally delete old or unwanted backups from this directory to prevent it from growing too large.
- **config/**: Miscellaneous global and per-space configuration files are kept in this directory.
- **database/**: If Confluence is being run from the embedded HSQL database, the database files will be kept in this directory.
- **index/**: The full-text search index is kept in this directory. Removing or modifying files in this directory may cause search to no longer function. Rebuilding the search index from Confluence's global administration screen will completely regenerate the contents of this directory.
- **plugins/**: Dynamically uploaded plugins are stored in this directory. Administrators can install new plugins by copying them into this directory and triggering a scan from the plugin management page.
- **temp/**: Confluence stores temporary files in this directory, especially during backups and exports. A daily job within Confluence deletes files that are no longer needed.
- **thumbnails/**: Stores temporary files for image thumbnails. The contents of this directory can be safely deleted, as Confluence will regenerate thumbnails as required.
- **velocity/**: Storage for customised page layouts, globally and per-space.

**Database**

All other data — page contents, links, archived mail and so on — is kept in the database. If you have configured Confluence to use the embedded HSQL database, the database will store its files under `database/` in the Confluence Home Directory. Otherwise, the database management system you are connecting to is responsible for where and how your remaining data is stored.

**Tip**

All of Confluence's persistent data is stored either in the Confluence Home Directory, or the database. If you have backup copies of both of these, taken at the same time, you will be able to restore Confluence from them (see Restoring Data from other Backups).

**RELATED TOPICS**

Confluence Home Directory
Confluence Installation Directory
The Embedded HSQLDB Database
Database Configuration

---

**Confluence Home Directory**

Often in the documentation, you'll see a reference to the 'Confluence Home directory'.

**What is the Confluence Home Directory?**

The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.

Tip: Another term for ‘Home directory’ would be ‘data directory’.

**Finding the Confluence Home Directory**

The location of the Confluence Home directory is defined when you install Confluence. This location is stored in a configuration file called confluence-init.properties, which is located inside the confluence/WEB-INF/classes directory in your Confluence Installation directory.

When Confluence first starts up, it reads the confluence-init.properties file to determine where to look for the Home directory.

Once Confluence is running you can find the Confluence Home directory via the Administration console, under Administration > System Information > Confluence Information - Confluence Home.
Content of the Confluence Home Directory

The Confluence home directory contains some of the configuration data used by Confluence. Other data is stored in the database. This section outlines the purpose of the files and directories in the Confluence home directory.

**confluence.cfg.xml**

This file contains all of the information necessary for Confluence to start up, such as:

- Product license
- Context path
- Database details, such as location and connection pool settings
- Paths to important directories

**attachments**

This directory contains every version of each attachment stored in Confluence. This directory is not used when Confluence is configured to store attachments in the database. Attachments are always stored in the database in clustered instances of Confluence.

Paths within this directory have the following structure:

```
/attachments/PAGE_ID/ATTACHMENT_ID/VERSION
```

You can specify an alternative directory for attachment storage by setting the `attachments.dir` property in `confluence.cfg.xml`.

**backups**

Confluence will place its daily backup archives in this directory, as well as any manually generated backups. Backup files in this directory take the following form:

```
daily-backup-YYYY_MM_DD.zip
```

You can specify an alternative directory for backups by setting the `daily.backup.dir` property in `confluence.cfg.xml`.

**bundled-plugins**

Confluence ships with a set of bundled plugins. These are plugins written by the Atlassian and the Confluence community that we think bundled provide useful and broadly applicable functionality in Confluence. The `bundled-plugins` directory is where Confluence will unpack its bundled plugins when it starts up. This directory is refreshed on every restart, so removing a plugin from this directory will not uninstall the plugin. It will simply be replaced the next time Confluence starts up.

**database**

This is where Confluence stores its database when configured to run with the HSQL embedded database. In such cases this directory contains all Confluence runtime data. Installations configured to run using an external database such as MySQL will not use this directory.

**index**

This is where Confluence stores its indexes for rapid retrieval of often used data. The Confluence index is used heavily by the application for content searching and recently updated lists and as such is critical for a running Confluence instance. It is important to note however that should the data in this directory be lost or corrupted, it can be restored by running a full reindex from within Confluence. This can take a long time depending on how much data is stored Confluence's database.

An alternative directory may be specified for the index by setting the `lucene.index.dir` property in `confluence.cfg.xml`. As this is the most heavily accessed directory in the Confluence home directory you might want to consider hosting it on the fastest disk available. It would also be useful if the disk holding the Confluence index was not heavily used by any other application to reduce access contention.

**plugin-cache**

All Confluence plugins are stored in the Confluence database. To allow for quicker access to classes contained within the plugin JARs, Confluence will cache these plugins in the `plugin-cache` directory. This directory is updated as plugins are installed and uninstalled from the system and is completely repopulated from the database every time Confluence is restarted. Removing plugins from this directory does not uninstall them.

**resources**

The `resources` directory stores any space logos used in your Confluence instance. For each space with a space logo, there is a directory within `resources` named after the space's key. That directory contains the space's logo.
**temp**

The `temp` directory is used for various runtime functions such as exporting, importing, file upload and indexing. As the name suggests, and file in this directory is of temporary importance and is only used during runtime. This directory can be safely emptied when Confluence is offline.

An alternative directory may be specified for temporary data by setting the `webwork.multipart.saveDir` property in `confluence.cfg.xml`.

**thumbnails**

When Confluence generates a thumbnail of an image (for example when the `gallery` macro is used), the resulting thumbnail is stored in this directory for quicker retrieval on subsequent accesses. This directory is essentially a thumbnail cache, and deleting files from this directory simply means the thumbnail will have to be regenerated on the next access.

**RELATED TOPICS**

Confluence Installation Directory
Important Directories and Files
The Embedded HSQLDB Database

**Confluence Installation Directory**

The 'Confluence Installation directory' is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the 'Confluence Install directory'.

**RELATED TOPICS**

Confluence Home Directory
Important Directories and Files

**Installing a Language Pack**

Confluence ships with a number of bundled language packs. These languages appear as options on the 'Language Configuration' screen in the Administration Console when choosing a default language and as 'Language' options for users in their user settings. You can make additional languages available for selection by installing language packs. Please note, you must be a Confluence administrator to install a language pack.

Language packs are plugins. The process of installing a language pack is the same as installing a new plugin.

**Installing a Language Pack using the Plugin Manager**

To install a language pack using the plugin manager:

1. Click 'Plugins' in the Confluence Administration Console.
2. Click 'Install'.
3. Locate the language pack and install it via the plugin manager interface.

**Installing a Language Pack Manually**

To install a language pack manually, you will need to upload the language pack plugin as described below. The language pack plugin will be enabled by default once you have installed it.

Plugins are distributed as a jar file. To install a plugin:

1. In the 'Administration' section of Confluence, click Plugins.
2. Use Browse to find the plugin jar you wish to install from your hard drive or network location, and select it.
3. Click Upload.
4. The plugin will be uploaded to Confluence and will be automatically installed.
5. Check the 'Plugin Administration' screen to ensure that the plugin is available.
6. Enable the plugin if necessary. (Some plugins will be enabled by default when they are installed. Others will have to be manually enabled from the 'Plugin Administration' screen.)

**Notes**

- Finding more language packs. You can download official language packs from the Atlassian Plugin Exchange. You can also download language packs developed by the Confluence user community from the Language Pack Translations page.

**RELATED TOPICS**

Choosing a Default Language
Configuring Indexing Language
Installing a Plugin
Site Backup and Restore

Atlassian suggests establishing a backup strategy using a native database tool for a production instance of Confluence.

By default, Confluence backs up all data and attachments once a day to a backup file. These files are called XML site backups, and are stored in the backups directory of Confluence home. You can also create XML site backups manually. This mechanism is intended for small to medium-sized deployments of Confluence. It is not intended for use with large deployments with lots of pages and attachments (see below).

- Restore your site from an XML site backup
- Manually create an XML site backup
- Configuring Backups
- User Submitted Backup & Restore Scripts

XML site backups are fine for most small to medium-sized instances of Confluence, containing a few thousand pages and attachments. However, large instances of Confluence may find that backups become slow to create and use large amounts of disk space.

Backups For Large Instances

XML site backups are unsuitable for instances of Confluence that contain thousands of pages, as XML backups take progressively longer to complete as the amount of text increases. Another issue with XML site backups is that Confluence instances with gigabytes of attachments will consume disk space rapidly. This is because each site backup contains all content needed for a site restore. For example, if a 1 GB instance of Confluence is backed up daily, it will create 30 GB of backups per month if left unattended. When administering a large instance, you can reduce disk space by setting XML site backups to exclude attachments, then manually scheduling a backup of your attachments from the Confluence home directory or database. The backup manager can save space by saving changed files instead of all content.

<table>
<thead>
<tr>
<th>Creation Delay</th>
<th>Disk Usage</th>
<th>Recommended Backup Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable</td>
<td>Acceptable</td>
<td>XML site backup with attachments</td>
</tr>
<tr>
<td>Acceptable</td>
<td>Unacceptable</td>
<td>XML site backup minus attachments, plus manual backup of attachments</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>Unacceptable</td>
<td>Manual backup of database and attachments</td>
</tr>
</tbody>
</table>

Creation Delay is the time it takes to create an XML site backup minus attachments.

Disk Usage can be estimated by multiplying the frequency of your XML site backups by their current size.

Manual Backups

Confluence’s attachment storage configuration can be set to store attachments in the Confluence home directory, or in the database.

Database Backup

Use your Database Administration Tool to create a backup of your Confluence database. If your database is storing your attachments, importing this later will restore all content. For instances with big attachments, please note that currently Confluence migrate attachments in a single transaction: CONF-9888.

Attachment Backup

If stored on the filesystem, attachments are placed under the attachments directory of your Confluence home directory. Copy this directory to create a backup of all attachments.

To restore from these backups, please refer to Restoring Data from other Backups.

Related Topics

Production Backup Strategy
Backup FAQ

Production Backup Strategy

Confluence’s Built-in Backup

Confluence automatic daily XML backup is ideal if you:

- are evaluating Confluence
- do not have database administration familiarity, and your Confluence installation is small

Once your Confluence installation reaches more than a few thousand pages, the XML backup facility can be inefficient compared to your database's own backup tools.
Establishing a Production System Backup Solution

The built in backup functionality in Confluence requires a lot of memory to run and is less reliable when restoring. Atlassian recommends establishing an alternative database backup strategy:

- Create a backup or dump of your database using tools provided by your database
- Create a file system backup of your Confluence home directory

Once this is in place, disable the daily backups through the scheduled jobs feature via Administration Console > Administration > Scheduled Jobs.

We want to stress that creating these two backups is better than having a Confluence XML backup. It's more robust and far more reliable for large production instances. You will be able to restore your whole site, including all data, attachments and configuration information intact with these two backups. We have written up a document on how to do this here.

Step by step instructions

Take a look a the Migrating Confluence Between Servers document for instructions on restoring a backup using this technique.

Other processes

XML backups are described and used for other processes in Confluence, like upgrading and moving servers. Using the backup strategy described here will work for those processes. Our upgrade guide does not require the use of an xml backup (an old upgrade procedure, and the JIRA upgrade guide use XML backups for upgrading), and our migrate server procedure - used to set up a test server - can leverage an sql dump as well.

The only process that requires the XML backup is the database migration procedure. Large data sets will require third party database migration tools.

RELATED TOPICS

Site Backup and Restore
Backup FAQ

Configuring Backups

Confluence backs up your data regularly into a zipped XML file. By default, this backup is performed at 2.00 a.m. each day and the backup files are stored in the backups folder under the Confluence Home directory. The default naming convention for the backup files is "backup-yyyy_MM_dd". Confluence can write backups to both local and mapped network drives.

From the Backup Administration section of Confluence's administration console, you can:

- Include or exclude attachments in backups.
- Configure a different path to store backup files. (By default, this option is not available. See below for information about enabling the configuration option.)
- Change the naming format used for the files.

You can also change the schedule of this backup using Confluence's scheduled jobs feature.

You need to have System Administrator permissions in order to configure these options.

On this page:

- Configuring Confluence Backups
- Enabling Backup Path Configuration
- Notes

Configuring Confluence Backups

To configure Confluence backups:

1. Go to the Confluence 'Administration Console':
   
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click Backup Administration in the 'Configuration' section.
3. Click the 'Edit' button on the 'Backup Administration' screen.
4. Now you can do the following:
   - To specify an alternate path to store backup files — Select 'Custom' and then enter the path. The directory must be on either a local drive or a mounted network drive.

Notes:
By default, this option is not available. See below for information about enabling the configuration option.

- Please ensure the mapped drive is on a physical server, not a Virtual Machine image.
- To exclude attachments from backups — Select 'Off' beside 'Backup Attachments'. By default, this feature is 'On'.
- To use a different naming prefix format — Enter the new format in the 'Backup File Prefix' input field.
- To use a different date format — Enter the date format in the 'Backup File Date Pattern' input field using the syntax described in this document from Sun.

5. 'Save' your changes.

You can disable Confluence backups through the scheduled jobs feature.

Enabling Backup Path Configuration

By default, it is not possible to specify a backup path via the Confluence Administration Console. This feature is disabled by default for security reasons. Administrators can restore this functionality by updating the relevant configuration property as described below. However, we recommend that you turn the feature off in production environments.

To enable the configuration option:

1. Edit the file found in the Confluence Home directory.
2. Set the value of property admin.ui.allow.daily.backup.custom.location to 'true' (without the quotation marks).
3. Restart Confluence.

If the value of the above configuration property is 'true', it will be possible to specify a backup path via the Confluence Administration Console. If the value of this property is 'false' or the property is not present in the configuration file, the backup path is not configurable.

Notes

Time is derived from the Confluence server

The time zone is taken from the server on which Confluence is running.

To check the time according to the server, do the following:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'System Information' in the left-hand panel and look at the 'System Time'.

Backup strategy for large Confluence sites

Consider using the production backup strategy if your Confluence site is large or you are encountering problems with your automated backup.

RELATED TOPICS

No content found for label(s) daily-backup.

User Submitted Backup & Restore Scripts

These scripts are user-submitted and should be used with caution as they are not covered by Atlassian technical support. If you have questions on how to use or modify these scripts, please post them to Atlassian Answers. Feel free to submit new scripts or post updates by logging in and adding them to the page as a comment.
Delete Old Backups - Wscript Script On Windows

This script examines backup filename and deletes them if necessary, it may need to be edited.

```vbscript
'dtymYesterday = Date - 3
strYear = Year(dtmYesterday)
strMonth = Month(dtmYesterday)
If Len(strMonth) = 1 Then
  strMonth = "0" & strMonth
End If
strDay = Day(dtmYesterday)
If Len(strDay) = 1 Then
  strDay = "0" & strDay
End If
strYesterday = strYear & "-" & strMonth & "-" & strDay
strFileName = "C:\test*." & strYesterday & "-*"
Set objFSO = CreateObject("Scripting.FileSystemObject")
objFSO.DeleteFile(strFileName)
```

Delete Old Backups - Basic Bash Script For Linux

Old XML backups can be deleted automatically by inserting a nightly or weekly automation script or cron similar to the following:

```bash
ls -t <path to your backup dir>/* | tail -n +6 | xargs -i rm {}
```

Or, using the older form of the `tail` command if your system does not support the standard form:

```bash
ls -t <path to your backup dir>/* | tail +6 | xargs -i rm {}
```

Delete Old Backups - Advanced Bash Script For Linux

Old XML backups can be deleted automatically by inserting a nightly or weekly automation script or cron similar to the following. Set the `BACKUP_DIR` and `DAYS_TO_RETAIN` variables to appropriate values for your site. Between runs, more files than `DAYS_TO_RETAIN` builds up.

```bash
#!/bin/sh

# Script to remove the older Confluence backup files.
# Currently we retain at least the last two weeks worth
# of backup files in order to restore if needed.
BACKUP_DIR="/data/web/confluence/backups"
DAYS_TO_RETAIN=14

find $BACKUP_DIR -maxdepth 1 -type f -ctime +$DAYS_TO_RETAIN -delete
```

Manual Database & Home Backup - Bash Script For Linux

This backs up a mySQL database and the Confluence home directory.
#!/bin/bash
CNFL=/var/confluence
CNFL_BACKUP=/backup/cnflBackup/`date +%Y%m%d-%H%M%S`
rm -rf $CNFL/temp/*
mkdir $CNFL_BACKUP
mysqldump -uroot -p<password> confluence|gzip > $CNFL_BACKUP/confluence.mysql.data.gz
tar -cjvf $CNFL_BACKUP/data.bzip $CNFL > $CNFL_BACKUP/homedir.status

Backup by Date - Postgres

export d=`date +%u`
mkdir -p /home/backup/postgres/$d
sudo -u postgres pg_dumpall | bzip2 > /home/backup/postgres/$d/sql.bz2

Related Topics

- Site Backup and Restore
- Backup FAQ

Manually Backing Up The Site

Confluence is configured to back up its data. A System Administrator can also manually perform this back up from the Administration Console.

ℹ️ You need to have System Administrator permissions in order to perform this function.

✅ Consider an Production backup strategy if your Confluence site is large or you are encountering problems with your automated backup.

Creating the Site Backup

To manually back up your site,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Backup & Restore' in the 'Administration' section of the left-hand panel.
3. Select 'Archive to backups folder' to store a copy of the backup in the same folder as Confluence's backups. (If you do not archive the backup it will be made available for you to download, and then deleted from the server after 24 hours).
4. Select 'Backup attachments' to include attachments in your backup.
5. Click 'Backup'.

ℹ️ Please note that this process will take a few minutes.

✅ If you are running Confluence behind Apache and are facing timeout errors, please consider creating the export directly from Tomcat, instead of going through Apache. This will speed up the process and prevent timeouts.

Retrieving the Backup File

Confluence stores the backup as a zipped XML file in the 'backups' directory under the Confluence Home directory on your Confluence server. To find your Confluence Home directory, see the documentation. You will need access to the Confluence server in order to retrieve this file.

Enabling the Download of the Backup File via the Administration Console
By default, it is not possible to retrieve the backup file via the Confluence Administration Console. This feature is disabled for security reasons.

Administrators can enable this functionality by updating the relevant configuration property as described below. When enabled, you will be prompted to download the backup file when the backup process finished. However, we recommend that you turn the feature off in production environments.

**To enable download of the backup file from the Administration Console,**

1. Edit the `confluence.cfg.xml` file found in the **Confluence Home directory**. 
2. Set the value of property `admin.ui.allow.manual.backup.download` to 'true' (without the quotation marks). 
3. Restart Confluence.

If the value of the above configuration property is 'true', it will be possible to download the backup file after manually backing up the site via the Confluence Administration Console. If the value of this property is 'false' or the property is not present in the configuration file, you will need to retrieve the backup file from the file system on the Confluence server. By default, the value is 'false'.

**RELATED TOPICS**

No content found for label(s) daily-backup.

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**Migrating Confluence Between Servers**

**On this page:**

- Introduction
- How to Create a Test or Development Instance
- Transferring Confluence To Another Server Using The Same Operating System
  - Using database tools (preferred option)
  - Using XML data backups (only for small to medium sized installations)
- Transferring Confluence To Another Server Using a Different Operating System
  - Ensuring no contact with production systems
    - Merging instances
- Migrating from HTTPS to HTTP

**Introduction**

This page describes how to move Confluence between physical servers. It is distinct from other functions. It does not cover database migration, application server migration, or upgrading. Atlassian suggests doing each of these steps separately. See also:

- Upgrading Confluence
- Migrate to Another Database
- Switching to Apache Tomcat

**How to Create a Test or Development Instance**

Administrators may need to move a Confluence instance from one server to another for upgrades or downtime. This page tells you how to copy a Confluence instance from one server to another. For example, you may want to transfer your current production snapshot to a test server as permitted in the licence agreement.

**Development licenses are available for any Commercial or Academic license. Create one or contact Atlassian for help.**

Avoid upgrades while transferring

If you are planning to switch databases, application servers or Confluence versions, firstly perform the application transfer in isolation, and test that it was successful before making other changes.

**Transferring Confluence To Another Server Using The Same Operating System**

If the operating systems on both servers are the same, then the home and install folders can be copied straight into an identical external database and user management setup.

1. On the original server, create zips of the Confluence install and home directories. Copy the zips to the new server.
2. On the new server, unzip the install and home directories. Windows users should avoid unzipping with the Windows built-in extractor, instead use Winzip or the free 7Zip.
3. Modify the location of your war file if need be. If using Tomcat, this is likely in /Conf/Catalina/localhost. You'll want to make sure the docbase attribute is pointing to the right location.

4. This next step is dependent on your database:
   a. Database configuration:
      i. For users of the internal database, the database content is stored inside the home directory. You should switch to an external database after the transfer is successful.
      ii. For external databases stored on another server, change the user account or datasource permissions so that the new server has the same network access permissions as the original. Then confirm from the new server that the hostname can be resolved and is listening for database connections on the expected port.
      iii. For external databases hosted locally (i.e., localhost): on the original server, create a manual database backup using a native db dump backup tool. Copy the database backup to the new server.
   b. On the new server, install or upgrade the database version to match the original server.
   c. Import the database backup.
   d. Add a database user account with the same username and password as the original.
   e. Provide the user with the full access to the imported database.
   f. Use a database administration tool to confirm that the user can login from the localhost.
   g. To modify any database connection information, go to the Confluence home directory and edit confluence.cfg.xml. The connection URL is set under hibernate.connection.url. Ensure it does not point to your production database server.
   h. If you are using internal user management, skip this step. For users who have JIRA or LDAP integration, provide the new server with network or local access to the same hosts as the original. If this is a true test instance, set up a test of your JIRA instance or LDAP server so as not to disrupt production systems and change the server.xml or atlassian-user.xml files to point to the appropriate test servers. Note that it might be acceptable to use a production connection here, as users won't be logging on to the test system in high volume.
      i. If appropriate, make sure no emails are sent out from the test system.
      j. Start Confluence.
      k. Go to Administration > License Details and add your development license key. You can generate one at http://my.atlassian.com. There are more details in Getting a License for a Staging Environment.
      l. If you configured Confluence as a Windows service, repeat those instructions.
   m. Add your development license key.

5. Some customers have experienced problems with Confluence's search functions after performing a migration, or that the content of their [recently-updated] macro is not being updated correctly. Errors in the atlassian-confluence.log file corroborate such problems. Hence, to avoid these issues, it is strongly recommended that you perform a rebuild of your content indices after performing a migration.

Transferring Confluence To Another Server Using a Different Operating System

### Migrating from Windows to Linux

You will need to replace the backslash of the following in confluence.cfg.xml with forward slash:

```xml
<property name="attachments.dir">${confluenceHome}/attachments</property>
<property name="lucene.index.dir">${confluenceHome}/index</property>
<property name="webwork.multipart.saveDir">${confluenceHome}/temp</property>
```

### Using database tools (preferred option)

If you are using the Production backup strategy, follow these steps:

1. Download the proper distribution (the same one you have from your original instance) from the Download Archive.
2. Copy your Confluence home (not install) directory from your original server (even if it was a different OS).
3. If you are changing the location of the home directory, open the Confluence installer/web-INF/classes directory and edit confluence-init.properties by changing the line starting with "confluence.home=".
4. For external databases stored locally, on the original server, create a manual database backup using a native db dump backup tool.
5. Copy the database backup to the new server.
6. On the new server, install or upgrade the database version to match the original server.
7. Import the database backup.
8. Add a database user account with the same username and password as the original.
9. Provide the user with the full access to the imported database.
10. Use a database administration tool to confirm that the user can login from the localhost.
11. To modify any database connection information, go to the Confluence home directory and edit confluence.cfg.xml. The connection URL is set under hibernate.connection.url. Ensure it does not point to your production database server.
12. If you are using internal user management, skip this step. For users who have JIRA or LDAP integration, provide the new server with network or local access to the same hosts as the original.
13. Copy server.xml, atlassian-user.xml, osuser.xml, any patches, and any other customized files velocity or properties files. If you are
using internal user management, skip this step. For users who have JIRA or LDAP integration, provide the new server with network or local access to the same hosts as the original. If this is a true test instance, set up a test of your JIRA instance or LDAP server so as not to disrupt production systems and change the server.xml or atlassian-user.xml files to point to the appropriate test servers. Note that it might be acceptable to use a production connection here, as users won’t be logging on to the test system in high volume.

14. If appropriate, make sure no emails are sent out from the test system.

15. Start Confluence.

16. Go to Administration > License Details and add your development license key. You can generate one at http://my.atlassian.com. There are more details in Getting a License for a Staging Environment.

17. If you configured Confluence as a Windows service, repeat those instructions.

18. Add your development license key.

19. Some customers have experienced problems with Confluence's search functions after performing a migration, or that the content of their [recently-updated] macro is not being updated correctly. Errors in the atlassian-confluence.log file corroborate such problems. Hence, to avoid these issues, it is strongly recommended that you perform a rebuild of your content indices after performing a migration.

**Using XML data backups (only for small to medium sized installations)**

If you’re not yet using the Production backup strategy, you can migrate Confluence to a different server machine by creating an XML data backup as usual, and then importing that to Confluence on the new server.

1. Create an XML data backup from Confluence as follows:
   a. Go to the Confluence 'Administration Console':
      - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
      - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
   b. Select Backup & Restore.
   c. Check the Backup Attachments option and click Backup.

2. Identify the version of Confluence that you are currently using. This is displayed at the bottom of each Confluence page.

3. Download Confluence to the new server. Get the version of Confluence that you identified above, but for the operating system of the new server. You may be using either the latest Confluence version, or an older version.

4. Install Confluence on the new server.

5. Go to Administration > License Details and add your development license key. You can generate a license at http://my.atlassian.com. You can find more details in Getting a License for a Staging Environment.

6. Restore your XML data backup from Administration > Backup and Restore.

7. If appropriate, make sure that no email contact can be made with the test system.

8. Some customers have experienced problems with Confluence's search functions after performing a migration, or that the content of their [recently-updated] macro is not being updated correctly. Errors in the atlassian-confluence.log file corroborate such problems. Hence, to avoid these issues, it is strongly recommended that you rebuild your content indices after performing a migration.

**Ensuring no contact with production systems**

To ensure no contact with external systems, you will need to disable both inbound and outbound mail services.

1. Disable global outbound mail by running the following database query:

   ```sql
   SELECT * FROM BANDANA WHERE BANDANAKEY = 'atlassian.confluence.smtp.mail.accounts';
   ```

2. Disable space-level mail archiving by running the following database query:

   ```sql
   SELECT * FROM BANDANA WHERE BANDANAKEY = 'atlassian.confluence.space.mailaccounts';
   ```

Change ‘SELECT’ to ‘DELETE’ in the above queries once you are sure you want to remove the specified accounts.

Once this is done, you can start your test instance without any mails being sent or retrieved. Think carefully about other plugins which may access production systems (SQL macro, JIRA macro, etc.). If these write content, or create unwanted load on external systems, they should be disabled promptly after starting the test instance.

**Blog post on Moving Confluence from Windows to Linux**

Ricky Sheaves (calebscreek) has written an interesting blog post on Moving Confluence from Windows to (Ubuntu) Linux.

**Merging instances**

If you wish to merge two instances, you can consider using the remote import plugin. This plugin is currently unsupported. The supported method would be to export a space and then import each space one by one. The two instances of Confluence must be the same version.

**Migrating from HTTPS to HTTP**
You may want to migrate from a server secured by SSL to one which is not secured by SSL. For example, this may be useful if you are copying a Confluence instance from a production to a test site.

To migrate from HTTPS to HTTP, undo the HTTPS-specific settings that are described on this page: Adding SSL for Secure Logins and Page Security.

### Restoring a Site

**CAUTION:** Restoring a backup of an entire Confluence site (consisting of multiple spaces) will:

- Wipe out all Confluence content in the database. Ensure that your database is backed up.
- Log you out after the restore process. Make sure you know your login details contained in the data being restored.

Atlassian suggests establishing the Production Backup Strategy for a production instance of Confluence as Confluence xml backups are not recommended for non-evaluation instances.

Confluence supports **backward compatibility** for site backups. (But not for space backups). You can only successfully restore backups of a site from an older version of Confluence to a newer version of Confluence. For example, if you create a site backup in Confluence 2.4.3, it cannot be restored into a Confluence 2.2.2 instance. It can however, be restored into 2.4.5 or 2.5.x, because 2.4.5 and 2.5.x are newer versions of Confluence.

There are two ways to restore a site from a backup file:

1. **Restore a site from the Confluence Setup Wizard:** This restores the data into a new instance of Confluence.
2. **Restore a site from the Administration Console:** This restores data into the current instance of Confluence.

If your daily backup zips cannot be restored for whatever reason, but you have backups of both your database and your Confluence home directory, then it is still possible to restore from these backups.

**Selective space restore not possible**

You cannot select a single space to restore from the entire site backup when the backup contains more than one space.

**RELATED TOPICS**

No content found for label(s) restoring-data.

---

### Restoring a Space

This page tells you how to import the contents of a Confluence space into another Confluence site, via an XML backup file.

You can **export the content of a space**, including pages, comments and attachments. The process involves converting the data in the space into XML format. The end product is a zip file that contains XML file(s) and optionally, all the attachments in the space. To transfer this data to another Confluence site, you simply restore this zip file as described below.

Confluence will only allow you to restore a space if there is not already a space by that name on the site. If you already have a space with the identical name, you will need to delete or rename the existing space before restoring the new one.
Cannot restore to a different major Confluence release

Confluence only supports forward compatibility and backward compatibility for individual space import and export when executed within the same major version of Confluence instances.

Restoration Data Must Share the Same Major Version Number

This means that a space export created in a newer major version of Confluence cannot be imported into an older major version of Confluence. For example, if you create a space export in Confluence 2.4.5, it cannot be imported into a Confluence 2.2.2 instance. It can be however imported into 2.4.6, (because 2.2.2 and 2.4.5 are two different ‘major’ versions). Similarly, a space export created in 2.2.2 can not be imported into 2.4.5. However, it can be restored in 2.2.10 (since 2.2.2 and 2.2.10 belong to the same major version release).

If such an operation is carried out, an error message similar to the one below will be displayed and the import action will be stopped.

Screenshot: Major Version Clash on Space Restore

The following error(s) occurred:

• Restore denied. You can only restore space backups exported from the same major version (e.g. 2.2.x or 2.3.x).

Workaround for restoring Spaces between Major Releases

You'll need to set up a test server, download and install the same version of confluence as the version you exported the space from, then import the space into this test server. Next upgrade Confluence on your test installation so it's the right major version so that you can perform the export and import this space into your production confluence successfully.

Otherwise, you can try to Change the version of the space export, but please try this on a test instance as well.

You need to have System Administrator permissions in order to perform this function.

To restore a space,

1. Go to the Confluence 'Administration Console':
   • Choose Browse ➔ Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select ‘Backup and Restore’ in the ‘Administration’ section of the left-hand panel.

You can restore data in one of two ways:

1. Upload a zipped backup to Confluence:
   • Browse for the backup file.
   • Uncheck ‘Build Index’ if you want to create the index at a later stage.
   • Click ‘Upload and Restore’.

2. Restore a backup from the file system:
   • Select the backup file from the form field displayed. If you do not see your backup file, make you sure that it has been copied into the
     /opt/java/src/confluence/deployments/conf.atlassian.com/home/restore directory.
   • Uncheck ‘Build Index’ if you want to create the index at a later stage.
   • Click ‘Restore’.

Changing the version of a space backup

Confluence prevents the import of space backups which aren't from the same major version. The reason for this is that any schema change between the export and imported version of Confluence will cause the import to fail, leaving you with an incomplete import. Even worse, the failure can be database-dependent, so it may work fine on one particular database but your backup will fail to import later.

Do not import a modified space backup on a production server. Import the modified space backup on a test server, then export from the test server to create a pristine space backup for the new version.
To change the version of a space backup, do the following:

- extract the space backup ZIP file
- edit `exportDescriptor.properties` in a text editor
- change the buildNumber to the buildNumber of the Confluence version you wish to import into
- zip up the modified contents of the backup into a ZIP file again.

This will allow you to import a backup into a test instance of Confluence. After checking the imported space for errors, export it cleanly from the test server and import the fresh backup into your production server.

If your import fails on the test server due to Hibernate errors, this indicates a schema incompatibility and cannot be worked around. You will need to restore your entire site on an old version of Confluence, and export the space from there. See the last section of Restoring a space for details.

## Restoring a Test Instance from Production

See Migrating Confluence Between Servers for a more comprehensive explanation.

Many Confluence administrators will have a production instance running the "live" version of Confluence, as well as a test instance for testing upgrades and so on. In this situation, it's quite common that the two instances are running different versions of Confluence. This document describes how to copy the data from a production instance to a test instance, where the production version may be different to the test version.

Before proceeding with this guide, ensure you have read and understood the normal procedure for upgrading Confluence.

### Upgrading a test Confluence instance with production data

Essentially, we are copying both the production home directory and database to the test instance. We then update the database details on the test instance to point to the test database, leaving all other instance metadata (most importantly the Confluence build number) the same as production.

1. Shut down your test instance.
2. Restore the production database to the test database server.
3. Create a backup of the `confluence.cfg.xml` file found in the home directory of the test instance.
4. Copy the production confluence-home directory to the test application server.
5. Open the `confluence.cfg.xml` which has been copied in a text editor. Change the database settings to match the test database server. **Ensure you do not point to your production database.** (You can compare with the backup you made in Step 3 if you need to get the database settings. Don't just copy this file – you need the build number unchanged from production to indicate the database is from an older version of Confluence.)

Before starting your test instance, you need to do the following steps to ensure no contact with production systems.

### Ensuring no contact with production systems

To ensure no contact with external systems, you will need to disable both inbound and outbound mail services.

1. Disable global outbound mail by running the following database query:

   ```sql
   SELECT * FROM BANDANA WHERE BANDANAKEY = 'atlassian.confluence.smtp.mail.accounts';
   ```

2. Disable space-level mail archiving by running the following database query:

   ```sql
   SELECT * FROM BANDANA WHERE BANDANAKEY = 'atlassian.confluence.space.mailaccounts';
   ```

   Change the 'SELECT *' to a 'DELETE' in the above queries once you are sure you want to remove the specified accounts.

   Once this is done, you can start your test instance without any mails being sent or retrieved. Think carefully about other plugins which may access production systems (SQL macro, etc.). These should be disabled promptly after starting the test instance.

   You can create a developer license for this server and update the License Details after starting up.

### See also

- Upgrading Confluence
- Migrating Confluence Between Servers
- Restoring to a Test Instance of Confluence from Production

## Restoring Data from other Backups
Typically, Confluence data is restored from the Administration Console or from the Confluence Setup Wizard.

If you are experiencing problems restoring from an zipped XML backup file, it is still possible to restore provided you have:

1. A backup of your home directory.
2. A backup of your database (if you're using an external database).

Instructions for this method of restoring differ depending on whether you are using the embedded database or an external database (like Oracle, MS SQL Server, MySQL or Postgres).

Embedded Database

If you are running against the embedded database, the database is located inside the database folder of your Confluence Home Directory. Hence, all you need to do is:

1. Retrieve the most recent backup of your home directory.
2. Unpack the Confluence distribution and point the confluence-init.properties file to this directory.

External Database

If you're using an external database, you need to do the following.

1. Prepare backups of your home directory and database (preferably backups that are dated the same). That is, make sure the home directory is accessible on the filesystem and the database available to be connected to.
2. If this database happens to have a different name, or is on a different server, you need to modify the jdbc url in the confluence.cfg.xml file inside the Confluence Home Directory. The value of this property is specified as hibernate.connection.url.
3. Unpack the Confluence distribution and point the confluence-init.properties file to the home directory.

RELATED TOPICS

Important Directories and Files
Migrating to a Different Database

Restoring Data from the Administration Console

Use this option if you want to restore data into your current instance of Confluence. If you want to restore data into a new instance, follow the instructions here.

You need to have System Administrator permissions in order to perform this function.

**CAUTION:** Restoring a backup of an entire Confluence site (consisting of multiple spaces) will do the following:

- Wipe out all Confluence content in the database. Ensure that your database is backed up.
- Log you out after the restore process. Make sure you know your login details contained in the data being restored.

To restore data from backup:

- Go to the Confluence ‘Administration Console’:
  - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
  - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
  - Select ‘Backup and Restore’ in the ‘Administration’ section of the left-hand panel.

You can restore data in one of two ways:

1. **Upload a zipped backup to Confluence:**
   - Browse for the backup file.
   - Uncheck ‘Build Index’ if you want to create the index at a later stage.
   - Click ‘Upload and Restore’.

2. **Restore a backup from the file system:**
   - Select the backup file from the form field displayed. If you do not see your backup file, make sure that it has been copied into the /opt/java/src/confluence/deployments/conf.atlassian.com/home/restore directory.
   - Uncheck ‘Build Index’ if you want to create the index at a later stage.
   - Click ‘Restore’.
Retrieve file attachments from a backup

File attachments on pages can be retrieved from a backup without needing to import the backup into Confluence. This is useful for recovering attachments that have been deleted by users.

Both automated and manual backups allow this, as long as the 'Include attachments' property was set. Users wanting to restore pages, spaces or sites should check out the Confluence Administrator's Guide instead.

Before following the instructions for recovering attachments, please review how backups store file and page information.

How Backups Store File and Page Information

The backup zip file contains entities.xml, an XML file containing the Confluence content, and a directory for storing attachments.

Backup Zip File Structure

Page attachments are stored under the attachments directory by page and attachment id. Here is an example listing:

```
Listing for test-2006033012_00_00.zip
  \attachments\98\10001
  \attachments\98\10002
  \attachments\99\10001
  entities.xml
```

Inside the attachment directory, each numbered directory inside is one page, and the numbered file inside is one attachment. The directory number is the page id, and the file number is the attachment id. For example, the file 'attachments\98\10001 is an attachment with page id 98 and attachment id 10001. You can read entities.xml to link those numbers to the original filename. Entities.xml also links each page id to the page title.

Entities.xml Attachment Object

Inside the entities.xml is an Attachment object written in XML. In this example, the page id is 98, the attachment id is 10001 and the filename is myimportantfile.doc. The rest of the XML can be ignored:

```
<object class="Attachment" package="com.atlassian.confluence.pages">
  <id name="id">98</id>
  <property name="fileName"><![CDATA[myimportantfile.doc]]></property>
  ...
  <property name="content" class="Page" package="com.atlassian.confluence.pages">
    <id name="id">10001</id>
  </property>
  ...
</object>
```

Entities.xml Page Object

This XML describes a page. In this example, the page id is 98 and the title is Editing Your Files. The rest of the XML can be ignored:

```
<object class="Page" package="com.atlassian.confluence.pages">
  <id name="id">98</id>
  <property name="title"><![CDATA[Editing Your Files]]></property>
  ...
</object>
```

Instructions for Recovering Attachments

Each file must be individually renamed and re-uploaded back into Confluence by following the instructions below. Choose one of the three methods:
Choice A - Recover Attachments By Filename

Best if you know each filename you need to restore, especially if you want just a few files:

1. Unzip the backup directory and open entities.xml.
2. Search entities.xml for the filename and find the attachment object with that filename. Locate its page and attachment id.
3. Using the page and attachment id from entities.xml, go to the attachments directory and open that directory with that page id. Locate the file with the attachment id.
4. Rename the file to the original filename and test it.
5. Repeat for each file.
6. To import each file back into Confluence, upload to the original page by attaching the file from within Confluence.

Choice B - Restore Files By Page

Best if you only want to restore attachments for certain pages:

1. Unzip the backup directory and open entities.xml.
2. Search entities.xml for the page title and find the page object with that title. Locate its page id.
3. Go to the attachments directory and open that directory with that page id. Each of the files in the directory is an attachment that must be renamed.
4. Search entities.xml for attachment objects with that page id. Every attachment object for the page will have an attachment id and filename.
5. Rename the file with that attachment id to the original filename and test it.
6. Repeat for each page.
7. To import each file back into Confluence, upload to the original page by attaching the file from within Confluence.

Choice C - Restore All Files

Best if you have a small backup but want to restore many or all the attachments inside:

Following process is applicable to space export only. Site xml backups do not require page id to be updated manually due to the nature of persistent page_id's.

1. Unzip the backup directory and open entities.xml.
2. Go to the attachments directory and open any directory. The directory name is a page id. Each of the files in the directory is an attachment that must be renamed.
3. Search entities.xml for attachment objects with that page id. When one is found, locate the attachment id and filename.
4. Rename the file with that attachment id to the original filename and test it.
5. Find the next attachment id and rename it. Repeat for each file in the directory.
6. Once all files in the current directory are renamed to their original filenames, search entities.xml for the page id, eg directory name. Find the page object with that page id and locate its page title.
7. Rename the directory to the page title and move on to the next directory. Repeat for each un-renamed directory in the attachments directory.
8. To import each file back into Confluence, upload to the original page by attaching the file from within Confluence.

To obtain detailed information about lost attachments, location, name and type of the attachments, you may use the findattachments script

Troubleshooting failed XML site backups

XML site backups are only necessary for migrating to a new database. Setting up a test server or Establishing a reliable backup strategy is better done with an SQL dump.

Seeing an error when creating or importing a backup?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
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<td>Follow instructions below</td>
</tr>
<tr>
<td>Exception while importing backup</td>
<td>Follow Troubleshooting XML backups that fail on restore instead</td>
</tr>
</tbody>
</table>

Resolve Errors With Creating An XML Backup
The errors may be caused by a slightly corrupt database. If you're seeing errors such as `Couldn't backup database data` in your logs, this guide will help you correct the error on your own. We strongly recommend that you backup your database and your Confluence home directory beforehand, so that you can restore your site from those if required. If you are unfamiliar with SQL, we suggest you contact your database administrator for assistance.

**Preferable solution**

The Production Backup Strategy is a very reliable and more efficient way to do backups. If you are running into problems with XML backups - whether memory related or because of problems like the one described here - use the native backup tool as an alternate solution.

**To Identify And Correct The Problem**

To work out where the data corruption or problems are, increase the status information reported during backup, then edit the invalid database entry:

1. Stop Confluence.
2. If you have an external database, use a database administration tool to create a manual database backup.
3. Backup your Confluence home directory. You will be able to restore your whole site using this and the database backup.
4. Open the `log4j.properties` in `my_confluence_install/confluence/WEB-INF/classes/` and add this to the bottom and save:

   ```
   log4j.logger.com.atlassian.confluence.importexport.impl.XMLDatabinder=DEBUG,confuencelog
   log4j.additivity.com.atlassian.confluence.importexport.impl.XMLDatabinder=false
   ```

5. Find your `atlassian-confluence.log`. Move or delete all existing Confluence logs to make it easier to find the relevant logging output.
6. Restart Confluence and login.
7. Begin a backup so that the error reoccurs.
8. You must now check your log files to find out what object could not be converted into XML format. Open `confluence-home/logs/atlassian-confluence.log`. Scroll to the bottom of the file.
9. Do a search for `ObjectNotFoundException`. You should see an error similar to this:

   ```
   01 2005-08-24 00:00:33,743 DEBUG [DOCPRIV2:confluence.importexport.impl.XMLDatabinder]
   Writing object: com.atlassian.confluence.core.ContentPermission with ID: 5 to XML.
   02 2005-08-24 00:00:33,743 DEBUG [DOCPRIV2:confluence.importexport.impl.XMLDatabinder]
   Writing property: type
   03 2005-08-24 00:00:33,743 DEBUG [DOCPRIV2:confluence.importexport.impl.XMLDatabinder]
   Writing property: group
   04 2005-08-24 00:00:33,743 DEBUG [DOCPRIV2:confluence.importexport.impl.XMLDatabinder]
   Writing property: expiry
   05 2005-08-24 00:00:33,743 DEBUG [DOCPRIV2:confluence.importexport.impl.XMLDatabinder]
   Writing property: content
   06 [DOCPRIV2:ERROR] LazyInitializer - Exception initializing proxy
   <net.sf.hibernate.ObjectNotFoundException: No row with the given identifier exists: 2535,
   07 of class:
   com.atlassian.confluence.core.ContentEntityObject>
   net.sf.hibernate.ObjectNotFoundException: No row with the given identifier exists: 2535, of class:
   com.atlassian.confluence.core.ContentEntityObject
   09 at net.sf.hibernate.ObjectNotFoundException.throwIfNull (ObjectNotFoundException.java:24)
   10 at net.sf.hibernate.impl.SessionImpl.immediateLoad (SessionImpl.java:1946)
   11 at net.sf.hibernate.proxy.LazyInitializer.initialize (LazyInitializer.java:53)
   12 at net.sf.hibernate.proxy.LazyInitializer.initializeWrapExceptions (LazyInitializer.java:60)
   13 at net.sf.hibernate.proxy.LazyInitializer.getImplementation (LazyInitializer.java:164)
   14 at net.sf.hibernate.proxy.CGLIBLazyInitializer.intercept (CGLIBLazyInitializer.java:108)
   15 at com.atlassian.confluence.core.ContentEntityObject$%EnhancerByCGLIB$%cc2f5557.hashCode (<generated>)
   16 at java.util.HashMap.hash (HashMap.java:261)
   17 at java.util.HashMap.containsKey (HashMap.java:339)
   18 at com.atlassian.confluence.importexport.impl.XMLDatabinder.toGenericXML (XMLDatabinder.java:155)
   ```

10. Open a DBA tool such as DbVisualizer and connect to your database instance. Scan the table names in the schema. You will have to modify a row in one of these tables.
11. To work out which table, open `catalina.out`, check the first line of the exception. This says there was an error writing the `ContentPermission` object with id 5 into XML. This translates as the row with primary key 5 in the `CONTENTLOCK` table needs fixing. To work out what table an object maps to in the database, here's a rough guide:

   - Pages, blogposts, comments --> CONTENT table
   - attachments --> ATTACHMENTS table
   - More information can be found in the schema documentation
12. Now you must find the primary key of the incorrect row in this table. In this case, you can check the first line and see that the row has a primary key of 5.
13. Each property is written to a column, so the last property that was being written has the incorrect value. The row being written to when the exception was thrown was CONTENT (line 5) with a value of 2535 (line 6). Now you know the column and value. This value 2535 is the id of an entry that no longer exists.
14. Using a database administrative tool, login to the Confluence database. Locate the row in the relevant table and correct the entry. Check other rows in the table for the default column value, which may be null, 0 or blank. Overwrite the invalid row value with the default.
15. Restart Confluence.
16. Attempt the backup again. If the backup fails and you are stuck, please lodge a support request with your latest logs.

Troubleshooting "Duplicate Key" related problems

If you are encountering an error message such as:

could not insert: [bucket.user.propertyset.BucketPropertySetItem#bucket.user.propertyset.BucketPropertySetItem@a70067d3]; SQL []; Violation of PRIMARY KEY constraint 'PK_OS_PROPERTYENTRY314D4EA8'. Cannot insert duplicate key in object 'OS_PROPERTYENTRY'.; nested exception is java.sql.SQLException: Violation of PRIMARY KEY constraint 'PKOS_PROPERTYENTRY_314D4EA8'. Cannot insert duplicate key in object 'OS_PROPERTYENTRY'.

this indicates that the Primary Key constraint 'PK_OS_PROPERTYENTRY_314D4EA8' has duplicate entries in table 'OS_PROPERTYENTRY'.

You can locate the constraint key referring to 'PK_OS_PROPERTYENTRY_314D4EA8' in your table 'OS_PROPERTYENTRY' and locate any duplicate values in it and remove them, to ensure the "PRIMARY KEY" remains unique. An example query to list duplicate entries in the 'OS_PROPERTYENTRY' table is:

```
SELECT ENTITY_NAME,ENTITY_ID,ENTITY_KEY,COUNT(*) FROM OS_PROPERTYENTRY GROUP BY ENTITY_NAME,ENTITY_ID,ENTITY_KEY HAVING COUNT(*)>1
```

To Help Prevent This Issue From Reoccurring

1. If you are using the embedded database, be aware that it is bundled for evaluation purposes and does not offer full transactional integrity in the event of sudden power loss, which is why an external database is recommended for production use. You should migrate to an external database.
2. If you are using an older version of Confluence than the latest, you should consider upgrading at this point.

RELATED TOPICS

Enabling detailed SQL logging

Troubleshooting XML backups that fail on restore

XML site backups are only necessary for migrating to a new database. Upgrading Confluence, Setting up a test server or Production Backup Strategy is better done with an SQL dump.

If migrating from HSQLDB to MySQL, you might have a better experience using the MySQL Migration Toolkit.

Seeing an error when creating or importing a site or space backup?

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<td>Follow instructions below</td>
</tr>
</tbody>
</table>

Resolve Errors When Attempting To Restore An XML Backup
The errors may be caused by a slightly corrupt database. You will need to find the XML backup file entry that is violating the DB rules, modify the entry and recreate the XML backup:

1. On the instance being restored, follow the instructions to disable batched updates (for simpler debugging), log SQL queries and log SQL queries with parameters at Enabling Detailed SQL Logging.
2. Once all three changes have been made, restart Confluence.
3. Attempt another restore.
4. Once the restore fails, check your log files to find out what object could not be converted into XML format. For Confluence Standalone users, check your Confluence install directory under the /logs/ and check both atlassian-confluence.log and catalina.out file. The correct file will contain SQL debug output.
5. Scroll to the bottom of the file and identify the last error relating to a violation of the database constraint. For example:

   net.sf.hibernate.exception.ConstraintViolationException: could not insert: [com.atlassian.confluence.pages.Attachment#38]
   net.sf.hibernate.exception.ConstraintViolationException: could not insert: [com.atlassian.confluence.pages.Attachment#38]
   ...
   Caused by: java.sql.SQLException: ORA-01400: cannot insert NULL into
   ("CONFUSER","ATTACHMENTS","TITLE")
   at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:331)
   at oracle.jdbc.driver.T4CTTIoer.processError(T4CTTIoer.java:288)

   This example indicates a row in your attachment table with ID = 38 that has a null title.
6. Go to the server that the backup was created on. You must have a copy of the database from which the backup was created. If you do not have this, use a DBA tool to restore a manual backup of the database.
7. Open a DBA tool and connect to the original database instance and scan the table names in the schema. You will have to modify a row in one of these tables.
8. To work out which table, open catalina.out, check the first line of the exception. To work out what table an object maps to in the database, here’s a rough guide:
   - Pages, blogposts, comments --> CONTENT table.
   - attachments --> ATTACHMENTS table.
9. To correct the example error, go to the attachment table and find that attachment object with id 38. This will have a null title. Give a title using the other attachments titles as a guide. You may have a different error and should modify the database accordingly.
10. Once the entry has been corrected, create the XML backup again.
11. Import the backup into the new version.
12. If the import succeeds, revert the changes made in your SQL logging to re-enable disable batched updates and turn off log SQL queries and log SQL queries with parameters.

Troubleshooting "Duplicate Entry" for key "cp_" or "cps_"

If you are encountering an error message such as:

   com.atlassian.confluence.importexport.ImportExportException: Unable to complete import because
   the data does not match the constraints in the Confluence schema. Cause:
   MySQLIntegrityConstraintViolationException: Duplicate entry '1475804-Edit' for key
   'cps_unique_type'

This indicates that the XML export came from a version of Confluence with a corrupt permissions database, caused by some 3rd party plugin. This is an issue that was fixed when CONF-22123 was implemented in Confluence 3.5.2. The simplest workaround is to export the space again after upgrading the instance to 3.5.2 or above. If that is not an option, then either the export will need to be edited manually to remove the duplicate permission entries or the source instance will need to have the offending entries removed. The following SQL queries can be used to look for such entries:
SELECT * FROM CONTENT_PERM WHERE USERNAME IS NULL AND GROUPNAME IS NULL;

SELECT cp.ID, cp.CP_TYPE, cp.USERNAME, cp.GROUPNAME, cp.CPS_ID, cp.CREATOR, cp.CREATIONDATE, cp.LASTMODIFIER, cp.LASTMODDATE
FROM CONTENT_PERM cp
WHERE cp.USERNAME IS NOT NULL AND cp.GROUPNAME IS NOT NULL;

SELECT cps1.ID, cps1.CONTENT_ID, cps1.CONT_PERM_TYPE FROM CONTENT_PERM_SET cps1,
CONTENT_PERM_SET cps2
WHERE cps1.ID <> cps2.ID AND
cps1.CONTENT_ID = cps2.CONTENT_ID AND
cps1.CONT_PERM_TYPE = cps2.CONT_PERM_TYPE
ORDER BY cps1.CONTENT_ID, cps1.CONT_PERM_TYPE, cps1.CREATIONDATE ASC;

SELECT cp.ID, cp.CP_TYPE, cps.CONTENT_ID,
(SELECT scps.ID FROM CONTENT_PERM_SET scps WHERE scps.CONTENT_ID = cps.CONTENT_ID AND
scps.CONT_PERM_TYPE = cp.CP_TYPE) AS suggested_cps_id
FROM CONTENT_PERM cp, CONTENT_PERM_SET cps
WHERE cp.CPS_ID = cps.ID AND
cp.CP_TYPE <> cps.CONT_PERM_TYPE;

SELECT DISTINCT cp1.ID, cp1.CP_TYPE, cp1.USERNAME, cp1.GROUPNAME, cp1.CPS_ID,
cp1.CREATOR, cp1.CREATIONDATE, cp1.LASTMODIFIER, cp1.LASTMODDATE
FROM CONTENT_PERM cp1, CONTENT_PERM_SET cps1, CONTENT_PERM cp2, CONTENT_PERM_SET cps2
WHERE
cp1.CPS_ID = cps1.ID AND
cp2.CPS_ID = cps2.ID AND
cp1.ID <> cp2.ID AND
cps1.CONTENT_ID = cps2.CONTENT_ID AND
cp1.CP_TYPE = cp2.CP_TYPE AND
cp1.USERNAME = cp2.USERNAME
ORDER BY cp1.CPS_ID, cp1.CP_TYPE, cp1.USERNAME, cp1.CREATIONDATE;

SELECT DISTINCT cp1.ID, cp1.CP_TYPE, cp1.USERNAME, cp1.GROUPNAME, cp1.CPS_ID,
cp1.CREATOR, cp1.CREATIONDATE, cp1.LASTMODIFIER, cp1.LASTMODDATE
FROM CONTENT_PERM cp1, CONTENT_PERM_SET cps1, CONTENT_PERM cp2, CONTENT_PERM_SET cps2
WHERE
cp1.CPS_ID = cps1.ID AND
cp2.CPS_ID = cps2.ID AND
cp1.ID <> cp2.ID AND
cps1.CONTENT_ID = cps2.CONTENT_ID AND
cp1.CP_TYPE = cp2.CP_TYPE AND
cp1.GROUPNAME = cp2.GROUPNAME
ORDER BY cp1.CPS_ID, cp1.CP_TYPE, cp1.GROUPNAME, cp1.CREATIONDATE;

SELECT * FROM CONTENT_PERM_SET
WHERE ID NOT IN (SELECT DISTINCT CPS_ID FROM CONTENT_PERM);

Remove all matching entries and perform the export again.

Troubleshooting "Duplicate Key" related problems

If you are encountering an error message such as:

could not insert:
[bucket.user.propertyset.BucketPropertySetItem#bucket.user.propertyset.BucketPropertySetItem@a70067d3];
Violation of PRIMARY KEY constraint 'PK_OS_PROPERTYENTRY314D4EA8'. Cannot insert duplicate key in object 'OS_PROPERTYENTRY'.; nested exception is java.sql.SQLException:
Violation of PRIMARY KEY constraint 'PKOS_PROPERTYENTRY_314D4EA8'. Cannot insert duplicate key in object 'OS_PROPERTYENTRY'.

This indicates that the Primary Key constraint 'PK_OS_PROPERTYENTRY_314D4EA8' has duplicate entries in table 'OS_PROPERTYENTRY'. You can locate the constraint key referring to 'PK_OS_PROPERTYENTRY_314D4EA8' in your table 'OS_PROPERTYENTRY' and locate any duplicate values in it and remove them, to ensure the "PRIMARY KEY" remains unique. An example query to list duplicate entries in the 'OS_PROPERTYENTRY' table is:
SELECT ENTITY_NAME, ENTITY_ID, ENTITY_KEY, COUNT(*) FROM OS_PROPERTYENTRY GROUP BY ENTITY_NAME, ENTITY_ID, ENTITY_KEY HAVING COUNT(*) > 1

Troubleshooting "net.sf.hibernate.PropertyValueException: not-null" related problems

If you're receiving a message like:

```java
ERROR [Importing data task] [confluence.importexport.impl.ReverseDatabinder] endElement net.sf.hibernate.PropertyValueException: not-null property references a null or transient value: com.atlassian.user.impl.hibernate.DefaultHibernateUser.name
```

This means there's an unexpected null value in a table. In the above example, the error is in the name column in the USERS table. We've also seen them in the ATTACHMENTS table.

Remove the row with the null value, redo the xml export, and reimport.

To Help Prevent this Issue from Recurring

1. If you are using the embedded database, be aware that it is bundled for evaluation purposes and does not offer full transactional integrity in the event of sudden power loss, which is why an external database is recommended for production use. You should migrate to an external database.
2. If you are using an older version of Confluence than the latest, you should consider upgrading at this point.

The problem with different settings for case sensitivity varies between databases. The case sensitivity of the database is usually set through the collation that it uses. Please vote on the existing issue.

RELATED TOPICS

Troubleshooting failed XML site backups
Confluence Administrator's Guide

Migrating from HSQLDB to MySQL

If you've gone through Migrate to Another Database and cannot migrate because of a failed xml backup, this page might help.

Disclaimer

MySQL Migration Toolkit is released by the makers of MySQL and as such, problems with the software should be directed to them. Atlassian Support does not offer support for the Migration Toolkit, nor do we provide support for this migration path. These instructions are offered for strictly informational purposes, and your mileage may vary.

Backup Reminder

Please backup your database and your home folder before attempting this.

Resources needed:

- Empty MySQL DB with appropriate credentials to allow creation, deletion, and insertion of tables and rows.
- A Windows machine that can both communicate to the Confluence server and the destination DB.
- MySQL Migration Toolkit
- HSQL Database Engine

Preparation for migrating to MySQL from HSQLDB

1. Shutdown Confluence
2. Make a copy of the confluence home folder for backup purposes
3. Install the Migration Toolkit
4. Unzip the hsqldb package.
5. Copy the hsqldb.jar from hsqldb/lib into C:\Program Files\MySQL\MySQL Tools for 5.0\java\lib
6. Start the MySQL Migration Toolkit

Running the Migration Toolkit

You should be presented with the following screen.

Choose Direct Migration

Source Database
Source Database
Select the source database you want to migrate from.

**Source Database Connection**

- **Database System**: Generic JDBC
- **Connection String**: jdbc:hsqldb:file:PATHTODATABASEFOLDER\confluencedb\n- **Username**: sa
- **Password**: No password. Leave this field blank

**Destination Database**

Please make sure that the computer that is running MySQL Toolkit is able to access the MySQL server and that the user listed has the ability to create, drop, insert, and update tables.

- If your MySQL user has a $ character in the password (such as 'pa$sword'), please change the password or create a temporary account with full permissions. If you do not, the toolkit will throw an "Illegal group reference" error and you will not be able to proceed with the migration.
Connecting to Servers

Source Schemata Selection
You should see 2 databases, INFORMATION_SCHEMA and PUBLIC. Choose PUBLIC

Object Type Selection

Migration
In this step the selected object will be migrated.

Migration of Meta Data

Tasks to execute
The following tasks will now be executed. Please monitor the execution progress. Press [Advanced >>] to see the log.

- Execute Migration Process
- Generate SQL Create Statements

Execution completed successfully.

Click Next.

Object Type Mapping
Click **Show Details** on both sections. For **Migration Method for Type Schema**, choose **Multilanguage**. For **Migration Method for Type Table**, choose **Data Consistency/Multilanguage**.

**Detailed Object Mapping**

Click to rename the **destination database** to be the one set aside to migrate to.

From this point on, you should be able to click next all the way through to finish the migration.

**Rebuilding the Ancestor Table**

In Confluence, the ancestor table defines what pages are ancestors or descendants of other pages (which can be used by search restrictions with the ancestor ids restriction). Occasionally, the ancestor table will become out of sync. When this happens, you can rebuild the table to restore everything to normal.

Simply access this URL:

http://yoursite/admin/permissions/pagepermsadmin.action

**Screenshot: Page Level Permissions**

**Dashboard > Administration > Page Level Permissions**

**Configuration**
- General Configuration
- Daily Backup Admin
- Manage Referrers
- Plugins

**Rebuild Ancestor Table**

**RELATED TOPICS**

- Administrators Guide Home
- Confluence Documentation Home

**Viewing and Editing License Details**

When you upgrade or renew your Confluence license, you will receive a new license key. You will need to update your Confluence installation with the new license key.

You can access your license key via [http://my.atlassian.com](http://my.atlassian.com)

On this page:
Updating your License Details

To update your Confluence license,

1. Log into Confluence as a user with Confluence Administrator or System Administrator permissions.
2. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the
     'Administration Console'.
3. Click 'License Details' under the heading 'Administration' in the left-hand panel.
4. Enter your new license details into the 'License' field and click the 'Save' button.

If you are running a Confluence cluster, you will need to:

- Update each server's Confluence license separately.
- Ensure that the new license has enough nodes to cover all servers that are currently running in your cluster. (To check the number
  of active servers in your cluster, see the Cluster Administration page.)

**Screenshot: License Details**

This page shows your current licensing information.

You can use the form below to update the license Confluence is running with.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Atlassian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Purchased</td>
<td>Feb 11, 2007</td>
</tr>
<tr>
<td>License Type</td>
<td>Confluence: Commercial Server</td>
</tr>
<tr>
<td>Licensed Users</td>
<td>500 (0 signed up currently)</td>
</tr>
<tr>
<td>Support Period</td>
<td>Your commercial Confluence support and updates are available until Feb 12, 2008.</td>
</tr>
<tr>
<td>Server ID</td>
<td>AACK-CO15-AACK-CO15 (Atlassian sales or support may ask you to provide this ID)</td>
</tr>
</tbody>
</table>

**Viewing your License Details**

The 'License Details' page tells you:

- How many users your Confluence instance is licensed to support, and how many are currently registered.
  Note: The number of registered users only includes users who have *can use Confluence* permission. Deactivated users are not
  included.
  Click the 'Refresh' button to make sure you see the latest count.
- What type of license you have (e.g. Commercial, Academic, Community).
- How much time remains in your one-year support and upgrades period (for full licenses) or 30-day trial (for trial licenses).
- Your server ID, which:
  - is generated when you install Confluence for the first time
  - exists for the life of the Confluence instance
  - survives an upgrade
  - is held in the database
  - is not bound to a specific license
  - is the same for all servers in a cluster.

To view the details of your Confluence license,
1. Log into Confluence as a user with Confluence Administrator or System Administrator permissions.

2. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

3. Click 'License Details' under the heading 'Administration' in the left-hand panel.

Downgrading your Confluence License

If you need to downgrade your Confluence license to one which allows fewer users, please make sure first that your new license covers your current user base.

- View your license details as described above.
- Verify that the number of users 'signed up currently' is lower than the number allowed by the new license.
- If you currently have more users signed up than the new license allows, please follow these instructions on removing users from your Confluence site.

RELATED TOPICS
No content found for label(s) system-information,license.

Viewing System Information

The System Information screen provides information about Confluence's configuration, and the environment in which Confluence has been deployed. Your system configuration information is helpful to us when diagnosing errors you may face using Confluence. If you file a support request or bug report, the more detail you can provide about your installation and environment the faster we will be able to help.

To view your system information,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click 'System Configuration' in the 'Administration' section.

The handy Memory Graph helps you keep track of Confluence's memory usage.

RELATED TOPICS
Cache Statistics
Viewing Site Statistics
Viewing and Editing License Details
Viewing and Managing Installed Plugins
Live Monitoring Using the JMX Interface
Tracking Customisations Made to your Confluence Installation

Live Monitoring Using the JMX Interface

With the JMX interface (introduced in Confluence 2.8), you can monitor the status of your Confluence instance in real time. This will provide you with useful data such as the resource usage of your instance and its database latency, allowing you to diagnose problems or performance issues. To read the JMX data, you will need to use a JMX client.

Disable JMX

If you experience any problems during Confluence startup that are related to JMX, it is possible to disable the JMX registration process. Please place jmxContext.xml in your <confluence-install>/confluence/WEB-INF/classes folder to do so.
**What is JMX?**

JMX (Java Management eXtensions) is a technology for monitoring and managing Java applications. JMX uses objects called MBeans (Managed Beans) to expose data and resources from your application.

**1. Enabling JMX Remote with Tomcat**

By default, Confluence uses the Apache Tomcat web server. To use JMX, you must enable it on your Tomcat server, by carrying out the steps under the Apache Tomcat documentation, entitled Enabling JMX Remote. With those steps completed, restart your Tomcat server.

For the stand-alone, add the startup parameter `-Dcom.sun.management.jmxremote` to setenv.sh or setenv.bat. See instructions for the Windows Service - enter it in the same place as PermGen Memory.

**2. Selecting your JMX Client**

You need to use a JMX client in order to view the JMX output from Confluence. JConsole is a readily available JMX client that is included with the supported Java Developer Kit (version 5 onwards). The full name is the 'Java Monitoring and Management Console', but we will refer to it as JConsole for the purposes of this document.

**3. Adding the JMX Client to your Path**

You must add the location of the JConsole binary file to your path environment variable. As JConsole resides in the 'bin' (binaries) folder under your Java directory, the path should resemble something like this:

```
JDK_HOME/bin/
```

In this example, replace 'JDK_HOME' with the full system path to your Java directory.

**4. Configuring JConsole**

To configure JConsole:

1. Run the JConsole application.

2. You will be prompted to create a new connection. Choose remote process and enter the hostname of your Confluence instance and a port of your choosing.

To connect easily, add the startup parameters to setenv.bat or setenv.sh:

```
-Dcom.sun.management.jmxremote -Dcom.sun.management.jmxremote.port=8086
-Dcom.sun.management.jmxremote.authenticate=false
```

Port 8086 is unlikely to be used. Then, connect remotely using port 8086.

JConsole, or any JMX client, will not see applications which are not owned by the same user. For example under Windows, if an application is started as a service, it is the System User which owns the process, and not the Current User.

3. Click Connect.

Note: Other JMX clients besides JConsole can read JMX information from Confluence.

**What can I monitor with JMX?**

The JMX interface allows you to see live internal information from your Confluence instance, via the following MBeans:

**IndexingStatistics**

This MBean shows information related to search indexing.

<table>
<thead>
<tr>
<th>Property name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flushing</td>
<td>Shows state of cache (i.e. flushing, or not)</td>
<td>True/False</td>
</tr>
<tr>
<td>LastElapsedMilliseconds</td>
<td>Time taken during last indexing.</td>
<td>Milliseconds</td>
</tr>
</tbody>
</table>

---

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Confluence 4.0 Documentation

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>LastElapsedReindexing</td>
<td>Time taken during last re-indexing.</td>
<td>Milliseconds</td>
</tr>
<tr>
<td>TaskQueueLength</td>
<td>Shows number of tasks in the queue.</td>
<td>Integer</td>
</tr>
</tbody>
</table>

**SystemInformation**

This MBean shows information related to database latency. It also contains most of the information presented on the System Information page.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>DatabaseExampleLatency</td>
<td>Shows the latency of an example query performed against the database.</td>
<td>Milliseconds</td>
</tr>
</tbody>
</table>

**RequestMetrics**

This MBean shows information related to system load and error pages served.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>AverageExecutionTimeForLastTenRequests</td>
<td>Average execution time for the last ten requests.</td>
<td>Milliseconds</td>
</tr>
<tr>
<td>CurrentNumberOfRequestsBeingServed</td>
<td>Number of requests being served at this instant.</td>
<td>Integer</td>
</tr>
<tr>
<td>ErrorCount</td>
<td>Number of times the Confluence error page was served.</td>
<td>Integer</td>
</tr>
<tr>
<td>NumberOfRequestsInLastTenSeconds</td>
<td>Obviously, the Number Of Requests In the Last Ten Seconds.</td>
<td>Integer</td>
</tr>
</tbody>
</table>

**MailServer-SMTPServer**

This MBean shows information related to email dispatch attempts and failures. There will be an MBean for every SMTP Mailserver that has been configured in the Confluence instance.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>EmailsAttempted</td>
<td>The number of email messages Confluence has tried to send.</td>
<td>Integer</td>
</tr>
<tr>
<td>EmailsSent</td>
<td>The number of email messages sent successfully.</td>
<td>Integer</td>
</tr>
</tbody>
</table>

**MailTaskQueue**

This MBean shows information related to the email workload.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Function</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErrorQueueSize</td>
<td>Number of errors in the queue.</td>
<td>Integer</td>
</tr>
<tr>
<td>Flushing</td>
<td>Shows state (i.e. flushing, or not)</td>
<td>True/False</td>
</tr>
<tr>
<td>FlushStarted</td>
<td>Time that operation began.</td>
<td>Time</td>
</tr>
<tr>
<td>RetryCount</td>
<td>The number of retries that were performed.</td>
<td>Integer</td>
</tr>
<tr>
<td>TaskSize</td>
<td>Number of email messages queued for dispatch.</td>
<td>Integer</td>
</tr>
</tbody>
</table>

**SchedulingStatistics**

This MBean shows information related to current jobs, scheduled tasks and the time that they were last run.
High CPU consuming threads

For Java 1.6, add the Top Threads Plugin to monitor whether CPU is spiking. Download it to a directory and run JConsole like this: JConsole -pluginpath /path/to/topthreads.jar

This works only with jdk 1.6, but that can be on the remote machine if the server is running a lower version.

Please note, adding live monitoring to a production instance may itself have an impact on performance.

Related Topics

- Viewing System Information
- Cache Statistics
- Viewing and Editing License Details
- Viewing and Managing Installed Plugins

Tracking Customisations Made to your Confluence Installation

The 'Modification' section of the Confluence 'System Information' screen lists the files that have been changed since your Confluence application was installed. You will find this information particularly useful when upgrading Confluence to a new version, because you will need to re-apply all customisations after the upgrade.

To see the modifications made to files in your Confluence installation,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'System Information' in the 'Administration' section of the left-hand panel.
3. Scroll down to the section titled 'Modification'.

Screenshot: Modifications tracker on the Confluence System Information screen

Notes

- The modification tracker does not detect changes to class files from the confluence.jar or other JAR files. If you modify classes, the Confluence modification detection does not report the modification. See issue CONF-20993.

RELATED TOPICS

Viewing Site Statistics

Note that the site activity information is disabled by default. See notes below.

If enabled, the global activity screen displays statistics on the activity in your Confluence site. These include:

- How many pages and blog posts have been viewed, added or updated over a given period.
- Which spaces are the most popular (most frequently viewed).
- Which spaces are the most active (most frequently edited).
- Which people are the most active contributors/editors of content.

To view the activity on your site,
1. Go to the Confluence 'Administration Console':
   
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click 'Global Activity' in the 'Administration' section of the left-hand panel.

Screenshot: Global Activity

The top ten most popular and most active pages and/or blog posts will be listed, with a link to each.

Notes

- The Confluence Usage Stats plugin, which provides the 'Global Activity' screen, is known to cause performance problems on large installations. This plugin is **disabled by default**. A status report on the progress of the performance issues with this plugin is available in this issue: USGTRK-15.
- Your Confluence system administrator can enable the plugin, but please be aware of the possible impact upon your site's performance.
- The plugin is sometimes called 'Confluence Usage Tracking'.
- If your Confluence site is clustered, the global activity information will not be available.

**RELATED TOPICS**

How Do I Get More Statistics From Confluence?  
Cache Statistics  
Viewing Space Activity  
Live Monitoring Using the JMX Interface  
Installing and Configuring Plugins  

Viewing System Properties
After adding memory, setting a proxy or changing other Java options, it can be difficult to diagnose whether the system has picked them up. This page tells you how to view the system properties that your Confluence site is using.

In Confluence 3.0.2 and Later

You can see the expanded system properties on the 'System Information' screen of the Confluence Administration Console.

To see the system properties recognised by your Confluence installation:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select System Information in the 'Administration' section of the left-hand panel.
3. Scroll down to the section titled 'System Properties'.

In Confluence Versions Earlier than 3.0.2

To find out more about what properties are being picked up, download the file systemproperties.jsp (attached to this page). Place it in your systemproperties.jsp directory. Access the following URL:

```
http://<yourbaseurl>/admin/systemproperties.jsp
```

No restart of Confluence is required.

Installing Patched Class Files

Atlassian support or the Atlassian bug-fixing team may occasionally provide patches for critical issues that have been resolved but have not yet made it into a release. Those patches will be class files which are attached to the relevant issue in our JIRA bug-tracking system.

Installation Instructions for Confluence Standalone

Follow these steps to install a patched class file:

1. Shut down your confluence instance.
2. Copy the supplied class files to `<installation-directory>/confluence/WEB-INF/classes/<subdirectories>`, where:
   - `<installation-directory>` must be replaced with your Confluence Installation directory. (If you need more information, read about the Confluence Installation Directory.)
   - `<subdirectories>` must be replaced by the value specified in the relevant JIRA issue. This value will be different for different issues. In some cases, the subdirectories will not exist and you will need to create them before copying the class files. Some issues will contain the patch in the form of a ZIP file which will contain the desired directory structure.
3. Restart your Confluence instance for the changes to become effective.

Class files in the `/WEB-INF/classes` directory of a web application will be loaded before classes located in JAR files in the `/WEB-INF/lib` directory. Therefore, classes in the first directory will effectively replace classes of the same name and package which would otherwise be loaded from the JAR files.

RELATED TOPICS

Editing Files within JAR Archives
Where are the files that used to be in my Confluence installation directory?

Finding Your Confluence Support Entitlement Number (SEN)

There are three ways to find your Support Entitlement Number (SEN):

- **Method 1: Check in the Confluence Administration Interface**
  Select Administration >> License Details. The SEN is shown.

- **Method 2: Log into my.atlassian.com as the Account Holder or Technical Contact**
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.

Configuring Confluence

The pages listed below contain instructions on configuring Confluence. If you cannot find what you are looking for, try the search box in the left-hand navigation panel.

- Site Configuration
  - Configuring the Site Home Page
  - Configuring the Administrator Contact Page
  - Editing the Site Title
  - Editing the Global Logo
  - Configuring the Server Base URL
  - Customising Default Space Content
  - Configuring the Destination of View Space Links
  - Editing the Site Welcome Message
  - Configuring the Site Support Address
  - Configuring the What’s New Dialog
- Configuring Encoding
  - Character encodings in Confluence
  - Troubleshooting Character Encodings
    - “€” Euro character not displaying properly
    - MySQL 3.x Character Encoding Problems
- Configuring Mail
  - Configuring a Server for Outgoing Mail
  - Enabling the ‘Mail Page’ plugin
  - The Mail Queue
- Optional Settings
  - Attachment Storage Configuration
    - Hierarchical File System Attachment Storage
Configuring a WebDAV client for Confluence
Configuring Quick Navigation
Enabling OpenSearch
Enabling the Did You Mean Feature
Enabling the Remote API
Enabling Threaded Comments
Enabling Trackback

Other Settings
Configuring Attachment Size
Configuring Character Encoding
Configuring HTTP Timeout Settings
Configuring Indexing Language
Configuring Number Formats
Configuring Shortcut Links
Configuring Time and Date Formats
Thumbnail Settings

Configuring System Properties
Recognised System Properties
Configuring a Large Confluence Installation
Configuring Logging
External Gadgets

RELATED TOPICS
Tracking Customisations Made to your Confluence Installation
Confluence Configuration Guide

Site Configuration

Configuring the Site Home Page
Configuring the Administrator Contact Page
Editing the Site Title
Editing the Global Logo
Configuring the Server Base URL
Customising Default Space Content
Configuring the Destination of View Space Links
Editing the Site Welcome Message
Configuring the Site Support Address
Configuring the What's New Dialog

Configuring the Site Home Page
You can configure Confluence to send users to any of the space home pages on the site when they log in, rather than to the dashboard.

To configure the site-wide home page:

1. Go to the 'Administration Console' and click 'General Configuration' in the left-hand panel.
2. Click 'Edit' next to the 'Site Configuration' panel.
3. Select a space from the 'Site Homepage' dropdown menu. When users log in, Confluence will open the home page of the space you choose here.
4. Ensure that the 'View Space Goes to Browse Space' option is set to 'Off' if you want users to be sent to the space home page and not the space summary page.
5. Click the 'Save' button at the bottom of the screen.

The spaces available to be set as your home page will depend on the access permissions of the space and the site.

- The site home page must be accessible to the 'confluence-users' group.
- If your site allows anonymous access, the site home page must also be accessible to anonymous users, that is, people who have not logged in to Confluence.

Notes
- The user's personal settings will override the global setting.

Related Topics
No content found for label(s) site-configuration.
Configuring the Administrator Contact Page

The administrator contact page is a form that allows a user of Confluence to send a message to the administrators of their Confluence site. (In this context, administrators are those users who are members of the 'confluence-administrators' group. See the explanation of site administrators.)

The title of the administrator contact page is 'Contact Site Administrators'. Typically, Confluence users may get to this page by clicking a link on an error screen such as the '500 error' page.

On this page:

- Customising the Administrator Contact Message
- The Default Administrator Contact Message
- Customisation Examples
- Disabling the Administrator Contact Form
- Configuring Spam Prevention
- Related Topics

Customising the Administrator Contact Message

You can customise the message that is presented to the user on the 'Contact Site Administrators' page.

To edit the administrator contact message:

1. Go to the 'Administration Console' and click General Configuration in the left-hand panel.
2. Click Edit at the top of the 'Site Configuration' section.
3. Enter your text in the Custom Contact Administrators Message box. You can enter any text or Confluence wiki markup.
4. Click Save.

The Default Administrator Contact Message

By default, the 'contact administrators message' looks much like the highlighted area in the screenshot below, starting with 'Please enter information...'.

Screenshot: The default 'Contact Site Administrators' message

To restore the message to its default simply remove the custom message you entered when following the instructions above, so that the 'Custom Contact Administrators Message' field is empty.

Customisation Examples

When entering the 'Custom Contact Administrators Message', you can use text and Confluence wiki markup.

This is similar to entering your own text and markup for the 'Site Welcome Message'. For examples of the kind of customisations possible, take a look at the guide to editing the site welcome message.

Disabling the Administrator Contact Form
If you prefer to disable the ability for users to send an email message to the site administrators, you can disable the form portion of this screen. You can only disable the form if you first provide a 'Custom Contact Administrators Message' as described above.

To enable or disable the administrator contact form:

1. Go to the ‘Administration Console’ and click **General Configuration** in the left-hand panel.
2. Click **Edit** at the top of the ‘Site Configuration’ section.
3. Select **on** or **off** for the ‘Contact Administrators Form’.
4. Click **Save**.

**Configuring Spam Prevention**

You can configure Confluence to use Captcha to help prevent spam, including the spamming of Confluence administrators. The administrator contact form is covered by the site-wide Captcha settings as documented in Configuring Captcha for Spam Prevention.

**Related Topics**

- Contacting Confluence Administrators
- Configuring Captcha for Spam Prevention

**Editing the Site Title**

The site title appears in your browser's title bar. By default, it is set to ‘Confluence’.

To change the title of your Confluence site:

1. Go to the ‘Administration Console’ and click ‘**General Configuration**’ in the left-hand panel.
2. Click ‘**Edit**’ at the top of the ‘**Site Configuration**’ screen.
3. Enter a new title for your site in the input field next to ‘**Site Title**’.
4. Click ‘**Save**’.

**Related Topics**

No content found for label(s) site-configuration.

**Editing the Global Logo**

By default, the global logo appears beside the page title on all pages in the site. You can disable the logo or replace it with one of your own.

To edit the global logo:

1. Go to ‘**Administration Console**’ > ‘**Global logo**’, under ‘Look and Feel’ in the left panel.
2. In the screen displayed, select ‘**Off**’ to disable logo.
3. To upload a new logo, click ‘**Browse**’ to select a new image and click ‘**Upload Logo**’.

**Related Topics**

No content found for label(s) site-configuration.

**Configuring the Server Base URL**

The **Server Base URL** is the URL via which users access Confluence. The base URL must be set to the same URL by which browsers will be viewing your Confluence site.

Confluence will automatically detect the base URL during setup, but you may need to set it manually if your site's URL changes or if you set up Confluence from a different URL to the one that will be used to access it publicly.

You need to have **System Administrator** permissions in order to perform this function.

To configure the Server Base URL:

1. In Confluence, open the ‘**Browse**’ menu and select ‘**Confluence Admin**’. The ‘Administration Console’ will open.
2. Click ‘**General Configuration**’ in the left-hand panel.
3. Click the ‘**Edit**’ button next to ‘**Site Configuration**’.
4. Enter the new URL in the 'Server Base URL' text box.
5. 'Save' your changes.

Example

If Confluence is installed to run in a non-root context path (that is, it has a context path), then the server base URL should include this context path. For example, if Confluence is running at:

```
http://www.foobar.com/confluence
```

then the server base URL should be:

```
http://www.foobar.com/confluence
```

Notes

- **Using different URLs.** If you configure a different base URL or if visitors use some other URL to access Confluence, it is possible that you may encounter errors while viewing some pages.
- **Changing the context path.** If you change the context path of your base URL, you may also need to edit the web server's server.xml to reflect the new path.

**RELATED TOPICS**

No content found for label(s) site-configuration.

**Customising Default Space Content**

Confluence Administrators can define default content for a space home page. This content will appear on the home page whenever someone adds a new space. You can define different content for global spaces and for personal spaces.

The default content will appear only for new spaces created after you have defined the content. Content in existing home pages will not be changed.

**To define default content for home pages in global spaces:**

1. Go to the 'Administration Console' and click 'Default Space Content' under 'Configuration' in the left-hand panel.
2. The 'Space Home Pages' tab will open on the 'Default Space Content' page. Enter the content which you want to appear on the home page for new global spaces. You can use special characters within the content as variables (place holders). Confluence will replace the curly brackets and digits with the corresponding information as shown below:
   - `{0}` — The space name.
3. Click the 'Save' button.

**To define default content for home pages in personal spaces:**

1. Go to the 'Administration Console' and click 'Default Space Content' under 'Configuration' in the left-hand panel.
2. The 'Space Home Pages' tab will open on the 'Default Space Content' page. Click the 'Personal Space Home Pages' tab.
3. Enter the content which you want to appear on the home page for new personal spaces. You can use special characters within the content as variables (place holders). Confluence will replace the curly brackets and digits with the corresponding information as shown below:
   - `{0}` — The space owner's full name.
   - `{1}` — The space owner's e-mail address.
   - `{2}` — Any personal information the space owner has entered on their user profile in the 'Information about me' section.
4. Click the 'Save' button.

You can also undo all customisations of the default home page content, and go back to the default content as originally supplied with Confluence.

**To restore the original default content:**

1. Go to the 'Administration Console' and click 'Default Space Content' under 'Configuration' in the left-hand panel.
2. Select either the 'Space Home Pages' tab or the 'Personal Space Home Pages' tab, as required.
3. Click the 'Revert' button.
Configuring the Destination of View Space Links

By default, when you click a space link in order to view the space, you are taken to the space's home page. If you wish, you can configure Confluence to redirect all space links on the site to the 'Browse Space' view of the space instead.

To direct the space link to the 'browse space' view:

1. Go to the 'Administration Console' and click 'General Configuration' in the left-hand panel.
2. Click 'Edit' at the top of the 'Site Configuration' screen.
3. Select 'On' next to 'View Space goes to Browse Space'.
4. Click 'Save'.

Related Topics
No content found for label(s) site-configuration.

Editing the Site Welcome Message

The site welcome message appears at the top left of the Confluence dashboard, between the site logo and the list of spaces. You can use it to display an introduction to the site or a message of the day.

To edit the site welcome message:

1. Go to the Administration Console and click General Configuration in the left-hand panel.
2. Click Edit at the top of the Site Configuration section.
3. Type into the Site Welcome Message box. You can enter text or Confluence wiki markup.
4. Click Save.
The Default Site Welcome Message

By default, the site welcome message looks more or less like the screenshot below, starting with the words Welcome to Confluence and ending above the list of spaces.

To restore the default site welcome message and remove your customised message, just delete the text in the Site Welcome Message text box. Provided that you have not customised Confluence, your Confluence users will see the default message if there is no text in the Site Welcome Message text box in your Administration Console.

Welcome to Confluence

Confluence combines powerful online authoring capabilities, deep Office integration and an extensive plugin catalogue to help people work better together and share information effortlessly.

Get started by adding a new space to create content in. Add a few users to try out Confluence with you.

If you want to display a different message here, you can easily change the welcome message.

Example 1. Adding a Simple Welcome Message

Let's say you want to display a simple message like this at the top of your dashboard:

Welcome to the MyCompany Wiki

New to MyCompany? Find out about your induction.

Otherwise, have fun, because you can't always work!

To produce the above welcome message, follow the step-by-step instructions above and add the following wiki markup into the Site Welcome Message text box:
h2. Welcome to the MyCompany Wiki

New to MyCompany? [Find out about your induction][DS:Company Induction].
Otherwise, [have fun][DS:Have Fun], because you can't always work!

ℹ️ In our example, the links point to two pages in the Confluence Demonstration Space, 'DS'. If your Confluence site does not have a 'DS' space, the links will be broken. That's OK, because you will want to replace them with links to your own pages anyway. This is just an example.

**Example 2. Formatting your Welcome Message**

Now let's say you want to put the words into a panel and add some spacing, so that your dashboard looks like this:

![Dashboard](image)

To produce the above welcome message, follow the step-by-step instructions above and add the following wiki markup into the **Site Welcome Message** text box:

```
{panel}

h2. Welcome to the MyCompany Wiki

New to MyCompany? [Find out about your induction][DS:Company Induction].
Otherwise, [have fun][DS:Have Fun], because you can't always work!

```

**Example 3: Including Content from Another Page**

It may be easier to write your welcome message on a normal Confluence page and include the page into the **Site Welcome Message** text box. Using a normal page means that you can:

- Write the message using the editor rather than wiki markup.
- Preview the content of the welcome message before saving it, using the page editor's preview feature.
- Allow other people, who are not Confluence administrators, to edit the welcome message.

To include content from another page:

1. Create a Confluence page as usual and add your welcome message as the page content. Remember to limit the size of the content, because it must fit nicely onto the dashboard. For this example, let's assume you put your page in the 'DS' space and the title of your page is 'Dashboard Welcome Message'.
2. Add page permissions or space permissions to suit your requirements. You may want to restrict the editing of the page to a group of people, or you may want to allow any employee to edit the page. This will determine who can update the welcome message on the dashboard.
3. Follow the step-by-step instructions above and add the following wiki markup into the Site Welcome Message text box:
In the above example we use the `{include}` macro to display the content from the given page. See the guide to the `include` macro. In our example, the space key 'DS' and the page name 'Dashboard Welcome Message' are variables. You can use any space and page you like.

4. Save the site welcome message. The dashboard will display the content of the page immediately. Similarly, if you or anyone else edits the page, the welcome message on the dashboard will change as soon as you save the page.

**Example 4. Adding Blog Posts Filtered by Labels to your Welcome Message**

Looking for more advanced ideas?

This video shows you how to display a list of blog posts on your dashboard and how to choose the blog posts by labelling them.

*Video title: 'Bring "Must Read" Content to the Dashboard'*

Summary of the procedure shown in the video:

1. Create a page containing the `[blog-posts]` macro. Choose to display only the blog posts that are labelled with `dashboard-blog`. (This is just an example of a label. You can choose any label text you like.) See the guide to the Blog Posts macro.
2. Add the label to a blog post. (In the video, we just add the label to one blog post. You will probably want to add it to a number of posts.)
3. Edit your site welcome message to include the above page, using the `include` macro.

**How We Use the Site Welcome Message at Atlassian**

Atlassian makes great use of the welcome message on our internal Confluence wiki. Here is an example of the dashboard as it appeared on a certain day:
The welcome message itself contains just an `{include}` macro:

```
{include:STAFF:Extranet Homepage}
```

The `include` macro allows you to include the content an entire page onto another page. This particular page lives in the `STAFF` space, where anyone can edit it. It usually shows some amusing picture or company-wide notice. The featured photo generally changes once a week or so – whenever someone feels like changing it. The page itself has over 600 edits by many different people.

The page also includes an edit link, for quick access to change the welcome message. We have the Composition plugin installed which allows you to use the `{float}` macro.

Our wiki markup in the 'Extranet Homepage' page looks something like this:
This is the content that goes on the Extranet homepage, above the spaces list.

NOTE: KEEP YOUR PICTURES SMALL (<80KB) -- USE JPG FOR PICTURES, WIDTH 400

h4. Experimental blogroll: All posts labelled "extranet-dashboard"

If you want to promote a good post to stand out from the everyday white noise, just add the label "extranet-dashboard". To avoid inflation please use the label carefully.

Related Topics

No content found for label(s) site-configuration.

Configuring the Site Support Address

The Site Support Address is an email address that points to a JIRA issue tracker configured to receive and handle support requests by email. The site support address is currently not used in Confluence. It was previously used by an older version of the support request form (see Troubleshooting Problems and Requesting Technical Support). The site support address is made available in case the Atlassian support team asks you to use the older version of the support request form.

By default, the site support address is set to the following value:

confluence-autosupportrequests@atlassian.com

The above value will direct the emails to the Atlassian Support System. In most cases, there is no need to change the default.

In order to use the site support address, ensure that SMTP email is set up on your Confluence instance.

Configuration Option is Unavailable by Default

By default, it is not possible to specify a site support email address via the Confluence Administration Console. This feature is disabled for security reasons. Administrators can restore this functionality by updating the relevant configuration property as described below. However, we recommend that you turn the feature off in production environments.

To enable the configuration option:

1. Edit the confluence.cfg.xml file found in the Confluence Home directory.
2. Set the value of property admin.ui.allow.site.support.email to 'true' (without the quotation marks).
3. Restart Confluence.

If the value of the above configuration property is 'true', it will be possible to specify a site support email address via the Confluence Administration Console. If the value of this property is 'false' or the property is not present in the configuration file, the email address is not configurable.

Configuring the Site Support Address via the Administration Console

If the configuration option is available, you can follow the instructions below.

To configure the site support address:

1. Go to the Administration Console and click 'General Configuration' in the left-hand panel.
2. Click the 'Edit' button next to 'Site Configuration'.
3. Enter the new 'Site Support Address'.
   - By default, this option is not available. See above for information about enabling the configuration option.
4. Click the 'Save' button at the bottom of the screen.
**Configuring the What's New Dialog**

The 'What's New' dialog automatically displays when a user first logs in after a major Confluence upgrade (e.g. upgrading to Confluence 4.0). The dialog displays a summary of the new features for the release, sourced from our website (by default).

Confluence administrators can configure the behaviour of the 'What's New' dialog, as follows:

- Change the URL that the 'What's New' dialog retrieves information from.
- Disable the dialog.

### On this page:
- Changing the 'What's New' Dialog URL
- Disabling the 'What's New' Dialog
- Notes

---

**Changing the 'What's New' Dialog URL**

The 'What's New' dialog URL is stored in your Confluence `help-paths.properties` file. This URL is a concatenation of the `help.prefix` property with the `help.whats.new.iframe.link`.

**Before you begin:**

- The `help.prefix` property also defines the base URL for Confluence help links, i.e. help links in the Confluence application.

**To change the 'What's New' Dialog URL:**

Follow the instructions in the 'Changing the Links for Individual Help Pages' section on [Local Confluence Documentation](#). You will need to update the `help.prefix` and `help.whats.new.iframe.link` properties, as desired.

For example, you may have installed your Confluence documentation behind a firewall at `http://www.example.com/` and created a page `http://www.example.com/whatsnew` that you use for change management. In this case, you would do the following:

- Set `help.prefix` to `http://www.example.com/`  
- Set `help.whats.new.iframe.link` to `whatsnew`

There is an additional property `help.whats.new.full.link`. This is only used if the content pointed to by the updated URL isn't loaded.
in 10 seconds, in which case a 'timeout' screen is displayed with a link to the full 'What's New' content. For locally-hosted pages you can just set this property to the same value as `help.whats.new.iframe.link`.

### Disabling the 'What's New' Dialog

The 'What's New' dialogue is enabled via a plugin. To disable the 'What's New' dialogue, you need to disable the 'Confluence What's New' plugin in Confluence.

**To disable the 'Confluence What's New' plugin:**

Follow the instructions on Disabling or Enabling a Plugin. Please note, the 'Confluence What's New' plugin is a 'System Plugin'. Click 'Show System Plugins' on the Plugins administration page to display the system plugins.

### Notes

- **Related Topics**
  - Disabling or Enabling a Plugin
  - Local Confluence Documentation

### Configuring Encoding

Confluence allows the configuration of which character encoding is used to deliver pages.

> While different character encodings are supported, we strongly recommend that UTF-8 is used. Confluence is heavily tested on UTF-8, and users are likely to have less problems with this encoding than others.

> **Mac Users**

Mac Users please note that MacRoman encoding is compatible with UTF-8. You do not need to change your encoding settings if you are already using MacRoman.

To avoid problems with character encoding, make sure the encoding used across the different components of your system are the same:

- Configuring Database Character Encoding
- Application Server URL encoding
- Confluence Character Encoding

If you are having problems with the character encoding in Confluence, please see the Troubleshooting Character Encodings page.

### Character encodings in Confluence

**Character encoding advice**

In general, *always set all character encodings to UTF-8*. That includes database, JDBC drivers, application server, filesystem and Confluence.

In certain isolated cases (e.g. Microsoft Windows), it might not be possible to use a fully Unicode filesystem (that is, a default Windows install doesn't support Unicode filenames properly). If so, stick with UTF-8 for the other two and be aware that your operating system might have limitations around international attachments (pre-2.2), backup and restore of international data, etc.

The remainder of the document explains the encoding settings that are applicable in Confluence and how they relate to application behaviour.

**Where character encoding is used**

There are three places that character encoding matters to Confluence:

1. **Database encoding** - usually the most important; it is where almost all user data is stored.
2. **Filesystem encoding** - important for attachment storage (pre-2.2), reading Velocity templates and writing exported files.
3. **HTTP request and response encoding** - important for form parsing, correct rendering by the browser and browser interpretation of encoded URLs.

Problems generally arise when Confluence thinks one of the above encoding is different to what it actually is. For example, Confluence might believe the database is using ISO-8859-1 encoding, when in fact it is UTF-8 encoded.

**Java character encoding**
Java always uses the multibyte UTF-16 character encoding for all `char` and `String` data. This means that each of the encodings above defines how, at that particular point, characters are converted to and from Java's native UTF-16 format into some other format that the browser, filesystem or database might understand.

So when a request comes in to Confluence, we convert it from the request encoding to UTF-16. Then we store that data into the database, converting from UTF-16 to the database's encoding. Retrieving information from the database and sending it back to the browser is the same process in the opposite direction.

### Problems with character encodings

If Confluence has the wrong idea about encoding for one of the above, it manifests itself in different ways:

1. Incorrect database encoding - user data is corrupted between saving and restoring from the database. This often happens after a delay, as we cache data as it is written to the database and only later retrieve the corrupted copy from the database.
2. Incorrect/non-Unicode filesystem encoding - international filenames break attachment download/upload/removal (pre-2.2); exports break with international content or attachments.
3. Incorrect HTTP encoding - incorrect encoding selected by browser, resulting in incorrect rendering of characters. Changing browser encoding causes page to render properly. Broken URLs when linking to pages or attachments with non-ASCII characters.

### Configuration of character encodings

The **Confluence character encoding** is a configuration setting found in Administration > General Configuration, and at runtime available in Settings.defaultEncoding. It is subsequently used in the following parts of the system:

- ConfluenceWebWorkConfiguration sets `webwork.i18n.encoding` to the this encoding, which WebWork uses in the response Content-Type header.
- AbstractEncodingFilter sets the HTTP request encoding to this encoding. This seems unnecessary, since the Content-Type header from the client should include the encoding used. This affects form submissions and file uploads.
- VelocityUtils reads in Velocity templates using this encoding when reading templates from disk.
- AbstractXmlExporter creates its output using this encoding.
- GeneralUtil uses this encoding when doing URLEncode and URLDecode. Different browsers have different support for character sets in URLs, so it's uncertain how much benefit this provides.

In summary, changing the Confluence character encoding will change your **HTTP request and response encoding** and your **Filesystem encoding** as used by exports and velocity templates.

The **database encoding** is the responsibility of your JDBC drivers. The drivers are responsible for reading and writing from the database in its native encoding and converting this data to and from Java Strings (which are UTF-16). For some drivers, such as MySQL, you must set Unicode encoding explicitly in the JDBC URL. For others, the driver is smart enough to determine the database encoding automatically.

Ideally, your database itself should be in a Unicode encoding (and we recommend doing this for the simplest configuration), but that is not necessary as long as:

- the database encoding supports all the characters you want to store in Confluence
- your JDBC drivers can properly convert from the database encoding to UTF-16 and vice-versa.

The **filesystem encoding** is mostly ignored by Confluence, except for the cases where the above configuration setting above plays a part (exports, velocity). When attachments are uploaded, they are written as a stream of bytes directly to the filesystem. It is the same when they are downloaded: the bytes from the file InputStream are written directly to the HTTP response.

In some places in Confluence, we use the **default filesystem encoding** as determined by the JVM and stored in the file.encoding system property (it can be overridden by setting this property at startup). This encoding is used by the Java InputStreamReader and InputStreamReader classes by default. This encoding should probably never be used; for consistent results across all filesystem access we should be using the encoding set in the General Configuration.

In certain cases we explicitly hard-code the encoding used to read or write data to the filesystem. Two important examples are:

- importing Mbox mailboxes which are known to be ISO-8859-1
- Confluence Bandana config files are always stored as UTF-8.

Some application servers, Tomcat for example, have an encoding setting that modifies Confluence URLs before they reach the application. This can prevent access to international pages and attachments (really anything with international characters in the URL). See configuring your Application Server URL encoding.

### RELATED TOPICS:

- Configuring Database Character Encoding
- Troubleshooting Character Encodings

### Troubleshooting Character Encodings

Often users may have problems with certain characters in a Confluence instance. Symptoms may include:

- Non-ASCII characters appearing as question marks (?)
- Page links with non-ASCII characters not working
- Single characters being displayed as two characters
- Garbled text appearing
In most cases, it is due to a mis-configuration in one of the components that Confluence uses.

Follow these steps to diagnose the problem:

1. **Run the encoding test**

Confluence includes an encoding test that can reveal problems with your configuration.

To perform the test, access the Encoding Test page via the `<confluence base-url>/admin/encodingtest.action` page on your Confluence instance. You will be required to copy and paste a line of text and submit a form. The test will take the text and pass it through Confluence, the application server and the database, and return the results.

You should also test pasting some sample text (Japanese for example) if you are experiencing problems with a specific language.

Example:

```
http://confluence.atlassian.com/admin/encodingtest.action
```

or

```
http://<host address>:<port>/admin/encodingtest.action
```

If the text displayed in the encoding test is different to what was entered, then there are problems with your character encoding settings.

A successful test looks like the following:
The encoding test has now been run. Below, you can compare the raw text delivered from Confluence, a round-trip through the database. All the test results should appear identical.

<table>
<thead>
<tr>
<th>InternationaIІzætion</th>
<th>This image is how all of the test results below should appear. this page, and all of your System Information.</th>
</tr>
</thead>
</table>

**Test 1: Raw text**

This is the test string generated in Confluence

**InternationaIІzætion**

**Test 2: Form submission**

This is the test string pasted by you into the web form and submitted back to Confluence

**InternationaIІzætion**

**Test 3: Database round-trip (select as LOWER)**

This is the string from Test 2 after being stored in the database and then retrieved

**InternationaIІzætion**

Expected result: (converting Java string to lowercase)

**InternationaIІzætion**

**Test 4: Database round-trip (select as UPPER)**

This is the string from Test 2 after being stored in the database and then retrieved

**INTERNATIONALIZATION**

Expected result: (converting Java string to uppercase)

**INTERNATIONALIZATION**

---

**MySQL 3.x**

MySQL 3.x is known to have some problems with the upper- and lower-casing of some characters, and may fail the last two tests. For more information, see MySQL 3.x Character Encoding Problems.

---

**2. Ensure the same encoding is used across all components**

As mentioned in the Configuring Encoding document, the same character encoding should be used across the database, application server and web application (Confluence).

- To change the character encoding used in Confluence, see Configuring Character Encoding.
- To change the character encoding used in the application server, please ensure you set the Application Server URL encoding and view your application server's documentation on any other settings required to enable your encoding.
- To change the character encoding used in the database, see Configuring Database Character Encoding.

**3. Requesting support**

If there are still problems with character encoding after following the above steps, create a support request, and our support staff will aid in solving your problem.

Entering in the following details will help us to identify your problem:

- Attach screenshots of the problem
- Attach the results of the encoding test (above)
- Select which application server (and version) you are using
- Select which database (and version) you are using
- Copy the contents of the System Information page into the ‘Description’ field
"€" Euro character not displaying properly

The € (euro) symbol is a three byte character, with byte values in file (UTF-8) of 0xE2, 0x82, 0xAC.

Sometimes, if the character encoding is not set consistently among all participating entities of the system, Confluence, server and the database, one may experience strange behaviour.

I write a page with a Euro sign in it (€). All is well, the Euro sign shows up in the wiki markup text-box, and the preview, and the display of the saved page.
One day later, the Euro sign has changed into a question mark upside down!

What is going on? Why does the Euro sign mysteriously change? How do I prevent it?

Interestingly enough the character encoding test passes with no problems, demonstrating that Confluence and the connected Database both recognise the € symbol.

There are two potential reasons for this behaviour:

**Database and Confluence is using utf-8 encoding. The connection is not.**

When data transferred to it via the connection which does not use utf-8 encoding gets encoded incorrectly. Hence, updating the connection encoding may resolve this problem from now on, yet it probably would not affect already existing data.

**Database is not using utf-8. Confluence and your connection are.**

If your Database encoding is not set to UTF-8, yet is using some other encoding such as **latin1**, it could be one of the potential reasons why you lose the “€” characters at some stage. It could be occurring due to **caching**. When Confluence saves data to the database, it may also keep a local cached copy. If the database encoding is set incorrectly, the Euro character may not be correctly recorded in the database, but Confluence will continue to use its cached copy of that data (which is encoded correctly). The encoding error will only be noticed when the cache expires, and the incorrectly encoded data is fetched from the database.

For instance the **latin1** encoding would store and display all 2-byte UTF8 characters correctly except for the euro character which is replaced by '?' before being stored. As Confluence's encoding was set to UTF-8, the 2-byte UTF-8 characters were stored in **latin1** database assuming that they were two **latin1** different characters, instead of one utf8 character. Nevertheless, this is not the case for 3-byte utf8 characters, such as the Euro symbol.

Please ensure that you set the character encoding to UTF-8 for all the entities of your system as advised in this [guide](#).

**MySQL 3.x Character Encoding Problems**

MySQL 3.x is known to have some problems upper- and lower-casing certain (non-ASCII) characters.

**Diagnosing the problem**

1. Follow the instructions for [Troubleshooting Character Encodings](#).
2. If the upper- and lower-cased strings displayed on the Encoding Test are different, then your database is probably affected.

An example (faulty) output of the Encoding Test is shown below:

*Screenshot: Encoding Test Output*
Configuring Mail

- Configuring a Server for Outgoing Mail
- Enabling the 'Mail Page' plugin
- The Mail Queue
- Customising the eMail Templates

Solution

Upgrade to a newer version of MySQL. (4.1 is confirmed to work.)
Configuring Confluence to Send Outgoing Mail

To configure Confluence to send outgoing mail:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Mail Servers' under 'Configuration' in the left panel. This will list all currently configured SMTP servers.
3. Click 'Add New SMTP Server' (or edit an existing server).
4. Edit the following fields as required:
   - Name: By default, this is simply 'SMTP Server'.
   - From Address: Enter the email address that will be displayed in the 'from' field for email messages originating from this server.
     - This field is mandatory. You will not be able to complete the Confluence mail server configuration until this field has been specified.
   - From Name: Enter the name that will be displayed in the 'from' field for email messages originating from this server. This is the text which appears before the user's registered email address (in angled brackets).
     - This field accepts the following variables, which reference specific details defined in the relevant Confluence user's profile:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>${fullname}</td>
<td>The user's full name.</td>
</tr>
<tr>
<td>${email}</td>
<td>The user's email address.</td>
</tr>
<tr>
<td>${email.hostname}</td>
<td>The domain/host name component of the user's email address.</td>
</tr>
</tbody>
</table>

   - Subject Prefix: Enter a subject prefix, if required.
5. Configuring the Host Address, User Name and Password:
   - Manually enter your 'Host Address', 'User Name' and 'Password' details in the form fields displayed (recommended).
   - OR
   - Specify the 'JNDI location' of a mail session configured in your application server in the form field displayed.

Troubleshooting

If you experience problems with these configurations, please check that your <Confluence-Install>/confluence/WEB-INF/lib contains only one copy of the following JAR files:

- activation-x.x.x.jar
- mail-x.x.x.jar

Ideally, these should be:

- activation-1.0.2.jar
- mail-1.3.2.jar (or later)

You will then need to move these into the proper directory:

Standalone distribution: Please move (not copy) the two jar files from the <Confluence-Install>/confluence/WEB-INF/lib directory to <confluence-install>/lib (for Confluence version 2.10 onwards) or <Confluence-Install>/common/lib (for earlier product versions) and restart Confluence.

Related Topics

No content found for label(s) mail-configuration.

Enabling the 'Mail Page' plugin

The 'Mail Page' plugin allows anyone with the 'View' space permission to Confluence's flexible method for emailing a page.
The 'Mail Page' plugin is disabled by default, which means that the 'Mail Page' option for emailing a Confluence page is not available by default.

This plugin only works when your Confluence site's mail server is configured.

You need to have System Administrator permissions in order to perform this function.

To enable the 'Mail Page' plugin:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select Plugins under 'Configuration' in the left-hand panel. This will list all plugins that are currently installed in your Confluence system.
   - The 'Mail Page Plugin' is listed under the 'System Plugins' section. If no plugins are listed under this section, click the 'Show System Plugins' link to reveal these plugins.
3. Click the 'Mail Page Plugin' to display its details.
4. To enable the 'Mail Page Plugin', click the 'Enable' button.
5. You can enable/disable the following modules, based on the areas of Confluence you wish to enable access to this feature:
   - 'Mail Page Link (Info Tab)' — displays the 'E-mail' link next to the 'Copy' link on the page's 'Information' view (see 'Mail Page Link (Info Tab)').
   - 'Mail Page Link (Drop Down Menu)' — displays the 'E-mail' option in the 'Tools' menu (see 'E-mailing a Page').
   - 'mailpageactions' — enables the 'Mail Page' for the two email operation modules above. You must enable this module for either of these two email operation modules to work!

RELATED TOPICS

No content found for label(s) mail-configuration.

The Mail Queue

Email messages waiting to be sent out are queued in a mail queue and periodically flushed from Confluence once a minute. A Confluence administrator can also manually flush emails from the mail queue.

If there is an error sending messages, the failed emails are sent to an error queue from which you can either try to resend them or delete them.

To view the mail queue,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Mail Queue' in the left-hand panel. This will display the emails currently in the queue.
3. Click 'Flush Mail Queue' to send all emails immediately.
4. Click 'Error Queue' to view failed email messages. You can try to 'Resend' the messages, which will flush the mails back to the 'Mail Queue' or 'Delete' them from here.

RELATED TOPICS

No content found for label(s) mail-configuration.
Attachment Storage Configuration

Confluence allows you to store attachments in one of three places:

- Filesystem - locally in the Confluence home directory
- Database - in Confluence's configured database
- WebDAV - remotely on a WebDAV server (*deprecated*)

A System Administrator can configure Confluence's attachment storage via the 'Attachment Storage' option on the 'Administration Console'.

You need to have System Administrator permissions in order to perform this function.

Attachment Storage Options

Local File System

By default, Confluence stores attachments in the attachments directory within the configured Confluence home folder. If you are looking to run Confluence Clustered, attachments must be stored in the database.

Database

Confluence gives administrators the option to store attachments in the database that Confluence is configured to use.

Here are some reasons why, as an administrator, you may want to choose this storage system:

- Ease of backup.
- Avoiding issues with certain characters in attachment file names.

While storing attachments in the database can offer some advantages, please be aware that the amount of space used by the database will increase because of the greater storage requirements.

WebDAV

Confluence also allows administrators to set an external WebDAV repository as the location for attachment storage.

WebDAV attachment manager deprecated

The option to store Confluence attachments on a WebDAV server has never worked in a useful fashion, and has not been maintained for many versions.

- The WebDAV attachment manager will be deprecated from Confluence 2.7, and will be removed from a later version of Confluence.
- If you store attachments on external WebDAV servers, we recommend that you migrate to file-system or database-backed attachment storage as soon as possible. Refer to CONF-9313 and CONF-2887.
- This DOES NOT affect the operation of the WebDAV plugin.

Migration between Attachment Storage Systems

You can 'migrate' your attachments from one storage system to another. All existing attachments will be moved over to the new attachment storage system.

When the migration occurs, all other users will be locked out of the Confluence instance. This is to prevent modification of attachments while the migration occurs. Access will be restored as soon as the migration is complete.
When migrating attachments from your database to a filesystem, the attachments are removed from the database after migration. However, when migrating attachments from a filesystem to your database, the attachments remain on the filesystem after migration. If you wish to change this function's behaviour from 'copy' to 'move', please see CONF-14802 and cast your vote.

To perform a migration, follow the steps below:

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click 'Attachment Storage' in the left-hand panel. The current configuration will be displayed.

   ![Attachment Storage Configuration](image)

3. Click the 'Edit' button to modify the configuration.
4. Select the storage system you desire.
5. Click the 'Save' button to save the changes.
6. A screen will appear, asking you to confirm your changes. Clicking 'Migrate' will take you to a screen that displays the progress of the migration.

   ![Migration Warning](image)

**Troubleshooting**

To enable debug logging for WebDAV attachment storage, add the following to the bottom of **WEB-INF/classes/log4j.properties** and restart Confluence:
Hierarchical File System Attachment Storage

Introduction

For Confluence version 3.0, the structure of attachments stored on the filesystem was changed. In versions of Confluence prior to 3.0, attachments were stored in directories corresponding to the id of the content to which they belong. The more content in Confluence with attachments, the more directories you would have immediately beneath your configured attachments directory. This directory structure has been changed in Confluence 3.0 and since the default configuration of Confluence is to store attachments in the filesystem, this change is likely to have relevance to administrators of most existing Confluence installations.

If you are installing Confluence for the first time, there will be no consequences as a result of this change. If you are upgrading from a previous version of Confluence, the migration to this new filesystem structure should happen automatically during the upgrade.

The reason for introducing this change was to address the issue CONF-13004. Certain file systems have a limit on the number of files that can be stored in a directory and large Confluence installations were reaching this limit. In addition, storing too many files at a single directory level can cause performance degradation in some circumstances. This new attachment storage strategy ensures this will no longer be the case.

The New Directory Layout

The attachment storage layout was chosen to fulfil the following main requirements:

1. Limit the number of entries at any single level in a directory structure.
2. Partition attachments per space making it possible for a system admin to selectively back up attachments from particular spaces (see the JIRA issue for more details).

An attachment in Confluence can be thought of as having a number of identifying attributes: id, space id and content id. That is to say, the attachment logically belongs to a piece of content which logically belongs in a space (not all content belongs to a space). For attachments within a space in Confluence, the directory structure is typically 8 levels, with the name of each directory level based on the following algorithm:

<table>
<thead>
<tr>
<th>level</th>
<th>Derived From</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (top)</td>
<td>Always 'ver003' indicating the Confluence version 3 storage format</td>
</tr>
<tr>
<td>2</td>
<td>The least significant 3 digits of the space id, modulo 250</td>
</tr>
<tr>
<td>3</td>
<td>The next 3 least significant digits of the space id, modulo 250</td>
</tr>
<tr>
<td>4</td>
<td>The full space id</td>
</tr>
<tr>
<td>5</td>
<td>The least significant 3 digits of the content id, modulo 250</td>
</tr>
<tr>
<td>6</td>
<td>The next 3 least significant digits of the content id, modulo 250</td>
</tr>
</tbody>
</table>
Within the 8th level will be a file for each version of that attachment, named to match the version number e.g. 1

An example:

**Attachments:**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
<tr>
<td>id: 745644</td>
<td>id: 782234</td>
<td>id: 771250</td>
</tr>
<tr>
<td>space id: 800432</td>
<td>space id: 800432</td>
<td>space id: 810032</td>
</tr>
<tr>
<td>content id: 632780</td>
<td>content id: 620002</td>
<td>content id: 603101</td>
</tr>
</tbody>
</table>

**Directory Structure:**

To find the directory where attachments for a particular space are stored, you can use the JSP `findspaceattachments.jsp` at the location `<confluence url>/admin/findspaceattachments.jsp`. This JSP requires a space key and returns the directory on the file system where attachments for that space are stored.

Attachment D in the above diagram is stored in a slightly different structure. Attachments that are not conceptually within a space replace the
level 2 - 4 directories with a single directory called ‘nonspaced’. Examples of such attachments are the global site logo and also attachments on draft content.

**Upgrading to the new attachment storage structure**

As mentioned previously, this upgrade is only necessary if you have Confluence configured to store attachments on the file system.

If migration is not necessary due to a different storage configuration (for example, because attachments are stored in the database), then no migration will occur during upgrade and the Confluence log will simply show the following messages -

```
INFO [main] [AbstractUpgradeManager] upgradeStarted Starting automatic upgrade of Confluence
INFO [main] [UpgradeTask] isUpgradeNeeded The configured attachmentDataDao does not store attachment data on the file system so the HierarchicalFileSystemAttachmentUpgradeTask is not necessary.
INFO [main] [AbstractUpgradeManager] upgradeFinished Upgrade completed successfully
```

Should migration be required, it will occur automatically during upgrade and the log will show output similar to this -

```
INFO [main] [UpgradeTask] doUpgrade Beginning HierarchicalFileSystemAttachmentUpgradeTask.
Depending on the size of the attachment data this may take some time.
INFO [main] [UpgradeTask] run 4023 pages may have attachments to be moved to a new hierarchical structure.
INFO [main] [UpgradeTask] run 0 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 500 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 1000 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 1500 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 2000 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 2500 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 3000 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 3500 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run 4000 of 4023 pages have had their attachments moved to the new structure
INFO [main] [UpgradeTask] run Successfully moved the attachments for all 4023 pages to the new hierarchical structure.
INFO [main] [UpgradeTask] doUpgrade Completed HierarchicalFileSystemAttachmentUpgradeTask.
INFO [main] [AbstractUpgradeManager] upgradeFinished Upgrade completed successfully
```

It should be noted that for most implementations of Java, the migration to the new data structure involves moving the files (not copying them). Hence, there should not be a need to have additional disk space available. It also means that the migration should be relatively fast.

**Have you previously applied the CONF-8298 patch?**

The patch or workaround on the CONF-8298 issue changed the structure of attachment storage but not to the most efficient possible structure. So during the Confluence 3.0 upgrade process this intermediate (CONF-8298) structure will be detected and automatically upgraded.

**Troubleshooting the upgrade**

It should be noted that in the event of a failure, your attachment directory may be in an inconsistent state and your first step in troubleshooting should be to restore the backup of your home directory.

There are a number of reasons the migration could fail. This will be shown in the log with a message similar to "Failed to move the attachments for all pages to the new hierarchical structure."

Immediately preceding this message in the log will be entries for each page whose attachments could not be moved. The following table shows examples of these messages and offers some possible explanations.
### Example Message

<table>
<thead>
<tr>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The configured attachment directory <code>&lt;directory name&gt;</code> could not be found or was not a directory.</td>
<td>The configured Confluence attachment directory is not accessible. Check confluence home for the attachment directory and ensure the permissions are correct to allow reading and writing for this directory.</td>
</tr>
<tr>
<td>It is not possible to migrate the attachments to the new structure since files already exist which the attachment process may need to create.</td>
<td>Your attachments directory contains files or directories which the upgrade task wants to create. That is, a top level directory called ver003 containing directories or files with names containing up to 3 digits (e.g. 1, 213). This could be due to a previous failed attempt to migrate the attachments. You should restore a previous good copy of your attachments directory and remove any files or directories with this naming pattern before retrying.</td>
</tr>
<tr>
<td>Couldn't find current Confluence content for the id <code>&lt;content Id&gt;</code>. The attachment is a non-spaced attachment (e.g. global logo, draft attachment, etc) and will be migrated to the nonspaced directory.</td>
<td>This is a normal message indicating that the attachment being migrated does not belong to a space e.g. global logo.</td>
</tr>
<tr>
<td>Problem while accessing the database for content id <code>&lt;content Id&gt;</code> so its attachments will not be migrated.</td>
<td>It was not possible to access the database at this point during the migration. You will need restore your Confluence attachment directory from the backup and attempt the upgrade again, once the database is accessible again.</td>
</tr>
<tr>
<td>Couldn't create the new attachment directory.</td>
<td>The upgrade task could not create the new directory to contain the attachment being moved. Does the server user have sufficient permission to perform this operation in the indicated directory? Is there sufficient disk space?</td>
</tr>
<tr>
<td>Failed to move the current attachment directory <code>&lt;some path&gt;</code> to the new location of <code>&lt;some other path&gt;</code>.</td>
<td>The upgrade task could not move the directory. Does the server user have sufficient permission to perform this operation in the indicated directory?</td>
</tr>
</tbody>
</table>

### Configuring a WebDAV client for Confluence

WebDAV allows users to access Confluence content via a WebDAV client, such as 'My Network Places' in Microsoft Windows. Provided that the user has permission, they will be able to read and write to spaces, pages and attachments in Confluence. Users will be asked to log in and the standard Confluence content access permissions will apply to the equivalent content available through the WebDAV client.

On this page:

- Introduction to Confluence's WebDAV Client Integration
- Restricting WebDAV Client Write Access to Confluence
- Disabling Strict Path Checking
- Virtual Files and Folders
- Using a WebDAV Client to Work with Pages
  - Setting Up a WebDAV Client in Microsoft Windows
    - Windows Network Drive
    - Windows Web Folder
  - Setting up a WebDAV client in Linux or Solaris
- Known Issues

### Introduction to Confluence's WebDAV Client Integration

By default, all WebDAV clients have permission to write to Confluence. Write permissions include the ability for a WebDAV client to create, edit, move or delete content associated with spaces, pages and attachments in a Confluence installation.

On the 'WebDAV Configuration' screen in the Confluence Administration Console, you can:

- Deny a WebDAV client write permissions to a Confluence installation using a regular expression (regex).
- Disable or enable strict path checking.
- Enable or disable access to specific virtual files/folders.

Note:

- The 'WebDav Configuration' page is only be available if the WebDAV plugin has been enabled. Refer to Installing Plugins and Macros for more information on enabling Confluence plugins. Note that this plugin is bundled with Confluence, and can be enabled or disabled by the System Administrator.
- The settings on the 'WebDav Configuration' page do not apply to external attachment storage configuration.

### Restricting WebDAV Client Write Access to Confluence
In earlier versions of the WebDAV plugin, separate options for restricting a WebDAV client's write permissions (that is, create/move, edit and delete actions), were available. However, in the current version of this plugin, they have been simplified and combined into a general write permission restriction that covers all of these actions.

WebDAV clients are now denied write permission to your Confluence installation by setting a regex that matches specific content within the WebDAV client's user agent header. Upon setting a regex, it will be added to a list of restricted WebDAV clients. Any WebDAV clients whose user agent header matches a regex in this list will be denied write permission to your Confluence installation.

**Example: A PROPFIND method header generated by a Microsoft Web Folder WebDAV client, showing the user agent header field:**

```
PROPFIND /plugins/servlet/confluence/default HTTP/1.1
Content-Language: en-us
Accept-Language: en-us
Content-Type: text/xml
Translate: f
Depth: 1
Content-Length: 489
User-Agent: Microsoft Data Access Internet Publishing Provider DAV
Host: 127.0.0.1:8082
Connection: Keep-Alive
```

Unlike earlier versions of the WebDAV plugin which could only restrict write permissions for all WebDAV clients, the current version of this plugin allows you to restrict write permissions to specific WebDAV clients selectively.

**To restrict a WebDAV client’s write access permissions to your Confluence installation,**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘WebDav Configuration’ under ‘Configuration’ in the left panel. The ‘WebDAV Configuration’ page is displayed.
3. Enter a regex that matches a specific component of the user agent header sent by the WebDAV client you want to restrict.
4. Click the ‘Add new regex’ button. The regex is added to the list of restricted WebDAV clients.
   - You can repeat steps 3 and 4 to add a regex for each additional WebDAV client you want to restrict.
5. Click the ‘Save’ button to save the configuration changes.

**To restore one or more restricted WebDAV client’s write access permissions to your Confluence installation,**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘WebDav Configuration’ under ‘Configuration’ in the left panel. The ‘WebDAV Configuration’ page is displayed.
3. Select the regex(es) from the list that match(es) the user agent header sent by the restricted WebDAV client(s) you want to restore.
4. Click the ‘Remove selected regexes’ button. The regexes you had selected are removed from the list of restricted WebDAV clients.
5. Click the ‘Save’ button to save the configuration changes.

*Screenshot: WebDAV configuration*
Disabling Strict Path Checking

If you observe any idiosyncrasies with your WebDAV client, such as a folder that does exist on your Confluence site but is missing from the client, you can disable the WebDAV plugin's strict path checking option, which may minimise these problems.

To disable the WebDAV plugin's strict path checking option,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'WebDAV Configuration' under 'Configuration' in the left panel. The 'WebDAV Configuration' page is displayed.
3. Clear the 'Disable strict path check' check box.
4. Click the 'Save' button to save this configuration change.

Virtual Files and Folders

In the unlikely event that you observe any problems with the WebDAV client's performance or stability, you can enable access to automatically generated (that is, virtual) files and folders.

By default, these options are hidden on the 'WebDAV Configuration' page. To make them visible, you must append the parameter ?hiddenOptionsEnabled=true to the end of your URL and reload the page. For example:

```
<Confluence base URL>/admin/plugins/webdav/config.action?hiddenOptionsEnabled=true
```
To enable or disable access to virtual files and folders,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'WebDAV Configuration' under 'Configuration' in the left panel. The 'WebDAV Configuration' page is displayed.
3. Amend your URL as described in the note above and reload the 'WebDAV Configuration' page.
4. Select or clear the check box options in the 'Virtual Files and Folders' section as required.
5. Click the 'Save' button to save the configuration changes.

Using a WebDAV Client to Work with Pages

The following sections tell you how to set up a WebDAV client natively for a range of different operating systems. WebDAV clients typically appear as drives in your operating system's file browser application, such as Windows Explorer in Microsoft Windows, or Konqueror in Linux.

Setting Up a WebDAV Client in Microsoft Windows

This section covers the two methods for configuring a WebDAV client natively in Microsoft Windows:

- As a network drive
- As a web folder

If possible, use the network drive method as this will enable more comprehensive WebDAV client interaction with Confluence than that provided by a web folder. However, your Confluence instance must meet several environmental constraints if you use this method. If you cannot configure your instance to meet these requirements, then use the web folder method or third-party WebDAV client software.

Windows Network Drive

To map a Confluence WebDAV client network drive, your Confluence instance must be configured so that all of the following criteria is met:

- Uses HTTP (not HTTPS)
- Listens on port 80 (not 8080, which is the default port value used by the popular application server Apache Tomcat that runs many Confluence EAR / WAR installations, or 8090, the default for Confluence Standalone distributions)
- Has no context root
- There is an issue (WBDV-208) that can prevent Network Drives from being mapped. Please use the Network Folders steps below as a workaround.

The reason for these restrictions results from limitations in Microsoft's Mini-Redirector component. For more information, please refer to Microsoft's server discovery issue.

To map a Confluence WebDAV client network drive in Microsoft Windows,
1. In Windows XP, go to My Computer -> Tools menu -> Map Network Drive.
   In Windows Vista, go to Computer -> Map Network Drive.
   The 'Map Network Drive' dialog box opens.
2. Specify the following input to map the WebDAV client as a network drive:
   - **Drive:** Any drive letter (for example, Z:)
   - **Folder:** `<hostname>\webdav` (for example, `\localhost\webdav`)
3. Click 'Finish'.
   When prompted for login credentials, specify your Confluence username and password.

**Windows Web Folder**

**To map a Confluence WebDAV client web folder in Windows XP,**

1. Go to My Network Places and choose 'Add a network place'. The 'Add Network Place Wizard' opens.
2. Click 'Next', ensure that 'Choose another network location' is selected and then click 'Next' again.
3. In the 'Internet or network address' field, enter the URL for the Confluence WebDAV location (for example, `http://<confluence server url>/confluence/plugins/servlet/confluence/default` or `http://<confluence server url>/plugins/servlet/confluence/default`) and then click 'Next'.
   When prompted for login credentials, specify your Confluence username and password.
4. Provide a meaningful name for your web folder and proceed with the remainder of the wizard.
5. Click 'Finish'.

**Screenshot: A Confluence WebDAV Client Web Folder in Windows XP**

**To map a Confluence WebDAV client web folder in Windows Vista,**

- This procedure is very similar to the one for Windows XP. However, the following procedure includes the slight interface differences that are specific to Windows Vista.

1. Open the 'Map Network Drive' dialog box (refer to first step of the procedure above for mapping a network drive) and choose 'Connect to a web site that you can use to store your documents and pictures'. The 'Add Network Location' wizard opens.
2. Click 'Next', ensure that 'Choose a custom network location' is selected and then click 'Next' again.
3. In the 'Internet or network address' field, enter the URL for the Confluence WebDAV location (for example, `http://<confluence server url>/confluence/plugins/servlet/confluence/default` or `http://<confluence server url>/plugins/servlet/confluence/default`) and then click 'Next'.
   When prompted for login credentials, specify your Confluence username and password.
4. Provide a meaningful name for your network location/web folder and proceed with the remainder of the wizard.
5. Click 'Finish'.

**Setting up a WebDAV client in Linux or Solaris**

There are many tools and mechanisms available for configuring WebDAV clients in these operating systems. Therefore, we have chosen to demonstrate this using the file manager **Konqueror**, which is part of the Linux **K Desktop Environment**.
To set up a Confluence WebDAV client in Konqueror,

1. Open Konqueror.
2. In the 'Location' field, enter the URL for the Confluence WebDAV location using the 'protocol' webdavs (for example, webdavs://<confluence server url>/confluence/plugins/servlet/confluence/default or webdavs://<confluence server url>/plugins/servlet/confluence/default) and press Enter.

   If prompted for login credentials, specify your Confluence username and password. You should be able to click to load many, but not all files. In practice, you would normally save a modified file locally, then drag it to the Konqueror window to upload it to Confluence.

Known Issues

Please refer to the WebDAV plugin documentation for a description of the known issues and suggested workarounds.

RELATED TOPICS

No content found for label(s) data-storage,webdav.

Configuring Quick Navigation

When a user is searching Confluence (see Using the Quick Navigation Aid) the quick navigation aid automatically offers a dropdown list of pages and other items, matched by title to the search query. By default, this feature is enabled, with the maximum number of simultaneous quick navigation requests set to 40. However, these options can be modified as described below.

The maximum number of simultaneous quick navigation requests defines the maximum number of individuals who can use this feature simultaneously on the same Confluence server. If your Confluence server serves a large number of individuals who use this feature regularly, some of whom are being denied access to it, you may wish to increase this value.

To modify the quick navigation feature's options,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'General Configuration' in the left-hand panel.
3. In the 'General Configuration' screen, click 'Edit'.
4. To disable this feature, select 'Off' beside 'Quick Navigation'.
5. To modify the maximum number of simultaneous quick navigation requests, enter the appropriate number in the field beside 'Max Simultaneous Requests'.
6. Click 'Save'.

The following screenshot demonstrates the user interface of the quick navigation aid.

Screenshot: The quick navigation aid showing titles matching the query 'mark'
Enabling OpenSearch

With OpenSearch autodiscovery, you can add Confluence search to your Firefox or IE7 search box (see Searching Confluence from your Browser's Search Box). By default, OpenSearch autodiscovery is enabled. This feature can be enabled or disabled as described below.

To enable or disable OpenSearch autodiscovery,

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the 'Administration Console'.
2. Select 'General Configuration' in the left-hand panel.
3. In the 'General Configuration' screen, click 'Edit'.
4. Select 'On' beside 'Open Search' to enable this feature, or 'Off' to disable it.
5. Click 'Save'.

Enabling the Did You Mean Feature

When you perform a full Confluence search, Confluence may offer you an alternative spelling of your search query. The alternative spelling will appear next to the words 'Did you mean'. By default, this feature is disabled. You can enable it as described below.

To enable the 'Did You Mean' feature,
1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'General Configuration' in the left-hand panel.
3. In the 'General Configuration' screen, click 'Edit'.
4. Select 'On' beside 'Did You Mean'.
   - If you have no 'Did you mean' feature index or you have not yet created it, this option will not be available. To create this index, click 'build the did-you-mean index' and on the subsequent page, click 'Build' in the 'Did You Mean Index' section. Then return to the 'General Configuration' screen in Edit mode.
5. Click 'Save'.

Languages and Locales

The 'Did You Mean' feature supports only the English language. In addition, the 'Did You Mean' index requires the built-in UK-English locale (en_UK). If your Confluence site uses a different language pack, such as English (US), the 'Did You Mean' feature will not work. You will see an error message like this:

For Did You Mean both the indexing language and the global default language must be set to English.

For more information about how the 'Did You Mean' feature works, please refer to the user guide.

You can track the request to support other languages by watching issue CONF-14768.

RELATED TOPICS

Searching Confluence

Enabling the Remote API

Confluence provides XML-RPC and SOAP remote APIs. You need to enable the APIs from the Administration Console before you can access Confluence remotely.

You need to have System Administrator permissions in order to perform this function.

To enable the remote API,

   1. Go to the Confluence 'Administration Console':
      - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
      - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
   2. Select 'General Configuration' in the left-hand panel.
   3. Click 'Edit' next to 'Site Configuration'.
   4. Select 'On' next to 'Remote API (XML-RPC & SOAP)'.
   5. Click 'Save' to retain your changes.

RELATED TOPICS

No content found for label(s) remoteapi.

Confluencer.NET

Enabling Threaded Comments

Comments on pages or blog posts are displayed in one of two views:

- **Threaded**: Shows the comments in a hierarchy of responses. Each reply to a comment is indented to indicate the relationships between the comments.
- **Flat**: Displays all the comments in one single list and does not indicate the relationships between comments.

By default, comments are displayed in threaded mode. The Confluence administrator can enable or disable the threaded view for the entire Confluence site.

To enable or disable the threaded view:
1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select General Configuration in the left-hand panel.
3. In the 'Feature Settings' section, click Edit.
4. Check Threaded Comments to enable threaded mode. Clear the check box to disable threaded mode and display all comments in flat mode.
5. Click Save.

**Related Topics**

No content found for label(s) commenting.

### Enabling Trackback

When Trackback is enabled, any time you link to an external webpage that supports Trackback Autodiscovery, Confluence will send a trackback ping to that page to inform it that it has been linked to.

Confluence pages also support Trackback Autodiscovery and when Trackback is enabled, can receive trackback pings sent by other sites.

To enable trackback,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'General Configuration' in the left panel.
3. In the 'Feature Settings' screen, click 'Edit'.
4. Select 'On' beside 'Trackback' and click 'Save'.

**RELATED TOPICS**

No content found for label(s) security-options.

### Other Settings

- Configuring Attachment Size
- Configuring Character Encoding
- Configuring HTTP Timeout Settings
- Configuring Indexing Language
- Configuring Number Formats
- Configuring Shortcut Links
- Configuring Time and Date Formats
- Thumbnail Settings

### Configuring Attachment Size

Confluence gives you the option of limiting the maximum size of a single file attachment. Confluence administrators should keep in mind that the amount of disk space used by Confluence is directly proportional to the number and size of attachments put into the system.

To configure the maximum size allowed for an attachment:

1. Go to the 'Administration Console' and click 'General Configuration' in the left-hand panel.
2. Click 'Edit' on the 'General Configuration' screen.
3. Enter the maximum size next to 'Attachment Maximum Size'. The default is 10 MB.
4. 'Save' your changes.

To configure the maximum 'index-able size of attachments':
By default, large attachment is defined as greater than 1 MB. The threshold for attachments that won't get excerpts can be modified using the system property `atlassian.indexing.contentbody.maxsize`, which takes a size in bytes.

**Example**

To specify 250 kb you would use the following JVM parameter:

```
-Datlassian.indexing.contentbody.maxsize=256000
```

**Outcomes of Limiting Attachment Indexing Size**

Limiting the size of attachment indexing has the following effects:

- Decreases the size of the index when large attachments are present.
- Decreases the memory used in indexing large attachments.
- Prevent excerpts of large attachments being displayed in search results.

For more details, please refer to the following JIRA issue.

**Related Topics**

No content found for label(s) other-settings.

---

**Configuring Character Encoding**

Confluence uses UTF-8 character encoding to deliver its pages. While it is possible to change the character encoding, unless you are certain of what you are doing, we recommend that you leave this as it is.

**To change the character encoding:**

1. Go to the 'Administration Console' and click on 'General Configuration' in the left panel.
2. Click 'Edit' at the bottom of the 'Formatting and International Settings' screen. For Confluence version earlier than 2.6.2, look for the 'Options and Settings' screen.
3. Beside 'Encoding', enter the new character encoding of your choice.
4. 'Save' your changes.

**Related Links**

Joel Spolsky: The Absolute Minimum Every Software Developer Absolutely, Positively Must Know About Unicode and Character Sets (No Excuses!)

**Related Topics**

No content found for label(s) other-settings.

---

**Configuring HTTP Timeout Settings**

When macros such as the RSS Macro make HTTP requests to servers which are down, a long timeout value is used. You can set this timeout value through a system parameter to avoid this.

**To configure the HTTP Timeout Settings:**

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'General Configuration' under the 'Configuration' heading in the left-hand panel.
3. Find the 'Connection Timeouts' section in the lower portion of the screen.
4. Click 'Edit' to adjust the settings:
   - **Adjust External connections enabled**: This setting allows system administrators to disable external connections so macros like the RSS Macro won't be allowed to make connections to an external server. It's provides protection against external servers providing insecure HTML, timing out or causing performance problems. The default setting is 'true'.
   - **Connection Timeout (milliseconds)**: Sets the maximum time for a connection to be established. A value of zero means...
the timeout is not used. The default setting is ten seconds (10000).

- **Socket Timeout (milliseconds):** Sets the default socket timeout (SO_TIMEOUT) in milliseconds, which is the maximum time Confluence will wait for data. A timeout value of zero is interpreted as an infinite timeout. The default setting is ten seconds (10000).

### Configuring Indexing Language

Changing the indexing language defined in Confluence may improve the accuracy of Confluence search results, if the majority of the content of your site is in some language other than English. Confluence supports content indexing in English (default), German, Russian, Chinese, CJK, Custom Japanese, French, Brazilian, Czech and Greek.

To configure a different indexing language:

1. Go to the 'Administration Console' and click 'General Configuration' in the left-hand panel.
2. Click any of the 'Edit' links.
3. Select the 'Indexing Language' from the dropdown list in the 'Formatting and International Settings' section.
4. Click 'Save'.

**Related Topics**

Choosing a Default Language
Installing a Language Pack
Content Index Administration
Rebuild the Content Indices from scratch
Creating a Lowercase Page Title Index

### Configuring Number Formats

To change the number formats:

1. Go to the 'Administration Console' and click on 'General Configuration' in the left panel.
2. Click 'Edit' at the bottom of the 'Options and Settings' screen.
   - There are two number format settings:
     - Long Number Format
     - Decimal Number Format
3. Change the formats using the guidelines in this document.
4. 'Save' your changes.

**Related Topics**

No content found for label(s) other-settings.

---

**Administrators Guide Home**  **Confluence Documentation Home**

### Configuring Shortcut Links

Shortcut links provide a quick way of linking to resources frequently referenced from Confluence. When you create a shortcut link, you are assigning a key to a URL so that when a user edits Confluence documents they can type the key instead of the complete URL.

**Here is an example:**

Most Google searches look like this: http://www.google.com/search?q=. If you create a shortcut for this search with the key 'google', every time a user needs to use http://www.google.com/search?q=, they can just type [searchterms]@google instead.

Here is a screenshot showing the shortcuts currently defined on http://confluence.atlassian.com:

<table>
<thead>
<tr>
<th>Key</th>
<th>Expanded Value</th>
<th>Default Alias</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>cache</td>
<td><a href="http://www.google.com/search?q=cache">http://www.google.com/search?q=cache</a>:</td>
<td></td>
<td>Remove</td>
</tr>
<tr>
<td>imdb</td>
<td><a href="http://us.imdb.com/title">http://us.imdb.com/title</a>?</td>
<td></td>
<td>Remove</td>
</tr>
<tr>
<td>jira</td>
<td><a href="http://jira.atlassian.com/secure/QuickSearch.jspa?searchString=">http://jira.atlassian.com/secure/QuickSearch.jspa?searchString=</a></td>
<td>JIRA Issue %s</td>
<td>Remove</td>
</tr>
<tr>
<td>googlegroups</td>
<td><a href="http://groups.google.com/groups?q=">http://groups.google.com/groups?q=</a></td>
<td></td>
<td>Remove</td>
</tr>
<tr>
<td>google</td>
<td><a href="http://www.google.com/search?q=">http://www.google.com/search?q=</a></td>
<td></td>
<td>Remove</td>
</tr>
<tr>
<td>dictionary</td>
<td><a href="http://www.dict.org/bin/DictDatabase=%0Form=Dict1&amp;Strategy=*&amp;Query=">http://www.dict.org/bin/DictDatabase=%0Form=Dict1&amp;Strategy=*&amp;Query=</a></td>
<td></td>
<td>Remove</td>
</tr>
</tbody>
</table>

Shortcut links are added and maintained by Confluence administrators from the Administration Console.

**To create a shortcut link:**
1. Go to the Administration Console and click Shortcut Links in the left panel.
2. Enter a Key for your shortcut. This is the shortcut name a user will use to reference the URL.
3. Enter the Expanded Value. This is the URL for the link. You can use '%s' in the URL to specify where the user's input is inserted. If there is no '%s' in the URL, the user's input will be put at the end.
4. (Optional. Available in Confluence version 2.3 and later.) Enter a Default Alias. This is the text of the link which will be displayed on the page where the shortcut is used, with the user's text being substituted for '%s'.
5. Click Save.

Using Shortcut Links:

Specify in the link what should go on the end of the shortcut URL, followed by an at-sign (@) and the key of the shortcut. Shortcut names are case-insensitive. So, for example, using the keys shown in the above screenshot:

<table>
<thead>
<tr>
<th>To link to...</th>
<th>Type this</th>
<th>Resulting URL</th>
<th>Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>a JIRA issue</td>
<td>[CONF-1000@JIRA]</td>
<td><a href="http://jira.atlassian.com/secure/QuickSearch.jspa?searchString=CONF-1000">http://jira.atlassian.com/secure/QuickSearch.jspa?searchString=CONF-1000</a></td>
<td>CONF-1000</td>
</tr>
<tr>
<td>a Google search</td>
<td>[Atlassian Confluence@Google]</td>
<td><a href="http://www.google.com/search?q=Atlassian+Confluence">http://www.google.com/search?q=Atlassian+Confluence</a></td>
<td>Atlassian Confluence@Google</td>
</tr>
</tbody>
</table>

Shortcut links can have titles just like any other link:

<table>
<thead>
<tr>
<th>To link to...</th>
<th>Type this</th>
<th>Resulting URL</th>
<th>Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Movie Database</td>
<td>[Fight Club</td>
<td>tt0137523@IMDB]</td>
<td><a href="http://us.imdb.com/Title?tt0137523">http://us.imdb.com/Title?tt0137523</a></td>
</tr>
</tbody>
</table>

Deleting Shortcut Links:

Once you have created a shortcut link, it is listed under Shortcut Links in the Administration Console. Click Remove to delete the shortcut.

Related Topics

- Administrators Guide Home
- Confluence Documentation Home

Configuring Time and Date Formats

Confluence allows you to localise the formats used to display dates and times within the web interface. The settings use the syntax of Java's SimpleDateFormat class (described below).

To change the time and date formats:

1. Go to the Administration Console and click on 'General Configuration' in the left panel.
2. Click 'Edit' at the bottom of the 'Options and Settings' screen.
   - There are three time and date format settings:
     - Time Format : displaying only the time of day (for example, when each news item is posted)
     - Date Time Format : displaying both the date and the time of day (for example, in historical versions of pages)
     - Date Format : displaying only the date (for example, the creation and most recent modification dates of pages)
3. Change the formats using the guidelines in this document.
4. 'Save' your changes.

Related Links
Thumbnail Settings

The thumbnail settings allow you to define the height and width of images when they are displayed as thumbnails. This affects images displayed by the Gallery macro.

To configure thumbnail settings:

1. Go to Administration Console > General Configuration in the left-hand panel.
2. Choose General Configuration > Edit.
3. Under the heading 'Attachment Settings', enter a value in pixels for:
   - Thumbnail maximum height — The default setting is 200 pixels.
   - Thumbnail maximum width — The default setting is 200 pixels.
4. Save your changes.

Configuring System Properties

This page describes how to set Java properties and options on startup for Confluence Stand-alone and EAR/WAR versions.

- See Fix Out of Memory Errors by Increasing Available Memory for specific instructions for OutOfMemory Errors.

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
- Recognised System Properties
  - RELATED TOPICS

Linux

To Configure System Properties in Linux Installations,

1. From <confluence-install>/bin (Stand-alone) or <Tomcat-home>/bin (EAR-WAR installation), open setenv.sh.
2. Find the section JAVA_OPTS=
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 `<confluence-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open `setenv.bat`.
2. Find the section `set JAVA_OPTS=%JAVA_OPTS%`
3. Refer to the list of parameters below.

Add all parameters in a space-separated list. Make sure to keep the string `%JAVA_OPTS%` in place.

---

**Windows Service**

There are two ways to configure system properties when you Start Confluence Automatically on Windows 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 Confluence is installed as in Windows (Control Panel > Administrative Tools > Services):

   ![Service Name Identification](image)

   In the above example, the **SERVICENAME** is: JIRA030908110721. Find the Confluence equivalent.

2. Open the command window from Start >> Run >> type in 'cmd' >> Enter

3. cd to the bin directory of your Confluence Standalone instance, or the bin directory of your Tomcat installation if your are running Confluence EAR/WAR.

4. Run:

   ```
   tomat6w //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:

   ![Java Tab](image)

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".

![Regedit screenshot](image1)

2. Find the Services entry:
   - **32-bit**: HKEY_LOCAL_MACHINE >> SOFTWARE >> Apache Software Foundation >> Procrun 2.0 >> Confluence
   - **64-bit**: HKEY_LOCAL_MACHINE >> SOFTWARE >> Wow6432Node >> Apache Software Foundation >> Procrun 2.0 >> Confluence

![Services entry screenshot](image2)

3. To change existing properties, especially increasing Xmx memory, double-click the appropriate value.

![Double-clicking property](image3)

4. To change additional properties, double-click options.

![Double-clicking options](image4)

5. Refer to the list of parameters below. Enter each on a separate line.

Verifying Your Settings

To see what Confluence is using, check Viewing System Properties.

Recognised System Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Since</th>
<th>Default Value</th>
<th>Module...</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>atlassian.forceSchemaUpdate</td>
<td>1.0</td>
<td>false</td>
<td>atlassian-config</td>
<td>By default, Confluence will only run its database schema update when it detects that it has been upgraded. This flag will force Confluence to perform the schema update on system startup.</td>
</tr>
<tr>
<td><strong>confluence.home</strong></td>
<td>1.0</td>
<td>Any filesystem path</td>
<td>Confluence and atlassian-config</td>
<td>If this system property is set, Confluence will ignore the contents of the file, and use this property as the setting for the Confluence Home directory.</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----</td>
<td>-------------------</td>
<td>------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>confluence.devmode</strong></td>
<td>1.0</td>
<td>true</td>
<td>Confluence</td>
<td>Enables additional debug logging options that may be of use to Confluence developers (additionally it changes spring bean creation to use lazy initialization by default to decrease startup time). Do not enable this flag on a production system.</td>
</tr>
<tr>
<td><strong>confluence.disable.mailpolling</strong></td>
<td>2.4</td>
<td>false</td>
<td>Confluence</td>
<td>If set to &quot;true&quot;, will prevent Confluence from retrieving mail for archiving within spaces. Manually triggering &quot;check for new mail&quot; via the web UI will still work. This property has no effect on outgoing mail.</td>
</tr>
<tr>
<td><strong>confluence.i18n.reloadbundles</strong></td>
<td>1.0</td>
<td>true</td>
<td>Confluence</td>
<td>Setting this property will cause Confluence to reload its i18n resource bundles every time an internationalised string is looked up. This can be useful when testing translations, but will make Confluence run insanely slowly.</td>
</tr>
<tr>
<td><strong>confluence.ignore.debug.logging</strong></td>
<td>1.0</td>
<td>true</td>
<td>Confluence</td>
<td>Confluence will normally log a severe error message if it detects that DEBUG level logging is enabled (as DEBUG logging generally causes a significant degradation in system performance). Setting this property will suppress the error message.</td>
</tr>
<tr>
<td><strong>confluence.jmx.disabled</strong></td>
<td>3.0</td>
<td>false</td>
<td>Confluence</td>
<td>If set to &quot;true&quot;, will disable Confluence's JMX monitoring. This has the same effect as setting the &quot;enabled&quot; property to false in WEB-INF/classes/jmxContext.xml.</td>
</tr>
<tr>
<td><strong>confluence.optimize.index.modulo</strong></td>
<td>2.2</td>
<td>20</td>
<td>Confluence</td>
<td>Number of index flushes before the index is optimised.</td>
</tr>
<tr>
<td><strong>confluence.plugins.bundled.disable</strong></td>
<td>2.9</td>
<td>false</td>
<td>Confluence</td>
<td>Starts Confluence without bundled plugins. May be useful in a development environment to make Confluence start quicker, but since bundled plugins are necessary for some of Confluence's core functionality, this property should not be set on a production system.</td>
</tr>
<tr>
<td><strong>atlassian.mail.fetchdisabled</strong></td>
<td>3.5</td>
<td>false</td>
<td>Confluence</td>
<td>Disables mail fetching services for IMAP and POP.</td>
</tr>
<tr>
<td><strong>atlassian.mail.senddisabled</strong></td>
<td>3.5</td>
<td>false</td>
<td>Confluence and atlassian-mail</td>
<td>Disables sending of mail.</td>
</tr>
<tr>
<td><strong>atlassian.disable.caches</strong></td>
<td>2.4</td>
<td>true</td>
<td>atlassian-plugins, atlassian-cache-servlet</td>
<td>Setting this property will disable conditional GET and Expires headers on some web resources. This will significantly slow down the user experience, but is useful in development if you are frequently changing static resources and don't want to continually flush your browser cache.</td>
</tr>
<tr>
<td><strong>confluence.html.encode.automatic</strong></td>
<td>2.9</td>
<td></td>
<td>Confluence</td>
<td>Setting this property forces the antixss encoding on or off, overriding the behaviour dictated by settings. The default behaviour differs between Confluence versions.</td>
</tr>
<tr>
<td>Property</td>
<td>Version</td>
<td>Value</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>---------</td>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>org.osgi.framework.bootdelegation</td>
<td>2.10</td>
<td>empty</td>
<td>atlassian-plugins <em><strong>Comma-separated provide from appli Typically required</strong></em>* For example: &quot;con</td>
<td></td>
</tr>
<tr>
<td>confluence.diff.pool.size</td>
<td>3.1</td>
<td>20</td>
<td>Confluence <strong>Maximum number that is ex by RSS feeds to c logged. (The RSS just missing diffs).</strong></td>
<td></td>
</tr>
<tr>
<td>confluence.diff.timeout</td>
<td>3.1</td>
<td>1000</td>
<td>Confluence <strong>Number of milliseconds operation (compar complete before a message.</strong></td>
<td></td>
</tr>
<tr>
<td>atlassian.user.experimentalMapping</td>
<td>2.10</td>
<td>false</td>
<td>Confluence <strong>Setting this property changes the relationship between local users and local groups to reduce performance degradation when adding a local user to a local group with a large number of users. Please note, setting this property can slow management functions. We recommend that you set it only if you are experiencing performance problems when adding local users to large local groups. Please refer to CONF-12319, fixe</strong></td>
<td></td>
</tr>
<tr>
<td>confluence.import.use-experimental-importer</td>
<td>3.2</td>
<td>false</td>
<td>Confluence <strong>Setting this property changes Confluence to use the Experimental XML Importer. It is designed to be a more stable implementation but, at the time of the release of 3.2, the importer is largely untested and thus not supported.</strong></td>
<td></td>
</tr>
<tr>
<td>atlassian.webresource.disable.minification</td>
<td>3.3</td>
<td>false</td>
<td>atlassian-plugins <strong>Disables automatic minification of JavaScript and CSS resources served by Confluence.</strong></td>
<td></td>
</tr>
<tr>
<td>index.queue.thread.count</td>
<td>3.3</td>
<td>See &quot;Effect&quot;</td>
<td>Confluence <strong>Sets the number of threads to be used for the reindex job. The value has to be in the range of 1 to 10 (inclusive), i.e. at least one thread but no more than 10 threads will be used. There is no default value. If you do not set index.queue.thread.count, the number of threads to be used are calculated based on the number of objects that need to be reindexed and the number of processors available (a maximum of 10 threads will be used). If you set index.queue.thread.count=2, then two threads will be used to reindex the content (regardless of the number of objects to be reindexed or the number of processors available). If you set index.queue.thread.count=200, then ten threads (the maximum allowed) will be used to reindex the content.</strong></td>
<td></td>
</tr>
<tr>
<td>index.queue.batch.size</td>
<td>3.3</td>
<td>1500</td>
<td>Confluence <strong>Size of batches used by the indexer. Reducing this value reduces the load that the indexer puts on the system, but indexing takes longer. Increasing this value causes indexing to be completed faster, but puts a higher load on the system. Normally this setting does not need tuning.</strong></td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Since</td>
<td>Default Value</td>
<td>Module...</td>
<td>Effect</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------</td>
<td>---------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>password.confirmation.disabled</td>
<td>3.4</td>
<td>false</td>
<td>Confluence</td>
<td>This property disa confirmation funct uses as an additio this property set, if password confirm. actions: administr: email address anc Disabling passwor you are using a cl.</td>
</tr>
<tr>
<td>confluence.browser.language.enabled</td>
<td>3.5</td>
<td>true</td>
<td>Confluence</td>
<td>Setting this prop detection of brows effectively restorin that of earlier rele: &quot;true&quot; enables the headers sent by it change the UI lan: headers. See doc can choose a lang</td>
</tr>
<tr>
<td>upm.pac.disable</td>
<td>Universal Plugin Manager</td>
<td>false</td>
<td>Universal Plugin Manager (UPM)</td>
<td>When this propert will not try to acce Exchange. This is servers that do no Internet. See the l</td>
</tr>
<tr>
<td>confluence.reindex.documents.to.pop</td>
<td>3.5.9</td>
<td>20</td>
<td>Confluence</td>
<td>Indicates how mai thread should pro re-index. Please n not include attach</td>
</tr>
<tr>
<td>confluence.reindex.attachments.to.pop</td>
<td>3.5.9</td>
<td>10</td>
<td>Confluence</td>
<td>Indicates how mai indexing thread st during a full re-ind</td>
</tr>
<tr>
<td>confluence.upgrade.active.directory</td>
<td>3.5.11</td>
<td>false</td>
<td>Confluence</td>
<td>Forces Confluence directories it migrs rather than relying sAMAccountNam This is necessary before Confluence attribute other thai identify your users error code 4 · exceptions in your Unable to Log in v Due to “LDAP errc Exceeded”</td>
</tr>
<tr>
<td>com.atlassian.logout.disable.session.invalidation</td>
<td>4.0</td>
<td>false</td>
<td>Confluence</td>
<td>Disables the sessi As of 4.0 the defai the JSession assi log out. If this is s active (but the use valuable when usi systems, but shou</td>
</tr>
</tbody>
</table>

RELATED TOPICS

Recognised System Properties
Fix Out of Memory Errors by Increasing Available Memory

Recognised System Properties

Confluence 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 Confluence is running. See the full instructions.
<table>
<thead>
<tr>
<th>System Property</th>
<th>Version</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>atlassian.forceSchemaUpdate</code></td>
<td>1.0</td>
<td><code>false</code></td>
<td>By default, Confluence will only run its database schema update when it detects that it has been upgraded. This flag will force Confluence to perform the schema update on system startup.</td>
</tr>
<tr>
<td><code>confluence.home</code></td>
<td>1.0</td>
<td>Any filesystem path</td>
<td>Confluence and atlassian-config</td>
</tr>
<tr>
<td><code>confluence.devmode</code></td>
<td>1.0</td>
<td><code>true</code></td>
<td>Enables additional debug options that may be of use to Confluence developers (additionally it changes spring bean creation to use lazy initialization by default to decrease startup time). Do not enable this flag on a production system.</td>
</tr>
<tr>
<td><code>confluence.disable.mailpolling</code></td>
<td>2.4</td>
<td><code>false</code></td>
<td>If set to &quot;true&quot;, will prevent Confluence from retrieving mail for archiving within spaces. Manually triggering &quot;check for new mail&quot; via the web UI will still work. This property has no effect on outgoing mail.</td>
</tr>
<tr>
<td><code>confluence.i18n.reloadbundles</code></td>
<td>1.0</td>
<td><code>true</code></td>
<td>Setting this property will cause Confluence to reload its i18n resources every time an internationalised string is looked up. This can be useful when testing translations, but will make Confluence run insanely slowly.</td>
</tr>
<tr>
<td><code>confluence.ignore.debug.logging</code></td>
<td>1.0</td>
<td><code>true</code></td>
<td>Confluence will normally log a severe error message if it detects that DEBUG level logging is enabled (as DEBUG logging generally causes a significant degradation in system performance). Setting this property will suppress the error message.</td>
</tr>
<tr>
<td><code>confluence.jmx.disabled</code></td>
<td>3.0</td>
<td><code>false</code></td>
<td>If set to &quot;true&quot;, will disable Confluence's JMX monitoring. This has the same effect as setting the &quot;enabled&quot; property to false in WEB-INF/classes/jmxContext.xml.</td>
</tr>
<tr>
<td><code>confluence.optimize.index.modulo</code></td>
<td>2.2</td>
<td>20</td>
<td>Number of index queue flushes before the index is optimised.</td>
</tr>
<tr>
<td><code>confluence.plugins.bundled.disable</code></td>
<td>2.9</td>
<td><code>false</code></td>
<td>Starts confluence. May be useful in a development environment to make Confluence start quicker, but since bundled plugins are necessary for some of Confluence's core functionality, this property should not be set on a production system.</td>
</tr>
<tr>
<td><code>atlassian.mail.fetchdisabled</code></td>
<td>3.5</td>
<td><code>false</code></td>
<td>Disables mail fetching services for IMAP and POP.</td>
</tr>
<tr>
<td><code>atlassian.mail.senddisabled</code></td>
<td>3.5</td>
<td><code>false</code></td>
<td>Disables sending mail.</td>
</tr>
<tr>
<td><code>atlassian.disable.caches</code></td>
<td>2.4</td>
<td><code>true</code></td>
<td>Setting this property will disable conditional get and expires: headers on some web resources. This will significantly slow down the user experience, but is useful in development if you are frequently changing static resources and don't want to continually flush your browser's cache.</td>
</tr>
<tr>
<td>Property</td>
<td>Version</td>
<td>Value</td>
<td>Type</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td>confluence.html.encode.automatic</td>
<td>2.9</td>
<td></td>
<td>Confluence</td>
</tr>
<tr>
<td>org.osgi.framework.bootdelegation</td>
<td>2.10</td>
<td>empty</td>
<td>atlassian-plugins</td>
</tr>
<tr>
<td>confluence.diff.pool.size</td>
<td>3.1</td>
<td>20</td>
<td>Confluence</td>
</tr>
<tr>
<td>confluence.diff.timeout</td>
<td>3.1</td>
<td>1000</td>
<td>Confluence</td>
</tr>
<tr>
<td>atlassian.user.experimentalMapping</td>
<td>2.10</td>
<td>false</td>
<td>Confluence</td>
</tr>
<tr>
<td>confluence.import.use-experimental-importer</td>
<td>3.2</td>
<td>false</td>
<td>Confluence</td>
</tr>
<tr>
<td>atlassian.webresource.disable.minification</td>
<td>3.3</td>
<td>false</td>
<td>atlassian-plugins</td>
</tr>
<tr>
<td>index.queue.thread.count</td>
<td>3.3</td>
<td></td>
<td>See &quot;Effect&quot;</td>
</tr>
</tbody>
</table>

- **See "Effect"**: 
  - If you don't set `index.queue.thread.count`, the number of threads to be used are calculated based on the number of objects that need to be reindexed and the number of processors available (a maximum of 10 threads will be used). 
  - If you set `index.queue.thread.count=2`, then two threads will be used to reindex the content (regardless of the number of objects to be reindexed or the number of processors available). 
  - If you set `index.queue.thread.count=200`, then ten threads (the maximum allowed) will be used to reindex the content. 

### Notes:
- Setting `index.queue.thread.count` to a lower value can improve performance by reducing the overhead of starting and stopping threads, but it can also decrease the number of concurrent operations that can be performed. 
- Setting `index.queue.thread.count` to a higher value can increase the number of concurrent operations, but it can also increase the overhead of managing and synchronizing threads. 
- It is recommended to experiment with different values to find the optimal balance between performance and overhead. 

---

*CONF-12319, fixed in Confluence 3.1.1.*
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>index.queue.batch.size</strong></td>
<td>3.3 1500</td>
<td>Size of batches used by the indexer. Reducing this value reduces the load that the indexer puts on the system, but indexing takes longer. Increasing this value causes indexing to be completed faster, but puts a higher load on the system. Normally this setting does not need tuning.</td>
</tr>
<tr>
<td><strong>password.confirmation.disabled</strong></td>
<td>3.4 false</td>
<td>This property disables the password confirmation functionality that Confluence uses as an additional security measure. With this property set, Confluence will require password confirmation for the following actions: administrative actions, change of email address, and Captcha for failed logins. Disabling password confirmations is useful if you are using a custom authenticator.</td>
</tr>
<tr>
<td><strong>confluence.browser.language.enabled</strong></td>
<td>3.5 true</td>
<td>Setting this property to &quot;false&quot; disables the detection of browser language headers, effectively restoring Confluence behavior to that of earlier releases. Setting this property to &quot;true&quot; enables the detection of the language headers sent by the browser. Confluence will change the UI language based on the browser headers. See documentation on how users can choose a language.</td>
</tr>
<tr>
<td><strong>upm.pac.disable</strong></td>
<td>Universal Plugin Manager 1.5</td>
<td>When this property is set to true, then UPM will not try to access the Atlassian Plugin Manager. This is useful for application servers that do not have access to the Internet. See the UPM documentation.</td>
</tr>
<tr>
<td><strong>confluence.reindex.documents.to.pop</strong></td>
<td>3.5.9 20</td>
<td>Indicates how many objects each indexing thread should process at a time during a full re-index. Please note that this number does not include attachments.</td>
</tr>
<tr>
<td><strong>confluence.reindex.attachments.to.pop</strong></td>
<td>3.5.9 10</td>
<td>Indicates how many attachments each indexing thread should process at a time during a full re-index.</td>
</tr>
<tr>
<td><strong>confluence.upgrade.active.directory</strong></td>
<td>3.5.11 false</td>
<td>Forces Confluence to treat any LDAP directories it migrates as Active Directory, rather than relying on the sAMAccountName in the username attribute. This is necessary before Confluence 3.5 if you are upgrading from before Confluence 3.5 and need to use an attribute other than sAMAccountName to identify your users. Error code 4 - SizeLimit Exceeded exceptions in your logs. For more details, see Unable to Log In with Confluence 3.5 or Later Due to ‘LDAP error code 4 - SizeLimit Exceeded’.</td>
</tr>
<tr>
<td><strong>com.atlassian.logout.disable.session.invalidation</strong></td>
<td>4.0 false</td>
<td>Disables the session invalidation on log out. As of 4.0 the default behavior is to invalidate the JSession assigned to a client when they log out. If this is set to true the session is kept active (but the user logged out). This may be valuable when using external authentication systems, but should generally not be needed.</td>
</tr>
</tbody>
</table>

**RELATED TOPICS**

Configuring System Properties

Configuring a Large Confluence Installation
Deploying any application to several thousand users requires care and planning, especially if those users are going to be relying on the application to get their work done.

**General Advice**

**Staged Rollout**

Do not try to deploy Confluence immediately to your whole organisation. Instead, roll it out department by department, or project by project.

How Confluence will scale given a particular software and hardware configuration depends very much on how Confluence is likely to be used in your organisation. Launching Confluence to everybody at once may seem like a neat idea, but it also means that any problems you might experience scaling the system up to your entire organisation will hit you all at once, annoy everyone and possibly hurt adoption.

Rolling Confluence out gradually will give you the chance to tune it as you go, resulting in a much more painless experience. There will also be organisational advantages: you can identify those teams or projects who are most likely to be successful ‘early adopters’, and those teams can experiment with how best a wiki might suit your organisation, and pass on their ‘best wiki practices’ as usage of Confluence expands.

**Plugin Governance**

Confluence plugins can add tremendous value. Before adding one, visit the plugin's page and explore its issues (available from the issue management link). Try the plugin in a test environment and make sure to note any adverse effects after adding it to a production environment. Test plugins independently when upgrading.

**Backup strategy**

Disable the XML backup and use the Production Backup Strategy.

**New Spaces Governance**

For both performance and good practice, put some modest governance in place around the creation of new spaces, such as a simple request that includes a check for duplicates and some strategy around how to best use a space. Duplicates and unused spaces should be purged by a wiki gardener. Try to keep it to one space per group.

**Choosing User Management and Single Sign-On**

We recommend that you choose and configure your user management solution as soon as possible, rather than adding it to your Confluence installation at a later date.

It is possible to integrate with an LDAP repository, such as Microsoft Active Directory, or add a single sign-on solution later (especially with the addition of Crowd). But if possible it is best to configure your user management system up front. You can configure access for only a specific group or set of groups, thereby keeping the gradual rollout.

Please refer to our detailed guide to Configuring User Directories and examine the User Management Limitations and Recommendations.

**Configuring your Application Server, Web Server and Database**

Because Confluence can be deployed in so many server combinations, we do not currently have guides on the best tuning parameters for each individual server. We will be happy to provide support, however. If you have any tuning parameters that you find particularly useful for Confluence instances, feel free to share them with other Confluence users in the Confluence Community space.

**Best Practices**

**Troubleshooting possible memory leaks**

The Troubleshooting Confluence Hanging or Crashing guide is a good place to start. Some of the known causes listed there could result in performance issues short of a crash or hang. Many of the issues reported there are exacerbated with a large installation.

**Memory Usage**

The Java virtual machine is configured with a "maximum heap size" that limits the amount of memory it will consume. If Confluence fills up this maximum heap size it will run out of memory, and start behaving unpredictably. You can keep track of Confluence's memory usage from the System Information screen of the administration console:

<table>
<thead>
<tr>
<th>Java VM Memory Statistics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Memory</strong></td>
<td>313 MB</td>
</tr>
<tr>
<td><strong>Free Memory</strong></td>
<td>140 MB</td>
</tr>
<tr>
<td><strong>Used Memory</strong></td>
<td>173 MB</td>
</tr>
</tbody>
</table>

**Memory Graph**

- **45 % Free**

This example shows that, at the time of writing, confluence.atlassian.com is using 173MB of an allocated 313MB of heap. (The JVM was
configured with a maximum heap size of 450MB, but this information is not available in the graph. The 313MB figure shows that the full 450MB of heap has not yet been needed)

Database Connection Pool

Confluence will need a database connection for each simultaneous user connection to the server. It is also a good idea to have 5-10 connections spare for Confluence internal processes such as backups, re-indexing or daily notification jobs.

Running out of pooled connections will cause the server to slow down as more users are waiting for a connection to be freed before starting their own request, and will eventually cause visible system errors as Confluence times out waiting for a database connection.

If you are using Confluence's internal connection pool, you can increase the number of available connections by modifying the hibernate.c3p0.max_size property in \{confluence_home}/confluence-cfg.xml, and restarting Confluence. Make sure you have also configured your database to be able to support that many simultaneous connections.

Cache Sizes

The Performance Tuning page includes some useful rules of thumb for configuring the sizes of Confluence's internal caches.

RELATED TOPICS

Operating Large or Mission-Critical Confluence Installations
Performance Tuning
Confluence Clustering Overview
Requesting Performance Support
User Management
Confluence Administrator's Guide
Confluence Configuration Guide

Configuring Logging

We recommend that you configure Confluence's logging to your own requirements. You can change the log settings in two ways:

- Configure logging in Confluence Administration – Your changes will be in effect only until you next restart Confluence.
- Edit the properties file – Your changes will take effect next time you start Confluence, and for all subsequent sessions.

Both methods are described below. In some rare circumstances you may also need to configure Configuring Logging.

Terminology: In log4j, a 'logger' is a named entity. Logger names are case-sensitive and they follow a hierarchical naming standard. For example, the logger named com.foo is a parent of the logger named com.foo.Bar.

Configure logging in Confluence Administration

You can change some of Confluence's logging behaviour via the Administration Console while Confluence is running. Any changes made in this way will apply only to the currently-running Confluence lifetime. The changes are not written to the log4j.properties file and are therefore discarded when you next stop Confluence.

Not all logging behaviour can be changed via the Administration Console. For logging configuration not mentioned below, you will need to stop Confluence and then edit the logging properties file instead.

The 'Logging and Profiling' screen shows a list of all currently defined loggers. On this screen you can:

- Turn page profiling on or off.
- Turn detailed SQL logging on or off.
- Add a new logger for a class/package name.
- Remove a logger for a class/package name.
- Set the logging level (INFO, WARN, FATAL, ERROR or DEBUG) for each class or package name.
- Reset all logging levels to a predefined profile.

Changing the logging configuration

1. Go to the Confluence 'Administration Console':

   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Logging and Profiling' in the 'Administration' section of the left-hand panel.

   You need to have System Administrator permissions in order to perform this function.
3. The 'Logging and Profiling' screen appears, as shown below. Use the following guidelines to change the logging behaviour while Confluence is running:

   - 'Performance Profiling' — See Page Request Profiling.
   - 'SQL Logging' — Click the 'Enable SQL Logging' button to log the details of SQL requests made to the database.

   If you need to enable logging of SQL parameter values, you will need to change the setting in the properties file. This option is not available via the Administration Console.
   - 'Log4j Logging' — Click one of the profile buttons to reset all your loggers to the predefined profiles:
• The 'Production' profile is a fairly standard profile, recommended for normal production conditions.
• The 'Diagnostic' profile gives more information, useful for troubleshooting and debugging. It results in slower performance and fills the log files more quickly.
• 'Add New Entry' — Type a class or package name into the text box and click the 'Add Entry' button. The new logger will appear in the list of 'Existing Levels' in the lower part of the screen.
• 'Existing Levels' - These are the loggers currently in action for your Confluence instance.
  • You can change the logging level by selecting a value from the 'New Level' dropdown list. Read the Apache documentation for a definition of each level.
  • Click the 'Remove' link to stop logging for the selected class/package name.
4. Click the 'Save' button to save any changes you have made in the 'Existing Levels' section.

Screenshot: Changing Log Levels and Profiling
## Performance Profiling
Profiling is currently OFF.

**Enable Profiling**

## SQL Logging

**Enable SQL Logging**

## Log4j Logging
Choose from one of the predefined logging options or configure logging below.

**Production**  **Diagnostic**

OR:

Customise specific logging settings

### Add New Entry

<table>
<thead>
<tr>
<th>Class/Package Name</th>
<th>New Level</th>
<th>Add entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.atlassian.confuclose.cluster</td>
<td>INFO</td>
<td>![INFO](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.confuclose.cluster.safety</td>
<td>INFO</td>
<td>![INFO](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.confuclose.export.impl.PdfExport</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.confuclose.lifecycle</td>
<td>INFO</td>
<td>![INFO](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.confuclose.upgrade</td>
<td>INFO</td>
<td>![INFO](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.core.util.FileUtil</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>com.atlassian.upgrade</td>
<td>INFO</td>
<td>![INFO](Add entry)</td>
</tr>
<tr>
<td>net.sf.hibernate.cache.WriteOnlyCache</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>net.sf.hibernate.impl.SessionImpl</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>net.sf.hibernate.type.CustomType</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>net.sf.hibernate.util.JDBCExceptionReporter</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>org.apache.jsp</td>
<td>ERROR</td>
<td>![ERROR](Add entry)</td>
</tr>
<tr>
<td>root</td>
<td>WARN</td>
<td>![WARN](Add entry)</td>
</tr>
</tbody>
</table>

**Save**

### Existing Levels

<table>
<thead>
<tr>
<th>Class/Package Name</th>
<th>Current Level</th>
<th>New Level</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.atlassian.confuclose.cluster</td>
<td>INFO</td>
<td><img src="Remove" alt="INFO" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.confuclose.cluster.safety</td>
<td>INFO</td>
<td><img src="Remove" alt="INFO" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.confuclose.export.impl.PdfExport</td>
<td>ERROR</td>
<td><img src="Remove" alt="ERROR" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.confuclose.lifecycle</td>
<td>INFO</td>
<td><img src="Remove" alt="INFO" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.confuclose.upgrade</td>
<td>INFO</td>
<td><img src="Remove" alt="INFO" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.core.util.FileUtil</td>
<td>ERROR</td>
<td><img src="Remove" alt="ERROR" /></td>
<td></td>
</tr>
<tr>
<td>com.atlassian.upgrade</td>
<td>INFO</td>
<td><img src="Remove" alt="INFO" /></td>
<td></td>
</tr>
<tr>
<td>net.sf.hibernate.cache.WriteOnlyCache</td>
<td>ERROR</td>
<td><img src="Remove" alt="ERROR" /></td>
<td></td>
</tr>
<tr>
<td>net.sf.hibernate.impl.SessionImpl</td>
<td>ERROR</td>
<td><img src="Remove" alt="ERROR" /></td>
<td></td>
</tr>
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<td>net.sf.hibernate.type.CustomType</td>
<td>ERROR</td>
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</tr>
<tr>
<td>root</td>
<td>WARN</td>
<td><img src="Remove" alt="WARN" /></td>
<td></td>
</tr>
</tbody>
</table>
Editing the Properties File

To configure the logging levels and other settings on a permanent basis, you need to stop Confluence and then change the settings in the log4j.properties file, described above.

The properties file contains a number of entries for different loggers that can be uncommented if you are interested in logging from particular components. Read more in the Apache log4j documentation.

See Working with Confluence Logs for some guidelines on specific configuration options you may find useful.

Configuring Levels for java.util.logging

A few libraries used by Confluence use java.util.logging rather than log4j or slf4j. These libraries include:

- com.sun.jersey
- org.apache.shindig
- net.sf.ehcache

Confluence's logging.properties file is set to redirect java.util.logging at specific levels to log4j via slf4j.

To increase logging levels for these libraries you must first configure the logging.properties file in <CONFLUENCE-INSTALL>/confluence/WEB-INF/classes/. The logging levels are different from log4j and are listed here.

For example, to increase logging for shindig change the following line in the logging.properties file:

```
org.apache.shindig.level = INFO
```

to

```
org.apache.shindig.level = FINE
```

And then use one of the methods above as well to configure the log4j level.

External Gadgets

The External Gadgets section allows you to register gadgets served from external web applications (such as JIRA 4.0+) or websites (such as iGoogle or Gmail) with your Confluence installation, so that they:

- Appear in the macro browser
- Can be added and used in Confluence pages or blog posts via a gadget macro

On this page:

- Obtaining the External Gadget's URL
- Registering an External Gadget for Use in Confluence
- Removing Access to an External Gadget in Confluence
- Related Topics

Obtaining the External Gadget's URL

Before registering an external web application's gadget with Confluence, you will need to obtain that gadget's URL and copy it to your computer's clipboard.

If your web application is another Atlassian application such as Confluence 3.1+ or JIRA 4.0+, please refer to the appropriate documentation to obtain the gadget URL from your other Atlassian application:

- Obtaining a gadget URL from JIRA 4.0+
- Obtaining a gadget URL from another Confluence 3.1+ server

If your external gadget comes from a non-Atlassian web application or web site, please consult the relevant documentation for that application to obtain the gadget's URL.

Registering an External Gadget for Use in Confluence

To register an external web application's gadget for use in Confluence:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click the Gadgets link in the navigation bar.
3. Click the New button.
4. Choose the gadget's name.
5. Enter the gadget's URL in the name field: GadgetName.
6. (Optional) Change the initial parameter values for the gadget.
7. Click Save.
8. The gadget will now appear as a macro in the macro browser.

Related Topics

- Obtaining the External Gadget's URL
- Registering an External Gadget for Use in Confluence
- Removing Access to an External Gadget in Confluence
2. Click **External Gadgets** under 'Configuration' in the left panel. The 'External Gadgets' page is displayed.
3. In the 'Add a new Gadget' section, paste your gadget's URL into the **Gadget Specification URL** field.
4. Click **Add**. Your gadget will be shown in the list of registered gadgets below and it will also become available in the macro browser.

---

**Do I need to establish an OAuth or Trusted Application relationship too?**

In addition to registering an external gadget for use in Confluence, you may also need to establish an OAuth or Trusted Application relationship between the application that serves the gadget (the service provider) and Confluence (the consumer). OAuth and Trusted Application relationships are usually only required for gadgets that access user-restricted data from the external web application. Refer to [Configuring OAuth](#) for further information.

If an external web application provides anonymous access to all or some of its data and that is the only data you need to access, then establishing an OAuth or Trusted Applications relationship may be unnecessary.

---

**Removing Access to an External Gadget in Confluence**

To remove Confluence’s access to an external web application’s gadget:

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click **External Gadgets** under 'Configuration' in the left panel. The 'External Gadgets' page is displayed.
3. In the 'Added Gadgets' section, click **Remove** next to the URL of the external gadget whose access in Confluence is to be removed.
   - The gadget will be removed from the 'Added Gadgets' list and will also be removed from the macro browser.

---

**Related Topics**

- The big list of Atlassian gadgets
- Adding JIRA Gadgets to a Confluence Page

**Confluence Clustering Overview**
Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

It is possible to run Confluence in a clustered environment instead of on a single server. This means that you can run multiple copies of Confluence in a cluster, so that clients (such as a browser) can connect to any copy and see the same information.

Consider your options carefully before deciding on a clustered installation

While we have tried to make clustering Confluence as easy and administrator-friendly as possible, it is a major architectural change and requires extra planning for deployment and upgrades. Please consider the information on the Cluster Checklist and then consult Atlassian support before making your final decision.

This page gives an overview and links to further pages with information on installing, configuring and administering a Confluence cluster.

Before Deciding to Run a Confluence Cluster

1. Read and consider the details on the Cluster Checklist.
2. Consider the difference between clustering for scalability and clustering for high availability (HA).
3. Contact Atlassian support for further information and advice.

Technical Overview

Confluence on Virtualised Environments

Atlassian officially supports non-clustered installations of Confluence 3.0 and later on VMware. Although possible, we do not recommend (nor support) running versions of Confluence prior to 3.0 on VMware, since Confluence 3.0 resolved many performance issues that were present in earlier versions. Be aware that we also do not support clustered installations of Confluence on VMware. Please comment or vote on the feature request at CONF-19559.

Read a technical overview of clustering in Confluence.

Server and Network Requirements

- Server hardware requirements
- Technical overview of Confluence clustering
- Diagram of recommended network topology

Installation and Upgrading

There are two methods of installing Confluence in a cluster, depending on whether you have existing data:

- Fresh installation
- Existing data

If you are upgrading an existing Confluence cluster to a new version of Confluence, refer to the cluster upgrade guide.

Configuration and Administration

- Cluster Administration page in the Administration Console
- Changing datasources in clusters

Troubleshooting

- Cluster troubleshooting

RELATED TOPICS
Technical Overview of Clustering in Confluence

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Overview of clustering documentation

Refer to the overview of Confluence clustering in the Administrators' Guide.

Introduction

From version 2.3, Confluence has had the ability to configure and run multiple copies of itself in a cluster, so that clients can connect to any copy and see the same information. In effect, a Confluence cluster behaves as a single, powerful Confluence installation. While we have tried to make clustering Confluence as easy and administrator-friendly as possible, it is a major architectural change from earlier versions (or non-clustered installations) and consequently, requires extra planning for deployment and upgrades.

This document will give a technical overview of clustering in Confluence, primarily for those users and developers who will be installing and configuring Confluence in a cluster. A separate overview is available for Confluence plugin developers.

Cluster topology

A simple description of the cluster topology for Confluence would be multiple applications, shared data source. A cluster of Confluence consists of:

- multiple homogeneous installations of Confluence (called nodes below)
- a Confluence home directory for each installation.
- a distributed Oracle Coherence cache (formerly known as Tangosol Coherence), which all nodes use via a multicast group - see networking summary below
- a single database, which all nodes connect to

The user is responsible for configuring an appropriate HTTP load balancer in front of the clustered installations. Typically this means using mod_jk or another application server load-balancing technology. The load balancer must be configured to support session affinity.

Communication between clustered nodes is minimised by using a distributed cache which propagates updates to all other nodes automatically. Where necessary, Coherence provides a locking mechanism for synchronising jobs and a RMI interface for more complex communication.

LAN Clustering Only

Atlassian only supports clustering over a local area network. While it is theoretically possible to configure Confluence to cluster across a WAN, the latency involved is likely to kill performance of the cluster. We can’t stop you trying, of course, but you’re going to have to work out how to configure Coherence yourself, and we’re not going to support the resulting mess.

Homogeneous Confluence installations

All the Confluence installations must be running exactly the same application, down to the lowest level. Items that must be the same include:

- Confluence version
- Application server version
- JDK version
- Libraries and plugins in the Confluence classpath, WEB-INF/lib
- Libraries in the application server classpath
The installation section has more information how to ensure homogeneous node installations.

Creating a Confluence cluster

When installing Confluence in a clustered setup, you will be responsible for configuring your web server and load balancer to distribute traffic between each node. No additional software is required as Coherence is bundled with Confluence.

Here is an overview of the process:

1. Obtain a clustered licence key from Atlassian for each node
2. Upgrade a single node to the clustered licence
3. Start the cluster from that node's administration menu, specifying a name and optionally a preferred network interface
4. Restart the single node and test it
5. Copy the Confluence application and Confluence home directory to the second node
6. Bring up the second node and it will automatically join the cluster.

Copying the Confluence application and home directory helps ensure that the installations are homogeneous.

An alternative to this method is to copy the Confluence web application, but not the Confluence home directory. In this case, the installation wizard will require your cluster name to connect to the other nodes, and it will automatically configure itself. You will need to rebuild the index manually after this installation, however.

There is now full documentation for a Confluence Cluster Installation.

Upgrade process

Another consequence of the homogeneous requirement is that upgrades must be done by following a strict process.

1. All cluster nodes are brought down
2. Upgrade a single node to the latest Confluence version
3. Start the single node so it can upgrade the database
4. Upgrade subsequent nodes and start them one-by-one.

This is the only safe method of upgrading a Confluence cluster.

Single database

The Confluence database in a cluster is shared by all nodes. This means that the database must be able to scale to service all the Confluence nodes, which will probably mean implementing some kind of database cluster and JDBC-level load balancing. We can not offer support with scaling or tuning your database, you will need to talk to your DBA or database vendor.

For obvious reasons, you must have an external database to run Massive - you can not cluster Confluence when using the embedded HSQL database.

The most important requirement for the cluster database is that it have sufficient connections available to support the expected number of application nodes. For example, if each Confluence instance has a connection pool of 20 connections and you expect to run a cluster with four nodes, your database server must allow at least 80 connections to the Confluence database. In practice, you may require more than the minimum for debugging or administrative purposes.

In a cluster, attachments must be stored in the database. Configuring a cluster in an existing installation will automatically migrate your attachments to the database. Non-clustered installations still have the option of using the Confluence home directory for storing attachments.

While attachments are stored in the database, they are temporarily written to the cluster node’s local filesystem, designated <confluence-home>/temp folder, when being streamed to users (so Confluence doesn’t have to hold open database connections unnecessarily). For this reason, Confluence will still need enough temporary disk space to hold any attachments currently in transit.

Distributed cache

In a normal configuration, Confluence uses many caches to reduce the number of database queries required for common operations. Viewing a page might require dozens of permissions checks, and it would be very slow if Confluence queried the database for this information with every page view. However, caches must be carefully maintained so they are consistent with the application data. If the page permissions change, the old invalid data needs to be removed from the cache so it can be replaced with a fresh correct copy.

To preserve consistent caches across a cluster, Confluence uses a distributed cache called Oracle Coherence, which manages replicating cache updates transparently across all nodes. The network requirements of the distributed cache are quite simple, but must be preserved if the cluster is to work properly.

To discover other nodes in the cluster, Confluence broadcasts a join request on a multicast network address. Confluence must be able to open a UDP port on this multicast address, or it will not be able to find the other cluster nodes.

Once the nodes are discovered, each responds with a unicast (normal) IP address and port where it can be contacted for cache updates. Confluence must be able to open a UDP port for regular communication with the other nodes.

Because the Coherence network requirements are different to those required by the Confluence database connection, the situation can arise where Confluence can use the database but not talk to the other nodes in the cluster via Coherence. When Confluence detects this, it will shut itself down in a cluster panic.

For more details on the network configuration of the distributed cache, see the networking summary.
Home directory

Confluence's home directory has a much-reduced role in a cluster. Because the application data must be shared between all nodes for consistency, the only information stored in the Confluence home directory is either node-specific, or needed to start Confluence. This includes information related to:

- database connection
- license
- cluster connection

The only application data stored in the Confluence home directory is the Lucene search index. Confluence synchronises this data itself by keeping track of indexing tasks in the database.

This is also why we recommend copying the Confluence home directory from the first node when setting up subsequent nodes. If you did not copy the Confluence home directory, you would need to rebuild the search index from scratch on the subsequent nodes after installation.

Event handling

Broadcasting events to all nodes in a cluster is supported in Confluence, but not recommended. The cluster topology uses a shared data store so that application state does not need to be synchronised by events.

The event broadcasting is done only for certain events, like installing a plugin. When a plugin is installed in one node, Confluence puts the plugin data in the database, and notifies the other nodes that they need to load the plugin into memory.

Indexing

Confluence maintains a copy of its Lucene search index on each node of the cluster. This index is used for many things beside full-text searches, including RSS feeds and lists of recently updated content. Indexing in a cluster works like this:

1. Node 1 gets a request to save some page update
2. After saving the page in the database, Node 1 adds a "page-updated" index entry to the queue, which is in the database
3. Periodically, each node picks up the "latest entries" from the queue, where what is latest is determined from a timestamp on a file in the Confluence home directory which indicates when the queue was last inspected. This process is called "flushing the index queue".
4. Each node independently updates its local Lucene index. The "page-updated" index entry is internally changed into a delete-document task and an add-document task to apply the changes to Lucene.
5. Each node updates the timestamp on its index-queue-timestamp file to reflect the most recent processing or "flushing" of the index queue.

Because of step #3, if the timing of the nodes is not synchronised or changes sporadically (due to a virtualisation environment, typically), index changes will not be correctly synchronised in the cluster. This is the most common cause of index sync problems in clusters.

If a node is disconnected from the cluster for a short amount of time (less than three hours), it will be able to bring its copy of the index up-to-date when it rejoins the cluster. If a node is down for a long amount of time and its lucene index has become stale as a result, you may want to avoid the expensive operation of rebuilding the index. To do that, you must copy a "live" version of the Lucene index from an active node. Simply replace the contents of the Confluence Home/]index directory with those from an active node before bringing the stale node back up.

Job synchronisation

For tasks such as sending the daily report emails, it is important that only one node in the cluster does this. Otherwise you would get multiple emails from Confluence every day.

Confluence uses locks in the Coherence distributed cache to ensure only one node can be running certain jobs at a time. This ensures email notifications will only be sent once.

Activity tracking

Activity tracking does not work in a cluster, and will be disabled for clustered deployments. We're working on making the activity tracker clusterable in a future release. You can follow this issue. You can try some other options for tracking usage.

Cluster panic

In some situations, there can be a network issue or firewall that prevents the distributed cache from communicating but still allows Confluence to update the database. This is a dangerous situation because when the caches on the detached nodes become inconsistent, users on different nodes will see different information and updates can be lost.

Confluence can detect this problem by checking a database value against a cached value, and if they differ, all the clustered nodes will be shut down with a 'Cluster panic' message. This is considered a fatal error because the consequences can cause damage to your data. For those administrators that like to live on the edge, there is a system property to prevent cluster panic and allow data corruption. For more information, see Cluster safety mechanism.

If a cluster panic does occur, you need to ensure proper network connectivity between the clustered nodes. Most likely multicast traffic is being blocked or not routed correctly. See the networking summary below.

Summary of network requirements
In addition to normal connectivity with its database, all clustered Confluence instances require access to a multicast group and the ability to open a UDP unicast port.

By default, the multicast address is automatically generated from the cluster name you provide when starting the cluster and the multicast port is fixed. During cluster setup, Confluence will prompt for the unicast IP address to use if the server has multiple network interfaces, and by default the unicast port is fixed. The cluster multicast group will be joined on the same network interface as the bound unicast IP address.

For any settings which are not configurable through the Confluence web interface, they can be configured via an XML file in the Confluence home directory for more exotic networking requirements.

Scaling Confluence On A Single Server

Since the maximum addressable memory on a 32 bit JVM is 4GB, some large servers may scale Java applications by running JVM instances concurrently. This would be implemented as separate, clustered Confluence nodes running on a single server and communicating internally. Because each JVM replicates the cache entirely, it may be useful to test a single, massive instance running a 64 bit JVM as an alternative. This configuration may result in superior performance than an internal cluster.

Geographically Distributed Clusters

Collocating nodes is strongly recommended as high latency will almost certainly degrade performance due to the overhead of cache replication. Cluster nodes will provide the best performance if servers are physically adjacent. However, as long as all nodes share a LAN, users may wish to test alternative configurations to see how performance is affected.

RELATED TOPICS

Server Hardware Requirements Guide
Overview of Confluence Clusters
Developers’ Guide to Clustering

Cluster safety mechanism

⚠️ Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Introduction

A mechanism was added in Confluence 2.3 and above to ensure database consistency when running multiple cluster nodes against the same database. This is called the cluster safety mechanism, and is designed to ensure that your wiki cannot become inconsistent because updates by one user are not visible to another. A failure of this mechanism is a fatal error in Confluence and is called cluster panic.

Because the cluster safety mechanism helps prevent data inconsistency whenever any two copies of Confluence running against the same database, it is enabled in all instances of Confluence, not just clusters.

How cluster safety works

A scheduled task, ClusterSafetyJob, runs every 30 seconds in Confluence. In a cluster, this job is run only on one of the nodes. The scheduled task operates on a safety number — a randomly generated number that is stored both in the database and in the distributed cache used across a cluster. It does the following:

1. Generate a new random number
2. Compare the existing safety numbers, if there is already a safety number in both the database and the cache.
3. If the numbers differ, publish a ClusterPanicEvent. Currently in Confluence, this causes the following to happen:
   - disable all access to the application
   - disable all scheduled tasks
   - update the database safety number to a new value, which will cause all nodes accessing the database to fail.
4. If the numbers are the same or aren’t set yet, update the safety numbers:
   - set the safety number in the database to the new random number
   - set the safety number in the cache to the new random number.

How to fix it

See ‘Database is being updated by an instance which is not part of the current cluster’ Error Message

Technical details

The cluster safety number in the database is stored in the CLUSTERSAFETY table. This table has just one row: the current safety number.

Changing Datasources Manually in a Cluster
Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

The recommended way of changing database connections is to shut down the whole cluster, install Confluence into new and empty directories and use the Setup Wizard to configure all new database connection settings.

However, if you wish to manually change your settings, you may proceed as described below.

It is strongly recommended that you test all of the following in a staging or test instance of Confluence before performing these steps in your production environment.

**Step 1: Prepare**
- Locate the `confluence-cfg.xml` file in the Confluence home directory.
- Make a backup copy of that file.
- Prepare the necessary changes to that file.

**Step 2: Shut Down Confluence**

You need to shut down all the nodes in the cluster, not just one.

**Step 3: Apply your Changes**

Apply your configuration changes to the required node.

**Step 4: Restart the Changed Node**

It is crucial that you bring up the node on which you applied the changes first. Otherwise you will get an error message, and have to shut down all instances again.

**Step 5: Restart all Other Nodes**

Done.

**RELATED PAGES**

Overview of Confluence Clusters

**Cluster Troubleshooting**

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

**Confluence on Virtualised Environments**

Atlassian officially supports non-clustered installations of Confluence 3.0 and later on VMware. Although possible, we do not recommend (nor support) running versions of Confluence prior to 3.0 on VMware, since Confluence 3.0 resolved many performance issues that were present in earlier versions. Be aware that we also do not support clustered installations of Confluence on VMware. Please comment or vote on the feature request at CONF-19559.

**Overview of clustering documentation**

Refer to the overview of Confluence clustering.
On this page:

- Symptoms
- Confluence cluster debugging tools
  - Multicast
  - Mapping interface to IP address.
  - Debugging tools
  - Add multicast route
  - Check firewall
  - Prefer IPv4
  - Change multicast interface
  - Increase multicast TTL
  - Check intermediate routers
  - Advanced Tangosol configuration
- Didn't find a solution?
- Related

Symptoms

Below is a list of potential problems with a Confluence cluster, and their likely solutions. The solutions are listed below.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Likely solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database is being updated by an instance which is not part of the current cluster errors on a stand-alone</td>
<td>‘Database is being updated by an instance which is not part of the current cluster’ Error Message</td>
</tr>
<tr>
<td>Database is being updated by an instance which is not part of the current cluster errors on a cluster</td>
<td>Cluster Troubleshooting, Cluster Troubleshooting</td>
</tr>
<tr>
<td>Cannot assign requested address on startup, featuring an IPv6 address</td>
<td>Cluster Troubleshooting</td>
</tr>
<tr>
<td>Error in log: The interface is not suitable for multicast communication</td>
<td>Cluster Troubleshooting, Cluster Troubleshooting</td>
</tr>
<tr>
<td>Multicast being sent, but not received (detectable with Multicast Test)</td>
<td>Cluster Troubleshooting, Cluster Troubleshooting, Cluster Troubleshooting</td>
</tr>
<tr>
<td>Any issue not covered here</td>
<td>Cluster Troubleshooting</td>
</tr>
</tbody>
</table>

Confluence cluster debugging tools

There is an umbrella issue opened for all cluster debugging tools here

It includes the tools listed below.

Multicast

- Which multicast address?

The multicast address and port used by Confluence can be found on the Cluster Administration page, or in confluence.cfg.xml in the Confluence home directory.

- Multicast address generation.

Confluence uses a hashing algorithm to take the inputted name during setup and it is then turned into a multicast address stored in the config file. Thus, once the initial setup is completed, Confluence will use the address this is the reason why user can change the address if needed, without actually changing the name. Consequently the additional nodes using the same multicast address specified in the config file are able to join the cluster.

Each node has a multicast address configured in the confluence-cfg.xml file
A warning message is displayed when an user changes the address from the one that Confluence has generated by the hashing of the name. There is no way of eliminating the message any other way other than by returning the address to the one that matches the cluster name. Purpose of the warning message is to remind the user that the address has been changed - as it is not the hashed version any longer - consequently the node can not join the cluster just by using the name. It is also necessary to provide the correct address as well.

Mapping interface to IP address.

To ensure that the interface name is mapped correctly, the following tool can be used. It shows the mapping of the interface name to the IP address.

```
C:\>java -jar list-interfaces.jar
interfaces.size() = 4
networkInterface[0] = name:lo (MS TCP Loopback interface) index: 1 addresses: /127.0.0.1;

networkInterface[1] = name:eth0 (VMware Virtual Ethernet Adapter for VMnet8) index: 2 addresses: /192.168.133.1;

networkInterface[2] = name:eth1 (VMware Virtual Ethernet Adapter for VMnet1) index: 3 addresses: /192.168.68.1;

```

Debugging tools

Listed below are some debugging tools that help determine what the status of the multicast traffic is:

<table>
<thead>
<tr>
<th>Tool</th>
<th>Information provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>netstat -gn</td>
<td>Lists multicast groups. Does not work on Mac OS X.</td>
</tr>
<tr>
<td>netstat -rn</td>
<td>Lists system routing table.</td>
</tr>
<tr>
<td>Multicast Test</td>
<td>Coherence tool for testing multicast traffic from one node to another.</td>
</tr>
<tr>
<td>tcpdump -i interface</td>
<td>Captures network traffic on the given interface. Most useful on an interface that only receives cluster traffic.</td>
</tr>
</tbody>
</table>

Add multicast route

Multicast networking requirements vary across operating systems. Some operating systems require little configuration, while some require the multicast address to be explicitly added to a network interface before Confluence can use it.

If the Multicast Test tool shows that multicast traffic can’t be sent or received correctly, adding a route for multicast traffic on the correct interface will often fix the problem. The example below is for a Ubuntu Linux system:

```
route add -net 224.0.0.0 netmask 240.0.0.0 dev eth0
```

To support multiple applications using multicast on different interfaces, you may need to specify a route specific to the Confluence multicast address.

Check firewall

Ensure your firewall allows UDP traffic on the multicast address and port used by Confluence.

Prefer IPv4
There's a known issue with IPv6, especially on Linux.

The fix is to add `-Djava.net.preferIPv4Stack=true` to `JAVA_OPTS`. This tells the JVM to try binding an IPv4 address first, and resort to IPv6 only if that fails.

Note: A more radical approach is to add `NETWORKING_IPV6=no` to `/etc/sysconfig/network`, yet probably should be left for a later consideration on a production machine.

**Change multicast interface**

Confluence might have selected the incorrect interface for multicast traffic, which means it cannot connect to other nodes in the cluster. To override the interface used for multicast traffic after initial setup, edit `confluence.cfg.xml` in the Confluence home directory and add a property (or change the existing one) to select your desired network interface. For example to tell Confluence to use `eth1`:

```
<property name="confluence.cluster.interface">eth1</property>
```

**Increase multicast TTL**

The multicast time-to-live (TTL) specifies how many hops a multicast packet should be allowed to travel before it is discarded by a router. It should be set to the number of routers in between your clustered nodes: 0 if both are on the same machine, 1 if on two different machines linked by a switch or cable, 2 if on two different machines with one intermediate router, and so on.

Create a file in the Confluence home directory called `tangosol-coherence-override.xml`. Add the following to it, setting the TTL value appropriately (1 is the default):

```xml
<?xml version='1.0'?>
<coherence>
  <cluster-config>
    <multicast-listener>
      <time-to-live system-property='tangosol.coherence.ttl'>1</time-to-live>
    </multicast-listener>
  </cluster-config>
</coherence>
```

Alternatively, simply start Confluence with the system property: `-Dtangosol.coherence.ttl=1`. Again, 1 is the default value, and you should change it to something appropriate to your network topology.

**Check intermediate routers**

Advanced switches and routers have the ability to understand multicast traffic, and route it appropriately. Unfortunately sometimes this functionality doesn't work correctly with the multicast management information (IGMP) published by the operating system running Confluence.

If multicast traffic is problematic, try disabling advanced multicast features on switches and routers in between the clustered nodes. These features can prevent multicast traffic being transmitted by certain operating systems.

For best results, use the simplest network topology possible for the cluster traffic between the nodes. For two nodes, that means a single network cable. For larger numbers, try using a single high-quality switch.

**Advanced Tangosol configuration**

If the solution to your problem involves changes to the Tangosol configuration, these changes should **not** be made to the Confluence configuration in `confluence/WEB-INF/classes/`. Instead, to ensure your configuration survives upgrades, make your changes via:

- Tangosol system properties
- creating a `tangosol-coherence-override.xml` file in the Confluence home directory.

Examples of making these changes are shown in the increasing the TTL section.

**Didn't find a solution?**

Check Related Articles from the Confluence Knowledge Base

No content found for label(s) cluster.
### Open JIRA Features and Bug Reports

<table>
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<th>JIRA Issues (56 issues)</th>
</tr>
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**Attachment migration does not**

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**Jul 19, Oct 10,**
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<th>CONF-8959</th>
<th>happen when upgrading to a clustered license</th>
<th>Unassigned</th>
<th>Ilacqua [Atlassian]</th>
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<td>CONF-12287</td>
<td>Coherence cache fails while retrieving profile picture metadata (dashboard or view page shows UnresolvedRollbackException)</td>
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<td>Authenticator (subclass of DefaultAuthenticator) can be called twice at almost exactly same time by 2 or more clustered servers</td>
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<td>Gary Weaver</td>
<td>Open</td>
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<td>ConditionalPropertySet's cannot be cached breaking cluster installations that delegate user management to JIRA</td>
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<td>Dave Loeng [Atlassian]</td>
<td>Open</td>
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<td>Jul 02, 2009</td>
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<td>Coherence Lock being held when it appears no thread should have the lock. Causes ConcurrentModificationException</td>
<td>Unassigned</td>
<td>Paul Curren [Atlassian]</td>
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<td>Viewing the members of a group in a clustered environment works only on one node and not the other.</td>
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<td>Partha Kanal [Atlassian]</td>
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<td>Ivan Benko [Atlassian]</td>
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<td>Run cluster performance build on two machines</td>
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<td>Matt Ryall [Atlassian]</td>
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<td>Installing a font for PDF export in a cluster will not carry to cluster nodes that are down or unavailable.</td>
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<td>Cannot build milestones outside Atlassian due to coherence</td>
<td>Jonathan Gilbert</td>
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<td>Confluence Cluster setup dies horribly when DNS fails</td>
<td>Don Willis</td>
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<td>Cluster nodes do not get notified of Layout changes</td>
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<td>Cluster setup network interface selection shows loopback interface</td>
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<td>Plugin's i18n properties not loaded in other cluster nodes unless restarted</td>
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<td>Coherence does not allow the disabling of all JDK shutdown hooks</td>
<td>Christopher Owen</td>
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<td>CONF-13698</td>
<td>Changing custom html on one node of a cluster is not imediately reflected on the other node.</td>
<td>Anatoli Kazatchkov</td>
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<td>After a site import into a cluster, admin console displays attachment storage as filesystem</td>
<td>Agnes Ro</td>
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<td>Cluster build passed but didn't close down Confluence</td>
<td>Brian Nguyen</td>
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<td>CONF-22466</td>
<td>Content Permission changes are propagated between nodes one at a time, should be in bulk</td>
<td>Richard Nguyen</td>
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<td>CONF-22979</td>
<td>Migrating to a cluster with existing data does not add cluster attributes to the confluence.cfg.xml</td>
<td>Adam Laskowski</td>
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<td>Jul 27, 2011</td>
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<td>CONF-9846</td>
<td>Tangosol configuration: the (optional) cluster-name element is in the wrong place</td>
<td>Don Willis</td>
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<td>Locking on cache keys needs to check if the lock was actually aquired</td>
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<td>CONF-8300</td>
<td>Cannot override TTL configuration through tangosol coherence properties</td>
<td>Matthew Jensen</td>
<td>Needs Verification</td>
<td>Apr 20, 2007</td>
<td>Nov 10, 2009</td>
<td>Unresolved</td>
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</tbody>
</table>

Contact Atlassian support

We have dedicated staff on hand to support your installation of Confluence. Please follow the instructions for raising a support request and mention that you're having trouble setting up your Confluence cluster.

Related

Cluster Safety Mechanism

Multicast Test

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

This page describes the Multicast Test, a Coherence tool for testing multicast traffic from one node to another. You may find this useful when troubleshooting a clustered installation of Confluence.

In order to run the Multicast test, you need to first download the attached Coherence zip file.

The Multicast Test comes as a script called multicast-test, which you will find located in the bin folder in the above zip file.
Instructions on how to run this script file can be found in the Coherence documentation. You may like to go straight to the subheading called ‘Example’ in the guide, where there is an example on how to use the multicast-test script.

RELATED TOPICS

Cluster Troubleshooting
Confluence Clustering Overview

Clustering for Scalability vs Clustering for High Availability (HA)

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

People occasionally enquire about setting up High-Availability (HA) Confluence clusters. Confluence's clustering is designed to solve a different problem, that of scaling under high load. This page explains the difference.

On this page:

- What is High Availability (HA)?
- What does Confluence's clustering do, then?
- So what kind of resilience can I build into a Confluence installation?
- What's the difference between load balancing and failover?
- What do you mean by 'session affinity'?

What is High Availability (HA)?

HA means that your application will be available, without interruption. It's a very difficult thing to achieve, and is typically what people are talking about when they refer to five-nines availability.

In the context of application clustering, it means that any given node (or combination of nodes) can be shut down, blown up, or simply disconnected from the network unexpectedly, and the rest of the cluster will continue operating cleanly as long as at least one node remains. It requires that nodes can be upgraded individually while the rest of the cluster operates, and that no disruption will result when a node rejoins the cluster. It typically also requires that nodes be installed in geographically separate locations.

What does Confluence's clustering do, then?

Confluence's clustering system allows a single installation to serve a much greater number of concurrent requests than a single server. This is what we refer to as 'scaling under load'.

It does provide a certain amount of resilience, as the death of one node won't bring the other(s) down. However, it requires very low network latency, which rules out geographic separation of the servers, and upgrading can only be performed while the entire cluster is shut down. This doesn't mean that Confluence's clustering is buggy or broken. It simply reflects the difference between the two design aims.

So what kind of resilience can I build into a Confluence installation?

It's still entirely possible to build a resilient Confluence installation, using a 'cold-failover' approach in which two (or more) servers share a database and (normally) a network-mounted file system, where no more than one server is actually running at any given time.

Several different approaches are feasible, but the common elements are:

- a well-configured load balancer (session affinity is irrelevant in this case)
- a reliable monitoring system which can detect and shut down a misbehaving Confluence instance before starting the spare server
- startup scripts with added smarts to check for the presence of another running node before deciding whether to start up a server
- servers with the same view of both the database and the home directory.

It's vital to ensure that only one server is running at any one time, in this kind of setup. If a server starts while another is already running against the same database, the result will be a cluster panic that shuts down both servers.

A single database becomes the single point of failure in such a system. This can be alleviated by database clustering, or by replication from the ‘active’ database server to the standby server(s) if you wish to separate the failover systems while keeping database latency to a minimum.

In the same vein, the home directory can be hosted on a shared network system — SAN or NAS, preferably with its own
replication/rapid recovery system — though there's a known issue to consider. Alternatively, to avoid the use of networked file systems, a utility such as rsync can be used to periodically bring the spare servers' home directories up to date, so long as you keep the period sufficiently short — probably between one and five minutes, depending on the rate of activity. This can be avoided altogether by keeping attachments in the database; it increases the demands on the bandwidth between the application and database servers, but guarantees that the system is in a consistent state at switchover. If the data is at all sensitive or confidential, it's advisable to run rsync over ssh, to minimise the opportunity for the data to be captured on its way across the network.

**What's the difference between load balancing and failover?**

Load balancing means that all servers are active, and new requests are distributed among them. Several strategies are available, but the most common are:

- **round-robin** — the first request goes to the first server, the second request goes to the second server, and so on. When you run out of servers, the next request goes to the first server, and around it goes again.
- **percentage-based** — if (for example) you have two servers, and one can handle twice the load of the other, you can tell the load balancer to send two requests to the stronger server for every request that goes to the weaker one.
- **availability** — the load balancer sends a test query to each of the servers every second or so, and directs each new request to the server that's currently responding the fastest.

Failover means that only one server is active at any given time, and normally involves two servers (any number of servers may be involved, depending on the system). If the active one stops responding, requests are directed to the other server — the system 'fails over' to the second one.

'Cold failover' means that the second server is only started up after the first one has been shut down. This is the case for non-clustered Confluence.

'Hot failover' or 'hot standby' means that all servers are running at all times, and that the load is directed entirely toward one server at any one time.

A load balancer can be used in both scenarios, especially if it's smart enough to keep track of which servers are currently running.

Failover can also be managed via DNS, in a sufficiently well-controlled environment.

**What do you mean by 'session affinity'?**

Sessions consist of several transmissions in each direction between the client (browser) and the server. Session affinity means that the load balancer keeps track of which server received the initial transmission from a given browser, and that it will then send any subsequent requests from that browser to the same server.

This is necessary with Confluence clustering, in particular, because sessions are not shared across cluster nodes. If you log into one node and then send a request to another, the other node will send you the login screen because it doesn't recognise your session cookie.

**RELATED TOPICS**

Confluence Clustering Overview

**Recommended network topology**

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Atlassian recommends a network topology similar to the one shown below, to get the best results from a Confluence Clustered deployment.

The number of Confluence nodes in the deployment is adjustable — select the number which suits your own requirements.

The most important aspect is that cluster, database and HTTP (client) traffic are all carried on separate subnets. It is possible, on a sufficiently fast network, to carry cluster and database traffic on the same subnet but we do strongly recommend that HTTP traffic be always confined to a separate subnet on production deployments.

Confluence Clustered does not support clustered communication over WAN, VLAN or VPN. All Confluence Clustered nodes must be on the same local subnet, ideally networked via an ethernet hub or simple switch. The cluster communication network must also support multicast IP networking.

Use this example as a basis for your own network diagram

When you are considering a Confluence Clustered deployment, you should prepare a network diagram like the one on this page. This will facilitate discussion with Atlassian Support and help with your own planning. Please refer to the cluster checklist for more guidance on planning your clustered deployment.
Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Overview
Any instance of Confluence which uses a clustered license has a Cluster Configuration page which includes information about the active cluster.
To open the Cluster Administration page,

1. Go to the Confluence ‘Administration Console’:
   • Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘Cluster Configuration’ in the left-hand menu, in the section called ‘Clustering’.

Availability

To access this functionality, you must:

• Be a System Administrator (i.e. have global System Administrator permissions), and
• be using Confluence 2.3 or later, and
• be using a clustered Confluence license.

Screenshot: Cluster Administration Page

This page shows your cluster configuration, and allows you to start a new Confluence cluster using data from this instance.

Cluster Status indicates whether your cluster is currently running.

Licensed nodes is the maximum number of instances of Confluence your license allows in a cluster.

Active nodes lists the instances of Confluence currently participating in the cluster.

Starting a new cluster will perform the following changes:

• enable a clustered cache
• migrate attachments from file system to the database
• publish database connection information so other nodes can join the cluster.

All access to Confluence will be locked while this takes place, and you will be forced to restart Confluence afterwards.

Cluster name is a short name for identifying your cluster. Other Confluence instances can join the cluster using this name.
To join an existing cluster, start a clean copy of Confluence on this node and select 'Join Cluster' during the setup wizard.

Related documents

Overview of Confluence Clusters
Confluence Cluster Installation
Cluster Troubleshooting

Cluster Checklist

⚠️ Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

It is possible to run Confluence in a clustered environment instead of on a single server. This means that you can run multiple copies of Confluence in a cluster, so that clients (such as a browser) can connect to any copy and see the same information.

Refer to the clustering overview for more information and a list of related pages about clustering Confluence.

Consider your options carefully before deciding on a clustered installation

While we have tried to make clustering Confluence as easy and administrator-friendly as possible, it is a major architectural change and requires extra planning for deployment and upgrades. Please consider the information below and then consult Atlassian Sales before making your final decision.

Summary of the information on this page:

- Purpose of this Document
- Assumed Knowledge
- General Considerations
  - Confluence Clustered is designed to scale the number of simultaneously connected users at a much better performance than what a single node can achieve
  - Confluence Clustered will not improve performance in systems with few users.
  - Confluence Clustered is not a high availability solution.
  - Confluence Clustered is not for disaster recovery nor for transparent failover.
- Server Setup
  - The number of supported cluster nodes is limited to four.
  - All cluster nodes must have the same version of OS, application server, etc.
  - Use good and up-to-date hardware.
  - Confluence Clustered is not supported when run in VMware or other virtualisations.
  - Confluence should be the only application on the cluster servers.
  - Do not upgrade and switch to Confluence Clustered at the same time
- Database Setup
  - Run the database on its own physical server.
  - Attachments must be stored in a database and not the local file system
  - Make sure that you use a supported version of a database server to store Confluence's data.
  - Your database must be provisioned to store a large volume of binary data.
  - You need an experienced DBA available to troubleshoot database performance issues.
- Network Setup
  - We recommend hardware load balancers or putting a software loadbalancer onto its on server.
  - Use separate network adapters for communication between servers.
  - The switch connecting the Confluence cluster nodes must not be a 'smart switch'.
  - Cisco switches need additional configuration.
  - It is recommended that the database is on a different physical network from the Confluence server nodes.
  - Minimize the latency between the Confluence cluster nodes and the database.
  - Prepare a network diagram.
  - You need network support staff available to troubleshoot cluster communication issues.
- Staging Environment
  - You need a staging environment that is exactly the same as your production system.

Purpose of this Document

The purpose of this cluster checklist is to help you:

- Decide whether Confluence Clustered is the right solution for you.
- Create a plan for your clustered deployment.

If you need to raise a support request with Atlassian during or after cluster deployment, we will need to ask you questions about your

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configuration. It will save crucial time if you can provide us with your deployment plan.

For more information about clustering Confluence, refer to the clustering overview.

Assumed Knowledge

In writing this document, we have assumed that our readers have an in-depth knowledge of the following technical areas:

- Database
- Networking
- Application servers
- Load balancers

Before starting a clustered deployment please read the information on this page carefully, as well as the linked documentation, to assess if you have the assumed knowledge.

General Considerations

What will Confluence Clustered do for you?

The points in this section of the page will help you evaluate your reasons for considering a clustered deployment, and then decide whether Confluence Clustered is the right solution for your environment.

Confluence Clustered is designed to scale the number of simultaneously connected users at a much better performance than what a single node can achieve.

Confluence Clustered will not improve performance in systems with few users.

Clustering Confluence means that user requests can be served by independent machines. The performance gains are substantial, and have improved a lot further since Confluence 3.0. Clustering is especially great in dealing with spikes to the load, e.g. during certain hours of business. Just note that if rendering a complicated page (e.g. containing many macros or rendering many graphs) takes five seconds on an otherwise idle server, it will not be faster in a clustered environment. Also, the first step when you encounter performance issues is to tune your existing system, make sure you are using the right hardware and have looked at your database.

Confluence Clustered is not a high availability solution.

Confluence Clustered is not designed specifically to provide a high availability solution.

General availability is higher in a Confluence cluster than on a single installation, you can for example take one node down for minor maintenance tasks e.g. when adding a new CPU or adding RAM. But you still have to bring down all nodes at the same time for software upgrades. Also there are certain conditions, like loss of network connectivity between nodes ('split brain'), that will result in the cluster shutting itself down. Confluence Clustered offers higher reliability, but not high availability.

Confluence Clustered is not for disaster recovery nor for transparent failover.

If one node crashes, there is no transparent failover for the connected client. Also, our network requirements (see below) make Confluence unsuitable for deployment to different cities or even to different buildings.

Server Setup

The number of supported cluster nodes is limited to four.

⚠️ Not supported. In theory, you can connect more than four nodes — but that is not covered by Atlassian Support.

All cluster nodes must have the same version of OS, application server, etc.

Confluence requires a homogeneous environment. All Confluence cluster nodes must have the same version of the following:
Use good and up-to-date hardware.

While the details are up to you, we strongly suggest that your servers have at least 4GB of physical RAM. A high number of concurrent users means that a lot of RAM will be consumed. You usually don’t need to assign more than 4GB per JVM process, and most of the time even just 1GB or 2GB will be fine, you should just be prepared to fine tune the settings.

Confluence Clustered is not supported when run in VMware or other virtualisations.

⚠️ Not supported. We strongly discourage you to deploy a production environment of Confluence to virtual servers, and we will not be able to support you when problems arise.

When running a Confluence cluster your goal is high capacity and performance, so you should not risk lower performance by virtualising it and sharing a computer with other processes.

Many customers who are running Confluence on VMware, or similar virtualisation solutions, experience major performance problems that are extremely hard to pinpoint. Since the problems are not related to Confluence itself, we will not be able to help you.

Confluence should be the only application on the cluster servers.

No additional applications (other than core operating system services) should be running on the same servers as Confluence.

Since your goal should be increased capacity and performance, you should not risk this by running any other process on the machine with a Confluence Clustered node. While it may be fine to run JIRA, Confluence and Bamboo on a dedicated Atlassian software server for small installations, it is strongly discouraged for clustering Confluence.

Do not upgrade and switch to Confluence Clustered at the same time

If you plan to migrate to a clustered solution, make sure you are migrating within the same version of Confluence. If you plan to upgrade to a higher version of Confluence, do this before the migration to the clustered version.

For example, if you are currently running Confluence 2.9.2 standalone, and want to roll out the clustered version of Confluence 3.0, you must first upgrade to Confluence 3.0 standalone and check that everything works fine (e.g. by running and monitoring your production system for a week). Then you are in a good position to migrate to the clustered version.

Database Setup

Run the database on its own physical server.

You are optimising for performance, so you don’t want the database to slow down your application servers, or vice versa. In high load scenarios, the database may need to have better hardware than the application servers to be able to handle all requests. You should find out by performing loadtesting.

Attachments must be stored in a database and not the local file system

Storing attachments in the database is the only supported attachment storage configuration for clustering Confluence.

Make sure that you use a supported version of a database server to store Confluence’s data.

Please check that your intended database is officially supported by Atlassian Confluence. The load on an average cluster solution is higher than on a single box installation, and it is therefore even more crucial to use the right database vendor and version.
Your database must be provisioned to store a large volume of binary data.

Note that Confluence clustered stores file attachments in the database, and you need an experienced DBA who can monitor and manage the data growth.

You need an experienced DBA available to troubleshoot database performance issues.

Not having an experienced full-time DBA at hand at short notice when entering the realm of high load is dangerous. While small installations of Confluence basically work 'out of the box', anything that involves high load and a lot of database space requires continual monitoring, optimising and fine tuning of the Confluence database. When we ramp up the load on our loadtesting environment, we see that database usage goes up as well. Having powerful hardware in place helps, but if there are queries that become inefficient with your particular load pattern, you need an expert to tune it. As an example, we have seen PostgresSQL switch its internal caching mechanism when a particular table reached a certain size, which resulted in a drop of performance by about 200ms per request. This happened from one second to the other. Being able to troubleshoot and then fix issues like these is important in any enterprise system, but it is even more in a high load scenario.

Network Setup

We recommend hardware load balancers or putting a software loadbalancer onto its on server.

If you use a software load balancer (which is fine except for really extreme installations), it must be deployed on a machine of its own. Running a software load balancer on a cluster node is not supported. If a node unexpectedly got overwhelmed by a spike in load, a load balancer on that node would turn unresponsive. As a result, your whole cluster would be inaccessible even though the other nodes would be available. So using a different server is common practice and common sense.

Use separate network adapters for communication between servers.

The Confluence cluster nodes should have a separate physical network (i.e. separate NICs) for inter-server communication.

This is the best way of getting the cluster to run fast and reliably. Performance problems are likely to occur if you connect cluster nodes via a network that has lots of other data streaming through it.

The switch connecting the Confluence cluster nodes must not be a 'smart switch'.

⚠️ Not supported. Smart switches are not covered by Atlassian Support for Confluence Clustered.

Do not use smart switches between cluster nodes. Many problems have been reported and attributed to smart switches. They have a tendency to interrupt broadcast or multicast traffic, thus reliably killing a cluster after a certain amount of time has passed. This makes troubleshooting especially complex and tedious.

Cisco switches need additional configuration.

If the switch connecting the Confluence cluster nodes is a Cisco switch then it might need additional configuration to support Confluence clustering.

Please make sure you find out all the details about your switches before you start the deployment.

It is recommended that the database is on a different physical network from the Confluence server nodes.

Since you want to increase your capacity and performance for high loads, it is recommended to have your database on a different network. Please refer to the recommended topology diagram for more information.

Minimize the latency between the Confluence cluster nodes and the database.

Even though having the nodes and the database on the same physical network usually suffices, you should take the time to explicitly measure network latency, and make sure it is as close to zero as possible.

Prepare a network diagram.
To facilitate discussion and to ease planning, you should prepare a network diagram like this example of recommended network topology.

If you request support with Confluence Clustered, we may ask for your network diagram. We recommend that you create one similar to our example before you proceed with the installation.

**You need network support staff available to troubleshoot cluster communication issues.**

Setting up a cluster is not trivial. Even small problems in network design will be expanded in a clustered installation. (This is true of any kind of software.)

It is absolutely vital that you have dedicated network staff available to track down problems when they arise. A cluster will usually be used by thousands of users, and you don't want to keep them waiting because a network card breaks, or because someone made an undocumented change to the network and you don't have an expert around who can figure it out.

**Staging Environment**

**You need a staging environment that is exactly the same as your production system.**

You must be able to test drive any change to the cluster (installing upgrades, installing plugins) and to perform other tests (checking connectivity, debugging problems) on a staging cluster.

The staging environment must be:

- On the same OS, database, and Java version as your production environment.
- Clustered.

If you require support, we may for example ask you to turn off certain third-party plugins. If you can't do this in your production environment and you don't have a staging environment for troubleshooting, we may not be able to help you.

### Getting a license for your staging environment

Only a technical contact for your commercial/academic license is able to create a Developer license.

Atlassian supplies 'developer' licenses which can be used by existing commercial license holders who wish to deploy non-production installations of our software to use in QA/staging environments. Developer licenses are free of charge to commercial license holders and, like our commercial offerings, they include 12 months of updates starting from the date of purchase of the commercial license.

If you hold a commercial license, you can obtain a free developer license by following these steps:

1. Log in to your Atlassian account.
2. Under the "Licenses" heading, all of your licenses will be displayed. Click the plus sign next to a license to view its details.
3. Click the 'View Developer License' link in the bottom right corner of the license detail panel, below your commercial license key.

**Related Topics**

No content found for label(s) cluster.

**Confluence Security**

This document is for system administrators looking to evaluate the security of the Confluence web application. The page addresses overall application security and lists the security advisories issued for Confluence. As a public-facing web application, Confluence's application-level security is important. This document answers a number of questions that commonly arise when customers ask us about the security of our product.

Other topics:

- For information about user management, groups and permissions, please refer to the internal security overview.
- For guidelines on configuring the security of your Confluence site, see the administrator's guide to configuring Confluence security.

**Application Security Overview**

**Password Storage**
When Confluence's internal user management is used, passwords are hashed through SHA1 before being stored in the database. There is no mechanism within Confluence to retrieve a user's password – when password recovery is performed, a new random password is generated and mailed to the user's registered address.

When external user management is enabled, password storage is delegated to the external system.

**Buffer Overflows**

Confluence is a 100% pure Java application with no native components. As such it is highly resistant to buffer overflow vulnerabilities – possible buffer overruns are limited to those that are bugs in the Java Runtime Environment itself.

**SQL Injection**

Confluence interacts with the database through the Hibernate Object-Relational mapper. Database queries are generated using standard APIs for parameter replacement rather than string concatenation. As such, Confluence is highly resistant to SQL injection attacks.

**Script Injection**

Confluence is a self-contained Java application and does not launch external processes. As such, it is highly resistant to script injection attacks.

**Cross-Site Scripting**

As a content-management system that allows user-generated content to be posted on the web, precautions have been taken within the application to prevent cross-site scripting attacks:

- The wiki markup language in Confluence does not support dangerous HTML markup
- Macros allowing the insertion of raw HTML are disabled by default
- HTML uploaded as a file attachment is served with a content-type requesting the file be downloaded, rather than being displayed inline
- Only system administrators can make HTML-level customisations of the application

When cross-site scripting vulnerabilities are found in the Confluence web application, we endeavour to fix them as quickly as possible.

**Transport Layer Security**

Confluence does not directly support SSL/TLS. Administrators who are concerned about transport-layer security should set up SSL/TLS at the level of the Java web application server, or the HTTP proxy in front of the Confluence application.

For more information on configuring Confluence for SSL, see: Running Confluence Over SSL or HTTPS

**Session Management**

Confluence delegates session management to the Java application server in which it is deployed. We are not aware of any viable session-hijacking attacks against the Tomcat application server shipped with Confluence Standalone. If you are deploying Confluence in some other application server, you should ensure that it is not vulnerable to session hijacking.

**Plugin Security**

Administrators install third party plugins at their own risk. Plugins run in the same virtual machine as the Confluence server, and have access to the Java runtime environment, and the Confluence server API.

Administrators should always be aware of the source of the plugins they are installing, and whether they trust those plugins.

**Administrator Trust Model**

Confluence is written under the assumption that anyone given System Administrator privileges is trusted. System administrators are able, either directly or by installing plugins, to perform any operation that the Confluence application is capable of.

As with any application, you should not run Confluence as the root/Administrator user. If you want Confluence to listen on a privileged network port, you should set up port forwarding or proxying rather than run Confluence with additional privileges. The extra-careful may consider running Confluence inside a chroot jail.

**Stack Traces**

To help debug support cases and provide legendary support, Confluence provides stack traces through the web interface when an error occurs. These stack traces include information about what Confluence was doing at the time, and some information about your deployment server.

Only non-personal information is supplied such as operating system and version and Java version. With proper network security, this is not enough information to be considered dangerous. No usernames or passwords are included.
Finding and Reporting a Security Vulnerability

Atlassian’s approach to reporting security vulnerabilities is detailed in How to Report a Security Issue.

Publication of Confluence Security Advisories

Atlassian’s approach to releasing security advisories is detailed in Security Advisory Publishing Policy.

Severity Levels

Atlassian’s approach to ranking 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.

Published Security Advisories

- Confluence Security Advisory 2011-05-31
- Confluence Security Advisory 2011-03-24
- Confluence Security Advisory 2010-11-15

Other Security Resources

Page: Confluence Security

Confluence Security Advisory 2011-01-18

This advisory announces a number of security vulnerabilities that we have found and fixed in recent versions of Confluence. We also provide patches that you will be able to apply to existing installations of Confluence to fix these vulnerabilities. However, we recommend that you upgrade your Confluence installation rather than applying the patches. Enterprise Hosted customers should request an upgrade by raising a support request 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 vulnerabilities listed in this advisory have been discovered by Atlassian, unless noted otherwise. The reporter may also have requested that we do not credit them.

XSS Vulnerabilities

Severity

Atlassian rates the severity level of these vulnerabilities as high, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank the severity as critical, high, moderate or low.

Risk Assessment

We have identified and fixed a number of cross-site scripting (XSS) vulnerabilities which may affect Confluence instances, including publicly available instances (that is, internet-facing servers). XSS vulnerabilities potentially allow an attacker to embed their own JavaScript into a Confluence page. You can read more about XSS attacks at cgisecurity.com, The Web Application Security Consortium and other places on the web.

Vulnerability

The table below describes the Confluence versions and the specific functionality affected by the XSS vulnerabilities.

<table>
<thead>
<tr>
<th>Confluence Feature</th>
<th>Affected Confluence Versions</th>
<th>Issue Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code macro</td>
<td>2.7 – 3.4</td>
<td>CONF-21098</td>
</tr>
<tr>
<td>Attachments macro</td>
<td>3.3 – 3.4</td>
<td>CONF-21099</td>
</tr>
</tbody>
</table>
Our thanks to dave b, who reported the vulnerability in the Documentation Link macro. We fully support the reporting of vulnerabilities and we appreciate it when people work with us to identify and solve the problem.

Risk Mitigation

We recommend that you upgrade your Confluence installation to fix these vulnerabilities.

Alternatively, if you are not in a position to upgrade immediately and you judge it necessary, you can disable public signup to your wiki until you have applied the necessary patch or upgrade. For even tighter control, you could restrict access to trusted groups.

We also recommend that you read our guidelines on best practices for configuring Confluence security.

Fix

Confluence 3.4.6 fixes these issues. For a full description of this release, see the release notes. You can download the latest version of Confluence from the download centre.

Patches

If for some reason you cannot upgrade to the latest version of Confluence, you can apply patches to fix the vulnerabilities described in this security advisory. The patches are attached to the relevant issues, as listed in the table above.

Please note that we have released a number of advisories about Confluence 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.

<table>
<thead>
<tr>
<th>Supported Version</th>
<th>Confluence Feature</th>
<th>File Name</th>
<th>Issue Tracking</th>
<th>Download Security Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.x</td>
<td>Code Macro</td>
<td>atlassian-renderer-6.2.jar</td>
<td>CONF-21098</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Code Macro</td>
<td>atlassian-renderer-6.0.6.jar</td>
<td>CONF-21098</td>
<td>Download</td>
</tr>
</tbody>
</table>

Customers running Confluence 3.4.x:

Please replace the following JAR file with the updated atlassian-renderer-6.2.jar:

CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/lib/atlassian-renderer.jar

Customers running Confluence 3.3.x:

Please replace the following JAR file with the updated atlassian-renderer-6.0.6.jar:

CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/lib/atlassian-renderer.jar
<table>
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<tr>
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<th>Issue Tracking</th>
<th>Download Security Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.x</td>
<td>Attachments macro</td>
<td>attachments-table.vm-3.4.x.zip</td>
<td>CONF-21099</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Attachments macro</td>
<td>attachments-table.vm.zip</td>
<td>CONF-21099</td>
<td>Download</td>
</tr>
</tbody>
</table>

**Customers running Confluence 3.4.x:**

Please replace the following `vm` file with the updated `attachments-table.vm-3.4.x.zip`:

`CONFLUENCE_INSTALL_DIR/confluence/pages/includes/attachments-table.vm`

**Customers running Confluence 3.3.x:**

Please replace the following `vm` file with the updated `attachments-table.vm`:

`CONFLUENCE_INSTALL_DIR/confluence/pages/includes/attachments-table.vm`

<table>
<thead>
<tr>
<th>Supported Version</th>
<th>Confluence Feature</th>
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<th>Download Security Update</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.x, 3.3.x</td>
<td>Bookmarks macro</td>
<td>socialbookmarking-1.3.4.jar</td>
<td>CONF-21390</td>
<td>Download</td>
</tr>
</tbody>
</table>

Update the `.jar` file with the fix contained in the file archive (zip). Follow these steps to do so:

- Browse to `CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/classes/com/atlassian/confluence/setup`
- Open the file `atlassian-bundled-plugins.zip`
- Decompress the contents into another location
- Replace the current `socialbookmarking.jar` with the correct file according to your version.
- Compress all the `.jar` files into another zip with the same name as the original file (`atlassian-bundled-plugins.zip`)
- Please note, make sure you place the files directly inside the zip, not contained inside another folder.

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<tbody>
<tr>
<td>3.4.x</td>
<td>Global Reports Macro</td>
<td>confluence-dashboard-macros-3.4.4.jar</td>
<td>CONF-21391</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Global Reports Macro</td>
<td>confluence-dashboard-macros-1.13.1.jar</td>
<td>CONF-21391</td>
<td>Download</td>
</tr>
</tbody>
</table>

Update the `.jar` file with the fix contained in the file archive (zip). Follow these steps to do so:

- Browse to `CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/classes/com/atlassian/confluence/setup`
- Open the file `atlassian-bundled-plugins.zip`
- Decompress the contents into another location
- Replace the current `confluence-dashboard-macros.jar` with the correct file according to your version.
- Compress all the `.jar` files into another zip with the same name as the original file (`atlassian-bundled-plugins.zip`)
- Please note, make sure you place the files directly inside the zip, not contained inside another folder.

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<tbody>
<tr>
<td>3.4.x</td>
<td>Code Macro</td>
<td>confluence-advanced-macros-1.12.3.jar</td>
<td>CONF-21392</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Code Macro</td>
<td>confluence-advanced-macros-1.9.2.jar</td>
<td>CONF-21392</td>
<td>Download</td>
</tr>
</tbody>
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Update the `.jar` file with the fix contained in the file archive (zip). Follow these steps to do so:

- Browse to `CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/classes/com/atlassian/confluence/setup`
- Open the file `atlassian-bundled-plugins.zip`
- Decompress the contents into another location
- Replace the current `confluence-advanced-macros.jar` with the correct file according to your version.
- Compress all the `.jar` files into another zip with the same name as the original file (`atlassian-bundled-plugins.zip`)
Please note, make sure you place the files directly inside the zip, not contained inside another folder.

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<tr>
<td>3.4.x</td>
<td>Pagetree Macro</td>
<td>pagetree-1.20.jar</td>
<td>CONF-21393</td>
<td>Download</td>
</tr>
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</table>

Update the .jar file with the fix contained in the file archive (zip). Follow these steps to do so:

- Browse to `CONFLUENCE_INSTALL_DIR/confluence/WEB-INF/classes/com/atlassian/confluence/setup`
- Open the file `atlassian-bundled-plugins.zip`
- Decompress the contents into another location
- Replace the current `pagetree.jar` with the correct file according to your version.
- Compress all the .jar files into another zip with the same name as the original file (`atlassian-bundled-plugins.zip`)
- Please note, make sure you place the files directly inside the zip, not contained inside another folder.

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<tr>
<td>3.4.x</td>
<td>Create Space Button macro</td>
<td>confluence-dashboard-macros-3.4.4.jar</td>
<td>CONF-21394</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Create Space Button macro</td>
<td>confluence-dashboard-macros-1.13.1.jar</td>
<td>CONF-21394</td>
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<tr>
<td>3.4.x</td>
<td>Documentation Link macro</td>
<td>confluence-advanced-macros-1.12.3.jar</td>
<td>CONF-21508</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>Documentation Link macro</td>
<td>confluence-advanced-macros-1.9.2.jar</td>
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- Decompress the contents into another location
- Replace the current `confluence-advanced-macros.jar` with the correct file according to your version.
- Compress all the .jar files into another zip with the same name as the original file (`atlassian-bundled-plugins.zip`)
- Please note, make sure you place the files directly inside the zip, not contained inside another folder.

**Confluence Security Advisory 2011-03-24**

This cumulative advisory announces a number of security vulnerabilities that we have found in Confluence and fixed in recent versions of Confluence. We also provide upgraded plugins and patches that you will be able to apply to existing installations of Confluence to fix these vulnerabilities. However, we recommend that you upgrade your complete Confluence installation rather than upgrading only the affected plugins. **Enterprise Hosted** customers should request an upgrade by raising a support request 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 vulnerabilities listed in this advisory have been discovered by Atlassian, unless noted otherwise. The reporter may also have requested that we do not credit them.

**XSS Vulnerabilities**

**Severity**

Atlassian rates the severity level of these vulnerabilities as **high**, according to the scale published in Severity Levels for Security Issues. The scale allows us to rank the severity as critical, high, moderate or low.
These vulnerabilities are not critical. This is an independent assessment and you should evaluate its applicability to your own IT environment.

**Risk Assessment**

We have identified and fixed a number of cross-site scripting (XSS) vulnerabilities which may affect Confluence instances, including publicly available instances (that is, Internet-facing servers). XSS vulnerabilities allow an attacker to embed their own JavaScript into a Confluence page. You can read more about XSS attacks at cgisecurity.com, The Web Application Security Consortium and other places on the web.

**Vulnerability**

The table below describes the Confluence versions and the specific functionality affected by each of the XSS vulnerabilities.

<table>
<thead>
<tr>
<th>Confluence Feature</th>
<th>Affected Confluence Versions</th>
<th>Issue Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Include Page macro</td>
<td>2.7 – 3.4.6</td>
<td>CONF-21604</td>
</tr>
<tr>
<td>Activity Stream gadget</td>
<td>3.1 – 3.4.6</td>
<td>CONF-21606</td>
</tr>
<tr>
<td>Action links of attachments lists</td>
<td>2.7 – 3.4.7</td>
<td>CONF-21766</td>
</tr>
<tr>
<td>Table of Contents macro</td>
<td>2.9 – 3.4.8</td>
<td>CONF-21819</td>
</tr>
</tbody>
</table>

Our thanks to Dave B, who reported the vulnerability in the action links of attachments lists. We fully support the reporting of vulnerabilities and we appreciate it when people work with us to identify and solve the problem.

**Risk Mitigation**

We recommend that you upgrade your Confluence installation to fix these vulnerabilities.

Alternatively, if you are not in a position to upgrade immediately and you judge it necessary, you can disable public signup to your wiki until you have applied the necessary patch or upgrade. For even tighter control, you could restrict access to trusted groups.

We also recommend that you read our guidelines on best practices for configuring Confluence security.

**Fix**

Confluence 3.4.9 or later fixes all of these issues. Some issues have been fixed in earlier versions as described in the table above. For a full description of this release, see the release notes. You can download the latest version of Confluence from the download centre. The most recent version at the time of this advisory is Confluence 3.5.

**Patches**

If for some reason you cannot upgrade to the latest version of Confluence, you can upgrade the relevant plugins (below) in your Confluence installation to fix the vulnerabilities described in this security advisory.

For details on upgrading Confluence's plugins using the plugin manager, see:

- Upgrading your Existing Plugins (for Confluence 3.4.x) or
- Installing and Configuring Plugins using the Plugin Repository Client (for Confluence 3.3.x).

Patches are also attached to the relevant issues (listed in the table above) if you need to apply these fixes manually.

Please note that we have released a number of advisories about Confluence 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.
Include Page Macro

<table>
<thead>
<tr>
<th>Supported Confluence Versions</th>
<th>Issue Tracking</th>
<th>File Name</th>
<th>Downloadable Patch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.x</td>
<td>CONF-21604</td>
<td>confluence-advanced-macros-1.12.4.jar</td>
<td>Download</td>
</tr>
<tr>
<td>3.3.x</td>
<td>CONF-21604</td>
<td>confluence-advanced-macros-1.9.3.jar</td>
<td>Download</td>
</tr>
</tbody>
</table>

To apply this fix, use the plugin manager to upgrade the **Advanced Macros** plugin to a version greater than or equal to that specified in the file name above.

Activity Stream Gadget

<table>
<thead>
<tr>
<th>Supported Confluence Versions</th>
<th>Issue Tracking</th>
<th>File Name</th>
<th>Downloadable Patch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.x</td>
<td>CONF-21606</td>
<td>streams-confluence-plugin-3.3-CONF-21606.jar</td>
<td>Download</td>
</tr>
<tr>
<td>3.4.x</td>
<td>CONF-21606</td>
<td>streams-confluence-plugin-3.4.6.jar</td>
<td>Download</td>
</tr>
</tbody>
</table>

It's currently not possible to upgrade the Activity Streams Plugin automatically using the 3.4 plugin manager or the 3.3 plugin repository. Instead, you will need to manually install the plugin as follows:

1. Download the JAR file for your version of Confluence (see above).
2. Install the plugin manually using the “Upload Plugin” link on the “Install” tab of the plugin manager.

Action links of attachments lists

<table>
<thead>
<tr>
<th>Supported Confluence Versions</th>
<th>Issue Tracking</th>
<th>File Name</th>
<th>Downloadable Patch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.x, 3.4.x</td>
<td>CONF-21766</td>
<td>confluence-attachments-plugin-2.20.jar</td>
<td>Download</td>
</tr>
</tbody>
</table>

To apply this fix, use the plugin manager to upgrade the **Confluence Attachments Plugin** plugin to a version greater than or equal to that specified in the file name above.

Table of Contents macro

<table>
<thead>
<tr>
<th>Supported Confluence Versions</th>
<th>Issue Tracking</th>
<th>File Name</th>
<th>Downloadable Patch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.3.x, 3.4.x</td>
<td>CONF-21819</td>
<td>toc-plugin-2.4.12.jar</td>
<td>Download</td>
</tr>
</tbody>
</table>

To apply this fix, use the plugin manager to upgrade the **Table of Contents Plugin** plugin to a version greater than or equal to that specified in the file name above.

Confluence Security Advisory 2011-05-31

It has been incorrectly advised previously that CONF-22479 (User Preferences) affects all versions starting 2.7 while in fact it is exploitable only in 3.5 and above. Our sincere apologies, this will not happen again.

You can still apply the patch to 3.4 in order to remove the root cause of this bug and potentially prevent other similar vulnerabilities from appearing.

This advisory announces security vulnerabilities that we have found in Confluence and fixed in a recent version of Confluence. We also provide upgraded plugins and patches that you will be able to apply to existing installations of Confluence to fix these vulnerabilities. However, we recommend that you upgrade your complete Confluence installation rather than upgrading only the affected plugins. **Enterprise Hosted** customers should request an upgrade by raising a support request at [http://support.atlassian.com](http://support.atlassian.com). **JIRA Studio** is not vulnerable to the issues described in this advisory.

Atlassian is committed to improving product security. The vulnerabilities listed in this advisory have been discovered by Atlassian, unless noted otherwise. The reporter may also have requested that we do not credit them.
XSS Vulnerabilities

Severity

Atlassian rates the severity level of both these vulnerabilities as **high**, according to the scale published in *Severity Levels for Security Issues*. The scale allows us to rank the severity as critical, high, medium or low. These vulnerabilities are not critical. This is an independent assessment and you should evaluate its applicability to your own IT environment.

Risk Assessment

We have identified and fixed cross-site scripting (XSS) vulnerabilities that may affect Confluence instances, including publicly available instances (that is, Internet-facing servers). XSS vulnerabilities allow an attacker to embed their own JavaScript into a Confluence page. You can read more about XSS attacks at cgisecurity.com, The Web Application Security Consortium and other places on the web.

Vulnerability

The table below describes the Confluence versions and the specific functionality affected by the XSS vulnerabilities.

<table>
<thead>
<tr>
<th>Confluence Feature</th>
<th>Affected Confluence Version</th>
<th>Fixed Version</th>
<th>Issue Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Login</td>
<td>3.5 – 3.5.2</td>
<td>3.5.3</td>
<td>CONF-22402</td>
</tr>
<tr>
<td>User Preferences</td>
<td>3.5 – 3.5.2</td>
<td>3.5.3</td>
<td>CONF-22479</td>
</tr>
</tbody>
</table>

Our thanks to Marian Ventuneac (http://www.ventuneac.net) who reported the vulnerabilities mentioned above. We fully support the reporting of vulnerabilities and we appreciate it when people work with us to identify and solve the problem.

Risk Mitigation

We recommend that you upgrade your Confluence installation to fix these vulnerabilities.

Alternatively, if you are not in a position to upgrade immediately and you judge it necessary, you can disable public signup to your wiki until you have applied the necessary patch or upgrade. For even tighter control, you could restrict access to trusted groups.

We also recommend that you read our guidelines on **best practices for configuring Confluence security**.

Fix

These vulnerabilities (CONF-22402 and CONF-22479) are both fixed in Confluence 3.5.3, and later versions. For a full description of the latest version of Confluence, see the release notes. You can download the latest version of Confluence from the download centre.

If you cannot upgrade to the latest version of Confluence, you can temporarily patch your existing installation using the patch listed below. We strongly recommend upgrading and not patching.

Patches

If you are running Confluence 3.5, we highly recommend that you upgrade to Confluence 3.5.3, or later. If you are running Confluence 3.4, you can apply the following patch to fix the CONF-22479 vulnerability. The CONF-22402 vulnerability does not affect Confluence 3.4.

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Patch</th>
<th>Patch File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Preferences</td>
<td>Attached to issue CONF-22479</td>
<td>CONF-22479_patch.zip</td>
</tr>
</tbody>
</table>

Patch Procedure: Install the Patch

A patch is available for Confluence 3.4 – 3.4.9.

The patch addresses the following issue:

Security vulnerability in Confluence User Preferences (CONF-22479).

Applying the patch
If you are using Confluence 3.4 – 3.4.9:

1. Download the CONF-22479_patch.zip file that is attached to the CONF-22479 issue.
2. Stop Confluence.
3. Make a backup of the <confluence_install_dir> directory.
4. Expand the downloaded zip file into <confluence_install_dir>, overwriting the existing files.
5. Check that the following files were created:
   - confluence/WEB-INF/classes/com/atlassian/confluence/core/ConfluenceActionSupport.properties
   - confluence/WEB-INF/classes/com/atlassian/confluence/languages/DefaultLocaleManager.class
   - confluence/WEB-INF/classes/com/atlassian/confluence/user/actions/EditMySettingsAction.class

XSRF Vulnerability

Severity

Atlassian rates the severity level of both this vulnerability as medium, according to the scale published in Severity Levels for Security Issues for Security Issues. The scale allows us to rank the severity as critical, high, medium 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

We have identified and fixed a cross-site request forgery (XSRF) vulnerability that may affect Confluence instances, including publicly available instances (that is, Internet-facing servers). XSRF vulnerabilities allow an attacker to trick users into unintentionally adding bookmarks to Confluence spaces. You can read more about XSRF attacks at http://www.cgisecurity.com/csrf-faq.html and other places on the web.

Vulnerability

The table below describes the Confluence versions and the specific functionality affected by the XSRF vulnerability.

<table>
<thead>
<tr>
<th>Confluence Feature</th>
<th>Affected Confluence Version</th>
<th>Fixed Version</th>
<th>Issue Tracking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Bookmarking plugin</td>
<td>3.0 – 3.4.9</td>
<td>3.5</td>
<td>CONF-22565</td>
</tr>
</tbody>
</table>

Risk Mitigation

We recommend that you upgrade your Confluence installation to fix these vulnerabilities.
Alternatively, if you are not in a position to upgrade immediately and you judge it necessary, you can disable public signup to your wiki until you have applied the necessary patch or upgrade. For even tighter control, you could restrict access to trusted groups.

We also recommend that you read our guidelines on best practices for configuring Confluence security for configuring Confluence security.

Fix

This vulnerability (CONF-22565) is fixed in Confluence 3.5, and later versions. For a full description of the latest version of Confluence, see the release notes. You can download the latest version of Confluence from the download centre.

If you cannot upgrade to the latest version of Confluence, you can temporarily patch your existing installation using the patch listed below. We strongly recommend upgrading and not patching.

Patches

If you are running Confluence 3.5, the CONF-22565 vulnerability is already fixed, but we highly recommend that you upgrade to the latest version of Confluence.
If you are running Confluence 3.4, you can apply the following patch to fix the CONF-22565 vulnerability.

For details on upgrading Confluence's plugins using the plugin manager, see:

- Upgrading your Existing Plugins

<table>
<thead>
<tr>
<th>Vulnerability</th>
<th>Patch</th>
<th>Patch File Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Bookmarking plugin</td>
<td>Attached to issue CONF-22565</td>
<td>socialbookmarking-1.3.9.jar</td>
</tr>
</tbody>
</table>
**Patch Procedure: Install the Patch**

A patch is available for Confluence 3.4 – 3.4.9.

The patch addresses the following issue:

- Security vulnerability in Confluence Settings Social Bookmarking plugin (CONF-22565).

**Applying the patch**

If you are using Confluence 3.4 – 3.4.9, use the plugin manager to upgrade the Social Bookmarking plugin to a version equal to or greater than that specified in the file name above.

For details on using the plugin manager, see [Upgrading your Existing Plugins](#).

**Configuring Confluence Security**

This section gives guidelines on configuring the security of your Confluence site.

Other topics:

- For information about user management, groups and permissions, please refer to the [internal security overview](#).
- For an overview of Confluence application security, see the page on [Confluence security](#).

**Setting up a Secure Confluence Site**

- Confluence Cookies
- Configuring Secure Administrator Sessions
- Using Fail2Ban to limit login attempts
- Securing Confluence with Apache
  - Using Apache to limit access to the Confluence administration interface
- Enabling or Disabling Public Signup
- Managing External Referrers
  - Excluding external referrers
  - Hiding external referrers
  - Ignoring External Referrers
- Best Practices for Configuring Confluence Security
- Hiding the People Directory
- Configuring Captcha for Spam Prevention
- Hiding External Links From Search Engines
- Configuring Captcha for Failed Logins
- Configuring XSRF Protection
- User Email Visibility
- Anonymous Access to Remote API
- Running Confluence Over SSL or HTTPS
- Connecting to LDAP or JIRA or Other Services via SSL
- Configuring RSS Feeds

**Confluence Cookies**

Confluence uses [Seraph](#), an open source framework, for HTTP cookie authentication.

**Cookies**

Confluence uses two cookies:

- The JSESSIONID cookie is created by the application server and used for session tracking purposes.
- The 'remember me' cookie, seraph.confluence, is generated by Confluence when the user selects the 'Remember me' checkbox on the login page.

> You can read about cookies on the [Wikipedia page](#).
The ‘Remember Me’ Cookie

The ‘remember me’ cookie is a long-lived HTTP cookie. This cookie can be used to authenticate an unauthenticated session. Confluence generates this cookie when the user selects the ‘Remember me’ checkbox on the login page.

Cookie Key and Value

By default, the cookie key is `seraph.confluence`. This key is defined in the `seraph-config.xml` file, in the `login.cookie.key` parameter.

The cookie contains a unique identifier plus a securely-generated random string.

Use of Cookie for Authentication

When a user requests a web page, if the request is not already authenticated via session-based authentication or otherwise, Confluence will match the ‘remember me’ cookie (if present) against the token stored for the user in the Confluence database (if present).

If the random string matches the value stored in the database and the cookie has not expired, the user is authenticated.

Life of ‘Remember Me’ Cookies

You can configure the maximum age of the cookie. To do that you will need to modify the `seraph-config.xml` file and insert the following lines below the other `init-param` elements:

```
<init-param>
  <param-name>autologin.cookie.age</param-name>
  <param-value>2592000</param-value><!-- 30 days in seconds -->
</init-param>
```

Automatic Cleanup of ‘Remember Me’ Tokens

Every cookie issued by Confluence has a corresponding record in the database. A scheduled job runs on 20th of every month to clean up expired tokens. The name of the trigger is `clearExpiredRememberMeTokensTrigger`.

Note: The only purpose of this job is to prevent the database table from growing too big. For authentication purposes, Confluence will ignore expired tokens even if they still exist in the database.
Is it Possible to Disable the 'Remember Me' Feature?

Confluence does not offer an option for disabling the 'Remember Me' feature. See the workaround.

Notes

- The autocomplete that happens when a user logs in is a browser feature, not a Confluence feature. Confluence cannot enable or disable the autocompletion.

RELATED TOPICS

**Configuring Secure Administrator Sessions**

Confluence protects access to its administrative functions by requiring a secure administration session to use the Confluence administration console or administer a space. When a Confluence administrator (who is logged into Confluence) 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 Confluence/space administration console.

The temporary secure session has a rolling timeout (defaulted to 10 minutes). If there is no activity by the administrator in the Confluence/space administration console for a period of time that exceeds the timeout, then the administrator will be logged out of the secure administrator session (note, they will remain logged into Confluence). If the administrator does click an administration function, the timeout will reset.

To configure secure administrator sessions:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Security Configuration' in the 'Security' section. The 'Edit Security Configuration' screen will be displayed.
3. Click the 'Edit' link.
   - To disable secure administrator sessions (i.e. administrators will not be required to log into a secure session to access the administration console), uncheck the 'Enable' checkbox next to 'Secure administrator sessions'.
   - To change the timeout for secure administrator sessions, update the value in textbox next to 'minutes before invalidation'. The default timeout for a secure administration session is 10 minutes.
4. Click the 'Save' button.
Notes

- Disabling password confirmation. Confluence installations that use a custom authentication mechanism may run into problems with the Confluence security measure that requires password confirmation. If necessary, you can set the `password_confirmation.disabled` system property to disable the password confirmation functionality. See Recognised System Properties. See issue CONF-20958 "Confluence features that require password confirmation (websudo, captcha) do not work with custom authentication".
- WebSudo. The feature that provides secure administrator sessions is also called 'WebSudo'.
- Manually ending a secure 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.
- Note for developers. Secure administrator sessions can cause exceptions when developing against Confluence or deploying a plugin. Please read this FAQ: How do I develop against Confluence with Secure Administrator Sessions? Note: The Confluence XML-RPC and REST APIs are not affected by secure administration sessions.

Using Fail2Ban to limit login attempts

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**

```bash
# 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 "maxretries" during the last "findtime"
# seconds.
# findtime = 60

# "maxretries" is the number of failures before a host get banned.
# maxretries = 3

[ssh-iptables]
enabled = false

[apache-shorewall]
enabled = true
filter = cac-login
action = shorewall
logpath = /var/log/httpd/confluence-access.log
bantime = 600
maxretries = 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`
Securing Confluence with Apache

The following outlines some basic techniques to secure a Confluence 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 Confluence administration interface
- Using Fail2Ban to limit login attempts

Further Information

Running Confluence behind Apache

Using Apache to limit access to the Confluence administration interface

Limiting administration to specific IP addresses

The Confluence administration interface is a critical part of the application; anyone with access to it can potentially compromise not only the Confluence 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". The 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:

```
This configuration assumes you've installed Confluence under '/confluence'. If you have installed under '/' or elsewhere, adjust the paths accordingly.
```
Enabling or Disabling Public Signup

Enabling ‘Public Signup’ allows users to sign themselves up to the site.

If you want to restrict your site to a particular set of users, you may want to disable ‘Public Signup’. In this instance, administrators can add new users from the Administration Console.

To enable or disable public signup:

1. Go to the Confluence ‘Administration Console’.

```
<Location /confluence/admin>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/consumers/list>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/view-consumer-info>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/service-providers/list>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/service-providers/add>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/consumers/add>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/consumers/add-manually>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/plugins/servlet/oauth/update-consumer-info>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/pages/templates/listpagetemplates.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/pages/templates/createpagetemplate.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/spacepermissions.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/listpermissionpages.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/removespace.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/importmbox.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/viewmailaccounts.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/addmailaccount.action/>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/importpages.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/flyingpdf/flyingpdf.action>
Include sysadmin_ips_only.conf
</Location>
<Location /confluence/spaces/exportspacexml.action>
Include sysadmin_ips_only.conf
</Location>
```

Enabling or Disabling Public Signup

Enabling ‘Public Signup’ allows users to sign themselves up to the site.

If you want to restrict your site to a particular set of users, you may want to disable ‘Public Signup’. In this instance, administrators can add new users from the Administration Console.

To enable or disable public signup:

1. Go to the Confluence ‘Administration Console’.
1. Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
2. Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the ‘Administration Console’.
3. Select ‘**Security Configuration**’ in the left-hand panel.
4. This will display the ‘**Security Configuration**’ screen. Click ‘**Edit**’.
5. Tick the **Public Signup** checkbox to enable Public Signup. Untick the checkbox to disable it.
6. Click ‘**Save**’.

**Related Topics**
- Disabling the Built-In User Management
- User Management
- Configuring Confluence Security

**Managing External Referrers**

An external referrer is any site that links to your Confluence instance. Each time someone clicks on the external link, your Confluence site can record the click as a referral.

By default, external referrers for a page are listed under ‘**Hot Referrers**’ on the ‘**Info**’ screen of the page. (See **Screenshot 1** below.) Confluence shows a maximum of 10 referrers. If there are more than 10, Confluence shows the 10 with the highest number of hits.

Note that you do **not** need to enable **trackback** in order to have external referrers enabled.

**To manage your external referrers:**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the ‘Administration Console’.
2. Select the ‘**Manage Referrers**’ option (See **Screenshot 2** below.).

**The following actions will be available:**

- **Record or ignore all external referrers**: By default, Confluence records the number of hits made to a page from the link on the external site. If you turn this option off, Confluence will not record the hits.
- **Show or hide all external referrers**: By default, Confluence lists the external referrers as ‘**Hot Referrers**’ on the ‘**Info**’ screen of a page, as shown below. If you turn this option off, external referrers will not be listed on the page.
- **Specify which external referrers to exclude**: You can decide which referrers you want to exclude from being displayed on your site.

**Screenshot above: Hot Referrers showing on a page’s Info screen**
Excluding external referrers

An external referrer is any site that links to your Confluence instance. Each time someone clicks on the external link, your Confluence site can record the click as a referral.

You can exclude external referrers to prevent them from being recorded or displayed anywhere on your site. Once you have specified your list of blocked URLs, any incoming links from URLs that match the list will no longer be recorded. Referrer URLs are blocked if they start with any of the URLs in the exclusion list. So http://evilspamsite.blogspot.com will also match http://evilspamsite.blogspot.com/nastypage.html

There are two instances where you may want to do this:

1. If you are running a Confluence installation that is open to public:
   In a site that is open to public, one unfortunate problem is that malicious sites can spam the display of a page’s incoming links statistics. This is usually done to get the site's URL to appear in the sidebar. By adding these sites to the ‘excluded referrers’ list, you can prevent them from being listed on your site.

2. If Confluence is installed on a server with multiple domain names or IP addresses:
   Confluence will consider any URL originating from the domain name where Confluence is installed as an internal link. However, if Confluence is installed on a server with multiple domain names or IP addresses, you will need to add the other domain name prefixes to this list to let Confluence know that any links from these domains should not be considered external links.

You need to be a Confluence administrator and to know the URL of the site to add it to the excluded referrers list.

To add a URL to the excluded referrers list:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.

2. Select ‘Manage Referrers’ in the left-hand panel.

3. Add the URL to the ‘Excluded External Referrer Prefixes’ section:
   - You must include “http://” at the front of the URL.
   - You can add more than one URL by putting each URL on a new line.
1. Go to the Confluence 'Administration Console':

   • Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Select 'Manage Referrers' in the left-hand panel.
3. Click 'Off' beside 'Show Referrers in Page Info'.

**Ignoring External Referrers**

An external referrer is any site that links to your Confluence instance. Each time someone clicks on the external link, your Confluence site can record the click as a referral. By default, Confluence records the number of hits made to a page from any link on an external site. If you turn this option off, Confluence will not record the hits.

**To ignore external referrers:**
1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Manage Referrers' in the left-hand panel. 
3. Click 'Off' beside 'Record External Referrers'.

<table>
<thead>
<tr>
<th>Record External Referrers:</th>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Referrers in Page Info:</td>
<td>On</td>
<td>Off</td>
</tr>
<tr>
<td>Excluded External Referrer Prefixes:</td>
<td>Add</td>
<td></td>
</tr>
</tbody>
</table>

Screenshot above: Managing external referrers

**Related Topics**
No content found for label(s) security-options.

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**Best Practices for Configuring Confluence Security**

The best way to harden a system is to look at each of the involved systems individually. Contact your company's security officer or department to find out what security policies you should be using. There are many things to consider, such as the configuration of your underlying operating systems, application servers, database servers, network, firewall, routers, etc. It would be impossible to outline all of them here.

This page contains guidelines on good security practices, to the best of our knowledge.

**Configuring the Web Server**

Please refer to the following guides for system administrators:

- How to configure Apache to lock down the administration interface to those people who really need it: Using Apache to limit access to the Confluence administration interface.
- How to reduce the risk of brute force attacks: Using Fail2Ban to limit login attempts.

**Configuring the Application Server**

See the following system administrator guide for general hints on the application server level:

- Tomcat security best practices

**Configuring the Application**

The way you set up Confluence roles, permissions and processes makes a big difference in the security of your Confluence site.

Below are some more Confluence-specific items to consider. None of these provides 100% security. They are measures to reduce impact and to slow down an intruder in case your system does become compromised.

- Keep the number of Confluence administrators extremely low. For example, 3 system administrator accounts should be the maximum.
- Similarly, restrict the number of users with powerful roles or group memberships. If only one department should have access to particularly sensitive data, then do restrict access to the data to those users. Do not let convenience over-rule security. Do not give all staff access to sensitive data when there is no need.
- The administrators should have separate Confluence accounts for their administrative roles and for their day to day roles. If John Doe is an administrator, he should have a regular user account without administrator access to do his day to day work (such as writing pages in the wiki). This could be a 'john.doe' account. In addition, he should have an entirely separate account (that cannot be guessed by an outsider and that does not even use his proper name) for administrative work. This account could be 'jane smith' – using a username that is so obscure or fake that no outsider could guess it. This way, even if an attacker singles out the actual person John Doe and gets hold of his password, the stolen account would most likely be John's regular user account, and the attacker cannot perform administrative actions with that account.
- Lock down administrative actions as much as you can. If there is no need for your administrators to perform administrative actions from outside the office, then lock down access to those actions to known IP addresses, for example. See Using Apache to limit access to the Confluence administration interface.
• Put documented procedures in place for the case of employees leaving the company.
• Perform security audits regularly. Know who can help in case a security breach occurs. Perform 'what if' planning exercises. ('What is the worst thing that could happen if a privileged user's password were stolen while he's on vacation? What can we do to minimise damage?').
• Make sure the Confluence database user (and all datasource database users) only has the amount of database privileges it really needs.
• Monitor your binaries. If an attacker compromises an account on your system, he will usually try to gain access to more accounts. This is sometimes done by adding malicious code, such as by modifying files on the system. Run routine scripts that regularly verify that no malicious change has been made.

As another precaution:

• Regularly monitor the above requirements. There are many things that could start out well, but deteriorate over time:
  - A system may start out with just 3 administrators, but over the course of a year this could grow to 30 administrators if no one prevents expansion.
  - Apache administration restrictions may be in place at the start of the year, but when the application server is migrated after a few months, people may forget to apply the rules to the new system.

Again, keep in mind that the above steps may only be a fraction of what could apply to you, depending on your security requirements. Also, keep in mind that none of the above rules can guarantee anything. They just make it harder for an intruder to move quickly.

**Hiding the People Directory**

The People Directory provides a list of all users in your Confluence system.

If you need to disable the People Directory set the following system properties on your application server command line:

- **To disable the People Directory for anonymous users,**
  ```bash
  -Dconfluence.disable.peopledirectory.anonymous=true
  ```

- **To disable the People Directory entirely,**
  ```bash
  -Dconfluence.disable.peopledirectory.all=true
  ```

This workaround will prevent the People directory from appearing on the dashboard, but if you navigate to the profile of a user, and then click on the "People" in the breadcrumb link (Dashboard >> People >> FullName >> Profile) or you go to the URL directly `<CONFLUENCE_INSTALL>/browsepeople.action`, you will be able to access the people directory.

To workaround this, set up Apache webserver in front of confluence and redirect requests to this URL.

To remove the link on the dashboard:

- **Procedure for Confluence 2.5.2 to 2.9.x. only**
  ```bash
  This only applies to Confluence 2.5.2 to 2.9.x. Confluence 2.10.x or later only needs to configure system properties using the above.
  Comment out line 37:
  ```
  ```xml
  <!--                    <img
    src="$req.contextPath/images/icons/people_directory_32.gif" align='absmiddle'
    height="32" width="32"> <b><a class="fontSizeDefault" href="$req.contextPath/peopledirectory.action">
  $action.getText("people.directory.title")</a></b><span class="smalltext"> -
  $action.getText("people.directory.description")</span><br> -->
  ```

**Related Topics**

No content found for label(s) security-options.

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**Configuring Captcha for Spam Prevention**
You need to be a Confluence administrator to configure Captcha for spam prevention in Confluence.

If your Confluence site is open to the public you may find that automated spam is being added, in the form of comments or new pages.

You can configure Confluence to deter automated spam by asking users to prove that they are human before they are allowed to:

- Sign up for an account.
- Add a comment.
- Create a page.
- Edit a page.
- Send a request to the Confluence administrators.

Captcha is the technical term for a test that can distinguish a human being from an automated agent such as a web spider or robot. You can read more about Captcha on Wikipedia.

When Captcha is switched on, users will need to recognise a distorted picture of a word, and must type the word into a text field. This is easy for humans to do, but very difficult for computers.

You can configure Confluence to enforce Captcha for certain types of users. You can exempt logged-in users (they will have completed a Captcha when they signed up) or members of particular groups.

By default, Captcha for spam prevention is disabled. If you enable it, the default is that Captcha for spam prevention will apply to anonymous users only. Only anonymous users will have to perform the Captcha test when creating comments or editing pages. Captcha images will not be shown to logged-in users.

To enable Captcha for spam prevention in Confluence:

1. Go to the Confluence 'Administration Console':
   - Choose `Browse > Confluence Admin`. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click `Confirm`. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Spam Prevention' from the 'Configuration' menu on the left.
3. Turn on Captcha by clicking the 'ON' link.
4. If you want to disable Captcha for certain groups:
   - Select 'No one' if you want everyone to see Captchas.
   - Select 'Signed in users' if you want only anonymous users to see Captchas.
   - If you want everyone to see Captchas except members of specific groups, select the 'Members of the following groups' and enter the group names in the text box. You can click the magnifying-glass icon to search for groups. Search for all or part of a group name and click the 'Select Groups' button to add one or more groups to the list.
   - To remove a group from the list, delete the group name.
5. Click the 'Save' button.

Related Topics

No content found for label(s) security-options.

Hiding External Links From Search Engines

Hiding external links from search engines helps to discourage spammers from posting links on your site. If you turn this option on, any URLs inserted in pages and comments will be given the 'nofollow' attribute, which prevents search engines from following them.

Shortcut links (e.g. CONF-2622@JIRA) and internal links to other pages within Confluence are not tagged.

To hide external links from search engines:

1. Go to the Confluence 'Administration Console':
   - Choose `Browse > Confluence Admin`. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click `Confirm`. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Security Configuration' in the left panel.
3. This will display the 'Security Configuration' screen. Click 'Edit'.
4. Check the 'Hide External Links From Search Engines' checkbox.
5. Click the 'Save' button.

Background to the nofollow attribute

As part of the effort to combat the spamming of wikis and blogs (Confluence being both), Google came up with some markup which instructs search engines not to follow links. By removing the main benefit of wiki-spamming it's hoped that the practice will stop being cost-effective and eventually die out.

Related Topics

No content found for label(s) security-options.

Configuring Captcha for Failed Logins

If you have confluence administrator permissions, you can configure Confluence to impose a maximum number of repeated login attempts. After a given number of failed login attempts (the default is three) Confluence will display a Captcha form asking the user to enter a given word when attempting to log in again. This will prevent brute force attacks on the Confluence login screen.

Similarly, after three failed login attempts via the XML-RPC or SOAP API, an error message will be returned instructing the user to log in via the web interface. Captcha will automatically be activated when they attempt this login.

'Captcha' is the technical term for a test that can distinguish a human being from an automated agent such as a web spider or robot. You can read more about Captcha on Wikipedia.

When Captcha is activated, users will need to recognise a distorted picture of a word, and must type the word into a text field. This is easy for humans to do, but very difficult for computers.

Enabling, Disabling and Configuring Captcha for Failed Logins

By default, Captcha for failed logins is enabled and the number of failed login attempts is set to three.

To enable, disable and configure Captcha for failed logins:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Security Configuration' from the 'Security' menu on the left.
3. Click the 'Edit' button.
4. To enable Captcha:
   - Check the 'Enable' checkbox next to 'CAPTCHA on login'.
   - Set the maximum number of failed logins next to 'Maximum Authentication Attempts Allowed'. You must enter a number greater than zero.
5. To disable Captcha, remove the check from the 'Enable' checkbox.
6. Click the 'Save' button.
Notes

- **Disabling all password confirmation requests, including Captcha on login.** Confluence installations that use a custom authentication mechanism may run into problems with the Confluence security measure that requires password confirmation. If necessary, you can set the `password.confirmation.disabled` system property to disable the password confirmation functionality on administrative actions, change of email address and Captcha for failed logins. See Recognised System Properties.

Related Topics

- Administrators Guide Home
- Confluence Documentation Home

**Configuring XSRF Protection**

Confluence requires an XSRF token to be present on comment creation, to prevent users being tricked into unintentionally submitting malicious data (read more about XSRF (Cross Site Request Forgery)). All of the themes bundled with Confluence have been designed to use this feature. However, if you are using a custom theme that does not support this security feature, you can disable it.

⚠️ Please carefully consider the security risks before you disable XSRF protection in your Confluence installation.

To configure XSRF protection:

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click **Security Configuration** in the ‘Security’ section. The ‘Edit Security Configuration’ screen will be displayed.
3. Click the **Edit** link.
4. To disable XSRF protection, uncheck the **Add Comments** checkbox in the ‘XSRF Protection’ section.
5. Click the **Save** button.
User Email Visibility

Confluence provides three options for email address privacy which can be configured by a Confluence administrator from the Administration Console:

- **Public**: email addresses are displayed publicly.
- **Masked**: email addresses are still displayed publicly, but masked in such a way to make it harder for spam-bots to harvest them.
- **Only visible to site administrators**: only Confluence administrators can see the email addresses. Note that, if you select this option, email addresses will not be available in the ‘User Search’ popup (e.g. when setting Page Restrictions).

To configure user email visibility:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select ‘Security Configuration’ in the left-hand panel. The ‘Security Configuration’ screen will be displayed.
3. Click ‘Edit’. The fields on the ‘Security Configuration’ screen will be editable.
4. Select one of the options from the ‘User email visibility’ dropdown: ‘public’, ‘masked’, or ‘only visible to site administrators’.
5. Click the ‘Save’ button.

Related Topics

No content found for label(s) security-options.
Anonymous Access to Remote API

Sites may wish to disable anonymous access to the remote API to make it harder for malicious users to write 'bots' that perform bulk changes to the site. If you wish to enable the Remote APIs but do not want anonymous users to access Confluence remotely, you can disable anonymous access from the Administration Console.

To disable anonymous access to Remote APIs:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Security Configuration' in the left panel. The 'Security Configuration' screen will be displayed.
3. Click 'Edit'. The fields on the 'Security Configuration' screen will now be editable.
4. Uncheck the 'Anonymous Access to API' checkbox.
5. Click the 'Save' button.

Related Topics
No content found for label(s) security-options.

Running Confluence Over SSL or HTTPS

This document tells you how to configure Confluence to enable access via HTTPS (HTTP over SSL), so that your Confluence logins and data are encrypted during transport to and from Confluence. SSL encryption is a good way to safeguard your Confluence data and user logins from being intercepted and read by outsiders.

These instructions apply to the following platforms:

- **Confluence Standalone or Confluence WAR distribution using Tomcat.** Apache Tomcat is the application server shipped with Confluence, and is the only supported application server. If you are using a different application server or Apache HTTP Server ("httpd"), see the page on [Apache with mod_proxy](http) for instructions on how to terminate an SSL connection at the Apache web server.
- **Java 6.** JDK 1.6 is the supported Java version for Confluence. Note that you need the JDK, since it includes the supported keytool utility used in the instructions below. The JRE is not enough. If you are using JDK 1.5, please refer to the [Java SE documentation](http) to see the differences in the keytool utility from JDK 1.5 to JDK 1.6.

The default connector port for Confluence standalone is 8090, while a plain Tomcat installation (used for EAR / WAR distribution) will default to 8080.

On this page:

- **Step 1. Create or Request a New SSL Certificate**
  - Certificate Option 1 – Create a Self-Signed Certificate
  - Certificate Option 2 – Use a Certificate Issued by a Certificate Authority
- **Step 2. Modify the Server Configuration File in your Confluence Installation**
- **Step 3. Specify the Location of your Certificate**
- **Step 4. Change your Confluence Base URL to HTTPS**
- **Step 5. Add a Security Constraint to Cause Redirect of All URLs to HTTPS**
- **Notes**
- **Troubleshooting**

**Step 1. Create or Request a New SSL Certificate**

You will need a valid SSL certificate before you can enable HTTPS. If you already have a certificate prepared, skip to step 2 below.

You can choose to create a self-signed certificate or to use a certificate issued by a certificate authority (CA, sometimes also called a 'certification authority'). We described both options below.

**Certificate Option 1 – Create a Self-Signed Certificate**

Self-signed certificates are useful if you require encryption but do not need to verify the identity of the requesting website. In general, you might use a self-signed certificate on a test environment and on internal corporate networks (intranets).

Because the certificate is not signed by a certificate authority (CA), users may receive a message that the site is not trusted 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.

Follow the steps below to generate a certificate using Java's keytool utility. This tool is included in the JDK.
1. Use Java's `keytool` utility to generate the certificate:
   - On Windows, run the following command at the command prompt:
     ```bash
     "%JAVA_HOME%/bin/keytool" -genkeypair -alias tomcat -keyalg RSA
     ```
   - On OS X or UNIX-based systems, run the following command at the command prompt:
     ```bash
     $JAVA_HOME/bin/keytool -genkeypair -alias tomcat -keyalg RSA
     ```
   2. When asked for a **password**:  
      - Specify the password you want to use for the certificate (private key). Note that the password text will not appear as you type it.  
      - Make a note of the password you choose, because you will need it in the next step when editing the configuration file.  
      - The default password is 'changeit'.
   3. Follow the prompts to specify your name, organisation and location. This information is used to construct the X.500 Distinguished Name (DN) of the entity, such as:
      ```
      CN=Java Duke, OU=Java Software Division, O=Sun Microsystems Inc, C=US
      ```
   4. Enter ‘y’ to confirm the details.
   5. When asked for the **password** for 'tomcat' (the alias you entered in the `keytool` command above), press the 'Enter' key. This specifies that your keystore entry will have the **same password** as your private key. You MUST use the same password here as was used for the keystore password itself. This is a restriction of the Tomcat implementation.
   6. You certificate is now ready. Go to step 2 below.

**Certificate Option 2 – Use a Certificate Issued by a Certificate Authority**

When running Confluence in a production environment, you will need a certificate issued by a certificate authority (CA, sometimes also called a 'certification authority') such as VeriSign, Thawte or TrustCenter. The instructions below are adapted from the Tomcat documentation.

First you will generate a local certificate and create a 'certificate signing request' (CSR) based on that certificate. You will submit the CSR to your chosen certificate authority. The CA will use that CSR to generate a certificate for you.

1. Use Java's `keytool` utility to generate a local certificate, as described in the previous section.
2. Use the `keytool` utility to generate a CSR, replacing the text `<MY_KEYSTORE_FILENAME>` with the path to and file name of the `.keystore` file generated for your local certificate:
   ```bash
   keytool -certreq -keyalg RSA -alias tomcat -file certreq.csr -keystore "<MY_KEYSTORE_FILENAME>"
   ```
3. Submit the generated file called `certreq.csr` to your chosen certificate authority. Refer to the documentation on the CA's website to find out how to do this.
4. The CA will send you a certificate.
5. Import the new certificate into your local keystore:
   ```bash
   keytool -importcert -alias tomcat -keystore "<MY_KEYSTORE_FILENAME>" -file "<MY_CERTIFICATE_FILENAME>"
   ```

**Step 2. Modify the Server Configuration File in your Confluence Installation**

1. Edit the server configuration file at this location: `CONFLUENCE-INSTALLATION>/conf/server.xml`.
2. Uncomment the following lines:
   ```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="<MY_CERTIFICATE_PASSWORD>"/>
   ```
3. Replace the text `<MY_CERTIFICATE_PASSWORD>` with the password you specified for your certificate.
4. Make sure that the attribute-value pair `SSLEnabled="true"` is part of the `Connector` element, as shown above. If this attribute is not present, attempts to access Confluence will time out.
5. Save the server configuration file.

**Step 3. Specify the Location of your Certificate**
By default, Tomcat expects the keystore file to be named \_keystore and to be located in the user home directory under which Tomcat is running (which may or may not be the same as your own home directory). This means that, by default, Tomcat will look for your SSL certificates in the following location:

- On Windows: C:\Documents and Settings\\#CURRENT_USER\\\_keystore
- On OS X and UNIX-based systems: ~/.keystore

You may decide to move the certificate to a custom location. If your certificate is not in the default location, you will need to update your server configuration file as outlined below, so that Tomcat can find the certificate.

1. Edit the server configuration file at this location: `{CONFLUENCE-INSTALLATION}>/conf/server.xml
2. Add the attribute `keystoreFile`="<MY_CERTIFICATE_LOCATION>" to the `Connector` element, so that the element looks like this:

```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"
    URLEncoding="UTF-8" keystorePass="<MY_CERTIFICATE_PASSWORD>"
    keystoreFile="<MY_CERTIFICATE_LOCATION>"/>
```

3. Replace the text `<MY_CERTIFICATE_LOCATION>` with the path to your certificate, including the path and the name of the `.keystore` file.
4. Save the server configuration file.

**Step 4. Change your Confluence Base URL to HTTPS**

1. In your browser, go to the Confluence Administration Console.
2. Change the Server Base URL to HTTPS. See the documentation on configuring the server base URL.

**Step 5. Add a Security Constraint to Cause Redirect of All URLs to HTTPS**

Although HTTPS is now activated and available, the old HTTP URLs (`http://localhost:8090`) are still available. Now you need to redirect the URLs to their HTTPS equivalent. You will do this by adding a security constraint in `web.xml`. This will cause Tomcat to redirect requests that come in on a non-SSL port.

1. Check whether your Confluence site uses the RSS macro. If your site has the RSS macro enabled, you may need to configure the URL redirection with a firewall rule, rather than by editing the `web.xml` file. Skip the steps below and follow the steps on the RSS Feed Macro page instead.
2. Otherwise, Edit the file at `<CONFLUENCE_INSTALLATION>/confluence/WEB-INF/web.xml.
3. Add the following declaration to the end of the file, before the `</web-app>` tag:

```xml
<security-constraint>
    <web-resource-collection>
        <web-resource-name>Restricted URLs</web-resource-name>
        <url-pattern>/</url-pattern>
    </web-resource-collection>
    <user-data-constraint>
        <transport-guarantee>CONFIDENTIAL</transport-guarantee>
    </user-data-constraint>
</security-constraint>
```


**Notes**

- **Background information on generating a certificate:** The `keytool -genkeypair` command generates a key pair consisting of a public key and the associated private key, and stores them in a keystore. The command packages the public key into an X.509 v3 self-signed certificate, which is stored as a single-element certificate chain. This certificate chain and the private key are stored in a new keystore entry, identified by the alias that you specify in the command. The Java SE documentation has a good overview of the utility.
- **Custom SSL port:** If you have changed the port that the SSL connector is running on from the default value of 8443, you must update the `redirectPort` attribute of the standard HTTP connector to reflect the new SSL port. Tomcat needs this information to know which port to redirect to when an incoming request needs to be secure.
- **Protection for logins only or for individual spaces:** As of Confluence 3.0, Atlassian does not support HTTPS for logins only or for specific pages. We support only site-wide HTTPS. To see the reasoning behind this decision, please see...
Troubleshooting

- Check the Confluence knowledge base articles on troubleshooting SSL.
- If any of your users will access Confluence from Internet Explorer SSL, please note the following additional points when using Java's keytool utility:
  - Make sure that you specify the -keyalg RSA option, as shown in the example of the keytool command above. The default is the SHA1 algorithm, which results in an error 'Internet Explorer cannot display the webpage' on IE7 on Vista.
  - You may also need to specify the -sigalg MD5withRSA option. Otherwise, SHA1 will be used even if you specify the -keyalg RSA option. See this Atlassian blogpost for more information.
- Problems with Internet Explorer being unable to download attachments: Applying SSL site wide can prevent IE from downloading attachments correctly. To fix this problem, edit <CONFLUENCE_INSTALLATION>/conf/server.xml and add the following line within the <Context ... /> element:

  ```xml
  <Valve className="org.apache.catalina.authenticator.NonLoginAuthenticator"
        disableProxyCaching="true" securePagesWithPragma="false" />
  ```

Related Topics

- SSL Configuration HOW-TO in the Apache Tomcat 6.0 documentation
- SSL Configuration HOW-TO in the Apache Tomcat 5.5 documentation
- keytool - Key and Certificate Management Tool in the Java SE documentation
- Connecting to LDAP or JIRA or Other Services via SSL
- Supported Platforms

Connecting to LDAP or JIRA or Other Services via SSL

This page describes how to get Confluence connecting to external servers over SSL, via the various SSL-wrapped protocols.

Here are some examples of when you may need to connect to an external server over SSL/HTTPS:

- You need to connect to an LDAP server, such as Active Directory, if the LDAP server is running over SSL.
  For specific instructions for Active Directory, see Configuring an SSL Connection to Active Directory.
- You want to set up JIRA as a trusted application in Confluence, when JIRA is running over SSL.
- You want to refer to an https://... URL in a Confluence macro.

If you want to run Confluence itself over SSL, see Running Confluence Over SSL or HTTPS.

Importing SSL Certificates

The following commands apply to JDK 1.5. For commands/syntax relevant to JDK 1.6, please refer to this document from Oracle.

1. Add the root certificate to your default Java keystore with the following command. This is the certificate that was used to authorise the LDAP server's certificate. It will be either the one that was used for signing it, or will come from further up in the trust chain, possibly the root certificate. This is often a self-signed certificate, when both ends of the SSL connection are within the same network. Again, the exact alias is not important:

   ```bash
   keytool -import -alias serverCert -file RootCert.crt -keystore %JAVA_HOME%/jre/lib/security/cacerts (Windows)
   keytool -import -alias serverCert -file RootCert.crt -keystore $JAVA_HOME/jre/lib/security/cacerts (Linux/Unix/Mac)
   ```

2. Import your LDAP or JIRA server's public certificate into the JVM Keystore. This is the certificate that the LDAP server will use to set up the SSL encryption. You can use any alias of your choosing in place of "JIRAorLDAPServer.crt".

   ```bash
   keytool -import -alias ldapCert -file JIRAorLDAPServer.crt -keystore %JAVA_HOME%/jre/lib/security/cacerts (Windows)
   keytool -import -alias ldapCert -file JIRAorLDAPServer.crt -keystore $JAVA_HOME/jre/lib/security/cacerts (Linux/Unix/Mac)
   ```

3. Edit the file in your Confluence installation directory, {confluence-installation}/confluence/WEB-INF/classes/atlassian-user.xml. Change the value of securityProtocol from "plain" to "ssl":

   ```xml
   <securityProtocol>ssl</securityProtocol>
   ```

Switch the LDAP connection to the SSL port, if it is different from the default LDAP port. If you are using the most common LDAPS port, set:
The keytool will ask you for a password. The default password is 'changeit' without the quotes.

4. Verify that the certificate has been added successfully by entering the following command:

```
keytool -list -keystore %JAVA_HOME%/jre/lib/security/cacerts (Windows)
keytool -list -keystore $JAVA_HOME/jre/lib/security/cacerts (Unix/Linux)
keytool -list -keystore /Library/Java/Home/lib/security/cacerts (Mac)
```

5. Ensure that you have updated JAVA_OPTS to specify the path to the keystore, as specified in Connecting to SSL services, before restarting Tomcat/Confluence.

There is no need to specify an alias for Confluence to use. On connecting to the LDAP server, it will search through the keystore to find a certificate to match the key being presented by the server.

**Troubleshooting**

Check the following knowledge base articles:

- Unable to Connect to SSL Services due to PKIX Path Building Failed
- sun.security.provider.certpath.SunCertPathBuilderException
- SSL troubleshooting articles

**Related Topics**

- Configuring an SSL Connection to Active Directory
- Configure Web Proxy Support for Confluence
- Running Confluence Over SSL or HTTPS

**Configuring RSS Feeds**

A Confluence System Administrator can configure the following aspects of RSS feeds:

- The maximum number of items that Confluence returns to an RSS feed request.
- The maximum time period that Confluence allows to respond to an RSS feed request.

Both of these are set in the 'Edit Security Configuration' screen.

**To configure RSS feeds:**

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click Security Configuration in the left panel. The 'Edit Security Configuration' screen will be displayed.
3. Click Edit.
4. Edit the value for **Maximum RSS Items**. The default value is 200.
5. Edit the value for **RSS timeout**.
6. Click Save.

**Screenshot: Configuring RSS feeds**

```
Maximum RSS Items 200

Limit the maximum number of items an RSS Feed can request.

RSS timeout 60

The time in seconds allowed to create each RSS Feed. Any items rendered within the timeout will still be returned.
```

**Notes**

- When using the RSS Feed Builder, a user could potentially enter such a large value for the number of feed items returned that Confluence would eventually run out of memory.
- When using the Feed Builder, if a users a value greater than this setting (or less than 0) they will get a validation error.
- If any pre-existing feeds are set to request more than the configured maximum, they will be supplied with only the configured maximum number of items. This is done silently - there is no logging and no message is returned to the RSS reader.
- If Confluence times out when responding to an RSS feed request, any items already rendered are returned.
Related Topics

Using the RSS Feed Builder

Design and Layout

- Choosing a Default Language
- Custom Decorator Templates
- Customising Look and Feel Overview
  - Customising Colour Schemes
  - Customising Layouts
    - Adding a Navigation Sidebar
    - Adding an All Versions Section to your Navigation Bar
  - Upgrading Custom Layouts
- Global Templates
- Importing Templates
- Modify Confluence Interface Text
- Working With Decorator Macros
- Customising a Specific Page
- Customising PDF or HTML Content
- Customising the Dashboard
- Customising the eMail Templates
- Customising the Login Page
- Themes Overview
  - Applying a Theme to a Site
  - Customising the Left Navigation Theme
  - Modifying Look and Feel (for themes)
    - Configuring the Theme Plugin
    - Including Cascading Stylesheets in Themes
  - Creating a Theme

**RELATED TOPICS**

Modifying Confluence Interface Text
Site Configuration

**Choosing a Default Language**

Administrators can define a default language to be applied to all spaces in your Confluence site. Note that individual users can select a language preference for their session.

**Setting the Default Language**

To change the default language for the Confluence site:

1. Go to the Confluence 'Administration Console':

   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the 'Administration Console'.

2. Select **Languages** in the 'Configuration' section of the left-hand panel.
3. The **Language Configuration** screen will appear. Select the language that you want to use as the default language for your Confluence site.

**Other Settings that Affect the Language**

Individual users can choose the language that Confluence will use to display screen text and messages. Note that the list of supported languages depends on the language packs installed on your Confluence site.

The language used for your session will depend on the settings below, in the following order of priority from highest to lowest:

- The language preference defined in your user profile. Note that you need to be logged in for this setting to take effect.
- The language that you choose by clicking an option at the bottom of the Confluence login screen. Confluence stores this value in a cookie. When the cookie expires, the setting will expire too.
- The language set in your browser.
  - Note that your Confluence administrator can disable this option by setting a system property.
  - The browser sends a header with a prioritised list of languages. Confluence will use the first supported language in that list.
- The default language for your site, as defined by your Confluence site administrator.

**RELATED TOPICS**
Custom Decorator Templates

About Decorators

Confluence is built on top of the Open Source SiteMesh library, a web-page layout system that provides a consistent look and feel across a site. SiteMesh works through “decorators” that define a page’s layout and structure, and into which the specific content of the page is placed. If you are interested, you can read more on the SiteMesh website.

What this means for Confluence is that you can customise the look and feel of almost all of your Confluence site through editing three decorators:

- The "Main" decorator defines the look and feel of most pages on the site
- The "Popup" decorator defines the look and feel of the popup windows such as the “Insert Link” and “History” pages.
- The “Printable” decorator defines the look and feel of the printable versions of pages (available through the icon on each page)

You can view and edit these decorators from within Confluence: they are available from the "Layouts" option on the site's Administration menu. Changes to the decorators will affect all spaces hosted on that Confluence installation.

The decorator that is used to draw Confluence's administrative pages can not be edited from within Confluence. This means that if you make some editing mistake that renders the rest of the site unuseable, the administrative pages should still be available for you to fix the template.

Browsing the Default Decorators

At any time, you can browse the default decorators that come packaged with Confluence by following the "View Default" links on the "Site Layouts" page. The template browser also allows you to view the "parsed" templates that are included within the template when it is compiled. While you can't edit these included templates, you will probably have to copy some or all of them into your custom template as you do your customisation.

Editing Custom Decorators: Add a Logo

To edit Confluence decorators, you should have a good knowledge of HTML, and some understanding of the Velocity templating language.

The first thing you will see when you choose to create a custom "Main" decorator is... there's not much to edit. By default, most of the content of this decorator is included from other files:
We can add our logo, changing the "logocell" table cell:

```
<table border="0" cellpadding="0" cellspacing="0" width="100%">
  <tr>
    <td width="60%" rowspan=2 class="logocell">#pagetitle("spacenametitle")</td>
    <td width="40%" align="right" valign="top">#globalnavbar("table")</td>
  </tr>
  #if ($setup.isSetupComplete())
  <tr>
    <td align=right valign="bottom">
      #usernavbar()
      #printableicon()
      #helpicon()
    </td>
  </tr>
  #end
</table>
```

When you insert this into the right section of the template and hit save, visitors to the site will see the logo at the top of each page. Note, the administrative pages will be unaffected: you will have to go to the dashboard or to a space to see the changes you have made.

**Macros**

Some parts of the page are drawn using Velocity macros, including the navigation bar. The macros you should know about when editing decorators are described in Working with Decorator Macros.
If Something Goes Terribly Wrong

From the "Site Layouts" page in Confluence's administrative menu, you can delete your custom templates. When you do this, the default template will be restored, fixing anything that may have been broken.

Alternatively, the custom templates are stored in the DECORATOR table in the database. If you have somehow managed to render Confluence completely unusable through editing your templates, delete the relevant entries from the DECORATOR table.

For Advanced Users

The velocity directory is at the front of Confluence's velocity template search path. As such, you can override any of Confluence's velocity templates by placing an identically named file in the right place.

While we don't recommend you do this unless you know exactly what you're doing, it does give you complete control over the look of every aspect of Confluence. It also means that you can edit your templates in a text-editor if you wish, rather than through the web interface.

There are, however, two important caveats:

1. Velocity is configured to cache templates in memory. When you edit a page from within Confluence, it knows to reload that page from disk. If you are editing the pages on disk, you will either have to turn off velocity's caching temporarily in WEB-INF/classes/velocity.properties, or restart the server to make your changes visible.
2. Because we only officially support the modification of the three global decorator files, other changes may interact unpredictably with future versions of Confluence. When upgrading, you should always test your custom modifications thoroughly before deploying them on a live site.

Customising Look and Feel Overview

You can customise the 'look and feel' of Confluence at both the global and space levels.

Any changes you make to the look and feel of the site at the global level will be applied as the default look and feel for all the spaces in the site. This means that any customisations will only be reflected in the "Default" theme. No other theme will have an impact from this change. An individual space can be configured to have its own look and feel through the space administration screens.

Here's how you can customise the look and feel of your site:

- **Colour Scheme**: Change the colour scheme of the user interface.
- **Layouts**: Edit how the controls are laid out in the site. This does not change the actual page layouts but the way the surrounding controls appear in the page.
- **Themes**: Use themes for advanced layout customisation.

**RELATED TOPICS**
No content found for label(s) customising-looknfeel.

Customising Colour Schemes

A Confluence administrator can configure a new colour scheme for the site dynamically from the Administration Console.

The default colour scheme for the site will also become the default for all spaces within it. However, it is possible for space administrators to configure a different colour scheme for spaces from the space administration screens.

To change the site's colour scheme:

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Colour Scheme' in the left-hand panel.
   This will bring up a new screen. See screenshot below.
3. Click **Edit**. Enter standard HTML/CSS2 colour codes, or use the colour-picker to choose a new colour from the palette provided. Any changes you make will immediately be reflected across the Confluence installation.

The colour scheme applies to the following UI elements:

- **Top Bar** - the bar across the top of the page that contains the breadcrumbs
- **Tab Navigation Background** - the background colour of the tab navigation menus
- **Tab Navigation Text** - the text of the tab navigation menus
- **Breadcrumbs Text** - the breadcrumbs text in the top bar of the page
- **Space Name Text** - the text of the current space name located above the page title
- **Heading Text** - all heading tags throughout the space.
- **Links** - all links throughout the space.
- **Borders and Dividers** - table borders and dividing lines.
- **Tab Navigation Background Highlight** - the background colour of the tab navigation menu when highlighted
- **Tab Navigation Text Highlight** - the text of the tab navigation menu when highlighted
- **Top Bar Menu Item** - the text colour of the menu items in the top bar drop down menu
- **Page Menu Selected Background** - the background colour of the drop down page menu when selected
- **Page Menu Item Text** - the text of the menu items in the drop down page menu
- **Menu Item Selected Background** - the background colour of the menu item when selected (applies to both the top bar and page drop down menus)
- **Menu Item Selected Text** - the text colour of the menu item when selected (applies to both the top bar and page drop down menus)

Please note that some UI elements are specific to the default theme and may not take affect for other themes.

### Custom Colour Scheme

A custom colour scheme can be edited.

Please note that some UI elements are specific to the default theme and may not take affect for other themes.

The following colours can be customised for this colour scheme:

<table>
<thead>
<tr>
<th>Top Bar</th>
<th>#003366</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tab Navigation Background</td>
<td>#3c78b5</td>
</tr>
<tr>
<td>Tab Navigation Text</td>
<td>#ffffff</td>
</tr>
<tr>
<td>Breadcrumbs Text</td>
<td>#999999</td>
</tr>
<tr>
<td>Space Name Text</td>
<td>#3c78b5</td>
</tr>
<tr>
<td>Heading Text</td>
<td>#003366</td>
</tr>
<tr>
<td>Links</td>
<td>#003366</td>
</tr>
<tr>
<td>Borders and Dividers</td>
<td>#3c78b5</td>
</tr>
<tr>
<td>Tab Navigation Background Highlight</td>
<td>#003366</td>
</tr>
<tr>
<td>Tab Navigation Text Highlight</td>
<td>#ffffff</td>
</tr>
<tr>
<td>Top Bar Menu Selected Background</td>
<td>#336699</td>
</tr>
<tr>
<td>Top Bar Menu Item Text</td>
<td>#003366</td>
</tr>
<tr>
<td>Page Menu Selected Background</td>
<td>#6699cc</td>
</tr>
<tr>
<td>Page Menu Item Text</td>
<td>#555555</td>
</tr>
<tr>
<td>Menu Item Selected Background</td>
<td>#6699cc</td>
</tr>
<tr>
<td>Menu Item Selected Text</td>
<td>#ffffff</td>
</tr>
</tbody>
</table>

**Screenshot above: Editing a site's colour scheme**

**Note**

If you mess things up, just click the 'Reset' button and then try again.

**Related Topics**

No content found for label(s) customising-looknfeel.

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**Customising Layouts**

Confluence's look and feel can be modified by editing the 'decorator' (layout) files. Modifying these files allows you to change the look and feel of:

- The Confluence site as a whole, which includes all spaces within the Confluence site.

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An individual space within the Confluence site.

This page tells you how to customise the layout files for your Confluence site as a whole. These customisations:

- Modify the default ‘decorator’ files of each space in your site
- Are reflected in every space unless the space’s own equivalent layout files have been customised.

You require System Administrator permissions to perform these customisations.

You can also customise the layout files for a given space only. For more information, refer to Customising Layouts for a Space.

Space layout file customisations override the equivalent site layout file customisations.

If you modify the look and feel of Confluence by following these instructions, you will need to update your customisations when upgrading Confluence. The more dramatic the customisations are, the harder it will be to reapply your changes when upgrading. Please take this into account before proceeding with your customisation. For more information on updating your customisations, please refer to Upgrading Custom Layouts.

Confluence is built on top of the open source SiteMesh library, a web-page layout system. Read more on the SiteMesh website. To edit the layout of Confluence, you will need to modify these decorator files. A decorator file is a .vmd file and is written in a very simple programming language called Velocity. You can learn more from the Velocity User Guide.

Once you are familiar with Velocity, you can edit the decorator files to personalise the appearance of Confluence.

The decorator files are grouped into:

- **Site layouts**: These are used to define the controls that surround each page in the site. For example, the header and the footer.
- **Content layouts**: These control the appearance of content such as pages and blog posts: they don’t change the way the pages themselves are displayed, but allow you to alter the way the surrounding comments or attachments are displayed.
- **Export layouts**: These control the appearance of spaces and pages when they are exported to HTML. If you are using Confluence to generate a static website, for example, you will need to modify these layouts.

### Editing a site decorator file

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select ‘Layouts’ under ‘Look and Feel’ in the left-hand navigation panel. The decorators are grouped under **Site**, **Content** and **Export** layouts.
   - Click **View Default** to view the vmd file.
   - Click **Create Custom** to edit the default vmd file. This will open up the vmd file in edit mode.
3. Make changes and click **Update**.

If something goes wrong: Click ‘Reset Default’ to revert to the original layouts.

### Using Velocity macros

When editing Custom Decorator Templates, there are a number of macros available to define complex or variable parts of the page such as menus and breadcrumbs. You may insert these macros anywhere in your templates. More information on Working With Decorator Macros.

### For advanced users

The velocity directory is at the front of Confluence’s velocity template search path. As such, you can override any of Confluence’s velocity templates by placing an identically named file in the right place. While we don’t recommend you do this unless you know exactly what you’re doing, it does give you complete control over the look of every aspect of Confluence. It also means that you can edit your templates in a text-editor if you wish, rather than through the web interface.

### Caching

Velocity is configured to cache templates in memory. When you edit a page from within Confluence, it knows to reload that page from disk. If you are editing the pages on disk, you will either have to turn off velocity’s caching temporarily in WEB-INF/classes/velocity.properties, or restart the server to make your changes visible.

In Confluence 2.6 and later, some Velocity files are located inside the Confluence JAR file that can be found at confluence/WEB-INF/lib/confluence-x.x.x.jar. To override files inside this JAR (which you can open with any ZIP tool like WinZip or 7-Zip), put your customised file in the same directory structure under confluence/WEB-INF/classes/.

For example, the file templates/macros/alphaindex.vm inside confluence.jar can be replace by putting your custom file in
WEB-INF/classes/templates/macros/alphaindex.vm. You do not need to modify the file inside the JAR.

See also Editing Files within JAR Archives.

**RELATED TOPICS**

No content found for label(s) customising-looknfeel.

Velocity Template Overview

Basic Introduction to Velocity

Adding a Navigation Sidebar

You can include a left-hand navigation sidebar (table of contents) in your Confluence space. There are two ways to do this:

- **Recommended: Use the Documentation Theme** — The Documentation theme provides the left-hand navigation sidebar that you see in this documentation. Please go to the page that tells you how to configure the Documentation theme.

- **Customise the Page Layouts** — This is an alternative method (documented below) that is more complex to set up than the Documentation theme and requires more maintenance with Confluence major release upgrades.

**Notes to Read before you Start**

Please take note of the following points before you use the method documented on this page:

- **Re-apply customisation whenever you upgrade Confluence.** Every time you upgrade Confluence, you must re-apply the layout customisations described on this page. When you upgrade to a new major Confluence version (such as moving from Confluence 2.9.x to Confluence 2.10.x or from Confluence 3.0.x to Confluence 3.1.x) you will need to re-apply the layout customisation. See instructions below.

- **Check your wiki permissions.** To customise a space layout as described below, you must be a space administrator in the given space and you must be a system administrator on the Confluence site. See the overview of permissions and the glossary entries for space administrator and system administrator.

**Customising your Layouts to Add a Navigation Sidebar**

*Screenshot: A left-hand navigation bar resulting from customising the page layouts*

Follow the instructions below to add the navigation sidebar to your Confluence space.

**Step 1. Create the TreeNavigation Page**
First, you will create a Confluence page containing the pagetree macro. This is just a normal Confluence page. The only slight oddity is that it should reside at the root of your space, instead of under the space's home page.

Follow these instructions:

1. Go to the 'Space Pages' view for the current space. To do this:
   - Go to a page in the space and choose **Browse -> Pages**. You are now at the 'root' level of your space. The 'root' level contains pages that are added above the space's home page, not as children of the home page.
2. At the root level of the space, create a page named 'TreeNavigation'.
3. On the page, insert the following text:

   `{pagetree}

4. Now decide if you want to add extra functionality to your page tree. By default, using the code above, the page tree will use the home page of the space as its root. You can choose to:
   - Specify a different root for your page tree.
   - Add a search box at the top of the tree.
   - Allow the viewers to expand and collapse the whole tree.
   - Control other aspects of the display.
   For more information, read about the [Pagetree macro](https://confluence.atlassian.com/pages/pagetree).

---

**Step 2. Change the Page Layout on your Space**

Now you will change the page layout on your space, to include the above page on the left of every web page displayed.

1. Choose **Browse -> Space Admin**. **Space Admin** is displayed only if you are a space administrator for that space or you are a Confluence system administrator.
2. Make sure the Confluence Default theme is selected from the 'Themes' menu.
3. Click **Layout** under the 'Look and Feel' section. **Layout** is only displayed if you are a system administrator on the Confluence site.
4. Click **Create Custom** under the 'Page Layout' section.
5. In the layout, locate the 'VIEW' section, and find this code:

   `<div class="wiki-content">
   $body
   </div>`

6. Replace the above code block with this code:
#if ($action.isPrintableVersion() == false)
<style>
.spacetree * ul{
padding-left:0px;
margin-left: 0px;
}
.spacetree * li{
margin-left: 5px;
padding-left:5px;
}
</style>
<table cellspacing="2" cellpadding="5">
<tr>
<td valign="top" align="left" width="22%" bgcolor="#F9F9F9" class="noprint">
<div class="tabletitle">Table of Contents</div>
<div class="spacetree">
#includePage($helper.spaceKey "TreeNavigation")
</div>
</td>
<td valign="top" align="left" width="78%" class="pagecontent">
$body
</td>
</tr>
</table>
#else
<div class="wiki-content">
$body
</div>
#end

7. If you want to, you can change the table title in the above code from 'Table of Contents' to something else. For example, it might say 'Confluence Documentation'.

8. Save the updated layout.

**Re-Applying the Customisation on Upgrade**

When you upgrade to a new major Confluence version (e.g. from Confluence 2.9.x to Confluence 2.10.x or from Confluence 3.0.x to Confluence 3.1.x), you will need to re-apply this customisation.

**Reason:**
The new Confluence version may contain updates to the page layouts. Because you have customised the page layouts, Confluence will not overwrite your customisation. So your space will not get the latest updates until you set the layout to default and then re-apply your changes.

**Here's how to do it:**

1. First make a copy of your customised code, if you have changed it from the code above:
   - Go to 'Space Admin', click 'Layout' and edit the customised page layout (as created above).
   - Copy the section of code that inserts the customised left-hand navigation panel.
   - Close the page layout.
2. Click 'Reset Default' next to 'Page Layout', to set the page layout back to default. This will bring in the new code for the upgraded version of Confluence.
3. Create a custom page layout as described in step 2 above, and reinsert the custom left-hand navigation code.
4. Save the updated layout.

**The "All Versions" section in the navigation bar**

A number of people have asked how we created the 'All Versions' section at the top of our navigation side bar. Take a look at Adding an All Versions Section to your Navigation Bar.

**RELATED TOPICS**

- Configuring the Documentation Theme
- Customising Layouts
- Upgrading Custom Layouts
Example Confluence Designs

Adding an All Versions Section to your Navigation Bar

This page gives an example of how you might add an 'All Versions' section to your navigation side bar, as currently used in the Confluence documentation, Crowd documentation and the other Atlassian product documentation spaces.

If you are viewing this page online on the Atlassian documentation wiki, you will be able to see the 'All Versions' section at the top left of the navigation sidebar. Below is a screenshot.

A number of people have asked how we do it, so this page gives the answer. For details about creating the navigation side bar itself, please refer to Adding a Navigation Sidebar.

Screenshot: 'All Versions' section (expanded) at top left of navigation bar

Adding the Version Index to the Navigation Sidebar

This is how we added the 'All Versions' section to the sidebar:

- For each product (Confluence, Crowd, Bamboo, etc) there is a page in the Inclusions Library of the ALLDOC space. The page lists all the versions of that product's documentation, linking to the relevant spaces. For example, here is the page for Confluence and the page for Crowd.

  We put the 'all versions' page in ALLDOC because the page is used in a number of different spaces, via the {include} macro. For example, the 'all versions' page may be included:
  - In every documentation space (each version) for the product concerned, such as DOC, CONF29, CONF28, CROWD, CROWD013, CROWD012, etc.
  - In the Enterprise Hosting doc space.
  - As a panel on the documentation home page, as shown in the 'All Versions' panel of the above screenshot, as well as in the left-hand navigation bar.
  - Any other places where useful.

- In each documentation space, there is a page called 'TreeNavigationVersions' like this one or this one, which copies in the content of the above 'all versions' page.

  For each documentation space, the space's page layout now includes two pages instead of just one:
  - The 'TreeNavigation' page, as already described on the page above.
  - The new 'TreeNavigationVersions' page.
Here's the relevant section of our page layout as it is currently for the Confluence documentation (DOC) space:

```html
# if ($action.isPrintableVersion() == false)
  <style>
    .spacetree * ul{
      padding-left:0px;
      margin-left: 0px;
    }
    .spacetree * li{
      margin-left: 5px;
      padding-left:5px;
    }
  </style>
  <table cellspacing="2" cellpadding="5">
    <tr>
      <td valign="top" align="left" width="30%" bgcolor="#eeecec" class="noprint">
        <div class="tabletitle">All Versions</div>
        <div class="spacetree">
          #includePage($helper.spaceKey "TreeNavigationVersions")
        </div>
        <div class="tabletitle">Confluence 2.10 Documentation</div>
        <div class="spacetree">
          #includePage($helper.spaceKey "TreeNavigation")
        </div>
      </td>
      <td valign="top" align="left" width="70%" class="pagecontent">
        $body
      </td>
    </tr>
  </table>
# else
  <div class="wiki-content">
    $body
  </div>
# end
```

Adding the Expand/Collapse Functionality to the Version Index

Another question we are asked is how we group the content of the included page under a collapsible control.

We use the Expand macro. The details are on the Expand macro's documentation page.

Related Topics

Adding a Navigation Sidebar

Upgrading Custom Layouts

As Confluence evolves, so do the default layouts that drive the rendering of every page. As new functionality is added or current functionality is changed, the default layouts are modified to support these changes.

⚠️ If you are using custom layouts based on defaults from a previous Confluence version, you run the risk of breaking functionality, or worse, missing out on great new features!

Take care on each new release of Confluence to reapply your changes to the new default templates.

To reapply your custom layouts, you need to:

1. Obtain the source of your custom layouts from your current version of Confluence.
2. Reapply your customisations to the new default layouts.

**Step 1. Obtaining your Custom Layouts**

Ideally, you should keep a record of each customisation you have applied to each of your Confluence site or space layouts. If not, you should be able to find your customisations using the following method. This method extracts all site- and space-level
layouts from your Confluence site as a single output. From this output, you should be able to identify your customisations.

- This method is handy to use if you have:
  - Many spaces with space layout customisations, or
  - Do not have an independent record of your site or space layout customisations.

**Before Confluence 2.3**, custom layouts are stored in the `velocity` directory within your Confluence home directory tree. You can open these files in any text editor.

**In Confluence 2.3 and later**, custom layouts are stored in the `DECORATOR` table within your Confluence database. You can **SELECT** for the source of the layout using SQL like this:

```sql
mysql> select SPACEKEY,DECORATORTNAME,BODY from DECORATOR;
+----------+---------------------+------+
<table>
<thead>
<tr>
<th>SPACEKEY</th>
<th>DECORATORNAME</th>
<th>BODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NULL</td>
<td>decorators/main.vmd</td>
<td>...</td>
</tr>
</tbody>
</table>
+----------+---------------------+------+
1 row in set (0.03 sec)
```

This example was tested on **MySQL**, but should be applicable to all SQL databases.

**Step 2. Reapplying your Customisations**

When you upgrade Confluence to another major release of Confluence, you will need to manually re-apply any customisations you made to any site-wide or space-specific layouts. Unless otherwise stated, you should not need to re-apply customisations after conducting a minor release upgrade of Confluence.

**What are 'major' and 'minor' release upgrades?**

Major release upgrades are ones where the 1st digit of Confluence's version number or the 1st digit after the 1st decimal place differ after the upgrade, for example, when upgrading from Confluence 3.0 to 3.1, or 2.8 to 3.0. Minor release upgrades are ones where the 1st digit of Confluence’s version number and the 1st digit after the 1st decimal place remain the same after the upgrade, for example, when upgrading Confluence 3.0 to 3.0.1.

If you have made Confluence site-wide layout customisations:

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the ‘Administration Console’.
2. Select ‘Layouts’ under ‘**Look and Feel**’ in the left-hand navigation panel. The decorators are grouped under **Site, Content** and **Export** layouts.
3. Ensure you have all your customisations available (preferably in a form which can be copied and pasted).
4. Click **Reset Default** next to the layout whose customisations need to be reapplied.
5. Click ‘**Create Custom**’ next to the same layout and reapply your customisations (by copying and pasting them) into the appropriate locations within the new default layout.
6. Click the ‘**Save**’ button.
7. Repeat this procedure from step 4 for each layout whose customisations need to be reapplied.

If you have made space-specific layout customisations:

1. Visit any page in the relevant space.
2. Choose **Browse > Space Admin**. **Space Admin** is displayed only if you are a space administrator for that space or you are a Confluence system administrator.
3. Select ‘**Layout**’ under ‘**Look and Feel**’ in the left-hand navigation panel. The decorators are grouped under **Site, Content** and **Export** layouts.
4. Ensure you have all your customisations available (preferably in a form which can be copied and pasted).
5. Click **Reset Default** next to the layout whose customisations need to be reapplied.
6. Click ‘**Create Custom**’ next to the same layout and reapply your customisations (by copying and pasting them) into the appropriate locations within the new default layout.
7. Click the ‘**Save**’ button.
8. Repeat this procedure from step 5 for each layout whose customisations need to be reapplied.

**Turning off caching**
Velocity is configured to cache templates in memory. When you edit a page from within Confluence, it knows to reload that page from disk. If you are editing the pages on disk, you will either have to turn off velocity's caching temporarily in WEB-INF/classes/velocity.properties, or restart the server to make your changes visible.

For Confluence 2.6, the velocity.properties file is available in the confluence-2.6.0.jar file. The jar file is located in the WEB-INF/lib directory. If you wish to make modification to the files in the jar, we recommend the following steps:

1. Stop Confluence.
2. Make a backup copy of the jar file.
3. Un-jar the file
4. Locate and edit the appropriate file that you wish to modify.
5. Re-jar the confluence-2.6.0.jar file.
6. Relocate the jar file to the appropriate directory.
7. Restart Confluence.

Test your modifications carefully
Changes may interact unpredictably with future versions of Confluence. When upgrading, you should always test your custom modifications thoroughly before deploying them on a live site. It's beyond the scope of Atlassian Support to test and deploy these changes.

Global Templates

A template is a predefined page that can be used as a prototype when creating new pages. Templates are useful for giving pages a common style or format.

You can use regular Confluence markup to create the content of your template. You can also use special markup to define form fields that the author will fill in when creating the page.

Global templates are defined by Confluence administrators and are available in every space across the Confluence site.

To add a global template:

1. Go to the Global Templates option in the Confluence Administration Console, as follows:
   a. Choose Browse > Confluence Admin.
   b. Enter your password and click Confirm. You will be temporarily logged into a secure session to access the Administration Console.
   c. Select Global Templates in the left-hand panel.
   d. Click Add New Global Template.
2. Enter a name for your template in the Name box and an optional description in the Description box.
3. Using regular wiki markup and form field markup (if you are using forms), enter content in the text-entry box as you would in any other Confluence page.
4. Click Edit next to Labels if you want to use labels to categorise information. Add your labels. These labels will be included in all pages created using this template.
5. Preview and click Save.

Screenshot: A template as used to create a page

Step 2: Fill in template variables
Choose values for the variables in this template. These values will be automatically inserted into the template for you in the correct locations.

Related Topics
Working with Templates
Editing a template
Removing a Template
Browsing a space
Working with Pages

Importing Templates
A template is a predefined page that can be used as a prototype when creating new pages. Templates are useful for giving pages a common style or format.

You can use regular Confluence markup to create the content of your template. You can also use special markup to define form fields that the author will fill in when creating the page.

Confluence ships with a number of templates, including the 'Charts', 'Document List' and 'Meeting Notes' templates. These templates are not available for use by default. However, if you have the appropriate permissions to access the Administration Console, you can import any of these templates to be used globally or within a specific space.

In addition, you can download additional template bundles from the Atlassian Plugin Exchange and then make them available by importing them.

On this page:

• Step 1. Check the Templates Installed on your Confluence Site
• Step 2. (Optional) Upload Additional Templates from the Atlassian Plugin Exchange
• Step 3. Import a Template to Make it Available to Users
• Notes

Quick guide to importing a template

1. Go to the 'Confluence Administration Console' and click Import Templates.
2. Select the templates that you want to import.
3. Choose which space to import the templates to, or whether to import them as global templates.
4. Click Import.

Step 1. Check the Templates Installed on your Confluence Site

To see the templates that are currently available for import on your Confluence site:

1. Log in to Confluence as a System Administrator or Confluence Administrator.
2. Go to the Confluence 'Administration Console':
   • Choose Browse > Confluence Admin. The 'Administration Access' login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
3. Select 'Import Templates' in the left-hand panel. The 'Import Templates' screen will appear, listing the template packages installed on your Confluence instance (for example, 'Default Templates Package') and the templates included in each package.

Step 2. (Optional) Upload Additional Templates from the Atlassian Plugin Exchange

Additional templates are available as plugins, known as template packages. Follow the steps below if you want to add template packages to your site that were not shipped with your Confluence installation.

Before installing a plugin into your Confluence site, please check the plugin's information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

To upload more templates:

1. Go to the Atlassian Plugin Exchange and download the template bundle that you need.
2. Log in to Confluence as a System Administrator or Confluence Administrator.
3. Go to the Confluence 'Administration Console':
   • Choose Browse > Confluence Admin. The 'Administration Access' login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
4. Select 'Plugins' in the left-hand panel.
5. The 'Plugins' screen will appear. Select the 'Install' tab.
6. Click Upload Plugin, browse to find the template bundle file that you downloaded and upload it to Confluence.

Step 3. Import a Template to Make it Available to Users

To import a template:

1. Log in to Confluence as a System Administrator or Confluence Administrator.
2. Go to the Confluence 'Administration Console':
   • Choose Browse > Confluence Admin. The 'Administration Access' login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
3. Select 'Import Templates' in the left-hand panel. The 'Import Templates' screen will appear, listing the template packages installed on your Confluence instance (for example, 'Default Templates Package') and the templates included in each package.
4. Select the templates to be imported by ticking the checkboxes next to the relevant template names. You can view a preview of the template by clicking the template name.

5. Select the import destination for the templates in the 'Import To' dropdown. If you want the templates to be available to only a specific space, select the name of the space, otherwise select 'Global Templates' to make the templates available to all spaces.

6. Click the 'Import' button to import the selected templates.

Screenshot above: Importing a template

Screenshot above: Previewing a template

Notes

- **Known issue importing templates from multiple template bundles.** There is a known issue preventing templates from being imported when multiple template bundles are available. Please read this KB article for further information.
- **Building your own custom template bundles.** These are built as plugins and deployed to your Confluence instance. You can then import the templates from your custom template bundle, as described on this page. Read Creating A Template Bundle for instructions. Please note, you will need some programming knowledge to develop a custom template bundle.
- **Duplicate template names.** If a template with the same name already exists on import, a duplicate template of the same name will be created. You will need to check each template and rename manually.
- **Removing the template.** Removing the plugin that contains a template will not remove the template from your Confluence site if you have already imported it. You will need to remove it manually from the administration console or space.

**RELATED TOPICS**

Working with Templates
Editing a template
Modify Confluence Interface Text

All Confluence UI text is contained in a single Java properties file. This file can be modified to change the default text, and also to translate Confluence into other languages than English.

The UI text file is `ConfluenceActionSupport.properties`. From your Confluence install directory:

```
\confluence\WEB-INF\lib\confluence-3.x.jar
```

Within this File, the relevant file to edit is:

```
:\com\atlassian\confluence\core\ConfluenceActionSupport.properties.
```

Refer to Editing jar files for reference.

The file contains parameters with name=value pairs, in the format:

```
parameter.name=Parameter value
```

Parameter names are any text before the '=' character and should never be modified. Any text after the '=' character is the parameter value, which can be modified freely and can also contain variables. An example involving variables is:

```
popular.labels=The three most popular labels are {0}, {1} and {2}.
```

For more information on replacing values, check out Translating ConfluenceActionSupport Content. Note that plugins store their text internally, so you must modify plugin text individually.

Steps For Modification

1. Stop Confluence
2. Under your install directory, open:
   `\confluence\WEB-INF\lib\confluence-3.x.jar\com\atlassian\confluence\core\ConfluenceActionSupport.properties`
3. Search for the text you wish to modify, replace it and save the file in:
   `<Confluence-Install>\confluence\WEB-INF\classes\com\atlassian\confluence\core`. Please create this folder structure, if it does not exist already.

   ![If you re-bundle the JAR file, rather than re-deploy the class in the WEB-INF\classes directory, make sure to move the backup JAR file out of the /lib directory, or the backup may be deployed by mistake.]

4. Restart Confluence

Common Modifications

- Rename 'Dashboard' by searching for 'Dashboard'. To change "Dashboard" to "My Portal", change:
  `dashboard.name=Dashboard` to `dashboard.name=My Portal`

<table>
<thead>
<tr>
<th>Task</th>
<th>Search For</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rename 'Dashboard'</td>
<td>Dashboard</td>
<td>The <code>dashboard.name</code> parameter has the name. To change 'Dashboard' to 'My Portal', change <code>dashboard.name=Dashboard</code> to <code>dashboard.name=My Portal</code> and update any other occurrences of the word 'Dashboard' in the instance.</td>
</tr>
<tr>
<td>Modify login page text</td>
<td>login.</td>
<td>The <code>login.instructions</code> parameter has the &quot;Enter your account details below to login to Confluence&quot; text.</td>
</tr>
</tbody>
</table>

Modify Keyboard Shortcuts
Confluence provides a set of keyboard shortcuts. You could customise the shortcuts by making modifications inside the ConfluenceActionSupport.properties file.

- To disable a particular shortcut, you can simply just comment out a respective line of code. One may like to disable the shortcut to one of the navigation links: View, Edit, Attachments, Info. For instance, to disable shortcut to Attachments one would comment out the following line:

```
#navlink.attachments.accesskey=a
```

- To modify an access key, one could simply just change the letter, bearing in mind the fact that the letter must be unique.

**Working With Decorator Macros**

Decorator Macros are Velocity macros which are used to draw complex or variable parts of the page such as menus and breadcrumbs when editing Custom decorators. Decorator macros can be inserted anywhere in your templates.

The macro is called by inserting a string of the form: `#macroName("argument1" "argument2" "argument3")`. There are no commas between the arguments. Unless otherwise noted, these macros take no arguments.

**NOTE:** These macros will only work reliably when customising `main.vmd`. They may not work in other Velocity decorators. Decorator macros will not work inside normal confluence pages.

<table>
<thead>
<tr>
<th>Macro</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>#breadcrumbs()</td>
<td>Draws the &quot;You are here&quot; breadcrumbs list, like the one found above the page name in the default template.</td>
</tr>
<tr>
<td>#includePage(pageTitle)</td>
<td>Includes a confluence page with the specified title. If you have 2 or more pages with the same title across multiple spaces, this macro will include the page belonging to the space you are currently viewing.</td>
</tr>
<tr>
<td>#searchbox()</td>
<td>Inserts a search box into the page, like the one to the far right of the breadcrumbs in the default template.</td>
</tr>
<tr>
<td>#globalnavbar(type)</td>
<td>Draws the global navigation bar, as found in the top right-hand corner of the default template. The navigation bar can be displayed in two modes:</td>
</tr>
<tr>
<td></td>
<td>#globalnavbar(&quot;table&quot;) Displays the navigation bar in its default mode: drawn as a table of links with coloured backgrounds and mouse-over effects.</td>
</tr>
<tr>
<td></td>
<td>#globalnavbar(&quot;text&quot;) Displays the navigation bar as series of text links separated by</td>
</tr>
<tr>
<td>#usernavbar()</td>
<td>Draws the user-specific navigation-bar. This bar contains the links to the user's profile and history, or to the login and signup pages if the user is not logged in.</td>
</tr>
<tr>
<td>#helpicon()</td>
<td>Draws the help icon, and link to the Confluence help page.</td>
</tr>
<tr>
<td>#printableicon()</td>
<td>On pages where a printable version is available, draws the printable page icon, linking to the printable version of the page. Otherwise, draws nothing</td>
</tr>
<tr>
<td>#pagetitle(class)</td>
<td>When you are viewing a page in a Confluence space, draws the name of the space that page is in. Otherwise, writes the word &quot;CONFLUENCE&quot;. The &quot;class&quot; argument is the CSS class that the title should be drawn in. Unless you have customised your Confluence installation's CSS file, you should call this with &quot;spacenametitle&quot; as the class: #pagetitle(&quot;spacenametitle&quot;)</td>
</tr>
<tr>
<td>#poweredby()</td>
<td>Writes out the &quot;Powered by Confluence&quot; and Confluence version-number boilerplate found at the bottom of the default template.</td>
</tr>
<tr>
<td>#bottomshadow()</td>
<td>Draws the fading shadow-effect found at the bottom of the content area in the default template.</td>
</tr>
<tr>
<td>#dashboardlink()</td>
<td>Inserts a link to the dashboard page.</td>
</tr>
</tbody>
</table>
Customising a Specific Page

If you'd like to change the appearance of a specific page, you can modify the corresponding Velocity template. Here's how to find out which one:

1. Access the page. Note the name of the action. For example, the "Contact Administrators" page is 
   `<baseUrl>/administrators.action`
3. Unzip or unjar the file using a standard unripper or the `java jar` utility.
4. Open `xwork.xml`. Search the file for the name of the action corresponding to the page you'd like to modify. You'll see an entry like:

   ```xml
   <action name="administrators"
       class="com.atlassian.confluence.user.actions.AdministratorsAction">
       <interceptor-ref name="defaultStack"/>
       <result name="success" type="velocity">/administrators.vm</result>
   </action>
   ```

   The file to look for is the `.vm` or `.vmd` file. In the above example, it's `administrators.vmd`. Because there is no context path (just a `/` before the name of the file), it's in the root of the Confluence webapp. For the stand-alone, that's `<confluence-install>/confluence` folder.
5. The file to look for is the `.vm` or `.vmd` file. In the above example, it's `administrators.vmd`. Because there is no context path (just a `/` before the name of the file), its in the root of the Confluence webapp. For the stand-alone, that's `<confluence-install>/confluence` folder.
6. Modify the file.

For details on how to configure the file, check the Velocity Template Overview.

Customising the Dashboard

If you are a Confluence Administrator, you can customise the global dashboard, affecting the way all users will see the dashboard. Confluence users can customise their view of the dashboard too. See the user's guide.

Sending Users to a Space Home Page instead of the Dashboard

See Configuring the Site Home Page.

Editing the Top Left-hand Section of the Dashboard

See Editing the Site Welcome Message.

Editing the Bottom Left-hand Section of the Dashboard

This section can be updated using Confluence Web Panels. You can add items to the dashboard by including a web panel with the key `atl.dashboard.left`:

```xml
<web-panel key="{key}" location="atl.dashboard.left">
    <resource name="view" type="velocity" location="{location}"/>
</web-panel>
```

You can remove the existing entities panel by disabling the global-entities-panel plugin from the Dashboard macros plugin.

Editing the Top Right-hand Action Bar

You can add more links to the top right navigation bar by adding web items to `system.dashboard.button`: 
Modifying the Global Template or Layout

You can also modify files to add content to the global dashboard.

To make modifications to the dashboard, modify the global template at /confluence/decorators/global.vmd or the layout at Administration > Layouts > Global Layout.

For example, search the Global Layout for these macros:

```java
$helper.renderConfluenceMacro("[recently-updated-dashboard:dashboard|showProfilePic=true]")
```

To modify the bundled plugin macros used in the Confluence dashboard:

2. Update the confluence-dashboard-macros-x.x.jar file, rezip it and then put it back to /confluence/WEB-INF/classes/com/atlassian/confluence/setup. Refer to Editing Files within JAR Archives.
3. Delete the JAR from /confluence-home/bundled-plugins.
4. Restart Confluence.

To customise the space list, you can work with spacelist.vm.

Related Topics

Customising your Personal Dashboard
Customising Look and Feel Overview

Customising the eMail Templates

Customisations to the Confluence email templates will need to be reapplied when you upgrade Confluence. Consider this before making drastic changes to the layout, and be sure to keep a list of what you have changed for your upgrade process later.

Only administrators with access to the server where Confluence is running can modify the Confluence email templates.

**Process to change the email templates**

1. Shut down your test instance of Confluence.
2. In the Confluence web application folder, find the file /confluence/WEB-INF/lib/confluence-2.x.jar.
3. Make a copy of this file as a backup.
4. Learn how to edit files within .jar archives.
5. Within the jar file, find the /templates/email folder. Find the appropriate file(s) within that folder.
6. Edit the file with a text editor to make the required changes. The content is mostly HTML, but has some Velocity template variables in it. See Velocity Template Overview for more information about how these work.
7. Again using the guide on editing files within .jar archives, either rejar the set of folders or drop the new files into the identical folder structure in the WEB-INF/classes directory.
8. Start Confluence up again and test your changes.
9. Apply the changes to your production Confluence instance.

The same process can be applied to modify most of the templates in the Confluence web application. For velocity files that are not in a jar file, you need not shut down and restart Confluence. Be careful to test your changes before applying them to a live site. The templates contain code that is vital for Confluence to function, and it is easy to accidentally make a change that prevents use of your site.

**RELATED TOPICS**

- Velocity Template Overview
- Customising Layouts
- Customising Look and Feel Overview
- Modify Confluence Interface Text
Customising the Login Page

It's fairly straightforward to customise the Confluence login page, to add your own logo or custom text. This will not customise the login process however, just what a user sees when she logs in.

Customisations to the Confluence login page will need to be reapplied when you upgrade Confluence. Consider this before making drastic changes to the layout, and be sure to keep a list of what you have changed for your upgrade process later.

Only administrators with access to the server where Confluence is running can modify the Confluence login page.

**Process to change the login page**

1. Shut down your test instance of Confluence.
2. In the Confluence web application folder, find the file `confluence/login.vm`.
3. Make a copy of this file as a backup.
4. Edit the file with a text editor to make the required changes. The content is mostly HTML, but has some Velocity template variables in it. See Velocity Template Overview for more information about how these work.
5. Start Confluence up again and test your changes.
6. Apply the changes to your production Confluence instance.

The same process can be applied to modify most of the templates in the Confluence web application. Be careful to test your changes before applying them to a live site. The templates contain code that is vital for Confluence to function, and it is easy to accidentally make a change that prevents use of your site.

**Related topics**
- Editing the Global Logo
- Velocity Template Overview
- Customising Layouts
- Customising Look and Feel Overview
- Modify Confluence Interface Text

Themes Overview

Themes are pre-defined style sets that can be applied to alter the appearance of your site. Themes allow you to personalise the 'look and feel' of Confluence. You can apply a theme to your entire Confluence site and to individual spaces. Choose a specific theme if you want to add new functionality or significantly alter the appearance of Confluence.

Confluence comes with a selection of themes. In addition, a site administrator can install new themes as plugins via the Confluence Administration Console. Provided that the theme is installed into your Confluence site, any space administrator can apply a theme to a space.

By default when you create a new space, the space will have the Confluence default theme.

To look at the themes installed:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Themes' under 'Look and Feel' in the left-hand panel.
3. You will see a list of all installed themes.

**Useful Plugins**

Before installing a plugin into your Confluence site, please check the plugin's information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

- Adaptavist's Theme Builder Plugin for Confluence allows you to customise your Confluence site by adding layouts, logo banners, menu-driven navigation, style sheets, footers and more.

**Related Topics**

No content found for label(s) themes-configuration.
Themes allow you to personalise the 'look and feel' of Confluence. You can apply a theme to your entire Confluence site and to individual spaces. Choose a specific theme if you want to add new functionality or significantly alter the appearance of Confluence.

Confluence comes with a selection of themes. In addition, a site administrator can install new themes as plugins via the Confluence Administration Console. Provided that the theme is installed into your Confluence site, any space administrator can apply a theme to a space.

By default when you create a new space, the space will have the Confluence default theme.

To apply a theme across the site,

1. Ensure that the theme you wish to apply has been installed as a plugin.
2. Go to the Confluence 'Administration Console'.
   • Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
3. Select 'Themes' under 'Look and Feel' in the left-hand panel.
4. The screen will display all available themes. Click a radio button to select a theme.
5. Click ‘Confirm’.

Screenshot: Applying a theme

**RELATED TOPICS**

No content found for label(s) themes-configuration.

**Customising the Left Navigation Theme**

The Left Navigation theme is no longer part of Confluence

This theme is no longer part of Confluence and is not supported from Confluence 3.4 onwards. We suggest the Documentation theme, as it provides a customisable left-hand navigation panel and additional configurable features. If you are using an earlier version of Confluence, please refer to the documentation for your version. For example, go to the documentation for Confluence 3.3.

Modifying Look and Feel (for themes)
Here’s how you can define a new look and feel for Confluence in your theme:

1. **Layout**: Edit Confluence’s layout by modifying the decorator files that are used to define it.
   - Working with Decorators
   - Velocity Template Overview
   - Configuring the atlassian.plugin.xml file to reference the decorators

2. **Colour schemes**: Configure a new colour scheme for your theme. **Optional**
   - Configuring a new colour scheme
   - Configuring the atlassian.plugin.xml file to include the new colour scheme

3. **Stylesheet**: Include a stylesheet to define your theme. **Optional**

Note that for every component you edit, you will need to configure the atlassian-plugin.xml which is the central configuration file for the plugin to override the default files with the new files you’ve created.

### Layout: Working with decorators

**What are decorators?**

Confluence is built on top of the Open Source SiteMesh library, a web-page layout system. To edit the layout of Confluence, you will need to modify these decorator files. A decorator file is a `vmd` file and is written in a very simple programming language called Velocity. Learn more about Velocity.

Confluence comes bundled with a set of decorator or VMD files that you can customize. Broadly these are categorised into Site, Content and Export decorators. These are further grouped into categories called contexts and under each context has various modes (ways of viewing the context).

To make editing easier, layout for similar screens (example: view and edit page screens) is configured through the same VMD file. So, if you want to customize how the Confluence View Page Screen or Edit Page Screen looks, you can make both of these changes inside one decorator file: `page.vmd`.

<table>
<thead>
<tr>
<th>Decorator</th>
<th>Context</th>
<th>Mode</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>page.vmd</td>
<td>page</td>
<td>'view', 'edit', 'edit-preview', 'view-information', and 'view-attachments'</td>
<td></td>
</tr>
<tr>
<td>blogpost.vmd</td>
<td>blogpost (news)</td>
<td>'view', 'edit', 'edit-preview', and 'remove'</td>
<td>We prefer to use 'news' as an end-user term; all templates and classes use 'blogpost' to indicate RSS related content</td>
</tr>
<tr>
<td>mail.vmd</td>
<td>mail</td>
<td>'view', 'view-thread' and 'remove'</td>
<td></td>
</tr>
<tr>
<td>space.vmd</td>
<td>space-pages, space-mails, space-blogposts, space-templates, space-operations, space-administration</td>
<td>CONTEXT: &quot;space-pages&quot;. MODES: &quot;list-alphabetically&quot;, &quot;list-recently-updated&quot;, &quot;list-content-tree&quot;, &quot;create-page&quot;. CONTEXT: &quot;space-mail&quot;. MODES: &quot;view-mail-archive&quot;. CONTEXT: &quot;space-blogposts&quot;. MODES: &quot;view-blogposts&quot;, &quot;create-blogpost&quot;. CONTEXT: &quot;space-templates&quot;. MODES: &quot;view-templates&quot;. CONTEXT: &quot;space-operations&quot;. MODES: &quot;view-space-operations&quot;. CONTEXT: &quot;space-administration&quot;. MODES: &quot;view-space-administration&quot;, &quot;list-permission-pages&quot;.</td>
<td>space.vmd handles a wide range of options, this context is accessed by clicking on 'browse space' in the default theme of Confluence (tabbed theme)</td>
</tr>
<tr>
<td>global.vmd</td>
<td>global</td>
<td>'dashboard', 'view-profile', 'edit-profile', 'change-password-profile', 'edit-notifications-profile'</td>
<td></td>
</tr>
<tr>
<td>main.vmd</td>
<td>n/a (header and footer formatting)</td>
<td></td>
<td>main.vmd is used to control the header and footer of each page, not the page specific presentation logic</td>
</tr>
</tbody>
</table>
For example, if you wanted to remove the ‘Attachments’ tab on the view page screen, you would make this layout change in the page.vmd file - where the ‘view’ mode is handled (as shown below).

```text
#*
Display page based on mode: currently 'view', 'edit', 'preview-edit', 'info' and 'attachments. See the individual page templates (viewpage.vm, editpage.vm, etc.) for the setting of the mode parameter.
*#
## VIEW
#if ($mode == "view")
   <make layout modifications here>
#elseif ...
```

**Step One: Copying the decorators**

The easiest way to begin configuring a new layout is by copying the default decorator files and editing them to suit your theme.

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select Layouts in the left panel. This will display options to view and edit the default decorators.
3. Copy the files that you intend to modify and place them in a directory structure that makes sense to you. See example below.

**Step Two: Creating a directory structure for the decorators:**

You should place your decorators in a directory hierarchy which makes sense to you. We recommend that you place the atlassian-plugin.xml file at the top level of the directory structure, and then place the decorators in directories which make a meaningful division of what they do.

Here is an example:

```text
atlassian-plugin.xml
com/atlassian/confluence/themes/mytheme/
com/atlassian/confluence/themes/mytheme/global.vmd
com/atlassian/confluence/themes/mytheme/space.vmd
com/atlassian/confluence/themes/mytheme/mail.vmd
com/atlassian/confluence/themes/mytheme/blogpost.vmd
com/atlassian/confluence/themes/mytheme/main.vmd
com/atlassian/confluence/themes/mytheme/page.vmd
```

**Step Three: Editing the decorators**

To edit the decorators, you will require knowledge of a very simple programming language called Velocity. Learn more about Velocity.

**Decorator Macros**

When editing the decorators, you will need to use Decorator Macros to draw complex or variable parts of the page such as menus and breadcrumbs. See Working with Decorator Macros

**Theme Helper Object**

When editing decorator files you will also come across a variable called $helper - this is the theme helper object.

The following table summarises what this object can do:

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Explanation</th>
</tr>
</thead>
</table>

---
Helper methods:

- $helper.domainName displays the base URL of your Confluence instance on your page. This is useful for constructing links to your own Confluence pages.
- $helper.spaceKey returns the current space key or null if in a global context.
- $helper.spaceName returns the name of the current space.
- $helper.renderConfluenceMacro("[create-space-button]") renders a call to a Confluence Macro for the velocity context.
- $helper.getText("key.key1") looks up a key in a properties file matching `key.key1=A piece of text` and returns the matching value ("A piece of text").
- $helper.action returns the XWork action which processed the request for the current page.

If you are on a page or space screen you also have access to the actual page and space object by using $helper.page and $helper.space respectively.

If you want to deliver more into what other methods are available in this object, please see our API's for ThemeHelper.

**Step Four: Configuring the central configuration file to reference the new decorators**

How to do this is explained in Configuring the Theme Plugin.

**Working with colour schemes for themes**

**Configuring the colour scheme**

The easiest way to configure a colour scheme is to do it dynamically from the Administration Console (as you would normally when you want to change the site's colour scheme online), and then express it as an xml file. This method makes it possible for you to experiment with different colours and test them out before including the colour scheme in your theme.

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select 'Colour scheme' in the left panel.
3. Use the colour picker to define the colours for the following UI elements:
   - Top Bar - the bar across the top of the page that contains the breadcrumbs.
   - Space Name Text - the text of the current space name located above the page title.
   - Heading Text - all heading tags throughout the space.
   - Links - all links throughout the space.
   - Borders and Dividers - table borders and dividing lines.
   - Menu Bar Background - background of top navigational buttons
   - Menu Bar Text - text that appears on the menu bar
   - Menu Bar Background Highlight - background colour of menu bar when highlighted.
   - Menu Bar Text Highlight - menu bar text when highlighted

More information on customising colour schemes

**Expressing the colour scheme as XML**

Once, you have decided on the colours for the different UI elements, you will need to configure the atlassian.plugin.xml to include the new colour scheme. How to do this is explained in detail in Configuring the Theme Plugin.

**RELATED TOPICS**

No content found for label(s) themes-configuration.
Configuring the Theme Plugin

Each plugin is described in its own `atlassian-plugin.xml` file, which specifies attributes of the plugin, including a description of each module it contains. Once you have modified the different components to define a new look and feel for your theme, you will need to configure this file so Confluence knows where to look when overriding the default files.

The easiest way to begin is by copying the `atlassian-plugin.xml` from one of the default themes bundled with Confluence and modifying it for your theme.

The structure of an `atlassian-plugin.xml` file is fairly self-explanatory:

```xml
<atlassian-plugin key="com.atlassian.confluence.themes.tabless" name="Plain Theme">
  <plugin-info>
    <description>This theme demonstrates a plain look and feel for Confluence. It is useful as a building block for your own themes.</description>
    <version>1.0</version>
    <vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com/">
  </vendor>
  <theme key="tabless" name="Tabless Theme" class="com.atlassian.confluence.themes.BasicTheme">
    <description>plain Confluence theme.</description>
    <layout key="com.atlassian.confluence.themes.tabless:main"></layout>
    <layout key="com.atlassian.confluence.themes.tabless:global"></layout>
    <layout key="com.atlassian.confluence.themes.tabless:space"></layout>
    <layout key="com.atlassian.confluence.themes.tabless:page"></layout>
    <layout key="com.atlassian.confluence.themes.tabless:blogpost"></layout>
    <layout key="com.atlassian.confluence.themes.tabless:mail"></layout>
    <colour-scheme key="com.atlassian.confluence.themes.tabless:earth-colours"></colour-scheme>
  </theme>
  <layout key="main" name="Main Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/main.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/main.vmd"/>
  </layout>
  <layout key="global" name="Global Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/global.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/global.vmd"/>
  </layout>
  <layout key="space" name="Space Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/space.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/space.vmd"/>
  </layout>
  <layout key="page" name="Page Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/page.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/page.vmd"/>
  </layout>
  <layout key="blogpost" name="Blogpost Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/blogpost.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/blogpost.vmd"/>
  </layout>
  <layout key="mail" name="Mail Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/mail.vmd">
    <resource type="velocity" name="decorator" location="/atlassian/confluence/themes/tabless/mail.vmd"/>
  </layout>
</atlassian-plugin>
```
<colour-scheme key="earth-colours" name="Brown and Red Earth Colours"
    class="com.atlassian.confluence.themes.BaseColourScheme">
    <colour key="topbar" value="#440000"/>
    <colour key="spacename" value="#999999"/>
    <colour key="headingtext" value="#663300"/>
    <colour key="link" value="#663300"/>
    <colour key="border" value="#440000"/>
    <colour key="navbg" value="#663300"/>
    <colour key="navtext" value="#ffffff"/>
    <colour key="navselectedbg" value="#440000"/>
    <colour key="navselectedtext" value="#ffffff"/>
</colour-scheme>
Modifying the `atlassian-plugin.xml` file

We will configure this file section by section.

**Plugin information**

```xml
<atlassian-plugin key="com.atlassian.confluence.themes.tabless" name="Plain Theme">
  <plugin-info>
    <description>This theme demonstrates a plain look and feel for Confluence. It is useful as a building block for your own themes.</description>
    <version>1.0</version>
    <vendor name="Atlassian Software Systems Pty Ltd" url="http://www.atlassian.com/"/>
  </plugin-info>
</atlassian-plugin>
```

**Plugin key** : Specify a key that uniquely identifies the plugin, eg. `com.example.themes.dinosaur`

**name** : Give the plugin a name.

**description** : Provide a short description of the plugin.

**vendor** : Replace the text with your information.

**Theme information**

```xml
<theme key="dinosaur" name="Dinosaur Theme" class="com.atlassian.confluence.themes.BasicTheme">
  <description>A nice theme for the kids</description>
  <colour-scheme key="com.example.themes.dinosaur:earth-colours"/>
  <layout key="com.atlassian.confluence.themes.dinosaur:main"/>
  <layout key="com.atlassian.confluence.themes.dinosaur:mail-template"/>
</theme>
```

**Theme key** : Specify a key that uniquely identifies the theme.

**class** : The class of a theme must implement `com.atlassian.confluence.themes.Theme`. The `com.atlassian.confluence.themes.BasicTheme` class provided with Confluence gathers together all the resources listed within the module definition into a theme.

**name** : Give the theme a name. Make sure that you replace all instances of the theme name with this name.

**description** : Provide a short description of your theme

**colour-scheme key** : A theme can contain an optional `colour-scheme` element that defines which colour-scheme module this theme will use. If you are using a new colour scheme, enter its key.

**layout key** : A theme can contain any number of `layout` elements that define which layouts should be applied in this theme. Refer to these modules by their complete module key as shown above.

**Referencing the decorators**

You will need to add a layout entity as shown below for each of the decorators you are using. See working with decorators.

```xml
<layout key="page" name="Page Decorator" class="com.atlassian.confluence.themes.VelocityDecorator" overrides="/decorators/page.vmd">
  <resource type="velocity" name="decorator" location="com/atlassian/confluence/themes/tabless/page.vmd"/>
</layout>
```

**class** : The class which each decorator, or layout, is mapped to must implement `com.atlassian.confluence.themes.VelocityDecorator`. 
**overrides**: The layout entry must provide an `overrides` attribute which defines which decorator within Confluence is being overridden by the theme.

**Location**: Specify the location of the new decorator file, so Confluence know where to look when overriding the default decorator.

**Tip**: It is possible for a theme to use modules that aren't in the same plugin as the theme. Just keep in mind that your theme will be messed up if the plugin that the theme depends on is removed.

**Including the colour scheme**

Colour schemes can be pre-configured for your theme dynamically from the [Administration Console](http://administration). See [configuring colour schemes](#configuring-colour-schemes).

To transport them within a theme however, they need to be expressed in the `atlassian-plugin.xml` file as shown above.

```xml
<colour-scheme key="earth-colours" name="Brown and Red Earth Colours"
    class="com.atlassian.confluence.themes.BaseColourScheme">
   <colour key="topbar" value="#440000"/>
   <colour key="spacename" value="#999999"/>
   <colour key="headingtext" value="#663300"/>
   <colour key="link" value="#663300"/>
   <colour key="border" value="#440000"/>
   <colour key="navbg" value="#663300"/>
   <colour key="navtext" value="#ffffff"/>
   <colour key="navselectedbg" value="#440000"/>
   <colour key="navselectedtext" value="#ffffff"/>
</colour-scheme>
```

**colour-scheme key**: Specify a key that uniquely identifies the colour scheme.

**name**: Give a name to the colour scheme.

**class**: The class of the colour scheme must implement `com.atlassian.confluence.themes.ColourScheme`. The `com.atlassian.confluence.themes.BaseColourScheme` class provided with Confluence sets the colours based on the module's configuration.

**colour key**: For each UI element, you will need to add its name and value.

See [configuring colour scheme](#configuring-colour-scheme)

**RELATED TOPICS**

No content found for label(s) themes-configuration.

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**Including Cascading Stylesheets in Themes**

Confluence allows you to integrate your own stylesheets within the theme plugin so you can have greater control over the appearance of your site. Confluence's main stylesheet is a useful reference when overriding styles and can be found in the Confluence install directory under `.../confluence/styles/site-css.vm`.

**Step One: Defining the stylesheet in the atlassian-plugin.xml**

To make a stylesheet available to a decorator, you will need to reference it as a resource from within the central configuration file - `atlassian-plugin.xml`.

Here is an example where a stylesheet is being used to define the 'leftnavigation' theme:

```xml
<layout key="main" name="Main Decorator"
    class="com.atlassian.confluence.themes.VelocityDecorator"
    overrides="/decorators/main.vmd">
   <resource type="velocity" name="decorator"
        location="/templates/leftnavigation/main.vmd"/>
   <resource type="stylesheet" name="leftnav.css"
        location="/templates/leftnavigation/leftnav-css.vm"/>
</resource>
</layout>
```
The resource parameter takes three arguments:

- **Type**: The type of resource—in this instance, ‘stylesheet’.
- **Name**: The name of the stylesheet.
- **Location**: The location of the file represented in the jar archive you will use to bundle your theme.

**Step Two: Using the stylesheet in the decorator**

To reference the stylesheet in the decorator, you will need to use the #pluginStylesheet velocity macro.

For example, here's how you reference the leftnav.css file defined in the layout entry above:

```velocity
#pluginStylesheet("com.atlassian.confluence.themes.leftnavigation:main" "leftnav.css")
```

The macro takes two arguments:

- **completePluginKey**: The complete plugin key which is constructed from the pluginkey and the layout key like this: `{pluginKey}:[layoutKey]`
  
  In the above example, `com.atlassian.confluence.themes.leftnavigation` is the key of the plugin, and `main` is the key of the layout.
- **stylesheetName**: the name of the stylesheet

If you place your stylesheet **after** the #standardHeader macro in the decorator, the contents of your custom stylesheet will override those in Confluence's default stylesheet.

If your stylesheet needs to reference the colour scheme, you need to use the spacestylesheet macro instead:

```velocity
#pluginSpaceStylesheet("com.atlassian.confluence.themes.leftnavigation:main" "leftnav.css" $spaceKey)
```

You can then use colour scheme references in your stylesheet, similar to Confluence's stylesheets, and they will be replaced with the appropriate global or space-specific colour scheme:

```css
.navItemOver {
    color: $action.navSelectedTextColor;
}
```

**RELATED TOPICS**

- No content found for label(s) themes-configuration.

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**Creating a Theme**

Unsure what a theme is? See the overview of themes.

If you want to create your own theme, you will need to write a Confluence plugin. Please refer to the following pages:

- Get started with plugin development.
- Create a theme using the theme plugin module.

**RELATED TOPICS**

- No content found for label(s) themes-configuration.

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**Importing Data**

- Importing Content from another Wiki
- Universal Wiki Converter
- Importing Content Into Confluence
Importing Content from another Wiki

The Universal Wiki Converter (UWC) allows you to import content from other wikis into Confluence. The Confluence Administration Console offers a link to the Universal Wiki Converter documentation and download sites.

You need to install and run the UWC separately from Confluence.

The UWC is a standalone application that communicates with Confluence remotely. You cannot install the UWC directly into Confluence. Instead, download the UWC separately and run it according to the instructions below.

The UWC supports many wiki dialects. In addition, the UWC is an extensible framework, which means that developers can continue writing new conversion modules for other wikis. To see the latest list of conversions available, please refer to the UWC documentation.

- Download the latest version of the UWC.
- For information on installation and usage, see the UWC Quick Start Guide.
- For information on developing your own converter module, see the UWC Developer Documentation.
- For information about a specific wiki, including a list of currently supported wikis, see the UWC documentation.
- To ask a question, see the UWC discussions on Atlassian Answers.

Screenshot: Links from the Confluence Administration Console to the UWC
Installing Plugins and Macros

A **plugin** is an add-on to the core Confluence code, which can extend the Confluence functionality. Some plugins are shipped with Confluence, others are available for you to install yourself.

A **macro** allows a developer to perform programmatic functions within a page, and gives the Confluence user access to more complex content structures. Many macros are made available by plugins.

You need to have **System Administrator** permissions in order to install and configure plugins. This page introduces two methods of installing plugins:

Read the following topics for information on installing and configuring plugins and macros:

- Installing and Configuring Plugins using the Universal Plugin Manager
  - Checking Plugin Compatibility for Confluence Upgrades
  - Configuring a Plugin
  - Disabling or Enabling a Plugin
  - Installing a Plugin
  - Uninstalling a Plugin
  - Upgrading your Existing Plugins
  - Viewing the Plugin Audit Log
  - Viewing your Installed Plugins
- Plugin loading strategies in Confluence
- Removing Malfunctioning Plugins
- Enabling and Configuring Macros
  - Configuring a URL Whitelist
  - Configuring the userlister Macro
  - Enabling HTML macros
    - Enabling the html-include Macro
  - Troubleshooting the Gallery Macro
- Adding, Editing and Removing User Macros
  - Best Practices for Writing User Macros
  - Examples of User Macros
    - Hello World Example of User Macro
    - NoPrint Example of a User Macro
  - Guide to User Macro Templates
- Configuring the Office Connector

Installing and Configuring Plugins using the Universal Plugin Manager

This page provides information about the Universal Plugin Manager (UPM) in Confluence and links to topics on how to install and configure plugins using the UPM. For an overview of how plugins work in Confluence, read the [Confluence Plugin Guide](#). Please note, you need to have **System Administrator** permissions in order to install and configure plugins.

**Plugin Safety**

Plugins are very powerful: they can change the behaviour of almost any part of the Confluence server. This makes it **very important** that you trust a plugin before you install it. Always be aware of where (and who) a plugin comes from.

The **Universal Plugin Manager (UPM)** provides you with a powerful and user-friendly interface to manage your plugins. The Universal Plugin Manager itself is a plugin, which contains a number of modules that are implementations of the Atlassian REST plugin module type. It allows you to perform common plugin tasks, such as:

- Enabling/disabling plugins and their plugin modules.
- Installing new plugins.
- Configuring advanced plugin options.
- Finding out-of-date plugins and updating them.
- Checking the compatibility of your installed plugins against newer versions of the application.

The Universal Plugin Manager also interfaces with the [Atlassian Plugin Exchange](#), so you can browse the wide range of plugins available for your application from within your application. You can install any of these plugins with a single click, or upload your own plugins using the Universal Plugin Manager as well.

Read more about the Universal Plugin Manager in the topics linked below:

- Checking Plugin Compatibility for Confluence Upgrades
- Configuring a Plugin
- Disabling or Enabling a Plugin
- Installing a Plugin
- Uninstalling a Plugin
- Upgrading your Existing Plugins
- Viewing the Plugin Audit Log
- Viewing your Installed Plugins

**Having problems with the Universal Plugin Manager?** Try the [Universal Plugin Manager FAQ](#) (note, this will redirect you to the...
Checking Plugin Compatibility for Confluence Upgrades

The Application Upgrade Check in the Universal Plugin Manager (UPM) helps you to check whether your plugins will still work with Confluence after a Confluence upgrade.

For example, if you were thinking of upgrading from Confluence 3.1 to Confluence 3.2, the Application Upgrade Check can tell you the following:

- Installed plugins that are compatible with Confluence 3.1 and Confluence 3.2.
- Installed plugins that are not compatible with Confluence 3.2, but will be compatible with Confluence 3.2 if you upgrade them.
- Installed plugins that are not compatible with Confluence 3.2, even if you upgrade them to their latest version.

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To check compatibility of your plugins against different Confluence versions,

1. Click the '<application name> Upgrade Check' tab, (e.g. 'Confluence Upgrade Check'). The '<application name> Upgrade Check' page will display (see screenshot below).
2. Select the version of your application that you wish to check the compatibility of your installed plugins against in the 'Check compatibility for' dropdown and click the 'Check' button.
3. The page will refresh displaying any of your installed plugins that are not compatible with the selected application version (see screenshot below). The compatibility checker will also check the compatibility of the latest available version of each plugin (if not already upgraded) with the selected application version. You can click on the name of any of the plugins to view more information about the plugin.

The plugins will be grouped into sections under the following headings:

- **Incompatible** — The installed versions of plugins in this section are currently not compatible with the selected application version. There are currently no plugin upgrades available that are compatible with the selected application version.
- **Compatible, if upgraded** — The installed versions of plugins in this section are currently not compatible with the selected application version. However, the plugins will be compatible with the selected application version if they are upgraded. There are buttons to allow you to upgrade these plugins.
- **Compatible if both Confluence and the plugin are upgraded** — The installed versions of plugins in this section are currently not compatible with the selected application version. There is a plugin compatible with the newer application version, but it is not compatible with the application version you are currently running. You must upgrade the application and then proceed with the plugin upgrade. There are buttons to allow you to disable these plugins before proceeding with the upgrade.
- **Compatible** — The currently installed versions of plugins in this section are compatible with the selected application version.
- **Unknown** — Plugins listed under this section may or may not be compatible with the selected application version. If a plugin is not registered with the Atlassian Plugin Exchange, the Universal Plugin Manager cannot check its compatibility with different application versions.

Screenshot: Checking plugin compatibility against different Confluence versions
Configuring a Plugin

A number of Confluence plugins have advanced configuration options. 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).
Disabling or Enabling a Plugin

If you would like to disable or enable a plugin, please refer to Disabling or Enabling a Plugin.

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To configure a plugin in Confluence via the UPM,

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.

Screenshot: Configuring a plugin

Screenshot: Configuring a plugin example — WebDAV configuration

Disabling or Enabling a Plugin

The Universal Plugin Manager (UPM) allows you to disable a plugin in your Confluence instance without permanently removing it. You can also enable any plugins that have been previously disabled. If you want to add or remove a plugin from your Confluence site, please refer to Installing a Plugin or Uninstalling a Plugin respectively.

You can also disable all user installed plugins in your application, by enabling safe mode. This may help you to diagnose a plugin-related problem more easily.

On this page:
- Disabling a Plugin
- Enabling a Plugin
- Disabling/Enabling all User Installed Plugins (Safe Mode)

Disabling a Plugin
To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To disable a plugin in Confluence,

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).

Screenshot: Disabling a Plugin

Enabling a Plugin

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To enable a plugin in Confluence,

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).

Screenshot: Enabling a Plugin

Disabling/Enabling all User Installed Plugins (Safe Mode)

Running your application 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 Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To enable safe mode in Confluence,

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.

Installing a Plugin

This page describes how to install a plugin into Confluence using the Universal Plugin Manager. Plugins can be used to customise and extend the functionality of your application.

You can search for plugins in the Universal Plugin Manager that are sourced from the Atlassian Plugin Exchange or upload your own.

On this page:

- Adding a plugin from the Atlassian Plugin Exchange
- Uploading your own plugin
- Notes

Adding a plugin from the Atlassian Plugin Exchange

To access the Universal Plugin Manager in Confluence,
To find and add a plugin to Confluence 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**

---

**Uploading your own plugin**

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To upload your own plugin to Confluence,
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 location' 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 location" 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.

**Notes**

- In Confluence, you can install and uninstall both version 1 and version 2 plugins using the Universal Plugin Manager. You will see an 'Install' or an 'Uninstall' button.
- Some entries that you find listed in the Universal Plugin Manager are not actually plugins. These entries will show a 'Download' button which allows you to download the application to your desktop and run it following its specific instructions.

**Related Topics**

**Uninstalling a Plugin**

If you wish to remove a plugin from Confluence altogether, you can uninstall it via the Universal Plugin Manager (UPM). If you only want to temporarily remove it, you may wish to disable your plugin instead.

**To access the Universal Plugin Manager in Confluence,**

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

**To uninstall a plugin from Confluence,**

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.

**Screenshot: Uninstalling a plugin**
Upgrading your Existing Plugins

Plugins are often developed separately from Confluence. You may wish to upgrade your plugins to more recent versions to allow them to work with your Confluence version or simply to take advantage of new features in a plugin version. The Universal Plugin Manager (UPM) provides you with a list of plugins that have available upgrades and allows you to upgrade each plugin individually or in bulk.

If you are considering upgrading Confluence, you can use the Universal Plugin Manager to check the compatibility of your plugins with your desired Confluence version. Read Checking Plugin Compatibility for Confluence Upgrades for further details.

On this page:

- Upgrading a Plugin
- Upgrading all Plugins

Upgrading a Plugin

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To upgrade a plugin in Confluence,

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.

Upgrading all Plugins

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To upgrade all available plugins in Confluence,

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.

Screenshot: Upgrading Plugins
Viewing the Plugin Audit Log

The Universal Plugin Manager (UPM) keeps a log of all plugin activity in the UPM for your Confluence instance, e.g. adding plugins, enabling plugins, etc. You can configure the audit log, to adjust the period of time for which log entries should be kept.

On this page:

- Viewing the Plugin Audit Log
- Configuring the Plugin Audit Log

Viewing the Plugin Audit Log

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the Administration Console.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To view the plugin audit log,

1. Click the 'Audit Log' tab. The plugin audit log will be displayed.
2. The log will display the 25 most recent entries. You can use the arrows to view older entries.
3. Click the orange RSS icon, if you want to receive the audit log activity in an RSS feed.

Screenshot: Viewing the plugins audit log
Configuring the Plugin Audit Log

To access the Universal Plugin Manager in Confluence,

1. Click the 'Browse' menu link on the top bar and select the 'Confluence Admin' option to open the 'Administration Console'.
2. Click the 'Plugins' link under the 'Administration' section in the left menu to open the 'Universal Plugin Manager'. The 'Universal Plugin Manager' will be displayed, showing the plugins installed on your Confluence instance.

To configure the amount of time log entries are kept,

1. Click the 'Audit Log' tab. The plugin audit log will be displayed.
2. Click the link 'Configure purge policy'.
3. Specify the number of days you wish to keep logs in the 'Purge audit log after' field.
4. Click the 'Confirm' button.

Screenshot: Configuring the audit log's purge policy

Viewing your Installed Plugins

The Universal Plugin Manager (UPM) allows you to easily view the plugins installed on your Confluence instance. This includes plugins that are bundled with Confluence as well as any third party plugins that you have installed. Both enabled and disabled plugins are displayed.

On this page:

- Viewing your Installed Plugins
- Viewing a Plugin's Details

Viewing your Installed Plugins

To view your installed plugins,
1. Click the 'Manage Existing' tab. The plugins installed on your application will be displayed.
   - The plugins will be grouped into 'User-installed Plugins' and 'System Plugins'.
   - You can filter your list by entering keywords in the 'Filter visible plugins' text box.
   - The list of 'System Plugins' will be hidden by default. Click the 'Show System Plugins' link, if you want to view them.

   - Enabled plugins will be listed with an icon. Disabled plugins will be listed with an icon.
   - Click the name of a plugin to view the plugin's details.
   - Click 'Enable Safe Mode' to run your application in safe mode. Read 'Disabling or Enabling a Plugin' (see Related Topics below) for more information on Safe Mode.

**What is the difference between a 'System Plugin' and a 'User Installed Plugin'?**

- **System plugins** are those that shipped with the product when you downloaded it from Atlassian. These plugins are integral to the functioning of the system, and although you can disable some of them, you should not do so unless instructed by an Atlassian Support engineer. Note, not every system plugin can be disabled and you will not be able to uninstall any system plugins at all.

- **User-installed plugins** are those which have been installed in the product after it was set up: either by uploading a plugin jar file, or by placing it in the applications plugin directories. These plugins can be uninstalled.

**Screenshot: Viewing Installed Plugins (Confluence)**

---

**Manage Existing**

The Universal Plugin Manager allows you to view, manage and upgrade your installed plugins, as well as install new ones from the Atlassian Plugin Exchange.

<table>
<thead>
<tr>
<th>Manage Existing</th>
<th>Upgrade</th>
<th>Install</th>
<th>Confluence Upgrade Check</th>
<th>Audit Log</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Filter visible plugins

**User-installed Plugins**

These plugins may be configured, enabled, disabled or uninstalled.

- **Adaptavist Advanced Search**
  A plugin to provide an alternative and advanced AJAX searching interface.

- **Adaptavist Content Formatting Macros**
  This is a plugin for Confluence which provides advanced formatting options.

- **Copy Space Plugin**
  A Confluence plugin that makes a copy of a space including all the pages within it.

- **Documentation Theme**
  Featuring a page tree and customisable navigation, the Documentation Theme makes it easy to browse through your Confluence site. The theme is optimised for Firefox, Safari and Internet Explorer 7+.  

- **RSVP Plugin**
  This plugin allows people to RSVP for an upcoming event.

- **Slideshow**
  Slideshow plugin for Confluence.

- **Slideshow Plugin**
  A plugin to create and display slideshows within Confluence.

- **Snippet Plugin**
  Snippet Plugin.

- **YourKit Profiling Plugin**
  A plugin to allow administrators to take memory snapshots of Confluence.

**System Plugins**

These plugins are integral parts of your Confluence system. They cannot be uninstalled. Disabling or removing them will have serious effects, and may render Confluence inoperable. Do not make changes here unless instructed by Atlassian Support.

**Screenshot: Viewing a Plugin's Details (Confluence)**

**Viewing a Plugin's Details**

You can view the details for a plugin when you click the name of a plugin in the installed plugins list (as described above). The summary contains a short description of the plugin as well as buttons/links for plugin operations and related information.
Related Topics

Configuring a Plugin
Disabling or Enabling a Plugin
Uninstalling a Plugin

Plugin loading strategies in Confluence

The categories

Confluence plugins have different behaviour based on how they are loaded by Confluence. The plugins themselves are the same, but based on how they are loaded, they may or may not be upgraded, or may not be disabled, or may not be uninstalled. This chart should explain how plugins can be loaded by Confluence, and the ramifications for each choice.

The category any particular plugin is in can vary with Confluence version or circumstance. The examples mentioned here describe the way particular plugins are loaded by default in Confluence 2.8.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static</td>
<td>cannot be installed or upgraded without a Confluence restart</td>
<td>Admin Section</td>
</tr>
<tr>
<td>Core</td>
<td>Included with Confluence and cannot be uninstalled. The classes and plugin.xml are not bundled into plugin jars, but mixed in with Confluence source on the main classpath. Additionally, the plugin.xml definitions are not called &quot;atlassian-plugin.xml&quot; as they are everywhere else, but are named for the plugin e.g., &quot;basic-macros.xml&quot;. We would like to separate some of them out and turn them into Bundled plugins.</td>
<td></td>
</tr>
<tr>
<td>WEB-INF/lib</td>
<td>Confluence also places some plugin jars inside WEB-INF/lib. They are inserted during the build process by Maven. These plugins, likewise, cannot be uninstalled. In ancient times, this was the only way to install plugins, so users are also free to install plugins here. We try to discourage them from doing so, however. As of version 3.0, most of the JAR files in this directory are library dependencies, not plugins.</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>the opposite of static, these can be installed/upgraded while Confluence is running</td>
<td></td>
</tr>
</tbody>
</table>
Bundled plugins can be administered from the Plugins console from Administration >> Plugins. You can upload or disable them there.

Bundled plugins are included in a zip of jars called atlassian-bundled-plugins.zip which is on the main Confluence classpath, in a resources directory - 

Bundled plugins directory, from whence they are loaded. To remove a bundled plugin (you shouldn’t normally have to do this), remove the plugin from the atlassian-bundled-plugins.zip file and the bundled-plugins directory, otherwise Confluence will just put it back in place on the next startup. In versions later than 2.6, you’ll have to recreate the .jar file (if the jar file is from the lib folder) or recreate the zip folder(if its in the classes folder). Bundled plugins can be upgraded or disabled.

Uploaded plugins are installed by the user via the plugin repository or the Plugin Manager page. These plugins are stored in the database and then copied to the $CONFLUENCE_HOME/plugins-cache folder on each Confluence node.

To summarise the relationships of categories in the table, all plugins are either Static or Dynamic. Static plugins can be further categorised into Core or WEB-INF/lib. Dynamic plugins are divided into Bundled and Uploaded.

Use of the categories in Confluence

Within Confluence, the Core and WEB-INF/lib categories are not actually named as such, and they don't map neatly to other names (though they do map, as will be explained). They are used here because of the logical distinction they provide.

In Confluence, some of the Core plugins are called “System”. Plugins can be designated as “System” by adding a flag to the plugin manifest file. To do this, system=true should be added to the top-level atlassian-plugin element of the manifest file. The manifest file is generally called atlassian-plugin.xml, but it could have another name; the Core plugins’ files do.

All of the Core plugins once were labeled as "System", but it seems the practice has faded over time. If a plugin is designated as "System", then it will not show up in the Plugin Manager page in Confluence and thus cannot be enabled/disabled. However, it will show up in the Plugin Repository Client, where it can be disabled; allowing disabling there is probably incorrect behavior.

Static plugins that are not marked as "System" (any remaining Core and WEB-INF/lib plugins), are simply called Static in Confluence. There is no way to tell the WEB-INF/lib and Core plugins apart from within Confluence. You just have to figure out where the classes are.

Members of the other specific categories - Bundled and Uploaded - can be determined. We can tell which plugins are Bundled and which plugins are Uploaded, so we know which plugins are Uploaded though this specific term is never used in the Confluence UI. Instead, they are called Dynamic.

Upgrading plugins

- Core plugins cannot be upgraded.
- WEB-INF/lib plugins can be upgraded by replacing the JAR in WEB-INF/lib and restarting Confluence.
- Bundled plugins can be upgraded using the Plugin Manager or the Plugin Repository Client. A new plugin jar is uploaded and stored as an Uploaded plugin. Confluence compares the version number with the Bundled plugin and uses the newer.
- Uploaded plugins are upgradable using the Plugin Manager or the Plugin Repository Client. When a new plugin jar is uploaded, the previous version is discarded from the database and the $CONFLUENCE_HOME/plugin-cache.

RELATED TOPICS

Removing Malfunctioning Plugins

Removing Malfunctioning Plugins

Confluence goes to some lengths to prevent itself being unusable due to a problematic plugin. However, sometimes a plugin will manage to do this anyway. This page describes what to do if a plugin cannot be disabled or deleted from the Administration console (from Administration >> Plugins).

Plugin Loading Strategies

1. Read through Plugin loading strategies in Confluence.
2. Determine where your plugin is loaded. The usual options are:
   a. The PLUGINDATA table on the database
   b. The <confluence-home>/bundled-plugins folder
   c. The <confluence-home>/plugin-cache folder
   d. The <confluence-home>/plugins-osgi-cache folder
   e. The <confluence-home>/plugins-temp folder
   f. The <confluence-install>/confluence/WEB-INF/lib folder (deprecated approach)

Check these locations when troubleshooting plugin loading issues.
Deleting a plugin from the Database

To remove a plugin from Confluence when Confluence is not running,

1. Connect to the Confluence database.
2. Run the following SQL statement in your database:
   
   ```
   select plugindataid, pluginkey, filename, lastmoddate from plugindata;
   ```

3. After you have found the plugindataid for the offending plugin, please run the following:
   
   ```
   delete from plugindata where plugindataid='XXXXXX';
   ```

   where XXXXX is the plugindataid value.
4. Restart Confluence.

Disabling a plugin from the database

To disable in the database,

Run the following query on your Confluence database:

```
select BANDANAVALUE from BANDANA where BANDANAKEY = 'plugin.manager.state.Map'
```

This will return a value like:

```xml
<map>
  <entry>
    <string>com.atlassian.confluence.ext.usage</string>
    <boolean>true</boolean>
  </entry>
</map>
```

Edit the value `boolean` to have `false`:

```xml
<map>
  <entry>
    <string>com.atlassian.confluence.ext.usage</string>
    <boolean>false</boolean>
  </entry>
</map>
```

Deleting a Bundled Plugin

Bundled plugins can be administered from the Plugins console from Administration >> Plugins. You can upload or disable them there.

*Bundled* plugins are included in a zip of jars called *atlassian-bundled-plugins.zip* which is on the main Confluence classpath, in a resources directory - `<confluence-install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup`. At Confluence startup, they are extracted and copied into the `<CONFLUENCE_HOME>/bundled-plugins` directory, from whence they are loaded. To remove a bundled plugin (you shouldn't normally have to do this), remove the plugin from the *atlassian-bundled-plugins.zip* file and the bundled-plugins directory, otherwise Confluence will just put it back in place on the next startup. In versions later than 2.6, you'll have to recreate the `.jar` file (if the `.jar` file is from the `lib` folder) or recreate the `zip` folder (if its in the classes folder). Bundled plugins can be upgraded or disabled.

If you need to remove a bundled plugin, check to see if you have duplicates in the `<confluence-home>/bundled-plugins` or `<confluence-home>/plugin-cache` directory.
Enabling and Configuring Macros

Macros allow you to perform programmatic functions within a page, and can be used for generating more complex content structures.

Generally speaking, a macro is simply a command wrapped inside curly braces {...}. To learn how to write your own macro, or use macros written by other people, read the Confluence Plugin Guide.

RELATED TOPICS:
- Configuring a URL Whitelist
- Configuring the userlister Macro
- Enabling HTML macros
  - Enabling the html-include Macro
- Troubleshooting the Gallery Macro

Configuring a URL Whitelist

This page contains instructions for how to use the URL whitelist features for Confluence gadgets.

On this page:

- Using the Whitelist for External Gadgets
- Using the Whitelist for the RSS and HTML-include macros
  - URL Pattern-Matching Rules
  - Notes
- What Happens to a Page Containing a Disallowed URL?
- Related Topics

Using the Whitelist for External Gadgets

By default, Confluence will block Gadget's access to third-party data sources. When you are using gadget that draws content from a third-party data source, you will need to add the URL of that data source to the general gadgets whitelist.

To do this, click Confluence Admin > Configuration > External Gadgets.

The 'External Gadgets' configuration screen appears. Under 'Gadget whitelist', you can click Add URL to add a third party data source to the Confluence whitelist. Having done this, your gadget will be able to access the data source.

Screenshot: Configuring a URL whitelist for external gadgets

Using the Whitelist for the RSS and HTML-include macros

The RSS and HTML-include macros are used to include content dynamically from other websites onto a Confluence page. The included content may possibly be malicious or harmful to your Confluence instance.

Confluence administrators can set up a list of trusted URLs, thus limiting the locations from which the RSS macro and the HTML-include macro can draw their content.

The form below allows you to define specific URLs and/or URL patterns which are trusted, or to allow inclusion from all URLs without restriction.

To configure the URL whitelist:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.

2. Click Confluence Admin > Configuration > External Gadgets.

3. Under 'Gadget whitelist', click Add URL to add a trusted URL.
2. Select Configure Whitelist in the left-hand panel. The 'Configure Whitelist' screen will appear, as shown in the screenshot below.

3. Select one of the options as follows:
   - **Allow all domains** — There will be no restrictions to the content which can be included onto your Confluence pages.
   - **Restrict to listed domains** — Confluence will allow content from trusted URLs only. When you select this option, a textbox will open allowing you to enter specific URLs and/or URL patterns. Enter one or more URLs, each on its own line. You can enter the full URL, or use the pattern matching rules described below.

4. Click **Save**.

Screenshot: Configuring a URL whitelist for RSS or HTML-Include macros

**URL Pattern-Matching Rules**

Enter one URL or URL pattern per line. You can enter a full URL or use pattern-matching as described below:

- If the rule starts with an equals sign (=), only the exact URL following the '=' will be allowed.
- If the rule starts with a slash (/) then the whole rule will be treated as a regular expression.
- Otherwise, any asterisk (*) will be treated as a wildcard to match one or more characters.

**Notes**

Some things to be aware of:

- By default, the RSS and HTML-include macros are disabled in Confluence. A System Administrator can enable them on the 'Plugins' screen of the Confluence Administration Console.
- A user who has the 'Confluence Administrator' permission, but not necessarily the 'System Administrator' permission, can configure the URL whitelist (for the HTML-include and RSS macros).

**What Happens to a Page Containing a Disallowed URL?**

A user can add the RSS macro or the HTML-include macro to a Confluence page. The macro code includes a URL from which the content is drawn. When the page is displayed, Confluence will check the URL against the whitelist. If the URL is not allowed, Confluence will display an error message on the page.

The error message says that Confluence "could not access the content at the URL because it is not from an allowed source" and displays the offending URL. If the person viewing the page is a Confluence Administrator, they will also see a link to the Administration page where they can configure the URL whitelist.

Here is an example of the error message, including the link shown only to Confluence Administrators:
Here is an example of the error message, but without the link.

Confluence 4.0 Documentation

Related Topics

Enabling HTML macros
RSS Feed Macro
HTML Include Macro

Configuring the userlister Macro

The userlister macro has an optional 'online' parameter. If the User Listener plugin is configured to allow this feature, then the page author can specify 'online=true' to show a list of all online users.

You need to have System Administrator permissions in order to perform this function.

To enable the 'online' filter in the userlister macro,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Plugins' in the left-hand panel. This will list the currently installed plugins.
3. Scroll down and click the 'User Listener' link. The User Listener plugin panel will appear at the top of the screen.
4. Enable the 'User Log In Listener' module by clicking the 'Enable' link on its right.
5. Restart Confluence.

List of online users can be misleading

When the parameter 'online=true' is used, Confluence uses a context listener to generate the list of online users. A context listener is a J2EE term for something that listens for events in the application server. We listen for session open and close events, so a user is 'online' if they have a session on the application server. Some application servers don't correctly despatch close events for sessions — in these cases, the list of online users may be misleading.

Screenshot: Enabling the User Log In Listener
Enabling HTML macros

The \{html\} macro allows you to use HTML code within a Confluence page.

The \{html-include\} macro allows you to include the contents of an HTML file in a Confluence page.

**CAUTION:** Including unknown HTML inside a web page is dangerous. Because HTML can contain active scripting components, it would be possible for a malicious attacker to present a user of your site with script that their web browser would believe came from you. Such code could be used, for example, to steal a user's authentication cookie and give the attacker their Confluence login password.

By default, the HTML macros are disabled. You should only turn on these macros if you trust all your users not to attempt to exploit them.

You need to have System Administrator permissions in order to perform this function.

To enable the HTML macros,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Plugins' in the left-hand panel. This will display the installed plugins active for this Confluence installation.
3. Click 'HTML macros', then click 'Enable Plugin'

**RELATED TOPICS**

No content found for label(s) admin-macros.
**Enabling the HTML Macros**

By default, the HTML macros are disabled. You should only turn on these macros if you trust all your users not to attempt to exploit them.

You need to have System Administrator permissions in order to perform this function.

**To enable the HTML macros,**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select ‘Plugins’ in the left-hand panel. This will display the installed plugins active for this Confluence installation.
3. Click ‘**HTML macros**’, then click ‘**Enable Plugin**’.

**To embed an external page,**

Use the following syntax:

```
{html-include:url=http://www.example.com}
```

**To include HTML inline,**

Use the following syntax:

```
<html>
   <b>I like cheese</b>
</html>
```

**RELATED TOPICS**

- **HTML Include Macro**

  No content found for label(s) admin-macros.

**Troubleshooting the Gallery Macro**

**Gallery Macro**

The full list of parameters is shown in the following table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallery Title</td>
<td>Nothing</td>
<td>Specify a title for your gallery.</td>
</tr>
<tr>
<td>Number of Columns</td>
<td>4</td>
<td>Specify the number of columns for your table.</td>
</tr>
<tr>
<td>Images to Exclude</td>
<td>No exclusions i.e. include all the pictures on the page.</td>
<td>The gallery will ignore any pictures specified. You can specify more than one picture, separated by commas. Please note, the filename and filetype for this parameter are case-sensitive, i.e. 'my picture.PNG' will not be recognised as 'my picture.png'.</td>
</tr>
</tbody>
</table>
### Include these Images Only
Include all the pictures on the page. If you specifically include one or more pictures, the gallery will show only those pictures. You can specify more than one picture, separated by commas. Please note, the filename and filetype for this parameter are case-sensitive, i.e. ‘my picture.PNG’ will not be recognised as ‘my picture.png’.

### Use Images in these Pages
If no page is specified, the gallery macro displays the images attached to the page on which the macro is used. Specify the title of the page which contains the images you want displayed. To specify a page in a different space, use the `SPACEKEY:Page Title` syntax.

### Sort Images By
None, i.e. the sort order is unspecified and therefore unpredictable. Specify an attribute to sort the images by. Sort order is ascending, unless you select the `Reverse Sort` parameter (see below). Options are:
- `name` – file name.
- `comment` – comment linked to the attached file.
- `date` – date/time last modified.
- `size` – size of the attached file.

### Reverse Sort
Off, i.e. sort order is ascending. Used in conjunction with the `Sort Images By` parameter above. Use `Reverse Sort` to reverse the sort order, from ascending to descending.

If the name of an attached file or page contains a comma, you can refer to it in the relevant parameters above by enclosing it in single or double quotes, for example "this,that.jpg", theother.png.

For more information, refer to [Gallery Macro](#).

### Troubleshooting
If you encounter the following error message: System does not support thumbnails: no JDK image support ensure that you have following system property available for your JVM:

```
JAVA_OPTS=-Djava.awt.headless=true
```

Also see [CONF-1737](#)

Please note that gallery-ext.jar is available at [CONF-6620](#)

### Adding, Editing and Removing User Macros
User macros are short pieces of code that perform an often-used function or add some custom formatting to a page. People can call the macro into action by adding the macro keyword to their Confluence pages. You can write a 'user macro' by adding code on a screen in the Confluence Administration Console.

**Notes:**
- You need [System Administrator](#) permissions in order to perform this function.
- See [Shared User Macros](#) for a list of community-donated macros.
- Be careful when installing user macros from unknown authors.
- If you remove a user macro that is in use on Confluence pages, you will need to remove the macro from the pages manually. When you remove the user macro, the usage of the macro on the page will become invalid. **Hint:** Use the Confluence search to find all occurrences of the macro on pages and blog posts.

**To add a user macro:**

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click User Macros in the left-hand panel.
3. Click Create a User Macro at the top of the list of macros.
4. Enter the macro details as explained in the guide to writing user macros.
5. Click Add.

To edit a user macro:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select User Macros in the left-hand panel. This will list the currently configured user macros.
3. Click Edit next to the relevant macro.
4. Update the macro details as explained in the guide to writing user macros.
5. Click Save.

To remove a user macro:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select User Macros in the left-hand panel. This will list the currently configured user macros.
3. Click Remove next to the relevant macro.

Related Topics

No content found for label(s) admin-macros.

Writing User Macros

User macros are short pieces of code that perform an often-used function or add some custom formatting to a page. People can add the macro to a page by choosing it from the Macro Browser when editing a Confluence page. The macro is run when the page is loaded by the browser. You can write a user macro by adding code on a screen in the Confluence Administration Console.

You need to have System Administrator permissions in order to create user macros.

Do you need a plugin instead?

If you want to distribute your user macro as a plugin, please refer to the developer’s guide to the User Macro plugin module. If you want to create more complex, programmatic macros in Confluence, you may need to write a Macro plugin.

On this page:

- Creating a User Macro
  - Macro Name
  - Visibility
  - Macro Title
  - Description
  - Categories
  - Icon URL
  - Documentation URL
  - Macro Body Processing
  - Template
- Examples and Best Practices
- Related Topics

Creating a User Macro

To create a user macro:

1. Go to the Confluence Administration Console and click User Macros in the left-hand panel.
2. Click Create a User Macro.
3. Supply the information in the input fields as explained below, then click Add.

The sections below tell you about each of the input fields.

**Macro Name**

Enter the text that people will see when looking for the macro in the Macro Browser.
Visibility

Set the visibility options to specify who can see this macro when they are searching using the Macro Browser or Autocomplete.

User macros must have parameters defined in order to appear in the Confluence 4.0 Macro Browser.

The options are as follows:

<table>
<thead>
<tr>
<th>Visibility Option</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible to all users</td>
<td>All users will see this macro when searching for a macro using the Macro Browser or Autocomplete.</td>
</tr>
<tr>
<td>Visible only to system administrators</td>
<td>Choose this option if you want the macro to be 'hidden' from most users when the users are looking for a macro to add to a page. Note that this does not completely hide the macro. Instead, it is useful if you want to avoid cluttering the Macro Browser and Autocomplete with unnecessary macros. Specifically, if you are:</td>
</tr>
<tr>
<td></td>
<td>• Editing a page and inserting a macro using the Macro Browser: Only system administrators will see this macro in the Macro Browser. For other users, the macro will not show up in the Macro Browser when the user searches for a macro to add to a page.</td>
</tr>
<tr>
<td></td>
<td>• Editing a page and inserting a macro using Autocomplete: Only system administrators will see this macro in Autocomplete. For other users, the macro will not show up in the Autocomplete list when the user searches for a macro to add to a page.</td>
</tr>
<tr>
<td></td>
<td>• Viewing the page: The macro output will be visible to all users who have permission to see the page.</td>
</tr>
<tr>
<td></td>
<td>• Editing a page that already contains the macro: Provided a user has permission to edit the page, the macro will be visible to all users when editing the page, and all users who have permission to edit the page will also be able to edit or remove the macro.</td>
</tr>
</tbody>
</table>

Please note that all the macro information will also be discoverable, including the macro title, description, parameter names and other metadata. Do not include confidential data anywhere in the definition of a user macro, even if it is marked as visible only to system administrators.

Macro Title

Enter the text that should appear in the Macro Browser and in Autocomplete, to identify this macro when people are looking for it to insert onto a page.

Description

Enter the text that should appear in the Macro Browser describing this macro. Note that the Macro Browser's search will pick up matches in the description as well as in the title.

Categories

Select one or more categories for your macro. To select more than one category, hold down the 'Ctrl' key while selecting. These are the categories that appear in the Macro Browser, helping users to choose a macro from a logical set.

Icon URL

If you would like the Macro Browser to display an icon for your macro, enter the URL here. You can enter an absolute URL or a path relative to the Confluence base URL. For example:

- Absolute URL:
  
  http://mysite.com/mypath/status.png

- Relative URL:
  
  /images/icons/macrobrowser/status.png

Documentation URL
Enter the URL pointing to the online help or other documentation for your macro.

**Macro Body Processing**

Specify how you want Confluence to process the body of your macro before passing it to your macro. Below is an explanation of the macro body and the options available.

**What is the macro body?**

The macro body is the content that is displayed on the wiki page. If the macro allows a body, users will be able to enter body content when configuring the macro in the Macro Browser.

**How can I use the macro body?**

If you specify that your macro has a body, you will be able to pass text to the macro when you invoke it from within a page.

If your macro has a body, any body content that the user enters will be available to the macro in the $body variable. See the section about the template below. In addition, the options below allow you to tell Confluence to pre-process the body before it is placed in the macro output.

**What are the options for macro body?**

<table>
<thead>
<tr>
<th>Body Processing Option</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>No macro body</td>
<td>Select this option if your macro does not need a body.</td>
</tr>
</tbody>
</table>
| Escaped                | If your macro has a body, and you make use of the body as $body in your template, Confluence will add escape characters to the HTML markup in the macro body. You could use this if you want to show the HTML markup in the rendered page. For example, if the body is:  

```
<b>Hello World</b>
```

Then value of $body will be:

```
&lt;b&gt;Hello World&lt;/b&gt;
```

This will render as:

```
<b>Hello World</b>
```
| Unrendered             | If your macro has a body, and you make use of the body as $body in your template, HTML in the body will be processed within the template before being output. Ensure that HTML is ultimately output by the template. |
| Rendered               | If your macro has a body, and you make use of the body as $body in your template, Confluence will recognise HTML in the macro body. For example, if the body is:  

```
<b>Hello World</b>
```

Then value of $body will be:

```
<b>Hello World</b>
```

This will render as:

*Hello World*
Template

Enter XHTML code to specify what the macro will do.

Quick guide:

- Use XHTML in the macro template.
- You can use the Velocity templating language. Here is more information on the Velocity project.
- If your macro has a body, your template can refer to the macro body text by specifying `$body`.
- Use `@param` to define parameters for your macro.
- When using the information passed using parameters, refer to your parameters as `@paramXXX` where ‘XXX’ is the parameter name that you specify in `@param`.
- Use `@noparams` if your macro does not accept parameters.

See our detailed guide to writing a user macro template.

Examples and Best Practices

See:

- Examples of User Macros
- Best Practices for Writing User Macros

Related Topics

Developer documentation:

- User Macro Module
- Macro Module
- Confluence Plugin Guide

Library of user-contributed user macros

- Shared User Macros

⚠️ Be careful when installing user macros. Ideally use only macros from authors and sources that are well known to you.

Best Practices for Writing User Macros

This section contains tips and suggestions for best practice in macro coding. To see how to write a user macro and add it to your Confluence site, take a look at our guide to writing user macros.

Add a Descriptive Header to your Macro Template

We recommend that you include a short description of your macro via comments at the top of the Template field as shown below. You can see an excellent example in the 'Image rollover' user macro.

```plaintext
## Macro title: My macro name
## Macro has a body: Y or N
## Body processing: Selected body processing option
## Output: Selected output option
##
## Developed by: My Name
## Date created: dd/mm/yyyy
## Installed by: My Name
##
## Short description of what the macro does
```

Expose your Parameters in the Macro Browser

Confluence offers great options for making your macro look good in the macro browser. You can specify the macro category, link to an icon, define the parameters that the macro browser will use to prompt the user for information, and more.

In particular, read the documentation on defining the macro parameters to be displayed in the macro browser.

Supply Default Values for Macro Parameters
You cannot guarantee that a user will supply parameters, so one of the first things to do in the macro is check that you have received some value if you expect to rely on it later on in the macro code.

In the example below, the macro expects three parameters. It substitutes sensible defaults if they are not supplied:

```
#set($spacekey= $paramspacekey)
#set($numthreads= $paramnumthreads)
#set($numchars= $paramnumchars)

## Check for valid space key, otherwise use current
#if (!$spacekey)
    #set ($spacekey=$space.key)
#end

## Check for valid number of threads, otherwise use default of 5
#if (!$numthreads)
    #set ($numthreads=5)
#end

## Check for valid excerpt size, otherwise use default of 35
#if (!$numchars)
    #set ($numchars=35)
#end
```

**Related Topics**

Writing User Macros

**Examples of User Macros**

Below are some sample user macros. To see how to write a user macro and add it to your Confluence site, take a look at our guide to writing user macros.

On this page:

- Simple Examples of User Macros
  - Example 1: User Macro to Display 'Hello World'
  - Example 2: The 'Error' User Macro to Create a Red Box
  - Example 3: User Macro to Demonstrate the Use of Parameters
- User-Contributed User Macros

**Simple Examples of User Macros**

We provide these user macros as simple examples just to get you started. You would not want to install these user macros onto your Confluence site.

**Example 1: User Macro to Display 'Hello World'**

Take a look at an example of a 'Hello World' macro.

**Example 2: The 'Error' User Macro to Create a Red Box**

Let's write a simple macro that creates a red box (using an existing Confluence style) around some text. This may be useful for writing about error conditions, for example. That is why we give this macro the name 'error'.

To create the 'Error' user macro:

1. Go to the 'Confluence Administration Console' and click User Macros in the left-hand panel.
2. Click Create a User Macro at the top of the list of macros.
3. Enter the macro attributes as follows:
   - Macro Name: error
   - Visibility: Visible to all users in the Macro Browser
   - Macro Title: Error
   - Description: Displays a red box around some text
   - Categories: Confluence Content
   - Icon URL: You can leave this field empty.
   - Documentation URL: You can leave this field empty.
   - Macro Body Processing: Rendered
   - Template:
4. Click **Add**.

To use the macro within a page, use the Macro Browser. Your page will display an error box, like this:

```html
This is bad
```

**Example 3: User Macro to Demonstrate the Use of Parameters**

This example demonstrates how you can pass parameters into your macro. Let’s say you want to write your own font colour macro:

```html
<span style="color: $param0">$body</span>
```

The usage of this macro will be:

```html
(colour:green)Some example text(colour)
```

The output will be:

*Some example text*

If your macro requires more than one parameter, you can use variables $param0 to $param9 to represent them. To specify multiple parameters, use:

```html
(colour:red|blue|green)
```

Where red, blue and green are the 1st, 2nd and 3rd parameters respectively.

Alternatively, you can also use explicitly named parameters in your macro. These macro parameters will appear as variables with the name $param<x>$ where <x> is the name of your parameter. To specify named parameters, use:

```html
(style:colour=red)
```

In your user macro you can then use $paramcolour which will have the value red in this case.

**User-Contributed User Macros**

You may want to take a look at the library of [user-contributed user macros](#).

⚠ Be careful when installing user macros from unknown authors.

**Hello World Example of User Macro**

This page tells you how to create a user macro that displays the text 'Hello World!' and any variable text you place between the macro tags. (For full details about creating a user macro, see the guide to [writing user macros](#).)

**Defining the 'Hello World' User Macro**

To create the 'Hello World' user macro:

1. Go to the 'Confluence Administration Console' and click **User Macros** in the left-hand panel.
2. Click **Create a User Macro** at the top of the list of macros.
3. Enter the macro attributes as follows:
   - **Macro Name:** helloworld
   - **Visibility:** Visible to all users in the Macro Browser
   - **Macro Title:** Hello World
   - **Description:** Displays "Hello World" and the macro body.
   - **Categories:** Confluence Content
   - **Icon URL:** You can leave this field empty.
   - **Documentation URL:** You can leave this field empty.
3. **Macro Body Processing:** Rendered
   **Template:**

   ```
   ## @noparams
   Hello World!
   $body
   ```

4. Click Add.

*Screenshot: Definition of the 'Hello World' user macro*

Using the 'Hello World' Macro on a Page

Now you can add the macro to your Confluence page using the Macro Browser:
The result is:

![Hello World! What a beautiful day.](Testing the Hello World macro)

Related Topics

Writing User Macros

NoPrint Example of a User Macro

This page gives an example of a user macro, the 'NoPrint' macro, that you can use to prevent text from being printed. (For full details about creating a user macro, see the guide to writing user macros.)

Defining the 'NoPrint' User Macro

To create the 'NoPrint' user macro:

1. Go to the 'Confluence Administration Console' and click User Macros in the left-hand panel.
2. Click Create a User Macro at the top of the list of macros.
3. Enter the macro attributes as follows:
   - Macro Name: noprint
   - Visibility: Visible to all users in the Macro Browser
   - Macro Title: NoPrint
   - Description: Hides text from printed output.
   - Categories: Confluence Content
   - Icon URL: You can leave this field empty.
   - Documentation URL: You can leave this field empty.
   - Macro Body Processing: Rendered
   - Template:

```plaintext
## @noparams
<div class="noprint">$body</div>
```
4. Click Add.

**Using the 'NoPrint' Macro on a Page**

Now you can add the macro to your Confluence page using the Macro Browser. Text entered into the body of the macro placeholder will not be printed.

![NoPrint]

This text will not be printed.

**Making PDF Export Recognise the NoPrint Macro**

See [Advanced PDF Stylesheet Customisations#noprint](#).

**Related Topics**

- Writing User Macros

**Guide to User Macro Templates**

You write a user macro in a screen in the Confluence Administration Console. The 'template' is one of the fields that you define when writing a user macro. (See the rest of the guide to [writing user macros](#).) This page gives you guidelines about the code you can enter in a user macro template.

<table>
<thead>
<tr>
<th>Quick guide to user macro templates</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Use XHTML in the macro template.</td>
</tr>
<tr>
<td>- You can use the <em>Velocity</em> templating language. Here is more information on the <a href="#">Velocity project</a>.</td>
</tr>
<tr>
<td>- If your macro has a body, your template can refer to the macro body text by specifying <code>$body</code>.</td>
</tr>
<tr>
<td>- Use <code>@param</code> to define parameters for your macro.</td>
</tr>
<tr>
<td>- When using the information passed using parameters, refer to your parameters as <code>$paramXXX</code> where 'XXX' is the parameter name that you specify in <code>@param</code>.</td>
</tr>
<tr>
<td>- Use <code>@noparams</code> if your macro does not accept parameters.</td>
</tr>
</tbody>
</table>

**On this page:**

- Accessing your Macro's Body
- Using Parameters in your User Macro
  - How your Macro's Parameters are Used on a Confluence Page
  - Defining the Parameters
    - Parameter Name
    - Parameter Type
  - Using the Parameters in your Macro Code
  - Using No Parameters
- Objects Available to your Macro
- Controlling Parameter Appearance in the Editor Placeholder
  - Plugin Macro Metadata
  - User Macro Metadata
- Related Topics

**Accessing your Macro's Body**

Use the `$body` object within your user macro template to access the content passed to your macro in the macro body.

The `$body` object is available if you have specified that your macro has a body (in other words, if you have not selected No macro body).

**Example:** Let's assume your macro is called `helloworld`.

Enter the following code in your template:

```
Hello World: $body
```

A user, when editing a Confluence page, chooses your macro in the Macro Browser and then enters the following in the macro placeholder that is displayed in the edit view:
The wiki page will display the following:

```
Hello World: From Matthew
```

**Using Parameters in your User Macro**

You can specify parameters for your macro, so that users can pass it information to determine its behaviour on a Confluence page.

**How your Macro’s Parameters are Used on a Confluence Page**

When adding a macro to a Confluence page, the Macro Browser will display an input field for each of your macro’s parameters. The field type is determined by the parameter type you specify for each parameter.

**Defining the Parameters**

Briefly, a parameter definition in the template contains:

- `@param`
- The parameter name
- A number of attributes (optional)

**Format:**

```
## @param MYNAME:title=MY TITLE|type=MY TYPE|desc=MY DESCRIPTION|required=true|multiple=true|default=MY DEFAULT VALUE
```

**Additional notes:**

- The order of the parameters in the template determines the order in which the Macro Browser displays the parameters.
- We recommend that you define the parameters at the top of the template.
- There may be additional attributes, depending on the parameter type you specify.

The sections below describe each of the attributes in detail.

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Description</th>
<th>Required / Recommended / Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>(an unnamed, first attribute)</td>
<td>A unique name for the parameter. The parameter name is the first attribute in the list. The name attribute itself does not have a name. See the section on name below.</td>
<td>Required</td>
</tr>
<tr>
<td>title</td>
<td>The parameter title will appear in the Macro Browser. If you do not specify a title, Confluence will use the parameter name.</td>
<td>Recommended</td>
</tr>
<tr>
<td>type</td>
<td>The field type for the parameter. See the section on type below.</td>
<td>Recommended</td>
</tr>
<tr>
<td>desc</td>
<td>The parameter description will appear in the Macro Browser.</td>
<td>Optional</td>
</tr>
<tr>
<td>required</td>
<td>Specifies whether the user must enter information for this parameter. Defaults to 'false'.</td>
<td>Optional</td>
</tr>
<tr>
<td>multiple</td>
<td>Specifies whether the parameter accepts multiple values. Defaults to 'false'.</td>
<td>Optional</td>
</tr>
<tr>
<td>default</td>
<td>The default value for the parameter.</td>
<td>Optional</td>
</tr>
</tbody>
</table>

**Parameter Name**

The parameter name is the first attribute in the list. The name attribute itself does not have a name.

**Example:** The following code defines 2 parameters, named 'foo' and 'bar':

```
## @param foo
## @param bar

### Parameter Type

The field type for the parameter. If you do not specify a type, the default is `string`.

<table>
<thead>
<tr>
<th>Parameter Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>boolean</td>
<td>Displays a checkbox to the user and passes the value 'true' or 'false' to the macro as a string.</td>
</tr>
</tbody>
</table>
| enum                 | Offers a list of values for selection. You can specify the values to appear in a dropdown in the Macro Browser. Example of specifying the enum values:  

```markdown
## @param colour:title=Colour|type=enum|enumValues=Grey,Red,Yellow,Green
```

*Note about i18n:* Confluence does not support internationalisation of the enum values. The value the user sees is the one passed to the macro as the parameter value, with the capitalisation given. In this case 'Grey', 'Red', etc.

| string               | A text field. This is the default type. Example with a required field:  

```markdown
## @param status:title=Status|type=string|required=true|desc=Status to display
```

| confluence-content   | Offers a control allowing the user to search for a page or blog post. Example:  

```markdown
## @param page:title=Page|type=confluence-content|required=true|desc=Select a page to use
```

| username             | Search for user.  

```markdown
## @param user:title=Username|type=username|desc=Select username to display
```

| spacekey             | Offers a list of spaces for selection. Passes the space key to the macro. Example:  

```markdown
## @param space:title=Space|type=spacekey
```

| date                 | Confluence accepts this type, but currently treats it in the same way as 'string'. Example:  

```markdown
## @param fromDate:title=From Date|type=date|desc=Date to start from. Format: dd/mm/YYYY
```

*Note about dates:* A user can enter a date in any format, you should validate the date format in your user macro.
Confluence accepts this type, but currently treats it in the same way as ‘string’. Example with a default value:

```## @param numPosts:title=Number of Posts|type=int|default=15|desc=Number of posts to display```

**percentage**

Confluence accepts this type, but currently treats it in the same way as ‘string’. Example:

```## @param pcent:title=Percentage|type=percentage|desc=Number of posts to display```

**Using the Parameters in your Macro Code**

The parameters are available in your template as `$paramfoo`, `$parambar` for parameters named “foo” and “bar”.

Normally, a parameter like `$paramfoo` that is missing will appear as `$paramfoo` in the output. To display nothing when a parameter is not set, use an exclamation mark after the dollar sign like this: `$$!paramfoo``

**Using No Parameters**

If your macro does not accept parameters, you should use `@noparams` in your template. That will let Confluence know that it need not display a parameter input field in the Macro Browser.

If the user macro contains no parameters and does not specify `@noparams`, then the Macro Browser will display a free-format text box allowing users to enter undefined parameters. This can be confusing, especially if the macro does not accept parameters.

**Example:** Add the following line at the top of your template:

```## @noparams```

**Objects Available to your Macro**

Including the macro body and parameters, the following Confluence objects are available to the macro:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Class Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>$body</td>
<td>The body of the macro (if the macro has a body)</td>
<td>String</td>
</tr>
<tr>
<td>$paramfoo, $parambar, ... $param&lt;name&gt;</td>
<td>Named parameters (“foo”, “bar”) passed to your macro.</td>
<td>String</td>
</tr>
<tr>
<td>$config</td>
<td>The <code>BootstrapManager</code> object, useful for retrieving Confluence properties.</td>
<td><code>BootstrapManager</code></td>
</tr>
<tr>
<td>$renderContext</td>
<td>The <code>PageContext</code> object, useful for (among other things) checking <code>$renderContext.outputType</code></td>
<td><code>PageContext</code></td>
</tr>
<tr>
<td>$space</td>
<td>The <code>Space</code> object that this content object (page, blog post, etc) is located in (if relevant).</td>
<td><code>Space</code></td>
</tr>
<tr>
<td>$content</td>
<td>The current <code>ContentEntity</code> object that this macro is a included in (if available).</td>
<td><code>ContentEntityObject</code></td>
</tr>
</tbody>
</table>

Macros can also access objects available in the default Velocity context, as described in the developer documentation.

**Controlling Parameter Appearance in the Editor Placeholder**

A macro developer (or author of a user macro) can control which fields of the macro should appear in the placeholder in the Confluence Editor.
## Plugin Macro Metadata

The macro metadata for a plugin macro now has parameter options as shown in the following example:

```xml
<macro name="panel" documentation-url="help.panel.macro">
  <category name="formatting"/>
  <parameters>
    <parameter name="title" type="string">
      <option key="showNameInPlaceholder" value="false"/>
      <option key="showValueInPlaceholder" value="true"/>
    </parameter>
    <parameter name="borderStyle" type="string"/>
    <parameter name="borderColor" type="color"/>
  </parameters>
</macro>
```

The option `showNameInPlaceholder` specifies that in the above example the 'title' parameters name should not be shown.

The option `showValueInPlaceholder` specifies that the user entered value for this parameter should be shown.

So, for the above example, the macro placeholder could show something like 'panel | my panel title'.

If `showNameInPlaceholder` was true instead of false it would show something like 'panel | title = my panel title'.

If a macro has neither option on any of it's parameters then the default behaviour is to show all parameters: full title and value. If one or more parameters has either option set then all parameters without the options set will default to false (i.e. will not be shown).

## User Macro Metadata

The behaviour for a user macro is as described above, however the method of configuration is within the @param entry in the template.

So, the example from above would look something like:

```bash
## @param title|type=string|option-showNameInPlaceholder=false|option-showValueInPlaceholder=true
```

### Related Topics

- Writing User Macros
- Examples of User Macros
- Configuring the Office Connector

## Configuring the Office Connector

The Office Connector is a Confluence plugin that allows Confluence users to interact with Microsoft Office and Open Office in various ways. You can display content from Office documents on a wiki page and import content from an Office document into Confluence. Please refer to the User Guide for details of these interactions.

A System Administrator can enable or disable parts of the Office Connector and can configure options as described below.

On this page:

- Enabling and Disabling the Office Connector and its Modules
- Configuring the Office Connector Options
- Related Topics

### Enabling and Disabling the Office Connector and its Modules

The Office Connector is bundled with Confluence 2.10 and later, so you should not need to install it. But you may wish to enable or disable some of its modules.

A System Administrator can install, enable or disable plugins and plugin modules. You can read a general overview in Installing Plugins and Macros.

To enable or disable the Office Connector and its modules:

1. Select Plugins, under 'Configuration' in the left-hand panel of the Confluence Administration Console.
2. Click Show system plugins under 'System Plugins'.
3. Search the page for Office Connector plugin and select the link.
4. The 'Office Connector plugin' panel will appear near the top centre of the page, as shown in the screenshot below.
5. Now you can do one of the following:
   - Configure plugin – This will take you to the separate plugin configuration screen described below.
   - Disable plugin – Click this link if you want to disable all modules of the plugin, but leave the plugin installed on your Confluence site.
   - Uninstall plugin – Click this link if you want to remove the Office Connector permanently from your Confluence site. To restore it at a later date, you will need to re-install it from the Confluence Plugin Repository.
   - Manage plugin modules – You can also enable or disable one or more of the Office Connector modules, as described in the table below.
### Screenshot: Enabling the Office Connector plugin and its modules

The following modules are available for the Office Connector plugin:

<table>
<thead>
<tr>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC Settings Manager</td>
<td>Component to read and write persistent settings for the Office Connector.</td>
</tr>
<tr>
<td>Slide Cache Manager</td>
<td>Component to cache slide-based conversions when displaying PowerPoint and PDF documents.</td>
</tr>
<tr>
<td>Html Cache Manager</td>
<td>Component to cache HTML-based conversions when displaying Word and Excel documents.</td>
</tr>
<tr>
<td>File Cache Cleanup Job</td>
<td>This module is a recurring task that cleans up the Office Connector file cache.</td>
</tr>
<tr>
<td>File Cache Cleanup</td>
<td>This module is the trigger for the File Cache Cleanup Job.</td>
</tr>
<tr>
<td>Office Connector administration link</td>
<td>This module supplies the 'Office Connector Configuration' link in the left-hand panel of the Confluence Administration Console. The link gives access to the plugin configuration screen described below.</td>
</tr>
<tr>
<td>Link for previewing a search result</td>
<td>This module supplies the 'View' link which appears next to attachments displayed in search results, where the attachment is an Office document.</td>
</tr>
<tr>
<td>Link for previewing an attachment</td>
<td>This module supplies the 'View' link which appears next to attachments displayed on the 'Attachments' view of a page, where the attachment is an Office document.</td>
</tr>
<tr>
<td>Module</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>viewfile</td>
<td>This module supplies the <code>{viewfile}</code> macro. See View File Macro.</td>
</tr>
<tr>
<td>viewdoc</td>
<td>This module supplies the Word document component of the <code>{viewfile}</code> macro.</td>
</tr>
<tr>
<td>viewxls</td>
<td>This module supplies the Excel document component of the <code>{viewfile}</code> macro.</td>
</tr>
<tr>
<td>viewppt</td>
<td>This module supplies the PowerPoint document component of the <code>{viewfile}</code> macro.</td>
</tr>
<tr>
<td>viewpdf</td>
<td>This module supplies the PDF document component of the <code>{viewfile}</code> macro.</td>
</tr>
<tr>
<td>editgrid</td>
<td>This module is used to migrate editgrid users to the Office Connector.</td>
</tr>
<tr>
<td>Import Word UI on page tabs</td>
<td>This module supplies a 'Doc Import' tab which appears in older versions of Confluence, next to the 'View', 'Edit', 'Attachments' and 'Info' tabs. Not relevant to Confluence 2.10 or later, except for custom themes.</td>
</tr>
<tr>
<td>Import Word UI on drop down menu</td>
<td>This module supplies the 'Doc Import' link which appears in the Confluence 'Tools' dropdown menu.</td>
</tr>
<tr>
<td>Edit in Office javascript resource</td>
<td>This module contains the javascript resources for launching the desktop applications for editing Office documents.</td>
</tr>
<tr>
<td>Office Connector Servlet</td>
<td>This module allows Confluence users to edit their Confluence pages in Microsoft Word. It performs the conversion to and from Word.</td>
</tr>
<tr>
<td>Office Authenticator Filter</td>
<td>This module authenticates HTTP requests from Office applications.</td>
</tr>
<tr>
<td>PPT slide web service</td>
<td>This module allows Confluence users to view a PowerPoint presentation on a wiki page. It provides the slide images to the Flash control which displays the slides on the wiki page.</td>
</tr>
<tr>
<td>DOC and XLS image cache web service</td>
<td>This module is required if Confluence users want to view a Word document or an Excel spreadsheet on a wiki page. It allows images to be stored in a cache on the server, so that they can be retrieved when the browser renders the HTML page.</td>
</tr>
<tr>
<td>Office Connector Actions</td>
<td>This module must be enabled if the Office Connector is used.</td>
</tr>
</tbody>
</table>

### Configuring the Office Connector Options

A Confluence administrator can set the options described below, to determine the behaviour of the Office Connector on your Confluence site.

**To set the configuration options for the Office Connector:**

1. Select Office Connector under 'Configuration' in the left-hand panel of the 'Confluence Administration Console'. The 'Configure Office Connector plugin' screen will appear.
2. Set the configuration options as described in the table below.

*Screenshot: Configuring the Office Connector options*
The configuration options are described in the table below:

<table>
<thead>
<tr>
<th>Option</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warnings: Show a warning before allowing a user to perform an import</td>
<td>Disabled</td>
<td>If this option is enabled, the user will receive a warning when importing a Word document. The warning will tell the user when they are about to overwrite existing content.</td>
</tr>
<tr>
<td>Advanced Formatting Options: Use the footnote macro for Word footnotes</td>
<td>Disabled</td>
<td>If this option is enabled, a Confluence page created from an imported Word document will use the Adaptavist to render any footnotes contained in the document. Note that you will need to install the Confluence site. For more information about this plugin and macro, please refer to the Footnotes plugin.</td>
</tr>
<tr>
<td>Authentication: Allow authentication tokens in the URL path</td>
<td>Disabled</td>
<td>If this option is enabled, the Office Connector will use authentication tokens in the URL.</td>
</tr>
</tbody>
</table>
Temporary storage for \{viewfile\} macro

- Confluence Home directory – The temporary file will be stored in your Confluence Home directory.
- A directory specified in the directories.properties file – You can specify a location by editing the Office Connector's directories.properties file:

  1. Go to the bundled-plugins directory in your Confluence Home directory.
  2. Copy the Office Connector JAR file to a temporary location: OfficeConnector-x.xx.jar, where 'x.xx' is the version number.
  3. Unzip the JAR file and find the directories.properties file in the resources directory. The content of the file looks like this:

```
#Complete the following line to set a custom cache directory.
#If resetting to blank, don't delete anything before or after the '='
com.benryan.confluence.word.edit.cacheDir=
```

4. Edit the last line, adding the path to your required temporary location directly after the '=' character. For example:

   - On Windows:
     ```
     com.benryan.confluence.word.edit.cacheDir=c:\my\path\n     ```
   - On Linux:
     ```
     com.benryan.confluence.word.edit.cacheDir=/home/myusername/my/path
     ```

5. Save the file, recreate the JAR and put it in the bundled-plugins directory in your Confluence Home directory, overwriting the original JAR.

- Cache in-memory – The temporary file will be held in memory. We recommend this option if you are running a clustered environment.

<table>
<thead>
<tr>
<th>Maximum file space for cache (MB)</th>
<th>500</th>
<th>This is the maximum size of the cache used by the {viewfile} macro. (See above.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Conversion Queues</td>
<td>6</td>
<td>This is the maximum number of threads used to convert PowerPoint or PDF slide shows. You can limit Confluence performance, by limiting the number of threads so that the Office Connector does not consume too many resources. Click Manage Queues to view attachments that are still pending conversion.</td>
</tr>
</tbody>
</table>

**Related Topics**

- Office Connector Prerequisites
- Office Connector Limitations and Known Issues
- Working with the Office Connector
- Installing Plugins and Macros

**Operating Large or Mission-Critical Confluence Installations**

This page gives guidelines for operational management teams who are responsible for a large Confluence installation, or for a Confluence installation which is crucial to the business of their organisation.

**On this page:**

- Introduction to this Page
- Motivation for Presenting these Guidelines
- Who should Read these Guidelines?
- Requirements of Large or Mission-Critical Confluence Installations
  - Dedicated Hardware for Confluence
  - Dedicated Qualified Staff
    - Operations Team with General Administrators
    - Network Staff
    - Database Staff
    - Developers
  - Constant Monitoring of Production Systems
  - Adherence to Strict Upgrade Procedures
  - Testing of Upgrades before Production Implementation
  - Enforcing Security Guidelines
  - Load-Testing Environments
  - Tuning
Introduction to this Page

Motivation for Presenting these Guidelines

Most Confluence installations start off small. Ten people in an early-adoption department use it for a couple of weeks. Everything works well and the good news starts spreading. Adoption increases throughout the organisation. More and more people use the wiki, and more and more rely on Confluence being up and running. After a while even the CEO starts blogging. And then a system outage occurs.

Now what?

Wikis like Confluence often grow into mission-critical applications within just a few months. Often adoption is so fast that IT departments haven't had the time to scale up their support.

We have assembled some requirements to help you make sure that your installation of Confluence can be mission critical. There are no surprises to be found here — all of the requirements would apply to any other piece of software that is mission critical within your organisation.

Who should Read these Guidelines?

The guidelines do not apply to you if you are using Confluence with just a few dozen users, and no one really minds if Confluence is down for a couple of hours because your database has crashed.

But if any one of the following applies to you, then these guidelines are a must read for you!

- The wiki has become your organisation’s documentation base.
- Your users can’t work properly when Confluence is down.
- Your boss or customer threatens to terminate your contract if you don’t meet a strict service level agreement (SLA), such as 99.9% availability.

Requirements of Large or Mission-Critical Confluence Installations

Dedicated Hardware for Confluence

In a small work group with a few dozen or even hundreds of users, your Confluence installation can happily share the CPUs, memory and disks with other low-profile applications and a database.

But with thousands or even tens of thousands of users, you need dedicated hardware that runs Confluence and nothing else, and it needs to be fast hardware with plenty of RAM. While you can run Confluence in a virtualised environment such as VMware, we suggest you don’t do it for mission-critical or high-load installations unless you are a real expert in virtualisation. Otherwise your other VMs might have performance problems which propagate to Confluence.

If you experience database-related problems, you should consider moving the Confluence database to a dedicated machine. Confluence itself can run queries that impact the performance of other applications, and other application problems or scheduled tasks can have an adverse affect on the usability of Confluence.

Dedicated Qualified Staff

If your Confluence installation is mission critical and your service level agreements require 24/7 up time, you need to be able to pinpoint problems quickly. You need qualified staff, dedicated to looking after Confluence, who are available during business hours and possibly beyond.

If you require assistance from the Atlassian Support team, you may need to answer some pretty technical questions to help us diagnose what is going on in your systems. Also keep in mind that Atlassian support assists you in finding problems in Confluence, but we can’t help you administer your systems.

In particular, we recommend that you have dedicated staff in the roles listed below.

Operations Team with General Administrators

If your organisation relies on Confluence being up and running around the clock with very little downtime, you need people who can set up, maintain, tune and improve your Confluence installation. This requires at least one person, but ideally you will have a team of operational engineers.

If your wiki is mission critical, chances are that other IT systems within your organisation have already made it necessary to have
such an operations team. So you will probably not need to hire someone specifically to administrate Confluence. But it is vital that supporting and maintaining Confluence is added to the list of responsibilities of that operations teams, and that you can get them to troubleshoot and analyse Confluence at short notice.

If problems arise and you need to contact Atlassian Support, these engineers will be our first point of contact. We may ask them to provide details of log files, application-server settings, monitoring systems, and so on.

**Network Staff**

If Confluence is mission critical for large numbers of users, it is vital that you have dedicated network staff available to track down problems when they arise.

A mission-critical installation will usually be used by hundreds or even thousands of users, and you don't want to keep them waiting because a network card breaks, or because someone has made an undocumented change to the network and you don't have an expert around who can figure it out.

Again, this only applies to mission-critical systems. If you use Confluence for less critical collaboration and knowledge sharing, and a broken network cable causing a day's downtime is no major catastrophe, then you will not need dedicated networking staff.

**Database Staff**

If Confluence is mission critical for a large number of users, you need an experienced database administrator (DBA) available to troubleshoot database performance issues and other potential problems. It is dangerous not to have an experienced full-time DBA at hand at short notice when running a mission critical application. While small installations of Confluence basically work 'out of the box', any system that involves high load or high-availability requirements needs continual monitoring, optimising and fine tuning of the Confluence database. Database monitoring is no trivial task — it's not something that anyone can learn quickly.

**Developers**

You may have decided to customise Confluence by changing its source-code, or by writing your own plugins. If your server is mission-critical, you must nominate staff who will be responsible for that code, and they must be up for the task. Otherwise you might end up in a situation in which your server experiences downtimes because of custom code is broken, or does not work with a newer version of Confluence anymore, but you can't fix the problem because no one knows how the customized code works, and you can't uninstall it either because it has become critical for your Confluence usage pattern. Keep good track of changes, and have someone available to jump into action if there is a problem. Don't let the summer intern write mission-critical plugins, unless you have more senior staff to maintain that code as long as it is in use.

**Constant Monitoring of Production Systems**

You will need to monitor your production systems constantly.

When the wiki is the lifeblood of your organisation, you need know exactly what is going on inside, so that you can plan for future needs and analyse potential bottlenecks.

Monitoring involves a number of essential tasks, including those listed below:

- Monitoring log files.
- Checking for HTTP-availability and performance (e.g. by getting the same page every five minutes and displaying the time on a graph).
- Looking at many different parameters such as load, connections, IO, database-trends, and so on.
- Charting long-term trends.
- Keeping an access log of requests to the web server. This is vital, especially when requesting performance-related support from Atlassian.

Monitoring a web application like Confluence implies also monitoring the subsystems it uses. Many outages and downtimes are caused by broken mail servers, databases running out of space, file systems filling up and so on. It is often possible to detect these trends way before the actual web application breaks down. Keep an eye on the file system, and if you see it is getting closer to 90% utilisation, you can mend the situation without Confluence breaking down. Or even if the worst case happens (e.g. the database breaks down and Confluence is affected straight away) then having the proper monitoring for the database server makes troubleshooting a lot easier.

**Tools for Monitoring Confluence**

At Atlassian we use Hyperic. But the list of monitoring systems is long and we can't recommend a specific product over the other. If your organisation has a monitoring system already, make sure you hook up Confluence to it. If you don't have a monitoring system yet, you need to install one as soon as you feel Confluence is mission critical.

As an example of what our monitoring UI looks like, have a look at this screenshot:
The following screenshot shows one of our sensors looking at the HTTP response times of our documentation wiki over the last 8 days. You can clearly see an incident four days ago. Having the graph (and regularly looking at it) allowed us to pinpoint the problem. We analysed the access logs and found that webpage-profiling had been enabled but not disabled again, which caused performance problems.
This page would get too long if we described all our monitoring sensors - but just to give you an impression, this is what we monitor on the JVM level alone.

**JVM basics**

- Current Loaded Classes
- Daemon Thread Count
- Heap Memory Committed
- Heap Memory Max
- Heap Memory Used
- Loaded Classes
- Loaded Classes per Minute
- Object Pending Finalization Count
- Peak Thread Count
- Thread Count
- Unloaded Classes
- Unloaded Classes per Minute

**JVM garbage collection**

- Collection Count
- Collection Count per Minute
- Collection Time
- Collection Time per Minute

**JVM memory: (Metrics for Eden space, Old Gen, Survivor space, Perm Gen)**

- Committed Memory
- Used Memory

We get the same level of detail for our database, for the file system, for the CPU, for the network, and so on. Not all of this is needed all the time. But if your company depends on an application, then the more information you have at your fingertips the better. Fortunately these metrics can be extracted quite easily once you have a monitoring system in place.

**Adherence to Strict Upgrade Procedures**

Your organisation will have its own upgrading procedure. Here are a few recommendations that you should add to your list:

- Our main recommendation: Never change more than one component at a time. Sometimes it may be tempting to upgrade the server hardware when you upgrade Confluence, but we recommend you don't do that. It makes pinpointing errors much more difficult. So, for example, don't upgrade hard disks in conjunction with a Confluence version upgrade, don't change the Confluence configuration at the same time as you upgrade your Apache software, and don't upgrade a major third-party plugin the day you move your database system to a new machine. The list is endless, these were just a few examples to get you thinking.
- After each upgrade step, run Confluence for a couple of days to check that everything is still fine.
- Keep track diligently of what you change, and when. It will be nearly impossible for us to help you if you can't tell us what exactly you changed at what time.
- Keep a copy of all log files produced during the upgrade, together with notes about what changed between successive restarts.

Always take careful note of the upgrade notes published with the Release Notes of each Confluence version, as well as the Confluence Upgrade Guide.

**Example**

Here you can see an extract of our change log for [http://confluence.atlassian.com](http://confluence.atlassian.com) — the server that hosts this very page.

<table>
<thead>
<tr>
<th>Sydney time</th>
<th>Server time</th>
<th>Event</th>
<th>Reason/Purpose (including JIRA issues)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-03-25 22:18</td>
<td>Started upgrade to 2.8-m9-r3 (build #1314)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-03-25 22:25</td>
<td>App server brought down due to failed database upgrade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-03-26</td>
<td>Server brought back up after database restored from backup. Running 2.8-m9-r3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-03-28</td>
<td>GC algorithm changed from concurrent to parallel collector. Max heap increased from 1.4 GB to 2.0 GB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-04-24</td>
<td>Hyperic agent started with connection to Resin.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-05-08</td>
<td>Manual updates to menu.css, comments.js and comments.css in webapp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temporary fix for @JIRA, @JIRA which was impacting performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-05-12</td>
<td>Updated cache sizes for five caches, bounced server.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cache efficiency was low on these caches.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-05-13</td>
<td>Upgrade from Resin 3.0 to Tomcat 5.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-05-14</td>
<td>Upgrade from Confluence 2.8.1-rc2 to 2.8.1-rc3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008-05-14</td>
<td>Install new cronjob as j2ee for automating access log analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>@JIRA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Testing of Upgrades before Production Implementation

You should test upgrades in a staging environment.

Before rolling out a new version of Confluence (or of the software or hardware that it uses, e.g. database systems, application servers, data storage), make sure that you test the upgrade with real data (e.g. a database dump) on a completely independent machine.

Here’s an example of what such a test would pick up: The new release of Confluence may not be compatible with a custom third party plugin you have previously installed, thus breaking the plugin’s functionality. You may not even know that anyone installed that plugin — but maybe many people are already using it. You’ll want to find out about this before you actually roll out the new version of Confluence.

Here is an outline for a simple upgrade test:

1. Create a clone of your production environment, using a database dump to obtain a copy of the Confluence data. We’ll call this your ‘staging environment’.
2. Upgrade the staging environment to the new version of Confluence.
3. Ask a few selected users from different departments to check the pages they commonly access, but have them do it in the staging environment.

**Hint:** In addition to finding weirdnesses with plugins, this may also show whether training for new functionality is needed in some of the departments. The IT department staff may be able to handle the upgrade to a new version of Confluence without training, but perhaps the sales representatives who use the wiki less often will need some training.

### Getting a license for your staging environment

Only a technical contact for your commercial/academic license is able to create a Developer license.

Atlassian supplies ‘developer’ licenses which can be used by existing commercial license holders who wish to deploy non-production installations of our software to use in QA/staging environments. Developer licenses are free of charge to commercial license holders and, like our commercial offerings, they include 12 months of updates starting from the date of purchase of the commercial license.

If you hold a commercial license, you can obtain a free developer license by following these steps:

1. Log in to your Atlassian account.
2. Under the “Licenses” heading, all of your licenses will be displayed. Click the plus sign next to a license to view its details.
3. Click the “View Developer License” link in the bottom right corner of the license detail panel, below your commercial license key.

### Enforcing Security Guidelines
Security is one of the most important issues for Confluence. We are constantly spending large amounts of effort to keep up with security threats and to Confluence's security model. We treat security breaches with utmost priority, and the recent releases have been improved to fend off advanced attack vectors like cross-site scripting (XSS), cross-site request forgery (XSRF) and header injection flaws. Altogether we believe that Confluence is a very secure product. But of course as with any software there are occasional bugs, and we are fixing security issues whenever they come up. We regularly release minor software releases that contain security fixes. This means you should upgrade your system frequently. Obviously this can affect your system's uptime. You should also make sure your whole infrastructure around Confluence is made robust as well (consider operating systems, webservers, application servers, networks, social engineering aspects, etc).

As with any other distributed system, you need to decide on a case by case basis if classified documents can be stored in it. It is common practice to store the most secure documents on computers that are not even connected to the physical intranet. Please contact your company's security officer to learn more about your enterprise's security procedures.

Make sure to have qualified staff around, so you can deal with security issues quickly. Once a security patch becomes available or a security incident happens, speed is essential.

Please refer to our dedicated Configuring Confluence Security page for more technical details.

### Load-Testing Environments

Many customers ask us,

| So, how many users and spaces can I put into Confluence, and what is the best hardware to do so? |

The answer is, 'It depends'.

It depends a lot on your use case. Confluence is so successful because it can cover a huge range of use cases. If most of your users only access Confluence infrequently, it is no problem to have 70 000 to 100 000 users. But if each user is a power-user who uses the system the whole day, there's a substantial decrease in number Confluence can take without tuning. If your pages are short, simple, and don't contain a lot of macros, then the situation will be vastly different from a system that relies heavily on macros, background-tasks, or other features.

If your system is large (for example serving more than 10 000 users or storing more than 1000 spaces) or mission-critical (which it could be with as few as 1000 users who use it all the time) you need one or more more load-testing environments.

Even if your system is working nicely for 20 000 users right now, it might take just another 2000 users to push it over the edge.

We recommend the following basic procedure:

- Set up an environment that closely resembles your production environment.
- Gather statistics from your production system.
- Regularly apply a similar kind of load (and slightly higher) to the load-testing environment.
- Analyse how well Confluence scales for your usage patterns.

The Confluence development team has load-testing scripts available which you can use to simulate load. You can also contact Atlassian Support for more details.

### Tuning

You may need to be able to tune your installation in the ways mentioned below.

#### Optimising your System

If you have large numbers of users, then downloading all the static content (CSS, default images, JavaScript-files) may result in a high additional load on the application server that can be offloaded to a caching web server.

Please refer to the following additional information:

- Our general Performance Tuning page.
- Information on configuring a large Confluence installation.

#### Limiting Third-Party Plugins

You may have to restrict the number of third-party plugins installed on your Confluence instance.

Most third-party plugins are not specifically written for high-load environments. What works fine in low-load environments could have unexpected and adverse effects when thousands of users are competing for your application server's CPU time or for database IO.

A common source of problems is access to database connections. If you have fewer users than database connections, it does not matter if an operation holds on to a database connection for two seconds while it downloads some data from the internet. With hundreds of concurrent users, this could quickly become a bottleneck.

Confluence itself is tested and optimised to handle high loads and avoids these kinds of problems. But if you install a number of plugins that have not been tested against high load, your system may become unstable.

We recommend that you load test the common use cases of each unofficial third-party plugin if your Confluence installation is mission critical. Only activate plugins that are vital to your business, and never allow experimental plugins onto your production
Selecting and Tuning your JVM

You should select your JVM carefully and you may need to be able to tune it.

The selection of the JVM for your large Confluence instance can have a huge impact on the performance perceived by the users. Between versions 1.4 and 6 of the Sun Java JVM there have been some impressive improvements in performance, especially under high concurrent load.

Here are some essential guidelines:

- Always run the most recent point release of your selected JVM.
- Where ever possible run the most recent major release from your selected JVM manufacturer. The Sun JVM version 6 is much faster than 1.4, especially under high loads.
- Tune your garbage collection algorithms. Experiment with different algorithms and settings to get the response times you desire in your environment. Here are some specific guidelines for Sun JVM in the Sun documentation:
  - Java 6
  - Java 5
  - Java 1.4

Customising Confluence to Optimise Performance

You may need to customise Confluence for performance reasons. Depending on your usage scenario, there may be ways to enhance Confluence performance that become necessary when you reach a certain level of usage.

Here are some things you might decide to do:

- Remove the display of the space list on the Dashboard. See Customising the Dashboard.
- Configure any search appliances or other crawlers which are configured to index the Confluence site:
  - These should be suitably rate limited.
  - Configure them to crawl only pages in the /display/ URL path, and only current versions of pages.

Please refer to our general Performance Tuning page for more details.

Related Topics

Performance Tuning
Configuring a Large Confluence Installation
Confluence Clustering Overview
Requesting Performance Support
Confluence Administrator’s Guide
Confluence Configuration Guide
Server Hardware Requirements Guide
Fix Out of Memory Errors by Increasing Available Memory

Performance Tuning

- Description
- Use the latest version of your tools
- Avoid swapping due to not enough RAM
- Careful about those other systems using the same infrastructure
- Choice of Database
- Database Connection Pool
- Database in general
- Database indexes
- Database Statistics and Query Analysers
- Cache Tuning
- Antivirus Software
- Enabling HTTP Compression
- Virtual Operating Systems
- Performance Testing
- Access logs
- Built-in Profiler
- Adjust Application Server Memory Settings
- Use A Web Server
- Parallel GC
- Troubleshoot possible memory leaks
- Some 3rd-party plugins were not written to scale to large enterprises’ needs

This document describes tuning your application for improved performance. It is not a guide for troubleshooting Confluence outages. Check Troubleshooting Confluence Hanging or Crashing for help if Confluence is crashing.

NEW: Garbage Collector Performance Issues
Description

Like any server application, Confluence may require some tuning as it is put under heavier use. We do our best to make sure Confluence performs well under a wide variety of circumstances, but there's no single configuration that is best for everyone's environment and usage patterns.

If you are having problems with the performance of Confluence and need our help resolving them, you should read Requesting Performance Support.

Use the latest version of your tools

Use the latest versions of your application servers and Java runtime environments. Newer versions are usually better optimized for performance. As an example, our internal performance tests show a 20% speed-up (when viewing pages under load) between Tomcat 6 on Java 6 vs Tomcat 5.5 on Java 5 out of the box.

Avoid swapping due to not enough RAM

Always watch the swapping activity of your server. If there is not enough RAM available, your server may start swapping out some of Confluence's heap data to your hard disk. This will slow down the JVM's garbage collection considerably and affect Confluence's performance. In clustered installations, swapping can lead to a Cluster Panic due to Performance Problems. This is because swapping causes the JVM to pause during Garbage Collection, which in turn can break the inter-node communication required to keep the clustered nodes in sync.

Careful about those other systems using the same infrastructure

It may sound tempting: Just have one powerful server hosting your database and/or application server, and run all your crucial programs on that server. If the system is set up perfectly, then you might be fine. Chances are however that you are missing something, and then one application's bug might start affecting other applications. So if Confluence is slow every day around noon, then maybe this is because another application is using the shared database to generate complicated reports at that time? Either make sure applications can't harm each other despite sharing the same infrastructure, or get these systems untangled, for example by moving them to separate instances that can be controlled better.

Choice of Database

The embedded database that is provided with Confluence is meant only to be used for evaluation, not for production Confluence sites. After the evaluation finishes, you will certainly need to switch to an external relational database management system. Beyond this, we do not recommend any particular RDBMS over another. We recommend using what you are familiar with, because your ability to maintain the database will probably make far more difference to what you get out of it than the choice of database itself.

Database Connection Pool

If load on Confluence is high, you may need more simultaneous connections to the database.

- If you are using JNDI data-sources, you will do this in your application server's configuration files.
- If you have configured Confluence to access the database directly, you will need to manually edit the hibernate.c3p0.max_size property in the confluence.cfg.xml file in your confluence.home directory. After you have changed the URL in this file, restart Confluence.

To assess whether you need to tune your database connection pool, take thread dumps during different times (including peak usage). Inspect how many threads have concurrent database connections.

Database in general

If Confluence is running slowly, one of the most likely cause is that there is some kind of bottleneck in (or around) the database.

The first item you should check is the "Database Latency" field in the System Information tab in the admin console.

<table>
<thead>
<tr>
<th>Database Connection Transaction Isolation</th>
<th>Head committed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Latency</td>
<td>0</td>
</tr>
</tbody>
</table>

The latency is calculated by sending a trivial request to the database, querying a table which is known to have only one column and one row. ("select * from CLUSTERSAFETY"). Obviously this query should be blazing fast, and return within 1 or 2 milliseconds. If the value displayed is between 3 and 5 milliseconds, you might already have an issue. If the value is above 10ms, then you definitely need to investigate and improve something! A few milliseconds may not sound so bad, but consider that Confluence sends quite a few database queries per page request, and those queries are a lot more complex too! High latency might stem from all sorts of problems (slow network, slow database, connection-pool contention, etc), so it's up to you to investigate. Don't stop improving until latency is below 2ms on average.
Obviously, latency is just the very first thing to look at. You may get zero latency and still have massive database problems, e.g. if your tables are poorly indexed. **So don't let a low latency fool you either.**

**Database indexes**

Especially if you have more than a few thousand active users, and all most obvious measures have been tried out but the database still seems to be under high load, you should consider engaging a database administrator (DBA) to tune the database specifically to the demands that your particular Confluence installation is placing on it. If you do not have a full-time DBA and can't even get one for temporary consulting, you may want to consult the database indexing advice that we have been gathering from customer reports and our own experience running and developing Confluence. The instructions on that page are for Oracle, but most of the indexes can be applied to (and will help with) any database.

(These database indexes are now created automatically when Confluence is installed, but existing installations upgrading to a more recent version may still need to add them manually)

**Database Statistics and Query Analysers**

Modern databases have query optimisers based on collecting statistics on the current data. Using the SQL EXPLAIN statement will provide you information on how well the query optimiser is performing. If the cost estimate is wildly inaccurate then you will need to run statistics collection on the database. The exact command will depend on your database and version. In most cases you can run statistics collection while Confluence is running, but due to the increased load on the database it's best to do this after normal hours or on a week-end.

**Cache Tuning**

To reduce the load on the database, and speed up many operations, Confluence keeps its own cache of data. Tuning the size of this cache may speed up Confluence (if the caches are too small), or reduce memory (if the caches are too big).

Please have a look at our documentation on Cache Performance Tuning for information on how to tune Confluence caches.

**Antivirus Software**

Antivirus software greatly decreases the performance of Confluence. Antivirus software that intercepts access to the hard disk is particularly detrimental, and may even cause errors with Confluence. You should configure your antivirus software to ignore the Confluence home directory, its index directory and any database-related directories.

**Enabling HTTP Compression**

If bandwidth is responsible for bottlenecks in your Confluence installation, you should consider **enabling HTTP compression**. This may also be useful when running an external facing instance to reduce your bandwidth costs. **⚠️** Take note of the known issues with HTTP compression in versions of Confluence prior to 2.8, which may result in high memory consumption.

**Virtual Operating Systems**

Virtual Environments such as VMWare can cause Confluence CPU to spike. Run Confluence on a native OS. Refer to the list of supported operating systems for Confluence in the Supported Platforms topic.

**Performance Testing**

You should try out all configuration changes on a demo system. Ideally, you should run and customize loadtests that simulate user behaviour. Learn about how to test performance issues using the Performance Testing Scripts.

**Access logs**

You can find out which pages are slow and which users are accessing them by enabling Confluence's built-in access logging.

**Built-in Profiler**

You can identify the cause of page delays using Confluence's built-in profiler according to Troubleshooting Slow Performance Using Page Request Profiling.

**Adjust Application Server Memory Settings**

See Fix Out of Memory Errors by Increasing Available Memory.
Use A Web Server

For high-load environments, performance can be improved by using a web server such as Apache in front of the application server. There is a configuration guide to Running Confluence behind Apache.

When configuring your new web server, make sure you configure sufficient threads/processes to handle the load. This applies to both the web server and the application server connector, which are typically configured separately. If possible, you should enable connection pooling in your web server connections to the application server.

Parallel GC

If you have multiple CPU's on your server, you can add -XX:+UseParallelOldGC to your JAVA_OPTS options. This will allow garbage collection of the Tenured Space to happen in parallel with the application and can boost performance and can reduce slow performance spikes. For more information, please refer to our detailed page on Garbage Collector Performance Issues, and Sun's summary of collectors.

Troubleshoot possible memory leaks

Some external plugins, usually ones that have been written a long time ago and that are not actively maintained anymore, have been reported to consume memory and never return it. Ultimately this can lead to a crash, but first this manifests as reduced performance. The Troubleshooting Confluence Hanging or Crashing guide is a good place to start. Some of the known causes listed there could result in performance issues short of a crash or hang.

Some 3rd-party plugins were not written to scale to large enterprises' needs

Confluence has been optimized to work under high load and with many pages. Some 3rd party plugins however have been written with small size companies in mind, and can't cope with large numbers of concurrent users, or large numbers of pages and permissions, or large numbers of spaces. It is impossible to tell which ones will fail under which conditions, but it will always help to turn off 3rd-party plugins that are not strictly mission-critical while investigating performance issues.

RELATED TOPICS

Garbage Collector Performance Issues
Cache Performance Tuning
Cache Performance Tuning for Specific Problems
Performance Testing Scripts
Working with Confluence Logs
Operating Large or Mission-Critical Confluence Installations
Confluence Clustering Overview
Requesting Performance Support
Confluence Administrator's Guide
Confluence Configuration Guide

Cache Performance Tuning

Confluence performance can be significantly affected by the performance of its caches. It is essential for the administrator of a large production installation of Confluence to tune the caches to suit its environment. There are several configurable parameters for each of the cache regions, most notably cache size, cache expiry delay and eviction policy. In the majority of the cases, cache size is the parameter you would want to change. Fortunately, from Confluence 3.0, it is very easy to adjust cache sizes through the Administration Console. However, if you need to modify parameters other than a cache size, you would need to modify the relevant configuration files manually.

If you only need to modify Confluence's maximum cache sizes, you can do this through the Cache Statistics feature of the Administration Console.

The cache performance information for your Confluence installation is available under Administration > Cache Statistics. More information about the numbers displayed here is available on Cache Statistics.

On this page:

- Cache tuning example
- Finding the configuration file
- Cache Key Mappings
- Standard Editions of Confluence
- Understanding the Ehcache Configuration File
- Converting your Coherence configuration to Ehcache
- Clustered Editions of Confluence
- Understanding the Coherence configuration file
- Defining Caching Scheme Mappings in Coherence Cache config file
- Important Caches
- Cache Tuning Follow-Up
Confluence 4.0 Documentation

Cache tuning example

As an example of how to tune Confluence's caches, let's have a look at the following table:

<table>
<thead>
<tr>
<th>Caches</th>
<th>% Used</th>
<th>% Effectiveness</th>
<th>Objects/Size</th>
<th>Hit/Miss/Expiry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachments</td>
<td>87%</td>
<td>29%</td>
<td>874/1000</td>
<td>78226/189715/187530</td>
</tr>
<tr>
<td>Content Attachments</td>
<td>29%</td>
<td>9%</td>
<td>292/1000</td>
<td>4289/41012/20569</td>
</tr>
<tr>
<td>Content Bodies</td>
<td>98%</td>
<td>81%</td>
<td>987/1000</td>
<td>28717/6671/5522</td>
</tr>
<tr>
<td>Content Label Mappings</td>
<td>29%</td>
<td>20%</td>
<td>294/1000</td>
<td>4693/18185/9150</td>
</tr>
<tr>
<td>Database Queries</td>
<td>96%</td>
<td>54%</td>
<td>968/1000</td>
<td>105949/86889/83334</td>
</tr>
<tr>
<td>Object Properties</td>
<td>27%</td>
<td>18%</td>
<td>279/1000</td>
<td>5746/25386/8102</td>
</tr>
<tr>
<td>Page Comments</td>
<td>26%</td>
<td>11%</td>
<td>261/1000</td>
<td>2304/17178/8606</td>
</tr>
<tr>
<td>Users</td>
<td>98%</td>
<td>5%</td>
<td>982/1000</td>
<td>6561/115330/114279</td>
</tr>
</tbody>
</table>

The caches above are of size 1000 (meaning that it can contain up to 1000 objects), which is the default size for caches in the default cache scheme. Refer to Confluence Cache Schemes for more explanation.

You can tell when a cache size needs to be increased because the cache has both:

- a high usage percentage (above 75%)
- a low effectiveness percentage.

Check the 'effectiveness' versus the 'percent used'. A cache with a low percent used need not have its size lowered; it does not use more memory until the cache is filled.

Based on this, the sizes of the "Attachments", "Database Queries", and "Users" caches should be increased to improve their effectiveness.

As the stored information gets older or unused it will expire and be eliminated from the cache. Cache expiry may be based on time or on frequency of use.

There is not much that you can do with a cache that has both a low percentage of usage and effectiveness. Over time, as the cache is populated with more objects and repeat requests for them are made, the cache's effectiveness will increase.

Finding the configuration file

The caches are configured in ehcache.xml (for standard editions) or confluence-coherence-cache-config-clustered.xml (for clustered editions) which is stored in /<confluence-home>/config/.

Oracle Coherence Licensing Change:
- Due to a license agreement change, Confluence is now available in two editions:
  - **Standard Edition** — Confluence with Ehcache's caching technology (available to customers with non-clustered Confluence licenses).
  - **Clustered Edition** — Confluence with Oracle's Coherence clustering and distributed caching technology (available to customers with Confluence clustered licenses only).

⚠️ If you are currently running a clustered installation of Confluence, please do not upgrade it with a standard edition of Confluence.

For more information about these changes, please refer to the Coherence License Changes document.
- If you have a Confluence clustered license, are running a clustered installation of Confluence and wish to upgrade to Confluence version 2.6 or later, please ensure that you download only a clustered edition of Confluence and please refer to the Confluence 3.0.1 Upgrade Notes for additional upgrade information.

Cache Key Mappings

The cache configuration file configures caches by their keys. When you move your mouse over the the cache names displayed on
the cache statistics page, a tooltip will indicate the actual cache key for that cache name.

Using our example from the table above, if we were to modify parameters for the Users cache we would need to change the cache with the key com.atlassian.user.impl.hibernate.DefaultHibernateUser. Do not get confused with Users (External Mappings) and Users (External Groups) which are in themselves, two separate caches. “Users” is the friendly name for com.atlassian.user.impl.hibernate.DefaultHibernateUser.

Standard Editions of Confluence

In standard editions of Confluence, the caching layer is Ehcache.

Understanding the Ehcache Configuration File

For more information about the Ehcache configuration file and a full reference on Ehcache configuration, please refer to the Ehcache configuration documentation.

Converting your Coherence configuration to Ehcache

This section only applies to customers who:

- Have an installation of Confluence that was downloaded before the 4th of September 2009.
- Intend to (or have already) upgraded to Confluence 3.0.1 or later (or to Confluence versions 2.6.3, 2.7.4, 2.8.3, 2.9.3 and 2.10.4).
- Will use a non-clustered Confluence license for the Confluence upgrade.
- Have implemented customisations to their Confluence installation’s cache configuration file (confluence-coherence-cache-config.xml).

To maintain your existing cache configuration file settings, you will need to transfer any cache customisations you have implemented in the Coherence cache configuration file (confluence-coherence-cache-config.xml) to the relevant entries in the Ehcache cache configuration file (ehcache.xml).

Each cache has a cache-mapping element in the Coherence file (of which there is an equivalent cache element in the ehcache.xml file). Unfortunately, copying across your customisations is not quite a straightforward process because the Coherence file defines several ‘caching schemes’ to store the actual cache values, which in turn are referenced by the cache-mapping elements. In contrast, the ehcache.xml file does not support caching schemes and a cache’s values are expressed explicitly in separate parameters of a cache element.

To convert your Coherence cache configuration file customisations across to the equivalent Ehcache file:

1. Open both the confluence-coherence-cache-config.xml and ehcache.xml files in a text editor. These files are located in the <confluence-home>/config directory. It is likely that you will find the confluence-coherence-cache-config.xml file in the <confluence-install>/confluence/WEB-INF/classes directory.

2. In the customised confluence-coherence-cache-config.xml file:
   a. Identify the caching schemes that were customised in this file and make a note of the values of all its child elements.
   b. Typically, each caching scheme is located inside a local-scheme element and all of these are enclosed within the cache-schemes element, which appears towards the end of this file. Note each customised caching scheme by the content of its scheme-name element.
   c. For each cache-mapping element (which typically appears towards the top of this file), identify if it has a scheme-name element whose content matches one noted in the previous step and if so, make a note of its associated cache-name element.

3. In the ehcache.xml file:
   a. Identify each cache element whose ‘name’ parameter matches the cache-name elements noted in step ‘2c’.
   b. Using the mappings table below, apply the values noted in step ‘2a’ to the appropriate parameters of the cache elements identified in the previous step (‘3a’).

Mappings table showing how elements of the Coherence cache configuration file map to parameters of the equivalent Ehcache file.
Coherence Element | Ehcache Attribute
--- | ---
high-units | maxElementsInMemory
expiry-delay > 0s | timeToIdleSeconds - Use this attribute for expiry delays greater than 0s along with the eternal attribute set to 'false'
expiry-delay = 0s | eternal - For expiry delays of 0s, set this attribute to 'true'.

Clustered Editions of Confluence

**Understanding the Coherence configuration file**

The Coherence configuration file is a mapping of cache keys to cache schemes. Each cache scheme controls the expiry, eviction policy and size of the caches linked to it. A cache scheme can extend another scheme.

For a full reference, see the Oracle’s Coherence cache configuration documentation.

**Defining Caching Scheme Mappings in Coherence Cache config file**

If a cache key does not have an explicit definition in the caching scheme mappings (defined in confluence-coherence-cache-config.xml) then it will use the "default" cache-mapping.

In our example, com.atlassian.user.impl.hibernate.DefaultHibernateUser is not explicitly defined in the caching scheme mappings. Hence to increase the expiry-delay to 2 hours, we will need to define the mapping ourselves and add the following within the `<caching-scheme-mapping>` tags:

```xml
<cache-mapping>
  <cache-name>com.atlassian.user.impl.hibernate.DefaultHibernateUser</cache-name>
  <scheme-name>cache:com.atlassian.user.impl.hibernate.DefaultHibernateUser</scheme-name>
</cache-mapping>
```

Then we will need to define a cache schema with name cache:com.atlassian.user.impl.hibernate.DefaultHibernateUser within `<caching-schemes>` tags.

```xml
<local-scheme>
  <scheme-name>cache:com.atlassian.user.impl.hibernate.DefaultHibernateUser</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>10000</high-units>
  <expiry-delay>7200</expiry-delay>
</local-scheme>
```

It's possible to define a local-scheme mapping for a cache key without defining certain parameters (e.g. `<high-units>`). In such a cases, their parameters will be inherited from scheme-ref scheme, which is the default scheme in our case.

**Important Caches**

The following suggestions are general guidelines. In cases of large databases, 20-30% of the size of the table may be unnecessarily large. Check the effectiveness and Percent Used categories in the cache for more specific assessments.

- com.atlassian.confluence.core.ContentEntityObject (known as Content Objects cache) should be set to at least 20-30% of the number of content entity objects (pages, comments, emails, news items) in your system. To find the number of content entity objects, use the query `select count(*) from CONTENT where prevver is null`.
- com.atlassian.confluence.core.ContentEntityObject.bodyContents (known as Content Body Mappings cache)
should be set to at least 20% of the number of content entity objects (pages, comments, emails, news items) in your system. To find the number of content entity objects, use the query `select count(*) from CONTENT where prevver is null`.

- `com.atlassian.confluence.security.PermissionCheckDispatcher.isPermitted()` (known as User Authorized URLs cache) should be set to at least the number of concurrent users you expect to access Confluence at the same time.
- `com.atlassian.user.impl.hibernate.DefaultHibernateUser` (known as User cache) should be set to the number of users you have: `select count(*) from users`. Note that by default, this will also control the LDAP user's cache, including expiration.
- `com.atlassian.confluence.security.SpacePermission` (known as Permissions cache) should be set to the number of space permissions in your deployment (a good rule of thumb is 20 times the number of spaces). You can find the number of space permissions using the query `select count(*) from SPACEPERMISSIONS`.

**Cache Tuning Follow-Up**

After you have made changes to your cache config, doing a follow up on the changes in the next week or after the expected performance spike would be important.

Make sure that you take a screenshot of the cache statistics before and after the change. Then compare them with the cache statistics in the later period where performance improvement is expected.

You can monitor what's in the cache by using a JSP included in the Confluence distribution. Browse to `<base-URL>/admin/cachecontents.jsp` to monitor the cache contents.

**RELATED TOPICS**

- Cache Performance Tuning for Specific Problems
- Confluence Cache Schemes
- Performance Testing Scripts
- Working with Confluence Logs
- Operating Large or Mission-Critical Confluence Installations
- Confluence Clustering Overview
- Requesting Performance Support
- Confluence Administrator's Guide
- Confluence Configuration Guide

**Cache Performance Tuning for Specific Problems**

The following are more specific performance problems that can be resolved from tuning the cache.

**LDAP cache sizes and expiry does not appear to be picked up.**

This is a known problem, please refer to CONF-11858 for the solution.

**"Edit Page" screen takes a long time to load**

If your installation of Confluence is suffering from this problem, it may be due to an insufficient SpacePermissions cache size. To address this problem, first determine the number of space permission objects in your Confluence instance. You can do this by running this query against your database:

```
> select count(*) from SPACEPERMISSIONS
```

Now locate the cache entry for SpacePermissions in your `confluence-coherence-cache-config.xml`:

```
<local-scheme>
  <scheme-name>cache:com.atlassian.confluence.security.CachingSpacePermissionManager.permissions</scheme-name>
  <scheme-ref>default</scheme-ref>
    <high-units>10000</high-units>
    <expiry-delay>0s</expiry-delay>
</local-scheme>
```

Adjust the `maxElementsInMemory` or `high-units` property to the number of space permissions you have (in the example above, I've used 10000). Also, just as important, you need to adjust the `timeToLiveSeconds` or `expiry-delay` property to 0.

**Note:** 10K of space permissions consumes approximately 8MB of memory. Please ensure there is enough memory allocated to your instance to cater for this.
How to set specific cache settings

1. Find the cache name from the cache name mappings:
   - For Confluence 2.5.x and earlier, the cache name mappings are in file
     confluence/WEB-INF/classes/com/atlassian/confluence/admin/actions/cache-name-mappings.
   
   - For Confluence 2.6.0 and later, you will find the cache name mappings in the file
     com/atlassian/confluence/core/ConfluenceActionSupport.properties
     which is packed into the confluence-2.x.*.jar file.

2. Find the appropriate `<cache-mapping>` tag in confluence-coherence-cache-config.xml or
   confluence-coherence-cache-config-clustered.xml. If the tag doesn't exist, you can create it within the
   `<caching-scheme-mapping>` tag.

   Attached to this page are corrected copies of confluence-coherence-cache-config.xml and
   confluence-coherence-cache-config-clustered.xml. These are updated from a bug CONF-11857.

3. The `<scheme-name>` will correspond to a `<local-scheme>` tag below. It refers to a scheme reference. Either change the
   high-units tag in the scheme reference, or add a high-units tag to override the scheme reference. For example, the following
   tag would change the Content Bodies cache from the default 1000 units to 2000 units:

   ```
   <local-scheme>
   <scheme-name>cache:com.atlassian.confluence.core.ContentEntityObject.bodyContents</scheme-name>
   <high-units>2000</high-units>
   <scheme-ref>default</scheme-ref>
   <expiry-delay>0s</expiry-delay>
   </local-scheme>
   ```

   Another popular cache to change is the LDAP related User cache:

   ```
   <local-scheme>
   <scheme-name>user</scheme-name>
   <scheme-ref>default</scheme-ref>
   <high-units>5000</high-units>
   <expiry-delay>300s</expiry-delay>
   </local-scheme>
   ```

4. After updating the appropriate file, you do not need to repack it into the jar to use it. You can simply place the file in your
   confluence/WEB-INF/classes/ directory. The file in this directory will override the settings in your jar file. If you want to
   back out the changes, you only need to remove the file from your confluence/WEB-INF/classes/ directory — then the
   default values in the confluence-coherence-cache-config.xml located in your jar file will apply.

   You can find more information about configuring the Coherence cache in the Coherence cache documentation.

**RELATED TOPICS**

- Cache Performance Tuning
- Performance Testing Scripts
- Confluence Cache Schemes
- Working with Confluence Logs
- Operating Large or Mission-Critical Confluence Installations
- Confluence Clustering Overview
- Requesting Performance Support
- Confluence Administrator’s Guide
- Confluence Configuration Guide

**Confluence Cache Schemes**

**Default Scheme**

If a cache has not been defined, then it will use the default cache size and expiry. As the start of your
confluence/WEB-INF/classes/confluence-coherence-cache-config.xml file you will notice the following:

```
<cache-mapping>
 <scheme-name>*</scheme-name>
 <cache-name>*</cache-name>
 <cache-name>default</cache-name>
 </cache-mapping>
```

So basically all caches will default to using the default scheme, which is defined as below:
<!-- Default scheme -->
<local-scheme>
  <scheme-name>default</scheme-name>
  <class-name>com.atlassian.confluence.cache.tangosol.ExpiryCountingLocalCache</class-name>
  <high-units>1000</high-units>
  <expiry-delay>3600</expiry-delay>
</local-scheme>

I.e. with a size of 1000 Objects and an expiry of 3600 seconds. Other schemes use the above as their default and either override the size of the cache, or the length of the expiry.

**Common Schemes**

In addition to the default scheme, there are also common schemes used in Confluence caches:

<!-- Common schemes -->
<local-scheme>
  <scheme-name>large</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>10000</high-units>
</local-scheme>
<local-scheme>
  <scheme-name>medium</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>5000</high-units>
</local-scheme>
<local-scheme>
  <scheme-name>small</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>100</high-units>
</local-scheme>
<local-scheme>
  <scheme-name>large-transient</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>10000</high-units>
  <expiry-delay>300s</expiry-delay>
</local-scheme>
<local-scheme>
  <scheme-name>user</scheme-name>
  <scheme-ref>default</scheme-ref>
  <high-units>5000</high-units>
  <expiry-delay>300s</expiry-delay>
</local-scheme>

**RELATED TOPICS**

- Cache Performance Tuning
- Confluence Cache Schemes
- Cache Performance Tuning for Specific Problems
- Requesting Performance Support
- Confluence Administrator’s Guide
- Confluence Configuration Guide

**Memory usage and requirements**

Managing Confluence’s performance and memory usage really depends on what resources are available - Confluence will run faster if you give it lots of memory for its caches, but it should still be able to run quite well in low-memory environments, with the right tuning. Below are some tips on getting the most out of your Confluence site:

- Increasing the amount of memory available to Confluence
- Embedded Database
- Caching
- Mail error queue
- Attachments
- System backup / restore
- Known issues that we do not have control over.
- Confluence is taking long periods of time to respond to some actions
Increasing the amount of memory available to Confluence

See Increasing JIRA Memory for details on how to increase the memory available to web application servers typically used to run Confluence.

Embedded Database

The embedded HSQL database that comes with Confluence essentially holds all your data in memory while the Confluence server is running. If you are running out of memory, you should consider migrating Confluence to some external RDBMS.

Caching

By default, Confluence keeps large in-memory caches of data to improve its responsiveness and the user experience. The trade off is an increase in memory requirements to support the cache. Administrators of larger Confluence sites may need to configure the size of their caches to improve performance.

To customise Confluence's cache to meet your needs, see cache tuning. To increase the amount of memory available to confluence, see Fix Out of Memory Errors by Increasing Available Memory.

Mail error queue

Confluence keeps a copy of all emails that it failed to send within an internal error queue. In the event of intermittent failures such as network connectivity issues, the emails in this queue can be manually resent when the problem is fixed. Under certain circumstances, the mail queue can fill up with large objects. The queue is regularly flushed, but if you get a lot of mail errors, you might get a spike in memory usage.

Attachments

The indexing of large attachments requires that the attachment be loaded into memory. In the case of large attachments, this can cause a temporary strain on the systems resources, and may result in indexing failing because the attachment could not be fully loaded into memory.

System backup / restore

The Confluence backup and restore process scales linearly with the size of data. This can have a significant impact on large Confluence instances where the amount of data exceeds the amount of available memory. If you are experiencing an OutOfMemoryError during either a backup or restore processes, then we strongly recommend that you choose and Production Backup Strategy.

If you encounter an OutOfMemoryError while restoring a backup and wish to overcome this issue by increasing memory, how much more will you need to make this process work? A good rule of thumb is to have a look at the size of the entities.xml file in your backup. This file contains all of the data Confluence will be loading, so at least that much is required. Add another 64-128Mb to ensure that Confluence has enough memory to load and function that should be enough. To increase the amount of memory available to Confluence, see Fix Out of Memory Errors by Increasing Available Memory.

Known issues that we do not have control over.

There are also some memory issues we don't have any control over. For example,

- There's a memory leak in the Oracle 10g JDBC drivers. Not much we can do about that.
- one customer found a rather nasty memory leak that appeared to originate inside Tomcat 5, but only using the IBM JDK on PowerPC.

If you are having problems that appear to result from a memory leak, file an issue on http://support.atlassian.com. Our memory profiler of choice is YourKit. It would be helpful to us if you can provide us with a memory dump from that tool showing the leak.

Confluence is taking long periods of time to respond to some actions

A common cause of random pauses in Confluence is the JVM running garbage collection. To determine if this is what is happening, enable verbose garbage collection and look at how long Java is taking to free up memory. If the random pauses match when Java is running its garbage collection, garbage collection is the cause of the pause.

Verbose garbage collection will generate log statements that indicate when Java is collecting garbage, how long it takes, and how much memory has been freed.


For example, with a Windows service, run:

```
tomcat5 /US//Confluence ++JvmOptions="-XX:+PrintGCDetails -XX:+PrintGCTimeStamps -verbose:gc -Xloggc:c:\confluence\logs\gc.log"
```
or in bin/setenv.sh, set:

```
export CATALINA_OPTS="$CATALINA_OPTS -XX:+PrintGCDetails -XX:+PrintGCTimeStamps
-verbose:gc -Xloggc:$CATALINA_BASE/logs/gc.log"
```

If you modify bin/setenv.sh, you will need to restart Confluence for the changes to take effect.

What can you do to minimise the time taken to handle the garbage collection? See [http://java.sun.com/docs/hotspot/gc1.4.2/](http://java.sun.com/docs/hotspot/gc1.4.2/) for details on tuning the JVM to minimise the impact that garbage collection has on the running application.

### Requesting Performance Support

#### Basic Performance Troubleshooting Steps

Begin with the following procedures:

1. Go through the Troubleshooting Confluence Hanging or Crashing page to identify the major known performance problems
2. Proceed with the Performance Tuning tips to help optimize performance

#### Requesting Basic Performance Support

If those tips don’t help or you’re not sure where to start, open a support ticket starting with at least the basic information:

1. The `atlassian-confluence.log`
2. The `catalina.out` log (or your application server log), with a series of three thread dumps separated by 10 seconds
3. A description with as much detail as possible regarding:
   a. What changes have been made to the system?
   b. When did performance problems begin?
   c. When in the day do performance issues occur?
   d. What pages or operations experience performance issues?
   e. Is there a pattern?

Continue with as much of the Advanced Performance Troubleshooting information as you can.

#### Advanced Performance Troubleshooting

Please gather all of the information listed below and include it in your support request, even if you think you have a good idea what's causing the problem. That way we don’t have to ask for it later.

#### System Information

**Confluence Server**

- Take a screenshot of Confluence's Administration System Information (or save the page as HTML)
- Take a screenshot of Confluence's Administration Cache Statistics (or save the page as HTML)
- Find out the exact hardware Confluence is running on
  - How many CPUs? What make and model? What MHz?
  - How much memory is installed on the machine?
  - How much memory is assigned to Confluence’s JVM? (i.e. what are the -Xmx and -Xms settings for the JVM?)
  - What other applications are being hosted on the same box?

**Confluence Content**

- How many users are registered in Confluence?
- On average, to how many groups does each user belong?
- How many spaces (global and personal) are there in your Confluence server?
- How many of those spaces would be viewable by the average user?
- Approximately how many pages? (Connect to your database and perform `SELECT count(*) FROM content WHERE prevver is null AND contenttype = 'PAGE'`)
- How much data is being stored in Bandana (where plugins usually store data)? (Connect to your database and perform `SELECT count(1), SUM(length(bandanavalue)) FROM bandana`)

**The Database**

- What is the exact version number of Confluence’s database server?
- What is the exact version number of the JDBC drivers being used to access it? (For some databases, the full filename of the driver JAR file will suffice)
- Is the database being hosted on the same server as Confluence?
- If it is on a different server, what is the network latency between Confluence and the database?
- What are the database connection details? How big is the connection pool? If you are using the standard configuration this information will be in your `confluenceCfg.xml` file. Collect this file. If you are using a Data source this information will be stored in your application server’s configuration file, collect this data.
**User Management**

- Are you using external user management or authentication? (i.e. JIRA or LDAP user delegation, or single sign-on)
- If you are using external JIRA user management, what is the latency between Confluence and JIRA’s database server?
- If you are using LDAP user management:
  - What version of which LDAP server are you using?
  - What is the latency between Confluence and the LDAP server?

**Diagnostics**

**Observed Problems**

- Which pages are slow to load?
  - If it is a specific wiki page, attach the wiki source-code for that page
- Are they always slow to load, or is the slowness intermittent?

**Monitoring data**

Before drilling down into individual problems, helps a lot to understand the nature of the performance problem. Do we deal with sudden spikes of load, or is it a slowly growing load, or maybe a load that follows a certain pattern (daily, weekly, maybe even monthly) that only on certain occasions exceeds critical thresholds? It helps a lot to have access to continuous monitoring data available to get a rough overview.

Here are sample graphs from the confluence.atlassian.com system, showing

**Load**

This graph shows the load for two consecutive days. The obvious pattern is that the machine is under decent load, which corresponds to the user activity, and there is no major problem.

**Resin Threads and Database Connections**

These two charts show the active threads in the application server (first chart) and the size database connection pool (second chart)

As you can see, there was a sudden spike of server threads and a corresponding spike of db-connections.
The database connection pool size

The database connection pool size peaked over 112, which happened to be more than the maximum number of connections the database was configured for (100). So it was no surprise that some requests to Confluence failed and many users thought it had crashed, since many requests could not obtain the crucial database connections.

We were able to identify this configuration problem quite easily just by looking at those charts. The next spikes were uncritical because more database connections were enabled.

The bottom line being: it helps a lot to monitor your Confluence systems continuously (we use Hyperic, for example), and it helps even more if you are able to send us graphs when you encounter problems.

**Access logs**

- How to audit Confluence - enabling user access logging, including redirecting the logs to a separate file
- You can run this file through a log file analyser such as AWStats, or manually look through for pages which are slow to load.

**Profiling and Logs**

- Enable Confluence's built-in profiling for long enough to demonstrate the performance problem using Troubleshooting Slow Performance Using Page Request Profiling.
  - If a single page is reliably slow, you should make several requests to that page
  - If the performance problem is intermittent, or is just a general slowness, leave profiling enabled for thirty minutes to an hour to get a good sample of profiling times
- Find Confluence's standard output logs (which will include the profiling data above). Take a zip of the entire logs directory.
- Take a thread dump during times of poor performance

**CPU Load**

- If you are experiencing high CPU load, please install the YourKit profile and attach two profiler dumps taken during a CPU spike. If the CPU spikes are long enough, please take the profiles 30-60 seconds apart. The most common cause for CPU spikes is a virtual machine operating system.
- If the CPU is spiking to 100%, try Live Monitoring Using the JMX Interface, in particular with the Top threads plugin.

**Instance Metrics and Scripts**

- It is essential to understand the user access and usage of your instance. Please use the access log scripts and sql scripts to generate Usage statistics for your instance.

**Next Step**

Open a ticket on https://support.atlassian.com and attach all the data you have collected. This should give us the information we need to track down the source of your performance problems and suggest a solution. Please follow the progress of your enquiry on the support ticket you have created.

If your site is non-responsive, please use our Live Support during business hours once you have created the ticket to escalate your problem.

**Access Log Scripts**

The access log scripts are attached to this page. To use the scripts:

1. Unzip the 7z file.
2. Copy all the daily access logs to a folder called logs.
3. Run `Atlassian-processDailyLog.rb`. This will generate a csv file called `summary.csv` and several directories which contain the access logs of each defined user action.
4. Run the appropriate script `Atlassian-processDailyLog-hourly.rb` <admin/comment/create/edit/search/rss>. Each script will generate a different csv file. For example, `Atlassian-processDailyLog-hourly.rb admin` will process the admin logs extracted in step 3.
5. Import the csv files to `www-log-Analysis.xls` (summary.csv to 'raw stats - daily' sheet and admin.csv to 'admin-hours' sheet, etc) to generate the load profiles and graphs. You may need to modify the number of rows in each sheet depending on the number of logs.

Note

All scripts are written in Ruby and assume the log file name contains the string 'confluence.atlassian.com-access.log'. Scripts need to be changed if another name is used. Modify the line:

```ruby
filenameRegexp = Regexp.new('confluence.atlassian.com-access.log')
```

Troubleshooting Slow Performance Using Page Request Profiling

This page tells you how to enable page-request profiling. With profiling turned on, you will see a record of the time it takes (in milliseconds) to complete each action made on any Confluence page. If Confluence is responding slowly, an internal timing trace of the slow page request can help to identify the cause of the delay.

You will need access to the Confluence server to view a profile.

In this page:

- Enabling Page-Request Profiling
- Profiling an Activity
- Example of a Profile
- Start Confluence with Profiling Enabled

Enabling Page-Request Profiling

To see just the slow performing macros, see Identifying Slow Performing Macros.

From Confluence 2.7, you can use the 'Logging and Profiling' option to enable or disable profiling.

You need to have System Administrator permissions in order to perform this function.

To enable page profiling,

1. Go to the 'Administration Console' and click 'Logging and Profiling' in the 'Administration' section of the left-hand panel.
2. The 'Logging and Profiling' screen appears. Click the 'Enable Profiling' button.
   
   If profiling is already enabled, the button will be labelled 'Disable Profiling' instead.

To disable page profiling,

1. Go to the 'Administration Console' and click 'Logging and Profiling' in the 'Administration' section of the left-hand panel.
2. The 'Logging and Profiling' screen appears. Click the 'Disable Profiling' button.
   
   If profiling is already disabled, the button will be labelled 'Enable Profiling' instead.
Profiling an Activity

### Performance Profiling

Profiling is currently OFF.

[Enable Profiling]

### SQL Logging

[Enable SQL Logging]

### Log4j Logging

Choose from one of the predefined logging options or configure logging below.

[Production]  [Diagnostic]

OR:

Customise specific logging settings

#### Add New Entry

<table>
<thead>
<tr>
<th>Class/Package Name</th>
<th>New Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INFO</td>
</tr>
</tbody>
</table>

#### Existing Levels

<table>
<thead>
<tr>
<th>Class/Package Name</th>
<th>Current Level</th>
<th>New Level</th>
<th>Remove</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.atlassian.confluence.cluster</td>
<td>INFO</td>
<td>INFO</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.confluence.cluster.safety</td>
<td>INFO</td>
<td>INFO</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.confluence.importexport.impl.PdfExporter</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.confluence.lifecycle</td>
<td>INFO</td>
<td>INFO</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.confluence.upgrade</td>
<td>INFO</td>
<td>INFO</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.core.FileUtil</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>com.atlassian.upgrade</td>
<td>INFO</td>
<td>INFO</td>
<td>Remove</td>
</tr>
<tr>
<td>net.sf.hibernate.cache.ReadWriteCache</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>net.sf.hibernate.impl.SessionImpl</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>net.sf.hibernate.type.CustomType</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>net.sf.hibernate.util.JDBCExceptionReporter</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>org.apache.fop</td>
<td>ERROR</td>
<td>ERROR</td>
<td>Remove</td>
</tr>
<tr>
<td>root</td>
<td>WARN</td>
<td>WARN</td>
<td>Remove</td>
</tr>
</tbody>
</table>

[Add entry]  [Save]
1. **Enable profiling, using either of the methods described above.**
   Profiles for every page hit, for all users, will now be logged to your application server's default logs until Confluence is restarted. Note that each time a user visits a link, a single profile is printed.

2. **Confirm that profiles are being written to the Confluence log file — see Working with Confluence Logs for location of the log files and other details.**

3. **Perform the activity that is resulting in unusually slow response time.**

4. **Copy the profile for that action. When deciding which profiles to copy, look for the links that took a long time to respond. If a single page is slow, only that profile is necessary. If Confluence is generally or intermittently slow, copy all profiles logged during the slowdown until a reasonable sample has been collected.**

5. **If you were instructed to profile your instance by Atlassian technical support, attach all relevant profiles to your support ticket.**

6. **Turn profiling off again, using either of the methods described above.**

7. **Confirm that profiles are no longer being printed to the Confluence log file.**

### Example of a Profile

Below are the first few lines of a normal profile for accessing a page called Confluence Overview.

```
[344ms] - /display/ds/Confluence+Overview
[313ms] - XW Interceptor: Before defaultStack: /pages/viewpage.action
(ViewPageAction.execute())
[0ms] - SpaceAwareInterceptor.intercept()
[16ms] - PageAwareInterceptor.intercept()
[0ms] - AOP: PageManager.getPage()
[16ms] - AOP: PermissionManager.hasPermission()
[0ms] - AOP: SpacePermissionManager.hasPermission()
[16ms] - AOP: SpacePermissionManager.hasPermission()
[0ms] - AOP: SpacePermissionManager.hasPermission()
[0ms] - AOP: SpacePermissionManager.hasPermission()
[281ms] - XW Interceptor: After defaultStack: /pages/viewpage.action
(ViewPageAction.execute())
```

### Start Confluence with Profiling Enabled

There may be some situations where you may wish to have Confluence profiling enabled during startup. This may be useful if you restart often and may forget to enable profiling for Support/Trouble-shooting purposes.

Edit the file `WEB-INF/web.xml`. You should see a stanza similar to the one below. Set the parameter value for `autostart` to `true`:

```
<filter>
    <filter-name>profiling</filter-name>
    <filter-class>com.atlassian.core.filters.ProfilingAndErrorFilter</filter-class>
    <init-param>
        <!-- specify the whether to start the filter automatically -->
        <param-name>activate.param</param-name>
        <param-value>true</param-value>
    </init-param>
</filter>
```

Remember to turn it back to `false` or your logs will grow very large.

### RELATED TOPICS

- Requesting Performance Support
- Working with Confluence Logs

**Compressing an HTTP Response within Confluence**
Confluence supports HTTP GZip transfer encoding. This means that if a user's web browser supports it, Confluence will compress the data it sends to the user. This will speed up Confluence over slow or congested Internet links, and reduce the amount of bandwidth consumed by a Confluence server.

Gzipping the HTTP Response is available in Confluence 1.4 and later.

You should turn on Confluence's GZip encoding if:

- Users are accessing Confluence over the Internet, or a WAN connection with limited bandwidth.
- You wish to reduce the amount of data transfer between the Confluence server and client.

If you are accessing Confluence over a Local Area Network or over a particularly fast WAN, you may wish to leave GZip encoding disabled. If the network is fast enough that transferring data from Confluence to the user isn't a limiting factor, the additional CPU load caused by having to compress each HTTP response may in fact slow Confluence down.

**Known issues in Confluence 2.7 and earlier**

There are known issues with the GZip filter and memory consumption evident in versions 2.7 of Confluence and earlier (CONF-9930). If you are running a large instance of Confluence 2.7 or earlier and frequently experiencing 'out of memory' errors, we recommend that you do not enable HTTP compression. These issues have been resolved in Confluence 2.8.

**Enabling HTTP Compression**

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'General Configuration' in the left-hand panel.
3. Enable 'Compress HTTP Responses'.

In Confluence 2.8 and later, you can configure which types of content are compressed within Confluence. By default, the following mime types will be compressed:

- text/html
- text/javascript
- text/css
- text/plain
- application/x-javascript
- application/javascript

If you wish to change the types of content to be compressed, add a replacement urlrewrite-gzip-default.xml file within the WEB-INF/classes/com/atlassian/gzipfilter/ directory in your Confluence installation directory. A sample file is provided as an attachment. Generally speaking, it is unlikely that you will need to alter this file.

**RELATED TOPICS**

Performance Tuning
Confluence Administrator's Guide

**Performance Testing Scripts**

**Load Testing Confluence**

This page contains scripts and hints on load-testing your Confluence installations.

**Contents**

**Introduction**

Before making a new Confluence instance available to your users it is useful to get a feel for how it will perform under your anticipated load and where you may need to consider improving your configuration to remove bottlenecks. Likewise, before making changes to your Confluence instance it would again be useful to assess the impact of these changes before making them live in a production context.

This kind of testing is not an exact science but the tools and process described here are intended to be a straightforward, configurable and extensible way of allowing you to begin this kind of load testing.

It will rarely be the case that these scripts will perform representative testing for you 'out of the box'. But either through configuration or by extending the scripts it should be possible to build an appropriate load test.
Load testing scripts are not designed for a production environment

The load testing scripts will update the data within the targeted Confluence instance and are not designed to be run against a production server. If you want to load test your production environment you will need to perform these tests on a backup of your data and restore your real data after the tests.

Setup

You will need the following -

- A Confluence server, set up and running with an admin user. The scripts assume a default username and password for this user: "admin''admin''.
- Ensure the Confluence Remote API is enabled in the administration options. See Enabling the Remote API for details on how to configure this.
- Apache JMeter
- The load testing scripts and resources which are available in our public Maven repository — Please choose the version that most closely matches your Confluence version and download the ZIP or Gzip file in that directory. If in doubt, download the ZIP file archive.

See Enabling the Remote API

Users have reported problems when using the Windows built-in unzip utility. Please use a third party file archiving and extraction program (for example, 7-Zip) to extract these performance tests.

The test scripts have been updated to work with Confluence 3.4 in version 3.4. Using an older version of the tests will result in errors when running the test.

Quick, Just Tell Me How To Run It.

If you don't want to read the rest of this document, here are the main points:

1. Download and Unzip the performance tests
2. Open a command prompt and change directory to the performanceTest directory that has just been unzipped.
3. Create the test data:

   `<jmeter location>/bin/jmeter -n -t jmeter-test-setup.jmx -Jspace.zip=<path to a demo space ZIP file> -Jadmin.user=<username> -Jadmin.pass=<password>`

4. Run the 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 manual

Creating the Test Data

A known data set is required to run the testing against. By default this is the Confluence demo space (space key = DS) although this can be changed (more on this later). If you decide to use the Confluence demo space, ensure that the group "confluence-users" is able to update content in this space.

The script `jmeter-test-setup.jmx` is used to:

- create a set of users to be used in the test
- import the Confluence demo space for running tests against.

You should first ensure that you don't already have the demo space (key = DS) on your test instance. Delete it if you do.

Run the script from the performanceTest directory as follows:
<jmeter location>/bin/jmeter -n -t jmeter-test-setup.jmx -Jspace.zip=<path to a space export.zip>-Jadmin.user=<username> -Jadmin.pass=<password>

Where:

- `<path to a space export.zip>` is the absolute path to the space export zip you want to be used in your testing. For example, the path to `demo-site.zip` as found in your Confluence distribution or source: `<confluence install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup/demo-site.zip`
- `<username>` and `<password>` are the username and password for an admin user that is able to create Confluence users and to import spaces.

By default the setup process will create 250 users — 50 each of the following formats: `tstreader<n>`, `tstcommentor<n>`, `tsteditor<n>`, `tstcreator<n>` and `tstsearcher<n>`. The password for each matches the username.

A typical run of the setup script will only take a few seconds.

### Removing the Test Data

You can reverse the effects of the setup script by setting the `remove.data` parameter to `true`, e.g.

```
<jmeter location>/bin/jmeter -n -t jmeter-test-setup.jmx -Jremove.data=true -Jadmin.user=<username> -Jadmin.pass=<password>
```

### Setup Script Parameters

You can modify the behaviour of the setup script via JMeter parameters. These are supplied on the command line in the form `-J<parameter name>=<parameter value>`.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>script.base</td>
<td>.</td>
<td>The absolute path to the script. Defaults to the current working directory.</td>
</tr>
<tr>
<td>space.zip</td>
<td>N/A</td>
<td>The absolute path to space export zip file to be imported as test data.</td>
</tr>
<tr>
<td>remove.data</td>
<td>false</td>
<td>Run the script in reverse — remove all test data.</td>
</tr>
<tr>
<td>admin.user</td>
<td>admin</td>
<td>The admin user name used to import data and create users.</td>
</tr>
<tr>
<td>admin.pass</td>
<td>admin</td>
<td>The password for the admin user.</td>
</tr>
<tr>
<td>confluence.context</td>
<td>confluence</td>
<td>The confluence webapp context.</td>
</tr>
<tr>
<td>confluence.host</td>
<td>localhost</td>
<td>The address or host name of the test instance.</td>
</tr>
<tr>
<td>confluence.port</td>
<td>8080</td>
<td>The port of the test instance.</td>
</tr>
<tr>
<td>space.key</td>
<td>ds</td>
<td>The space key for the space import that will be tested against.</td>
</tr>
<tr>
<td>space.setup</td>
<td>true</td>
<td>Control whether the test space will be created (or removed).</td>
</tr>
<tr>
<td>commentor.max</td>
<td>250</td>
<td>The number of users to be created for making comments.</td>
</tr>
<tr>
<td>creator.max</td>
<td>250</td>
<td>The number of users to be created for adding pages.</td>
</tr>
<tr>
<td>editor.max</td>
<td>250</td>
<td>The number of users to be created for editing existing pages.</td>
</tr>
<tr>
<td>reader.max</td>
<td>250</td>
<td>The number of users to be created for viewing existing pages.</td>
</tr>
</tbody>
</table>
The number of users to be created for performing searches.

The number of users to be created for downloading site resources.

The number of users to be created for downloading attachments.

Setup Script Output

On the console you will see no obvious indication of success or otherwise. JMeter will output something similar to this:

```
Created the tree successfully
Starting the test @ Mon Apr 14 17:35:08 EST 2008 (1208158508222)
Tidying up ... @ Mon Apr 14 17:35:08 EST 2008 (1208158508928)
... end of run
```

The scripts location/results directory will contain the file jmeter-result-setuptest.jtl. There were failures or errors if there are any assertions in this file that have the value true for the failure or error element, e.g.

```
<assertionResult>
  <name>Manage Users</name>
  <failure>true</failure>
  <error>false</error>
  <failureMessage>Test failed: URL expected to contain /browseusers.action/</failureMessage>
</assertionResult>
```

Running the Test

The test script itself will put Confluence under a fixed load. Each thread group will attempt to do a certain amount of work for a prescribed period of time (30 minutes by default). This is by design so that load during test runs can accurately be compared against each other.

Execute the test as follows:

```
<jmeter location>/bin/jmeter -n -t jmeter-test-fixedload.jmx
```

Where:

- `<scripts location>` is the absolute path to where you extracted the scripts e.g. /Users/YourName/Download/performanceTest. This is needed for the script to find its external resources.

Test Behaviour

The test has a number of parameters to tweak its behaviour but generally speaking it has the rough format of:

- 5 groups of users - readers, commentors, searchers, editors and creators.
  - readers simply view a set of individual pages or browse space functionality.
  - commentors add comments to a set of pages.
  - searchers perform searches on a fixed set of keywords.
  - editors make small additions to the end of a set of pages.
  - creators add new pages to a particular space.
- Each individual user in each group will repeat for a fixed amount of time with a small pause between each request.

Note that there is no execution of JavaScript by the client. Keep this in mind if you use this test to gauge Confluence performance in a production environment.

There is also very little use of permissions in these tests. All data involved is accessible to all of the test users.

Test Script Parameters

You can modify the behaviour of the test script via JMeter parameters. These are supplied on the command line in the form

```
-J<parameter name>=<parameter value>
```

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Explanation</th>
</tr>
</thead>
</table>
script.base . The absolute path to the script. Defaults to the current working directory.

confluence.context confluence The confluence webapp context.

confluence.host localhost The address or host name of the test instance.

confluence.port 8080 The port of the test instance.

create.page.prefix Nihilist The title prefix for any created page e.g. Nihilist00001.

script.runtime 1800 The amount of time the script will run for in seconds.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>threads.reader</td>
<td>15</td>
<td>Number of readers.</td>
</tr>
<tr>
<td>pause.reader</td>
<td>2000</td>
<td>The approximate (within 500ms) millisecond pause between reader repeats.</td>
</tr>
<tr>
<td>threads.searcher</td>
<td>8</td>
<td>Number of searchers.</td>
</tr>
<tr>
<td>pause.searcher</td>
<td>2000</td>
<td>The approximate (within 500ms) millisecond pause between searcher repeats.</td>
</tr>
<tr>
<td>threads.creator</td>
<td>3</td>
<td>Number of page creators.</td>
</tr>
<tr>
<td>pause.creator</td>
<td>2000</td>
<td>The approximate (within 500ms) millisecond pause between creator repeats.</td>
</tr>
<tr>
<td>threads.editor</td>
<td>3</td>
<td>Number of page editors.</td>
</tr>
<tr>
<td>pause.editor</td>
<td>2000</td>
<td>The approximate (within 500ms) millisecond pause between editor repeats.</td>
</tr>
<tr>
<td>threads.commentor</td>
<td>4</td>
<td>Number of page commentors.</td>
</tr>
<tr>
<td>pause.commentor</td>
<td>2000</td>
<td>The approximate (within 500ms) millisecond pause between commentor repeats.</td>
</tr>
</tbody>
</table>

In version 3.0 of the tests, it's now possible to control the percentage executions of certain actions. These percentages are defined in the "Thread Details" configuration screen.

So with the default parameters, you are emulating a load on Confluence of 33 concurrent users who will each be hitting the server approximately every 2 seconds (16 users per second).

23 of these users are read only (searchers or readers) and 10 of them are read/write — 11 read only users per second and 5 read/write users per second.

Test Script Output

During the run of the test script Jmeter will output progress to the console of the form:
Garbage Collector Performance Issues

This document relates broadly to memory management with Oracle's Hotspot JVM. These are recommendations based on Support's successful experiences with customers and their large Confluence instances.

Please do not use the Concurrent Mark Sweep (CMS) Collector with Confluence, unless otherwise advised by Atlassian Support. It requires extensive manual tuning and testing, and is likely to result in degraded performance.

Summary

1. Set the Young space up to 30-40% of the overall heap: -XX:NewSize=<between 30% and 40% of your Xmx value, eg, 384m>
2. Use a parallel collector: -XX:+UseParallelOldGC (make sure this is Old GC)
3. limit the Tomcat connector's spare thread counts to minimize impact
4. effectively disable explicit garbage collection triggered from distributed remote clients
   -Dsun.rmi.dgc.client.gcInterval=900000 -Dsun.rmi.dgc.server.gcInterval=900000
5. Disable remote clients from triggering a full GC event -XX:+DisableExplicitGC
6. set the minimum and maximum Xmx and Xms values as the same (eg. -Xms1024m -Xmx1024m) to discourage address map swapping
7. Turn on GC logging (add the flags -verbose:gc -Xloggc:<full-path-to-log> -XX:+PrintGCTimeStamps -XX:+PrintGCDetails) and submit the logs in a support ticket
8. Use Java 1.6
9. Read below if heap > 2G

See Configuring System Properties for how to add these properties to your environment.

Background

Performance problems in Confluence, and in rarer circumstances for JIRA, generally manifest themselves in either:

- frequent or infrequent periods of viciously sluggish responsiveness, which requires a manual restart, or, the application eventually and almost inexplicably recovers
- some event or action triggering a non-recoverable memory debt, which in turn envelops into an application-fatal death spiral (Eg. overhead GC collection limit reached, or Out-Of-Memory).
- generally consistent poor overall performance across all Confluence actions

There are a wealth of simple tips and tricks that can be applied to Confluence, that can have a significantly tangible benefit to the long-term stability, performance and responsiveness of the application.

On this page:

- Summary
Why Bad Things Happen

Confluence can be thought of like a gel or a glue, a tool for bringing things together. Multiple applications, data-types, social networks and business requirements can be efficiently amalgamated, leading to more effective collaboration. The real beauty of Confluence, however, is its agility to mould itself into your organizations’ DNA - your existing business and cultural processes, rather than the other way around - your organization having to adapt to how the software product works.

The flip side of this flexibility is having many competing demands placed on Confluence by its users. Historically, this is an extraordinarily broad and deep set of functions, that really, practically can't be predicted for individual use cases.

The best mechanism to protect the installation is to place Confluence on a foundation where it is fundamentally more resilient and able to react and cope with competing user requirements.

Appreciate how Confluence and the JAVA JVM use memory

The Java memory model is naive. Compared to a unix process, which has four intensive decades of development built into time-slicing, inter-process communication and intelligent deadlock avoidance, the Java thread model really only has 10 years at best under its belt. As it is also an interpreted language, particular idiosyncrasies of the chosen platform Confluence is running can also influence how the JRE reacts. As a result it is sometimes necessary to tune the jvm parameters to give it a "hint" about how it should behave.

There are circumstances whereby the Java JVM will take a mediocre option in respect to resource contention and allocation and struggle along with oftentimes highly impractical goals. For example, The JRE will be quite happy to perform at 5 or 10% of optimum capacity if it means overall application stability and integrity can be ensured. This often translates into periods of extreme sluggishness, which effectively means that the application isn't stable, and isn't integral (as it cannot be accessed).

This is mainly because Java shouldn't make assumptions on what kind of runtime behavior an application needs, but it's plain to see that the charter is to assume 'business-as-usual' for a wide range of scenarios and really only react in the case of dire circumstances.

Memory is contiguous

The Java memory model requires that memory be allocated in a contiguous block. This is because the heap has a number of side data structures which are indexed by a scaled offset (ie n*512 bytes) from the start of the heap. For example, updates to references on objects within the heap are tracked in these "side" data structures.

Consider the differences between:

1. Xms (the allocated portion of memory)
2. Xmx (the reserved portion of memory)

Allocated memory is fully backed, memory mapped physical allocation to the application. That application now owns that segment of memory.

Reserved memory (the difference between Xms and Xmx) is memory which is reserved for use, but not physically mapped (or backed) by memory. This means that, for example, in the 4G address space of a 32bit system, the reserved memory segment can be used by other applications, but, because Java requires contiguous memory, if the reserved memory requested is occupied the OS must swap that memory out of the reserved space either to another non-used segment, or, more painfully, it must swap to disk.

Permanent Generation memory is also contiguous. The net effect is even if the system has vast quantities of cumulative free memory, Confluence demands contiguous blocks, and consequently undesirable swapping may occur if segments of requested size do not exist. See Causes of OutOfMemoryErrors for more details.

Please be sure to position Confluence within a server environment that can successfully complete competing requirements (operating system, contiguous memory, other applications, swap, and Confluence itself).

Figure out which (default) collector implementation your vendor is using
Default JVM Vendor implementations are subtly different, but in production can differ enormously.

The Oracle JVM by default splits the heap into three spaces

1. Young (New, divided into Eden and Survivor)
2. Tenured (Old)
3. Permanent Generation (classes & library dependencies)

Objects are central to the operation of Confluence. When a request is received, the Java runtime will create new objects to fulfill the request in the Eden Space. If, after some time, those objects are still required, they may be moved to the Tenured (Old) space. But, typically, the overwhelming majority of objects created die young, within the Eden space. These are objects like method local references within a while or for loop, or Iterators for scanning through Collections or Sets.

But in IBM J9 the default policy is for a single, contiguous space - one large heap. The net effect is that for large Websphere environments, garbage collection can be terribly inefficient - and capable of suffering outages during peak periods.

For larger instances with performance issues, it is recommended to tune Confluence such that there is a large Young space, at up to 50% the overall size of the heap.

-XX:NewSize=XXXm where XXX is the size in megabytes, is the command line parameter. -XmnXXXm can also be used interchangeably. ie. -XX:NewSize=700m, -Xmn700m

By setting a larger NewSize, the net effect is that the JRE will spend less time garbage collecting, clearing dead memory references, compacting and copying memory between spaces, and more time doing actual work.

Use the Parallel Garbage Collector

Confluence out of the box, and Oracle Java as default, uses the serial garbage collector on the Full Tenured heap. The Young space is collected in parallel, but the Tenured is not. This means that at a time of load if a full collection event occurs, since the event is a 'stop-the-world' serial event then all application threads other than the garbage collector thread are taken off the CPU. This can have severe consequences if requests continue to accrue during these 'outage' periods. As a rough guide, for every gigabyte of memory allocated allow a full second (exclusive) to collect.

If we parallelize the collector on a multi-core/multi-cpu architecture instance, we not only reduce the total time of collection (down from whole seconds to fractions of a second) but we also improve the resiliency of the JRE in being able to recover from high-demand occasions.

Additionally, Oracle provide a CMS, Concurrent Mark-Sweep Collector (-XX:+UseConcMarkSweepGC), which is optimized for higher-throughput, server-grade instances. As a general rule, the Parallel Collector (-XX:+UseParallelOldGC) is the right choice for JIRA or Confluence installations, unless otherwise advised by support.

Restrict ability of Tomcat to 'cache' incoming requests

Quite often the fatal blow is swung by the 'backlog' of accumulated web requests whilst some critical resource (say the index) is held hostage by a temporary, expensive job. Even if the instance is busy garbage collecting due to load, Tomcat will still trigger new http requests and cache internally, as well as the operating system beneath which is also buffering incoming requests in the socket for Tomcat to pick up the next time it gets the CPU.

Here the Tomcat Connector is configured for 150 "maxThreads" with an "acceptCount" of 100. This means up to 150 threads will awaken to accept (but importantly not to complete) web requests during performance outages, and 100 will be cached in a queue for further processing when threads are available. That's 250 threads, many of which can be quite expensive in and of themselves. Java will attempt to juggle all these threads concurrently and become extremely inefficient at doing so, exasperating the garbage collection performance issue.

Resolution: reduce the number of maxThreads and acceptCount to something slightly higher than normal 'busy-hour' demands.

Disable remote (distributed) garbage collection by Java clients

Many clients integrate third-party or their own custom applications to interrogate, or add content to Confluence via its RPC interface. The Distributed Remote Garbage Collector in the client uses RMI to trigger a remote GC event in the Confluence server. Unfortunately, as of this writing, a System.gc() call via this mechanism triggers a full, serial collection of the entire Confluence heap (as it needs to remove references to remote client objects in its own deterministic object graph). This is a deficiency in the configuration and/or implementation of the JVM. It has the potential to cause severe impact if the remote client is poorly written, or operating within a constricted JVM.

This can be disabled by using the flag -XX:+DisableExplicitGC at startup.
Virtual Machines are Evil

Vmware Virtual Machines, whilst being extremely convenient and fantastic, also cause particular problems for Java applications because it's very easy for host operating system resource constraints such as temporarily insolvent memory availability, or I/O swapping, to cascade into the Java VM and manifest as extremely unusual, frustrating and seemingly illogical problems. We already document some disk I/O metrics with VMware images. Although we now officially support the use of virtual instances we absolutely do not recommend them unless maintained correctly.

This is not to say that vmware instances cannot be used, but, they must be used with due care, proper maintenance and configuration. Besides, if you are reading this document because of poor performance, the first action should be to remove any virtualization. Emulation will never beat the real thing and always introduces more black box variability into the system.

Use Java 1.6

Java 1.6 is generally regarded via public discussion to have an approximate 20% performance improvement over 1.5. Our own internal testing revealed this statistic to be credible. 1.6 is compatible for all supported versions of Confluence, and we strongly recommend that installations not using 1.6 should migrate.

Use -server flag

The hotspot server JVM has specific code-path optimizations which yield an approximate 10% gain over the client version. Most installations should already have this selected by default, but it is still wise to force it with -server, especially on some Windows machines.

If using 64bit JRE for larger heaps, use CompressedOops

For every JDK release, Oracle also build a "Performance" branch in which specifically optimized performance features can be enabled; it is available on the Java SE page after a brief survey. These builds are certified production grade.

Some blogs have suggested a 25% performance gain and a reduction in heap size when using this parameter. The use and function of the -XX:+UseCompressedOops parameter is more deeply discussed on Oracle’s Official Wiki (which itself uses Confluence!)

Use NUMA if on SPARC, Opteron or recent Intel (Nehalem or Tukwila onwards)

-XX:+UseNUMA flag enables the Java heap to take advantage of Non-Uniform-Memory-Architectures. JAVA will place data structures relevant to the thread which it owns / operates on, in memory locations closest to that particular processor. Depending on the environment, gains can be substantial. Intel market NUMA as Quick Path Interconnect™.

Use 32bit JRE if Heap < 2GB

Using a 64bit JRE when the heap is under 2GB will cause substantial degradation in heap size and performance. This is because nearly every object, reference, primitive, class and variable will use twice as much memory to be addressed.

A 64bit JRE/JDK is only recommended if heaps greater than 2GB are required. If so, use CompressedOops.

JVM core dumps can be instigated by memory pressures

If your instance of Confluence is throwing Java core dumps, it's known that memory pressure and space/generation sizings can influence the frequency and occurrence of this phenomena.

If your Tomcat process completely disappears and the logs record similar to:
# An unexpected error has been detected by HotSpot Virtual Machine:
# SIGSEGV (0xb) at pc=0xfe9bb960, pid=20929, tid=17
# Java VM: Java HotSpot(TM) Server VM (1.5.0_01-b08 mixed mode)
# Problematic frame:
# V [libjvm.so+0x1bb960]

---------------  T H R E A D  ---------------
Current thread (0x01a770e0):  JavaThread "JiraQuartzScheduler_Worker-1" [_thread_in_vm, id=17]
siginfo:si_signo=11, si_errno=0, si_code=1, si_addr=0x00000000
Registers:
O0=0xf5999882 O1=0xf5999882 O2=0x00000000 O3=0x00000000
O4=0x00000000 O5=0x00000000 O6=0xc24ff0b0 O7=0x00008000
G1=0xfe9bb80c G2=0xf5999a48 G3=0x0a67677d G4=0xf5999882
G5=0xc24ff380 G6=0x00000000 G7=0xfdbe3800 Y=0x00000000
PC=0xfe9bb960 nPC=0xfe9bb964

then you should upgrade the JVM. See SIGSEGV Segmentation Fault JVM Crash.

## Artificial Windows memory limit

On Windows, the maximum heap allocatable to the Tomcat 32bit wrapper process is around 1400MB. If the instance is allocated too close to this limit, **chronic garbage collection is likely to result**, often producing JAVA core dumps similar to:

---------------  T H R E A D  ---------------
Current thread (0x002af800):  GCTaskThread [stack: 0x00000000,0x00000000] [id=12284]

or,
Workarounds include:

- changing the server OS to something other than Windows. For example, Linux
- switching to the 64 bit Tomcat wrapper (this is not supported)
- reducing memory allocation to the Tomcat process. Try backing off 100MB at a time and observe the results.

Instigate useful monitoring techniques

At all times the best performance tuning recommendations are based on current, detailed metrics. This data is easily available and configurable and helps us tremendously at Atlassian when diagnosing reported performance regressions.

1. enable JMX monitoring
2. enable Confluence Access logging
3. enable Garbage Collection Logging
4. Take Thread dumps at the time of regression. If you can't get into Confluence, you can take one externally.
5. Jmap can take a memory dump in real time without impacting the application. Syntax: jmap -heap:format=b <process_id>

Great tools available include:

- The excellent VisualVM, documentation.
- Thread Dump Analyzer - a great all-round thread debugging tool, particularly for identifying deadlocks.
- Samurai, an excellent alternative thread analysis tool, good for iterative dumps over a period of time.
- GC Viewer - getting a bit long in the tooth, but is a good mainstay for GC analysis.
- GChisto - A GC analysis tool written by members of the Sun Garbage Collection team.

Documentation:

- Sun's state-of-the-art JavaOne 2009 session on garbage collection (registration required).
- IBM stack: Java 5 GC basics for WebSphere Application Server.
- An Excellent IBM document covering native memory, thread stacks, and how these influence memory constricted systems. Highly recommended for additional reading.
- The complete list of JRE 6 options
- I strongly recommend viewing George Barnett's Summit 2010 performance presentation, Pulling a Rabbit from a Hat.

Atlassian recommends at the very least to get VisualVM up and running (you will need JMX), and to add Access and Garbage Collection logging.

Tuning the frequency of full collections

The JVM will generally only collect on the full heap when it has no other alternative, because of the relative size of the Tenured space (it is typically larger than the Young space), and the natural probability of objects within tenured not being eligible for collection, i.e. they are still alive.

Some installations can trundle along, only ever collecting in Young space. As time goes on, some object will survive the initial Young object collection and be promoted to Tenured. At some point, it will be dereferenced and no longer reachable by the deterministic, directed object graph. However, the occupied memory will still be held in limbo as "dead" memory until a collection occurs in the Tenured space to clear and compact the space.

It is not uncommon for moderately sized Confluence installations to reclaim as much as 50% of the current heap size on a full collection; This is because full collections occur so infrequently. By reducing the occupancy fraction heap trigger, this means that
more memory will be available at any time, meaning that fewer swapping/object collections will occur during the busy hour. Atlassian would classify frequency tuning on collections as an advanced topic for further experimentation, and is provided for informational purposes only. Unfortunately, it's impractical for Atlassian to support these kinds of changes in general.

**Performance tuning works**

Atlassian has a number of high profile and some extremely high demanding, mission-critical clients who have successfully, usually through trial and error, applied these recommendations to production instances and have significantly improved their instances. For more information, please file a support case at support.atlassian.com.

**Scheduled Jobs**

The administration console allows you to schedule various administrative jobs in Confluence, so that they are executed at regular time intervals. The types of jobs which can be scheduled cover:

- Confluence site backups
- Storage optimisation jobs to clear Confluence's temporary files and caches
- Index optimisation jobs to ensure Confluence's search indexes are up to date
- Mail queue optimisation jobs to ensure Confluence's mail queue is maintained and notifications have been sent.

ℹ️ You need to have System Administrator permissions in order to configure and execute jobs.

---

### Accessing Confluence's Scheduled Jobs Configuration

To access Confluence's Scheduled Jobs configuration page:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'Scheduled Jobs' under 'Administration' in the left panel to open the 'Scheduled Jobs' page. For each job listed down this page, the following information is shown:
   - **Job** — the name of a job.
   - **Status** — the job's status, which is either 'Scheduled' (it is currently enabled) or 'Disabled'. See below for details on disabling or re-enabling a job.
   - **Last Execution** — the date and time when the job was last executed. This field will be empty of the job was never executed.
   - **Next Execution** — the date and time when the job is next scheduled to be executed. This field will contain dash symbol ('-') if the job is disabled.
   - **Avg. Duration** — the length of time (in milliseconds) that it took to complete the job's last execution.
   - **Actions** — allows you to configure the job, execute it manually, view a history of previous executions or disable the job.
1. Access the 'Scheduled Jobs' configuration page (above).
2. Locate the job you wish to execute manually and click its 'Run' link in the 'Actions' column. The job will be run immediately.
   - Refer to 'Types of Jobs' (below) for detailed descriptions about each job.
   - Not all jobs can be run manually.

### Executing a Job Manually

**Configuring a Job’s Schedule**

1. Access the 'Scheduled Jobs' configuration page (above).
2. Locate the job whose schedule you wish to configure and click its 'Edit' link in the 'Actions' column. The job's 'Edit Schedule for job' dialog box opens.
   - Refer to 'Types of Jobs' (below) for detailed descriptions about each job.
3. Enter an appropriate cron expression to define the frequency with which the job is executed.
   - Refer to 'Cron Expressions' (below) for more details about their syntax. To revert the job's schedule back to its default settings, click the 'Default' button.
4. Click 'Save' to record your job's new schedule.
   - Not all jobs' schedules are configurable.
Disabling/Re-enabling a Job

By default, all jobs in Confluence are enabled.

1. Access the 'Scheduled Jobs' configuration page (above).
2. Locate the job you wish to disable/re-enable.
   - Refer to ‘Types of Jobs’ (below) for detailed descriptions about each job.
   - If a job is enabled, click its ‘Disable’ link in the ‘Actions’ column to disable the job.
   - If a job is disabled, click its ‘Enable’ link in the ‘Actions’ column to enable the job.

Viewing a Job’s Execution History

1. Access the 'Scheduled Jobs' configuration page (above).
2. Locate the job whose execution history you wish to view and click the 'History' link.
   - Refer to ‘Types of Jobs’ (below) for detailed descriptions about each job.
   - The 'History for job' dialog box opens, showing a list of previous executions of the job in reverse chronological order, including the:
     - Start date and time
     - End date and time
     - The length of time (in milliseconds) that it took to complete the job
Types of Jobs

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Description</th>
<th>Execution Behaviour</th>
<th>Default Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back Up Confluence</td>
<td>Performs a backup of your entire Confluence site.</td>
<td>Per cluster</td>
<td>At 2am every day</td>
</tr>
<tr>
<td>Check Cluster Safety</td>
<td>For clustered Confluence installations, this job ensures that only one Confluence instance in the cluster writes to the database at a time. For standard (non-clustered) editions of Confluence, this job is useful for alerting customers who have accidentally connected a second Confluence instance to a Confluence database which is already in use.</td>
<td>Per cluster</td>
<td>Every 30 seconds</td>
</tr>
<tr>
<td>Clean Index Queue</td>
<td>Triggers a periodical clean of the index queue to ensure that its size does NOT grow indefinitely.</td>
<td>Per cluster</td>
<td>At 2am every day</td>
</tr>
<tr>
<td>Clean Temporary Directory</td>
<td>Cleans up temporary files generated in the 'temp' subdirectory of the Confluence home directory. This temp directory may be created by exports etc.</td>
<td>Per node</td>
<td>At 4am every day</td>
</tr>
<tr>
<td>Clear Expired Mail Errors</td>
<td>Clears notification errors in the mail error queue. A notification error is sent to the mail error queue whenever the notification fails to be sent due to an error.</td>
<td>Per cluster</td>
<td>At 3am every day</td>
</tr>
<tr>
<td>Clear Expired Remember Me Tokens</td>
<td>Clears all expired 'Remember Me' tokens from the Confluence site. Remember Me tokens expire after two weeks.</td>
<td>Per cluster</td>
<td>On the 20th of each month</td>
</tr>
</tbody>
</table>
Email Daily Reports

Emails a daily summary report of all Confluence changes to all subscribers.

Since each email report only records changes from the last 24-hour period, it is recommended that you only change the time of this job whilst keeping the job's frequency to 24 hours.

Flush Did You Mean Index

Flushes changes to the 'Did You Mean' index, which keeps the 'Did You Mean' feature up to date. Confluence records each content update in the 'Did You Mean' index.

Flush Index Queue

Flushes changes to Confluence's index so that Confluence's search results are up to date. Confluence records each content update in its search index.

Flush Local Task Queue

Flushes the local task queue. (These are internal Confluence tasks that are typically flushed at a high frequency.)

Flush Mail Queue

Sends notifications that have been queued up in the mail queue.

Flush Task Queue

Flushes the task queue. (These are internal Confluence tasks that are typically flushed at a high frequency.)

Optimise Indexing

Compacts the confluence indexes to maintain searching performance.

This task is demanding on system resources and does not need to be performed too regularly. If you see Confluence performance deteriorate around 3pm, try scheduling this job for 3am only and check if search performance remains reasonable.

Poll Mail

Polls POP accounts on all spaces that have them configured.

Cron Expressions

A cron expression is a string of 6-7 'time interval' fields that defines the frequency with which a job is executed. Each of these fields can be expressed as either a numerical value or a special character and each field is separated by at least one space or tab character.

The table below shows the order of time interval fields in a cron expression and each field's permitted numerical values.

You can specify a special character instead of a numerical value for any field in the cron expression to provide flexibility in defining a job's frequency. Common special characters include:

- '*' — a 'wild card' that indicates 'all permitted values'.
- '?' — indicates 'ignore this time interval' in the cron expression. That is, the cron expression will not be bound by the time interval (such as 'Month', 'Day of week' or 'Year') to which this character is specified.

For more information about cron expressions, please refer to the Cron Trigger tutorial on the Quartz website.

### Cron Expressions Table

<table>
<thead>
<tr>
<th>Order in cron expression</th>
<th>Time interval field</th>
<th>Permitted values*</th>
<th>Required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seconds</td>
<td>0-59</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Minutes</td>
<td>0-59</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Hours</td>
<td>0-23</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Day of month</td>
<td>1-31</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Month</td>
<td>1-12 or JAN-DEC</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>Day of week</td>
<td>1-7 or SUN-SAT</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Confluence cannot easily index external sites due to technical reasons, but there are two alternatives:

1. Embed External Pages Into Confluence
2. Replace Confluence Search

**Technical Reasons**

Confluence indexes pages using a customised Lucene search engine that returns matching pages, mail and blog posts for which the searcher has view permission. It would require significant source code modifications to enable Confluence to process search results from external pages, as the indexing process has been customised to utilise internal Confluence metadata. Note that users can still index content from new attachment filetypes.

**Embed External Pages Into Confluence**

If you only have a small number of external sites to index, you may prefer to enable the HTML-include Macro and use it embed the external content inside normal Confluence pages.

**Replace Confluence Search**

Use your own programmer resources to replace Confluence's internal search with a crawler that indexes both Confluence and external sites. This advanced option is easier than modifying the internal search engine. It requires removing Confluence internal search from all pages and replacing the internal results page with your own crawler front-end.

1. Setup a replacement federated search engine to index the Confluence site, as well as your other sites, and provide the results that way. You would need to host a web crawler, such as these open-source crawlers. Note that you can perform a search in Confluence via the remote API.
2. Replace references to the internal search by modifying the site layout so that it links to your search front-end
3. Host another site containing the search front-end. You may wish to insert it into a suitable context path in your application server so that it appears to be from a path under Confluence. Tomcat sets Confluence's paths from the Confluence install/confluence/WEBINF/web.xml file.

**Setup External Search Tool To Index Confluence**

Any web crawler can be configured to index Confluence content, for example the Google Search Appliance or similar. If a login is required to view content that will be indexed, you should create a Confluence user specifically for the search crawler to use. Grant this user view rights to all content you wish to index, but deny that user all delete and administration rights. This ensures that an aggressive crawler will not be able to perform actions that could modify the site. There is also a forum thread on Google Mini integration.

External applications can also use the search function in the Confluence Remote API.

**Working with Confluence Logs**

* Excluding special characters.
Confluence uses Apache's log4j logging service. This allows a developer or administrator to control the logging behavior and the log output file by editing a configuration file, without touching the application binary. There are six known log4j logging levels.

If you request help from Atlassian Support, we will almost always ask for the atlassian-confluence.log from the confluence-home/logs directory. You can access the logs from the Confluence Administration Console, via the support tool. If you cannot access the Confluence Administration Console, check the properties file at <confluence-installation>/confluence/WEB-INF/classes/confluence-init.properties, look for the confluence.home setting in that file, then find the logs in the Confluence home directory.

On this page:
- Finding the Confluence Log Files
- Finding the Log Configuration File
- Changing the Destination of the Log Files
- Changing the Logging Levels
- Using Some Specific Confluence Logging Options
- Scanning Log Files for Known Problems
- Notes

Finding the Confluence Log Files

This section describes Confluence's default logging behaviour, assuming that you have not changed the destination of the logs. In order to unify logging across different application servers, Confluence uses the atlassian-confluence.log as its primary log, not the application server log.

Both Confluence Standalone and EAR/WAR distributions follow the same default behaviour:

- When you start Confluence, log entries will be sent to the application server logs until Confluence has completed its initial bootstrap. Any log entries written to the console will be repeated into the log in the Confluence home directory as described below.
- Once the initial startup sequence is complete, all logging will be to the atlassian-confluence.log. For example: c:/confluence/data/logs/atlassian-confluence.log.

Note that the default location is the Confluence home directory, not the application server's log file. The home directory is specified in <confluence-installation>/confluence/WEB-INF/classes/confluence-init.properties.

Finding the Log Configuration File

Confluence's logging behaviour is defined in the following properties file:
CONFLUENCE-INSTALL>/confluence/WEB-INF/classes/log4j.properties

This file is a standard log4j configuration file, as described in the Apache log4j documentation.

Changing the Destination of the Log Files

Terminology: In log4j, an output destination is called an 'appender'.

To change the destination of the log files, you need to stop Confluence and then change the settings in the 'Logging Location and Appender' section of the log4j.properties file. The location of this file is described above.

In the standard properties file, you will find entries for two appenders:

- com.atlassian.confluence.logging.ConfluenceHomeLogAppender – This is a custom appender which controls the default logging destination described above. This appender allows the following settings:
  - MaxFileSize
  - MaxBackupIndex
- org.apache.log4j.RollingFileAppender – If you want to log to a different location, uncomment the RollingFileAppender line and change the destination file in the line below it. Comment out the previous lines referring to the ConfluenceHomeLogAppender.

Confluence ships with the full suite of appenders offered by log4j. Read more about appenders in the log4j documentation.

Changing the Logging Levels

See Configuring Logging for instructions on how to change the logging configuration of Confluence.
Using Some Specific Confluence Logging Options

This section contains some pointers to specific log configurations you may need.

Log the Details of SQL Requests made to the Database

You may want to increase Confluence's logging so that it records individual SQL requests sent to the database. This is useful for troubleshooting specific problems.

You can enable detailed SQL logging in two ways:

- At runtime – see instructions above.
- Via the logging properties file – see the detailed instructions.

Log the Details of Users Viewing/Accessing each Confluence Page

You can configure the log to show which users are accessing which pages in Confluence. This can only be done via the logging properties file – see the detailed instructions.

Scanning Log Files for Known Problems

Confluence provides an inbuilt log scanner that will check your Confluence logs for errors and attempt to match them against known issues in our knowledge base and bug tracker. See Troubleshooting Problems and Requesting Technical Support#scanner.

Notes

- Finding the thread dumps. Thread dumps are logged to the application server log file.

RELATED TOPICS

Important Directories and Files
Enabling Detailed SQL Logging
Enabling user access logging
Generating a Thread Dump
Enabling Page Request Profiling
Troubleshooting Problems and Requesting Technical Support

log4j Logging Levels

Logging Levels

- DEBUG - designates fine-grained informational events that are most useful to debug an application (what is going on)
- INFO - announcements about the normal operation of the system - scheduled jobs running, services starting and stopping, user-triggered processes and actions
- WARN - any condition that, while not an error in itself, may indicate that the system is running sub-optimally
- ERROR - a condition that indicates something has gone wrong with the system
- FATAL - a condition that indicates something has gone wrong so badly that the system can not recover
- TRACE - n/a within confluence

There are two ways to modify the logging levels, as described in Working with Confluence Logs.

1. Modifying the runtime log levels via the Administration Console.
2. Manually modifying the <Confluence-Install>\confluence\WEB-INF\classes\log4j.properties file.

Default Log Level

The standard Confluence log level WARN is a way for Confluence to communicate with the server administrator. Logging at WARN level and higher should be reserved for situations that require some kind of attention from the server administrator, and for which corrective action is possible.

Reference: log4j manual

User Management
Understanding User Management in Confluence

This page introduces the concepts and components of user management in Confluence.

The components of user management are:

- **Authentication**: Determining what user identity is making a request to Confluence.
- **User management**: Storing and retrieving core information about users.
- **Group membership**: Storing and retrieving groups, and group membership.
- **Profile information**: Providing metadata associated with users.

It is important to understand that these are separate components of the user management system. When referring to ‘LDAP integration’, remember that you could use an LDAP directory for any or all of the above tasks.

On this page:

- Authentication
  - Seraph
  - XML-RPC and SOAP Authentication
  - Password Authentication and User Management
- Confluence User Management Framework
  - User Management via the Confluence Administration Console
  - Information about Earlier User Management Frameworks

Authentication

**Seraph**

Almost all authentication in Confluence (and JIRA) is performed through Seraph, Atlassian’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 (or no user if the request is anonymous). It supports several methods of authentication, including HTTP Basic Authentication, form-based authentication, and looking up credentials already stored in the user’s session.

Seraph itself performs no user management functions. 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 Confluence’s user management system.

If you were looking to integrate Confluence with your own single sign-on (SSO) infrastructure, you would do so by installing Atlassian Crowd or by writing a custom Seraph authenticator.
XML-RPC and SOAP Authentication

Normally, requests for Confluence's remote API will include an authentication token as the first argument. With this method of authentication, XML-RPC and SOAP authentication requests are checked directly against the user management framework, and tokens are assigned directly by the remote API subsystem. These requests do not pass through Seraph authenticators.

However, if the token argument is blank, Seraph will be used as a fallback authentication method for remote API requests. So, to use a custom Seraph authenticator with XML-RPC or SOAP requests, ensure that you pass an empty string as the authentication token to remote API methods.

Password Authentication and User Management

By default, password authentication is delegated from Seraph to the user management system. This is not necessary, however. Single sign-on systems may have no password authentication at all, and get all the necessary credentials from the SSO provider.

Confluence User Management Framework

User Management via the Confluence Administration Console

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 Confluence database. You can also connect to external user directories, and to Atlassian Crowd and JIRA as directory managers. You can configure multiple directories. For example, Confluence can draw user information from both the database and an LDAP server.

See Configuring User Directories.

Managing Users and Groups

You can add users and groups, add members to groups, and add profile information to each user. See Confluence User Management.

If you have connected Confluence to more than one user directory, you need to define the directory order. 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.

Information about Earlier User Management Frameworks

Atlassian-User – Now Behind the Scenes

Atlassian-User is a user and group management framework developed by Atlassian. It provides user, group and profile management services to Confluence. In earlier versions of Confluence, you needed to configure your user directories by editing the atlassian-user.xml file directly. In Confluence 3.5 and later this is no longer necessary, nor is it possible. Please refer to the documentation for Confluence 3.4 or earlier, if you need details of this framework.

Refer to the Confluence 3.5 Upgrade Notes for details of the automatic migration that will occur during the upgrade process.

OSUser – Obsolete

OpenSymphony User was Confluence's core user management framework before Atlassian-User. Please refer to the documentation for Confluence 3.4 or earlier, if you need details of this framework.

RELATED TOPICS

HTTP authentication with Seraph
User Management

• Understanding User Management in Confluence
• Configuring User Directories
• Confluence User Management
• Disabling the Built-In User Management

Administrators Guide Home  Confluence Documentation Home

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 Confluence database. You can also connect to external user directories, and to Atlassian Crowd and JIRA as directory managers.

### Configuring User Directories in Confluence

To configure your Confluence user directories:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘User Directories’ in the left-hand panel.

### Connecting to a Directory

You can add the following types of directory servers and directory managers:

- Confluence's internal directory. See Configuring the Internal 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 JIRA for User Management.
- Atlassian JIRA 4.3 or later. See Connecting Confluence to JIRA for User Management.
- Atlassian JIRA 4.2 or earlier, using the legacy database connection. See Connecting to JIRA 4.2 or Earlier 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 Confluence will search first, when looking for user and group information. See Managing Multiple Directories.

### Updating Directories

#### Limitations when Editing Directories

You cannot edit, disable or remove the directory your user belongs to. This precaution is designed to prevent administrators from locking themselves out of the application by changing the directory configuration in a way that prevents them logging in or removes their administration permissions.

This limitation applies to all directory types. For example:

- You cannot disable the internal directory if your user is an internal user.
- You cannot disable or remove an LDAP or a Crowd directory if your user comes from that directory.

In some situations, reordering the directories will change the directory that the current user comes from, if a user with the same username happens to exist in both. This behaviour can be used in some cases to create a copy of the existing configuration, move it to the top, then remove the old one. Note, however, that duplicate usernames are not a supported configuration.

You cannot remove the internal directory. This precaution aligns with the recommendation below that you always keep an administrator account active in the internal directory.

#### Recommendations

The recommended way to edit directory configurations is to log in as an internal user when making changes to external directory configuration. We recommend that you keep an administrator user active in your internal directory for troubleshooting problems with your user 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.
Configuring the Internal Directory

The internal directory stores user and group information in the Confluence 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.
Connecting to an LDAP Directory

You can connect your Confluence 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)

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.
Connecting to an LDAP Directory in Confluence

To connect Confluence to an LDAP directory:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Click 'User Directories' in the left-hand panel.
3. 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.
4. Enter the values for the settings, as described below.
5. Save the directory settings.
6. 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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Enter a meaningful name to help you identify the LDAP directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>• Example Company Staff Directory</td>
</tr>
<tr>
<td></td>
<td>• Example Company Corporate LDAP</td>
</tr>
<tr>
<td>Directory Type</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• Microsoft Active Directory</td>
</tr>
<tr>
<td></td>
<td>• OpenDS</td>
</tr>
<tr>
<td></td>
<td>• And more.</td>
</tr>
<tr>
<td>Hostname</td>
<td>The host name of your directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>• ad.example.com</td>
</tr>
<tr>
<td></td>
<td>• ldap.example.com</td>
</tr>
<tr>
<td></td>
<td>• opensds.example.com</td>
</tr>
<tr>
<td>Port</td>
<td>The port on which your directory server is listening. Examples:</td>
</tr>
<tr>
<td></td>
<td>• 389</td>
</tr>
<tr>
<td></td>
<td>• 10389</td>
</tr>
<tr>
<td></td>
<td>• 636 (for example, for SSL)</td>
</tr>
<tr>
<td>Use SSL</td>
<td>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.</td>
</tr>
<tr>
<td>Username</td>
<td>The distinguished name of the user that the application will use when connecting to the directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>• cn=administrator,cn=users,dc=ad,dc=example,dc=com</td>
</tr>
<tr>
<td></td>
<td>• cn=user,dc=domain,dc=name</td>
</tr>
<tr>
<td></td>
<td>• <a href="mailto:user@domain.name">user@domain.name</a></td>
</tr>
<tr>
<td>Password</td>
<td>The password of the user specified above.</td>
</tr>
</tbody>
</table>
### Schema Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base DN</td>
<td>The root distinguished name (DN) to use when running queries against the directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>- o=example,c=com</td>
</tr>
<tr>
<td></td>
<td>- cn=users,dc=ad,dc=example,dc=com</td>
</tr>
<tr>
<td></td>
<td>For Microsoft Active Directory, specify the base DN in the following format: <code>dc=domain1,dc=local</code>. You will need to replace the <code>domain1</code> and <code>local</code> for your specific configuration. Microsoft Server provides a tool called <code>ldp.exe</code> which is useful for finding out and configuring the the LDAP structure of your server.</td>
</tr>
<tr>
<td>Additional User DN</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>- ou=Users</td>
</tr>
<tr>
<td>Additional Group DN</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>- ou=Groups</td>
</tr>
</tbody>
</table>

### Permission Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Only</td>
<td>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.</td>
</tr>
<tr>
<td>Read Only, with Local Groups</td>
<td>LDAP users, groups and memberships are retrieved from your directory server and can only be modified via your directory server. However, you can add groups to the internal directory and add LDAP users to those groups.</td>
</tr>
<tr>
<td>Read/Write</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Adding Users to Groups Automatically

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default Group Memberships</td>
<td><em>Option available in Confluence 3.5 and later, and JIRA 4.3.3 and later.</em> This field appears if you select the ‘Read Only, with Local Groups’ permission. If you would like users to be automatically added to a group or groups, enter the group name(s) here. To specify more than one group, separate the group names with commas. <em>In Confluence 3.5 to Confluence 3.5.1:</em> Each time a user logs in, their group memberships will be checked. If the user does not belong to the specified group(s), their username will be added to the group(s). If a group does not yet exist, it will be added locally. <em>In Confluence 3.5.2 and later, and JIRA 4.3.3 and later:</em> The first time a user logs in, their group memberships will be checked. If the user does not belong to the specified group(s), their username will be added to the group(s). If a group does not yet exist, it will be added locally. On subsequent logins, the username will not be added automatically to any groups. This change in behaviour allows users to be removed from automatically-added groups. In Confluence 3.5 and 3.5.1, they would be re-added upon next login. Please note that there is no validation of the group names. If you mis-type the group name, authorisation failures will result – users will not be able to access the applications or functionality based on the intended group name.</td>
</tr>
<tr>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td></td>
<td>- confluence-users</td>
</tr>
<tr>
<td></td>
<td>- confluence-users, jira-users, jira-developers</td>
</tr>
</tbody>
</table>

### Advanced Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
</table>
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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Object Class</td>
<td>This is the name of the class used for the LDAP user object. Example:</td>
</tr>
<tr>
<td></td>
<td>• user</td>
</tr>
<tr>
<td>User Object Filter</td>
<td>The filter to use when searching user objects. Example:</td>
</tr>
<tr>
<td></td>
<td>• ((&amp;(objectCategory=Person)(sAMAccountName=*)))</td>
</tr>
<tr>
<td>User Name Attribute</td>
<td>The attribute field to use when loading the username. Examples:</td>
</tr>
<tr>
<td></td>
<td>• cn</td>
</tr>
<tr>
<td></td>
<td>• sAMAccountName</td>
</tr>
<tr>
<td>User Name RDN Attribute</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• cn</td>
</tr>
<tr>
<td>User First Name Attribute</td>
<td>The attribute field to use when loading the user's first name. Example:</td>
</tr>
<tr>
<td></td>
<td>• givenName</td>
</tr>
</tbody>
</table>
### 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

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Object Class</td>
<td>This is the name of the class used for the LDAP group object. Examples:</td>
</tr>
<tr>
<td></td>
<td>- groupOfUniqueNames</td>
</tr>
<tr>
<td></td>
<td>- group</td>
</tr>
<tr>
<td>Group Object Filter</td>
<td>The filter to use when searching group objects. Example:</td>
</tr>
<tr>
<td></td>
<td>- (objectCategory=Group)</td>
</tr>
<tr>
<td>Group Name Attribute</td>
<td>The attribute field to use when loading the group's name. Example:</td>
</tr>
<tr>
<td></td>
<td>- cn</td>
</tr>
<tr>
<td>Group Description Attribute</td>
<td>The attribute field to use when loading the group's description. Example:</td>
</tr>
<tr>
<td></td>
<td>- description</td>
</tr>
</tbody>
</table>

#### Membership Schema Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Members Attribute</td>
<td>The attribute field to use when loading the group's members. Example:</td>
</tr>
<tr>
<td></td>
<td>- member</td>
</tr>
<tr>
<td>User Membership Attribute</td>
<td>The attribute field to use when loading the user's groups. Example:</td>
</tr>
<tr>
<td></td>
<td>- memberOf</td>
</tr>
</tbody>
</table>

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
Diagram above: Confluence connecting to an LDAP directory.

**RELATED TOPICS**

Configuring User Directories
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. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘User Directories’ in the left-hand panel.
3. Click ‘LDAP Connection Pool Configuration’ in the ‘Additional Configuration’ section.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Pool Size</td>
<td>The number of LDAP connections created when initially connecting to the pool.</td>
<td>1</td>
</tr>
<tr>
<td>Preferred Pool Size</td>
<td>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.</td>
<td>10</td>
</tr>
<tr>
<td>Maximum Pool Size</td>
<td>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.</td>
<td>0</td>
</tr>
<tr>
<td>Pool Timeout (seconds)</td>
<td>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.</td>
<td>30</td>
</tr>
<tr>
<td>Pool Protocol</td>
<td>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:</td>
<td>plain ssl (Both plain and ssl)</td>
</tr>
<tr>
<td>Pool Authentication</td>
<td>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:</td>
<td>simple</td>
</tr>
</tbody>
</table>

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 your application 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 Confluence server and then install the certificate into your JVM keystore.

On this page:
- Prerequisites
- Step 1. Install the Active Directory 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.

<table>
<thead>
<tr>
<th>Required Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Information Services (IIS)</td>
<td>This is required before you can install Windows Certificate Services.</td>
</tr>
<tr>
<td>Windows Certificate Services</td>
<td>This installs a certification authority (CA) which is used to issue certificates. Step 1, below, explains this process.</td>
</tr>
<tr>
<td>Windows 2000 Service Pack 2</td>
<td>Required if you are using Windows 2000</td>
</tr>
</tbody>
</table>

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:

   ```
   keytool
   ```
   
   Will prompt you for a password. The default keystore password is `changeit`.
3. When prompted enter `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:

   ```
   keytool
   ```
   
   Will prompt you for a password. The default keystore password is `changeit`.
3. When prompted enter `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:
Confluence 4.0 Documentation

2. keytool will prompt you for a password. The default keystore password is changeit.
3. 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
Certificate fingerprints:
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 Confluence application to an LDAP directory for delegated authentication. This means that Confluence will have an internal directory that uses LDAP for authentication only. There is an option to create users in the internal directory automatically when they attempt to log in, as described in the settings section.

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. Note that the 'internal directory with LDAP authentication' is separate from the default 'internal directory'. On LDAP, all that the application does is to check the password. The LDAP connection is read only. Every user in the internal directory with LDAP authentication 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 Confluence to an Internal Directory with LDAP Authentication
- Server Settings
  - Copying Users on Login
- Schema Settings
- Advanced Settings
- User Schema Settings
- Group Schema Settings
- Membership Schema Settings
- Diagrams of Possible Configurations

Connecting Confluence to an Internal Directory with LDAP Authentication

To connect to an internal directory but check logins via LDAP:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘User Directories’ in the left-hand panel.
3. Add a directory and select type ‘Internal with LDAP Authentication’.
4. Enter the values for the settings, as described below.
5. Save the directory settings.
6. If you want LDAP users to be used in place of existing internal users, move the 'Internal with LDAP Authentication' directory
to the top of the list. You can 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](#).

7. Add your users and groups in Confluence. See [Adding a New User](#) and [Adding a Group](#).

### Server Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>A descriptive name that will help you to identify the directory. Examples:</td>
</tr>
<tr>
<td></td>
<td>- Internal directory with LDAP Authentication</td>
</tr>
<tr>
<td></td>
<td>- Corporate LDAP for Authentication Only</td>
</tr>
<tr>
<td><strong>Directory Type</strong></td>
<td>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 some of the options on the rest of the screen. Examples:</td>
</tr>
<tr>
<td></td>
<td>- Microsoft Active Directory</td>
</tr>
<tr>
<td></td>
<td>- OpenDS</td>
</tr>
<tr>
<td></td>
<td>- And more.</td>
</tr>
<tr>
<td><strong>Hostname</strong></td>
<td>The host name of your directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>- ad.example.com</td>
</tr>
<tr>
<td></td>
<td>- ldap.example.com</td>
</tr>
<tr>
<td></td>
<td>- opensds.example.com</td>
</tr>
<tr>
<td><strong>Port</strong></td>
<td>The port on which your directory server is listening. Examples:</td>
</tr>
<tr>
<td></td>
<td>- 389</td>
</tr>
<tr>
<td></td>
<td>- 10389</td>
</tr>
<tr>
<td></td>
<td>- 636 (for example, for SSL)</td>
</tr>
<tr>
<td><strong>Use SSL</strong></td>
<td>Select 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.</td>
</tr>
<tr>
<td><strong>Username</strong></td>
<td>The distinguished name of the user that the application will use when connecting to the directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>- cn=administrator,cn=users,dc=ad,dc=example,dc=com</td>
</tr>
<tr>
<td></td>
<td>- cn=user,dc=domain,dc=name</td>
</tr>
<tr>
<td></td>
<td>- <a href="mailto:user@domain.name">user@domain.name</a></td>
</tr>
<tr>
<td><strong>Password</strong></td>
<td>The password of the user specified above.</td>
</tr>
</tbody>
</table>

### Copying Users on Login

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Copy User on Login</strong></td>
<td>This option affects what will happen when a user attempts to log in. If this check box is selected, the user will be created automatically in the internal directory when the user first logs in and their details will be synchronised on each subsequent log in. If this check box is not selected, the user's login will fail.</td>
</tr>
<tr>
<td></td>
<td>If you select this check box the following additional fields will appear on the screen, which are described in more detail below:</td>
</tr>
<tr>
<td></td>
<td>- Default Group Memberships</td>
</tr>
<tr>
<td></td>
<td>- Synchronise Group Memberships</td>
</tr>
<tr>
<td></td>
<td>- User Schema Settings (described in a separate section below)</td>
</tr>
<tr>
<td><strong>Default Group Memberships</strong></td>
<td>This field appears if you select the Copy User on Login check box. If you would like users to be automatically added to a group or groups, enter the group name(s) here. To specify more than one group, separate the group names with commas. Each time a user logs in, their group memberships will be checked. If the user does not belong to the specified group(s), their username will be added to the group(s). If a group does not yet exist, it will be added to the internal directory that is using LDAP for authentication.</td>
</tr>
<tr>
<td></td>
<td>Please note that there is no validation of the group names. If you mis-type the group name, authorisation failures will result – users will not be able to access the applications or functionality based on the intended group name.</td>
</tr>
<tr>
<td></td>
<td>Examples:</td>
</tr>
<tr>
<td></td>
<td>- confluence-users</td>
</tr>
<tr>
<td></td>
<td>- confluence-users,jira-users,jira-developers</td>
</tr>
</tbody>
</table>
Synchronise Group Memberships

This field appears if you select the Copy User on Login check box. If this check box is selected, group memberships specified on your LDAP server will be synchronised with Confluence each time the user logs in.

If you select this check box the following additional fields will appear on the screen, both described in more detail below:

- Group Schema Settings (described in a separate section below)
- Membership Schema Settings (described in a separate section below)

### Schema Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base DN</td>
<td>The root distinguished name (DN) to use when running queries against the directory server. Examples:</td>
</tr>
<tr>
<td></td>
<td>o=example,c=com</td>
</tr>
<tr>
<td></td>
<td>cn=users,dc=ad,dc=example,dc=com</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>User Name Attribute</td>
<td>The attribute field to use when loading the username. Examples:</td>
</tr>
<tr>
<td></td>
<td>cn</td>
</tr>
<tr>
<td></td>
<td>sAMAccountName</td>
</tr>
</tbody>
</table>

### Advanced Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Paged Results</td>
<td>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.</td>
</tr>
<tr>
<td>Follow Referrals</td>
<td>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.</td>
</tr>
</tbody>
</table>

### User Schema Settings

Note: this section is only visible when Copy User on Login is enabled.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional User DN</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>ou=Users</td>
</tr>
<tr>
<td>User Object Class</td>
<td>This is the name of the class used for the LDAP user object. Example:</td>
</tr>
<tr>
<td></td>
<td>user</td>
</tr>
<tr>
<td>User Object Filter</td>
<td>The filter to use when searching user objects. Example:</td>
</tr>
<tr>
<td></td>
<td>(&amp;(objectCategory=Person)(sAMAccountName=*))</td>
</tr>
<tr>
<td>User Name RDN Attribute</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>cn</td>
</tr>
<tr>
<td>User First Name Attribute</td>
<td>The attribute field to use when loading the user's first name. Example:</td>
</tr>
<tr>
<td></td>
<td>givenName</td>
</tr>
</tbody>
</table>
**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*

---

**Group Schema Settings**

Note: this section is only visible when both **Copy User on Login** and **Synchronise Group Memberships** are enabled.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Group DN</td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>* ou=Groups</td>
</tr>
<tr>
<td>Group Object Class</td>
<td>This is the name of the class used for the LDAP group object. Examples:</td>
</tr>
<tr>
<td></td>
<td>* groupOfUniqueNames</td>
</tr>
<tr>
<td></td>
<td>* group</td>
</tr>
<tr>
<td>Group Object Filter</td>
<td>The filter to use when searching group objects. Example:</td>
</tr>
<tr>
<td></td>
<td>* (objectCategory=Group)</td>
</tr>
<tr>
<td>Group Name Attribute</td>
<td>The attribute field to use when loading the group's name. Example:</td>
</tr>
<tr>
<td></td>
<td>* cn</td>
</tr>
<tr>
<td>Group Description Attribute</td>
<td>The attribute field to use when loading the group's description. Example:</td>
</tr>
<tr>
<td></td>
<td>* description</td>
</tr>
</tbody>
</table>

---

**Membership Schema Settings**

Note: this section is only visible when both **Copy User on Login** and **Synchronise Group Memberships** are enabled.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Members Attribute</td>
<td>The attribute field to use when loading the group's members. Example:</td>
</tr>
<tr>
<td></td>
<td>* member</td>
</tr>
<tr>
<td>User Membership Attribute</td>
<td>The attribute field to use when loading the user's groups. Example:</td>
</tr>
<tr>
<td></td>
<td>* memberOf</td>
</tr>
<tr>
<td>Use the User Membership Attribute, when finding the user's group membership</td>
<td>Select the check box if your directory server supports the group membership attribute on the user. (By default, this is the 'memberOf' attribute.)</td>
</tr>
<tr>
<td></td>
<td>* If this check box is selected, 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.</td>
</tr>
<tr>
<td></td>
<td>* If this check box is not selected, your application will use the members attribute on the group ('member' by default) for the search.</td>
</tr>
</tbody>
</table>

---

Diagrams of Possible Configurations
Diagram above: Confluence connecting to an LDAP directory for authentication only.

Diagram above: Confluence connecting to an LDAP directory for authentication only, with each user synchronised with the internal directory when they log in to Confluence.

**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 JIRA for User Management
- Connecting to JIRA 4.2 or Earlier for User Management
Connecting to Crowd or JIRA for User Management

You can connect your Confluence application to Atlassian Crowd or to JIRA (version 4.3 or later) for management of users and groups, and for authentication (verification of a user’s login).

Connecting Confluence to Crowd for User Management

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 Confluence to Crowd:**

1. Go to your Crowd Administration Console and define the Confluence application to Crowd. See the Crowd documentation: [Adding an Application](#).
2. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
3. Click ‘User Directories’ in the left-hand panel.
4. **Add** a directory and select type ‘Atlassian Crowd’. Enter the settings as described below.
5. Save the directory settings.
6. 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](#).
7. If required, configure Confluence to use Crowd for single sign-on (SSO) too. See the Crowd documentation: [Integrating Crowd with Atlassian Confluence](#).

**Crowd Settings in Confluence**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A meaningful name that will help you to identify this Crowd server amongst your list of directory servers. Examples:</td>
</tr>
<tr>
<td></td>
<td>• Crowd Server</td>
</tr>
<tr>
<td></td>
<td>• Example Company Crowd</td>
</tr>
<tr>
<td>Server URL</td>
<td>The web address of your Crowd console server. Examples:</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www.example.com:8095/crowd/">http://www.example.com:8095/crowd/</a></td>
</tr>
<tr>
<td></td>
<td>• <a href="http://crowd.example.com">http://crowd.example.com</a></td>
</tr>
<tr>
<td>Application Name</td>
<td>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 <a href="#">adding an application</a>.</td>
</tr>
<tr>
<td>Application Password</td>
<td>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 <a href="#">adding an application</a>.</td>
</tr>
</tbody>
</table>
### Crowd Permissions

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Only</td>
<td>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.</td>
</tr>
<tr>
<td>Read/Write</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Advanced Crowd Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Nested Groups</td>
<td>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.</td>
</tr>
<tr>
<td>Synchronisation Interval (minutes)</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Connecting Confluence 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.

**If you are running JIRA 4.2 or earlier, please see Connecting to JIRA 4.2 or Earlier for User Management.**

**To connect Confluence to JIRA 4.3 or later:**

1. Go to your JIRA administration screen and define the Confluence application to JIRA:
   - For JIRA 4.3.x, select 'Other Applications' from the 'Users, Groups & Roles' section of the 'Administration' menu.
   - For JIRA 4.4 or later, select 'Users' > 'JIRA User Server' in Administration mode.
   - Click 'Add Application'.
   - Enter the application name and password that Confluence will use when accessing JIRA.
   - Enter the IP address or addresses of your Confluence server. 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. Set up the JIRA user directory in Confluence:
   - Go to the Confluence 'Administration Console':
     - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
     - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
     - Click 'User Directories' in the left-hand panel.
     - 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 for your Confluence application in the settings on JIRA.
     - 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.

3. In order to use Confluence, users must be a member of the confluence-users group or have Confluence 'can use' permission. Follow these steps to configure your Confluence groups in JIRA:
   a. Add the confluence-users and confluence-administrators groups in JIRA.
   b. Add your own username as a member of both of the above groups.
   c. Choose one of the following methods to give your existing JIRA users access to Confluence:
• Option 1: In JIRA, find the groups that the relevant users belong to. Add the groups as members of one or both of the above Confluence groups.
• Option 2: Log in to Confluence using your JIRA account and go to the Confluence Administration Console. Click ‘Global Permissions’ and assign the ‘can use’ permission to the relevant JIRA groups.

### JIRA Settings in Confluence

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A meaningful name that will help you to identify this JIRA server amongst your list of directory servers. Examples:</td>
</tr>
<tr>
<td></td>
<td>• JIRA Server</td>
</tr>
<tr>
<td></td>
<td>• My Company JIRA</td>
</tr>
<tr>
<td>Server URL</td>
<td>The web address of your JIRA server. Examples:</td>
</tr>
<tr>
<td></td>
<td>• <a href="http://www.example.com/8080">http://www.example.com/8080</a></td>
</tr>
<tr>
<td></td>
<td>• <a href="http://jira.example.com">http://jira.example.com</a></td>
</tr>
<tr>
<td>Application Name</td>
<td>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 &amp; Roles' section of the 'Administration' menu.</td>
</tr>
<tr>
<td>Application Password</td>
<td>The password used by your application when accessing the JIRA server that acts as user manager.</td>
</tr>
</tbody>
</table>

### JIRA Permissions

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read Only</td>
<td>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.</td>
</tr>
<tr>
<td>Read/Write</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Advanced JIRA Settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Nested Groups</td>
<td>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.</td>
</tr>
<tr>
<td>Synchronisation Interval (minutes)</td>
<td>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.</td>
</tr>
</tbody>
</table>

### Diagrams of Some Possible Configurations
Diagram above: Confluence, JIRA and other applications connecting to Crowd for user management.
Diagram above: Confluence connecting to JIRA for user management.
Diagram above: Confluence connecting to JIRA for user management, with JIRA in turn connecting to LDAP.

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 JIRA for User Management
Connecting to JIRA 4.2 or Earlier for User Management  
Managing Multiple Directories  
Managing Nested Groups  
Synchronising Data from External Directories  
Diagrams of Possible Configurations for User Management  
User Management Limitations and Recommendations  
Requesting Support for External User Management

Reverting from Crowd or JIRA to Internal User Management

If your Confluence site currently uses JIRA or Crowd for user management, you can revert to internal user management as described below. If your Confluence instance has only a few users, it is easier to recreate the users and groups in Confluence manually. If you have a large number of users and groups, it is more efficient to migrate the relevant users and groups into the Confluence Internal directory.

Both options provided below will reset the affected users’ passwords. When done, be sure to notify them to use the ‘Reset My Password’ link on the Confluence login page before they attempt to log in.

On this page:
- Option 1 – Manually Recreate Users and Groups in Confluence
- Option 2 – Transfer Crowd/JIRA Users and Groups to the Confluence Database

Option 1 – Manually Recreate Users and Groups in Confluence

Use this option if you have only a few users and groups.

1. Log in to Confluence as a Confluence system administrator.
2. Go to the user directories administration screen and move the internal directory to the top of the list of directories, by clicking the arrows in the ‘Order’ column.
3. Make sure that you have at least one user from the internal directory in each of the confluece-users and confluence-administrators groups.
4. Make sure that you have a username in the internal directory with Confluence system administrator permissions.
   - If you do not have such a user, add a new one now, and log out of Confluence.
5. Log back in as the user you just added, and go back to the user directories administration screen.
6. Disable the Atlassian Crowd directory.
7. Manually add the required users and groups in Confluence. They will be added to the internal directory, because you have moved it to the top of the list of directories.
   - If you have assigned Confluence permissions to a group which exists in JIRA, you must create a group in Confluence with the same name.
   - If a user who exists in JIRA has created content or has had permissions assigned to them in Confluence, you must also create that user in Confluence.
8. Add the users to the required groups.

Option 2 – Transfer Crowd/JIRA Users and Groups to the Confluence Database

Use this option to migrate External Application (Crowd or JIRA) users into the Confluence database. You need a knowledge of SQL to perform this task.

The SQL commands given below are tailored for MySQL. If you are using a database other than MySQL, you will need to modify the SQL to work in your database.

Step 1. Create Backups

Creating backups is the only way to restore your data if something goes wrong.

1. From Confluence, create a full XML site backup including attachments.
2. Stop Confluence.
3. Make a backup copy of the Confluence home and installation directories.
4. Repeat the above steps for your External Application.
5. From your MySQL administration tool, create a database backup for the Crowd/JIRA and Confluence databases.

Step 2. Replace Confluence User Management

Use the SQL below to move groups and users from your External Application to Confluence by transferring table content. The SQL provided is specific to MySQL and must be modified for other databases.

Find the IDs for your Directories

1. Run the following command and take note of the resulting number. It will be referenced throughout the following instructions
as `<Confluence Internal ID>`.

```
select id from cwd_directory where directory_name='Confluence Internal Directory';
```

2. From the User Directories administration page, find the name of the directory who’s users/groups you want to move. Run the following command and take note of the resulting number. It will be referenced throughout the following instructions as `<External Application ID>`.

```
select id from cwd_directory where directory_name='External Directory Name';
```

Move Groups to Confluence

1. It is possible that you have several groups in your Internal Directory that have the same name as groups in your External Application. To find these, run:

```
select distinct a.id, a.directory_id, a.group_name, d.directory_name from
cwd_group a JOIN cwd_group b on a.group_name=b.group_name join cwd_directory d on
d.id=a.directory_id where a.directory_id != b.directory_id;
```

a. If you have results from the previous query, for each of the group names that have duplicates, find the id for the group in the Confluence Internal Directory `<internal group id>` and the External Application `<external group id>`. Run the following:

```
update cwd_group_attribute set group_id=internal group id, directory_id=`Confluence Internal ID` where group_id=external group id;
update cwd_membership set child_group_id=internal group id where
child_group_id=external group id;
update cwd_membership set parent_id=internal group id where
parent_id=external group id;
delete from cwd_group where id=external group id;
```

2. Move all the groups in the External Application to the Confluence Internal Directory.

```
update cwd_group set directory_id=`Confluence Internal ID` where
directory_id=`External Application ID`;
```

Move Users to Confluence

1. It is possible that you have several users in your Internal Directory that have the same name as users in your External Application. To find these, run:

```
select distinct a.id, a.directory_id, a.user_name, d.directory_name from cwd_user
a JOIN cwd_user b on a.user_name=b.user_name join cwd_directory d on
d.id=a.directory_id where a.directory_id != b.directory_id;
```

a. If you have results from the previous query, for each of the user names that have duplicates, find the id for the user in the Confluence Internal Directory `<internal user id>` and the External Application `<external user id>`. Run the following:

```
update cwd_membership set child_user_id=internal user id where
child_user_id=external user id;
update cwd_user_credential_record set user_id=internal user id where
user_id=external user id;
update cwd_user_attribute set user_id=internal user id, directory_id=`Confluence Internal ID` where user_id=external user id;
delete from cwd_user where id=external user id;
```


```
update cwd_user set directory_id=`Confluence Internal ID` where
directory_id=`External Application ID`;
```

Delete the External Application directory
1. You need to change the order of your directories so that the Internal directory is at the top, and active.
   a. If you have only two directories - the Internal and the External Application directory you are deleting, then do the following:

   ```sql
   update cwd_app_dir_mapping set list_index = 0 where directory_id = <Confluence Internal ID>;
   ```

   b. If you have more than two directories, you need to rearrange them so the Internal Directory is at the top (list_index 0) and the External Application directory you are deleting is at the bottom.
   - List the directories and their order using

   ```sql
   select d.id, d.directory_name, m.list_index from cwd_directory d join cwd_app_dir_mapping m on d.id=m.directory_id order by m.list_index;
   ```

   - Change the list indexes so that they are in the order you want. Directory order can be rearranged using

   ```sql
   update cwd_app_dir_mapping set list_index = <position> where directory_id = <directory id>;
   ```

   c. Check that the internal directory is enabled.
   - List the internal directory. An enabled directory will have its 'active' column set to 'T'

   ```sql
   select id, directory_name, active from cwd_directory where id = <Internal Directory id>;
   ```

   - If the internal directory is not active, activate it by

   ```sql
   update cwd_directory set active = 'T' where id = <Internal Directory id>;
   ```

2. When the directories are ordered correctly, delete the External Application directory from the directory order:

   ```sql
   delete from cwd_app_dir_operation where app_dir_mapping_id = (select id from cwd_app_dir_mapping where directory_id = <External Application ID>);
   delete from cwd_app_dir_mapping where directory_id = <External Application ID>;
   ```

3. The External Application directory is referenced in several other tables in the database. You need to remove the remaining references to it:

   ```sql
   delete from cwd_directory_attribute where directory_id=<External Application ID>;
   delete from cwd_directory_operation where directory_id=<External Application ID>;
   ```

4. All references to the External Directory should now have been removed. Delete the directory using:

   ```sql
   delete from cwd_directory where id = <External Application ID>;
   ```

Reset passwords
1. All users who were in the External Directory you deleted, including admins, will be unable to log in. Their passwords need to be reset by choosing the 'Forgot your password?' link on the login page. Alternatively, use the instructions at Restoring Passwords To Recover Admin User Rights to reset the administrator password, then set the users' passwords for them via the Manage Users page in the administration screen.

RELATED TOPICS

Configuring User Directories

Connecting to JIRA 4.2 or Earlier for User Management

Atlassian JIRA is an issue and project tracking tool. Like Confluence, JIRA offers the ability to store its users and groups in its
database. You can configure Confluence to look for its users and groups in the JIRA database. This page describes the legacy JIRA database connector, which provides a direct connection to the JIRA database.

**When to use this option:** Choose the legacy JIRA database connector if your JIRA server is JIRA 4.2 or earlier, for backwards compatibility with the already-existing option for Confluence to use JIRA for user management.

*If you are using JIRA 4.3 or later, you cannot use the legacy JIRA database connector. Instead, choose the ‘Atlassian JIRA’ directory type.*

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### Connecting Confluence to JIRA

To connect Confluence to JIRA 4.2 or earlier:

1. Edit the Confluence server.xml file, to construct the datasource location, as described below.
2. Restart Confluence.
3. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
4. Click User Directories in the left-hand panel.
5. Add a directory and select type Legacy Atlassian JIRA (4.2 and earlier). 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.
   - 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. In order to use Confluence, users must be a member of the confluence-users group or have Confluence ‘can use’ permission. Follow these steps to configure your Confluence groups in JIRA:
   - a. Add the confluence-users and confluence-administrators groups in JIRA.
   - b. Add your own username as a member of both of the above groups.
   - c. Choose one of the following methods to give your existing JIRA users access to Confluence:
     - Option 1: In JIRA, find the groups that the relevant users belong to. Add the groups as members of one or both of the above Confluence groups.
     - Option 2: Log in to Confluence using your JIRA account and go to the Confluence Administration Console. Click ‘Global Permissions’ and assign the ‘can use’ permission to the relevant JIRA groups.

### JIRA Settings in Confluence

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>A meaningful name that will help you to identify this JIRA server amongst your list of directory servers. Examples:</td>
</tr>
<tr>
<td></td>
<td>• JIRA</td>
</tr>
<tr>
<td></td>
<td>• Example Company JIRA</td>
</tr>
<tr>
<td>Datasource Location</td>
<td>The JNDI name of the JIRA datasource configured in your application server. Example: java:comp/env/jdbc/YourJiraDatasource</td>
</tr>
</tbody>
</table>

In JIRA standalone distributions (using the default application server, Tomcat 6) you can construct the datasource location as follows:

1. Open your <jira_install>/conf/server.xml file in a text editor.
2. Look for the database setup section in that file. It looks something like this:

   ```xml
   <Resource name="JiraDS" type="javax.sql.DataSource">
   ...
   </Resource>
   ```

3. Copy the above lines (the 'Resource' section) and paste it to your Confluence's server.xml file (located at <confluence_install>/conf/server.xml), under the Context path. This will then expose the value of the name attribute as the JNDI resource locator.
4. Copy the JNDI name from the name parameter. In this example, the datasource location is: java:comp/env/jdbc/JiraDS

**RELATED TOPICS**

- Configuring User Directories
Managing Multiple Directories

This page describes what happens when you have defined more than one user directory in Confluence. 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 Confluence. Select 'User Directories' from the Confluence Administration Console and click the blue up- and down-arrows next to each directory.

<table>
<thead>
<tr>
<th>Directory Name</th>
<th>Type</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confluence internal Directory</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>OpenLDAP</td>
<td>OpenLDAP (Read-Write)</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

- Please read the rest of this page to understand what effect the directory order will have on authentication (login) and permissions in Confluence, and what happens when you update users and groups in Confluence.

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 JIRA for User Management
- Connecting to JIRA 4.2 or Earlier for User Management
- Managing Multiple Directories
- Managing Nested Groups
- Synchronising Data from External Directories
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Requesting Support for External 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 Confluence 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. Go to the ‘User Directories’ section of the Confluence Administration Console, edit the directory and select ‘Enable Nested Groups’. See Configuring User Directories.

Notes:

- Before enabling nested groups for a specific directory type in Confluence, 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 Confluence, and what happens when you update users and groups in Confluence.
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
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
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:

```
objectClass=group
member=
```

**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 JIRA for User Management
  - Connecting to JIRA 4.2 or Earlier for User Management
  - Managing Multiple Directories
  - Managing Nested Groups
  - Synchronising Data from External Directories
  - Diagrams of Possible Configurations for User Management
  - User Management Limitations and Recommendations
  - Requesting Support for External User Management

**Synchronising Data from External Directories**

For certain directory types, Confluence 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.
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**.
- **Internal Directory**.

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 application 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.

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

<table>
<thead>
<tr>
<th>OpenLDAP</th>
<th>OpenLDAP (Read-Write)</th>
<th>Crowd</th>
<th>Atlassian Crowd</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disable Edit Synchronise</th>
<th>Last synchronised at 14/01/11 3:07 PM (zho 65s).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable Edit Synchronise</td>
<td>Last synchronised at 14/01/11 2:39 PM (zho 0s).</td>
</tr>
</tbody>
</table>

Configuring the Synchronisation Interval

Note: The option to configure the synchronisation interval for Crowd and JIRA directories is available in **Confluence 3.5.3 and later**. Earlier versions of Confluence allow you to configure the interval for LDAP directories only.

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.

**RELATED TOPICS**

Configuring User Directories

- Configuring the Internal Directory
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**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 Confluence 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.

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**On this page:**

- Confluence Internal Directory
- Confluence with Read/Write Connection to LDAP
- Confluence with Read-Only Connection to LDAP, with Local Groups
- Confluence Internal Directory with LDAP Authentication
- Confluence with LDAP Authentication, Copy Users on First Login
- Confluence Connecting to JIRA
- Confluence Connecting to JIRA and JIRA Connecting to LDAP
- Confluence and JIRA Connecting to Crowd

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**Confluence Internal Directory**
Confluence 4.0 Documentation

Diagram above: Confluence using its internal directory for user management.

**Confluence with Read/Write Connection to LDAP**

Diagram above: Confluence connecting to an LDAP directory.

**Confluence with Read-Only Connection to LDAP, with Local Groups**
Diagram above: Confluence connecting to an LDAP directory with permissions set to read only and local groups.

**Confluence Internal Directory with LDAP Authentication**

Diagram above: Confluence connecting to an LDAP directory for authentication only.

**Confluence with LDAP Authentication, Copy Users on First Login**
Diagram above: Confluence connecting to an LDAP directory for authentication only, with each user synchronised with the internal directory when they log in to Confluence.

Confluence Connecting to JIRA
Diagram above: Confluence connecting to JIRA for user management.

Confluence Connecting to JIRA and JIRA Connecting to LDAP
Diagram above: Confluence connecting to JIRA for user management, with JIRA in turn connecting to LDAP.

Confluence and JIRA Connecting to Crowd
Diagram above: Confluence, JIRA and other applications connecting to Crowd 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 JIRA for User Management
- Connecting to JIRA 4.2 or Earlier 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 Confluence.
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.
- **Be careful when deleting users in remote directories.** If you are connecting to an LDAP directory, a Crowd directory or a JIRA directory, please take care when deleting users from the remote directory. If you delete a user that is associated with data in Confluence, this will cause problems in Confluence.

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.

<table>
<thead>
<tr>
<th>Your environment</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 10 000 (ten thousand) users, 1000 (one thousand) groups, and 20 (twenty) groups per user</td>
<td>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.</td>
</tr>
<tr>
<td>More than the above</td>
<td>Use LDAP filters to reduce the number of users and groups visible to the synchronisation task</td>
</tr>
</tbody>
</table>

**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 uSNCNchanged 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. **Synchronising with AD servers behind a load balancer is not supported.** As with synchronising between two different AD servers, Microsoft Active Directory does not replicate the uSNCNchanged attribute across instances. For that reason, we do not support connecting to different AD servers even when they are load balanced. You will need to select one server (preferably one that is local) to synchronise with instead of using the load balancer.

4. **You must restart the application after restoring AD from backup.** On restoring from backup of an AD server, the uSNCNchanged 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.

5. **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.

6. **The User DN used to connect to AD must be able to see the uSNCNchanged attribute.** The synchronisation task relies on the uSNCNchanged 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 JIRA for User Management**

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**

JIRA, Confluence, FishEye and Crucible can connect to a JIRA server for user management. We intend to add support for 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**

<table>
<thead>
<tr>
<th>Your environment</th>
<th>Recommendation</th>
</tr>
</thead>
</table>

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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 Bamboo. Or, if you do have Bamboo, you are happy not to integrate its user management with JIRA at the moment. You are happy to wait until at least July 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 Bamboo and you want to integrate its 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 JIRA for User Management
Configuring User Directories

**Requesting Support for External User Management**

This page gives guidelines on how to request help from the Atlassian support team if you are having problems with external user management. External user management includes connections to Active Directory, other LDAP servers, Atlassian Crowd or Atlassian JIRA for user management. The information on this page is provided in addition to the more general page on Troubleshooting Problems and Requesting Technical Support.

The cause of such problems may be:

- The LDAP server is not responding.
- The application password is incorrectly configured, causing the LDAP server or other directory to return an authentication error.
- Other LDAP settings are incorrectly configured.

**On this page:**

- Troubleshooting the Connection to your External User Directory
- Problems During Initial Setup
- Complex Authentication or Performance Problems
Troubleshooting the Connection to your External User Directory

The configuration screen for external directories in Confluence has a **Test Settings** button. This will help you to diagnose problems with user management in Active Directory and other LDAP servers.

To test your directory connection:

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘User Directories’ in the left-hand panel.
3. **Edit** the relevant directory.
4. Click ‘Test Settings’.
5. The results of the test will appear at the top of the screen.

Please refer to our knowledge base articles for troubleshooting user management and login issues.

If the above resources do not help, continue below.

Problems During Initial Setup

Raise a **support request** and include the following information.

- Download an LDAP browser to make sure you have the right settings in your LDAP directory. Atlassian recommends LDAP Studio. Include screenshots of your user and group DNs.
- If you can start up Confluence and access the Administration Console, review your directory settings. See **Connecting to an LDAP Directory**. Attach screenshots of all your settings.

Complex Authentication or Performance Problems

Raise a **support request** and include the following information.

Confluence Server

Log in to Confluence and access the Administration Console.

- Take a screenshot of the **System Information** screen, or save the page as HTML.
- Take a screenshot of the **Global Permissions** screen, if people are having problems with logging in.
- Go to **Space Admin** for the relevant space and take a screenshot of the **Permissions** page, if you are having problems with space or page permissions.

Confluence Configuration Files

- If you have implemented a custom authenticator or in any way modified seraph-config.xml or seraph-paths.xml, please provide the modified file.

User Management System

- Include the name and version of your LDAP server.
- Does your LDAP server use dynamic or static groups?
- Review your directory settings. See **Connecting to an LDAP Directory**. Attach screenshots of all your settings.

Diagnostics

- Enable profiling. See **Performance Tuning**.
- Enable detailed user management logging, by editing **confluence/WEB-INF/classes/log4j.properties**.
  
  Change this section:
  
  ```
  # Atlassian User
  #
  #log4j.logger.com.atlassian.user=DEBUG
  #log4j.logger.com.atlassian.confluence.user=DEBUG
  #log4j.logger.bucket.user=DEBUG
  #log4j.logger.com.atlassian.seraph=DEBUG
  #log4j.logger.com.opensymphony.user=DEBUG
  
  Remove the ‘#’ signs at the beginning of the lines, so that it looks like this:
  ```
### Atlassian User

```text
log4j.logger.com.atlassian.user=DEBUG
log4j.logger.com.atlassian.confluence.user=DEBUG
log4j.logger.bucket.user=DEBUG
log4j.logger.com.atlassian.seraph=DEBUG
log4j.logger.com.opensymphony.user=DEBUG
```

After enabling both the above, please attempt a Confluence LDAP account login and attach a copy of the log files that are produced when the problem occurs. To do this, locate your install directory or exploded WAR directory, then zip the full `/logs` subdirectory into a single file for us to examine. The logs subdirectory is located in your Confluence Home directory.

**RELATED TOPICS**

Troubleshooting Problems and Requesting Technical Support

- Configuring the Internal Directory
- Connecting to an LDAP Directory
- Connecting to an Internal Directory with LDAP Authentication
- Connecting to Crowd or JIRA for User Management
- Connecting to JIRA 4.2 or Earlier for User Management
- Managing Multiple Directories
- Managing Nested Groups
- Synchronising Data from External Directories
- Diagrams of Possible Configurations for User Management
- User Management Limitations and Recommendations
- Requesting Support for External User Management

**Confluence User Management**

This section describes how to manage users and groups in Confluence. To learn how to configure external user management in Confluence, see [Configuring User Directories](#).

- Searching For and Managing Users
- Adding a New User
- Adding a Group
- Adding or Removing Users in Groups
- Changing Usernames
- Editing User Details
- Global Groups Overview
- Global Permissions Overview
- Removing a Group
- Removing or Deactivating a User
- Setting up Anonymous Access
- Viewing members of a group
- Restoring Passwords To Recover Admin User Rights
- Resetting the Login Count for a User

**Searching For and Managing Users**

If you are a [Confluence Administrator](#), you can add users, assign them to groups and edit their user details.

**On this page:**

- Accessing the User Management Screen
- Listing All Users
- Using the Simple User Search
- Using the Advanced User Search
- Notes

**Accessing the User Management Screen**

To search for and manage users:

1. Go to the user management screen for the user concerned. There are two ways to do this:
   - Either,
Go to the user's Profile and click the 'Administer User' link on the user's profile screen. (This link is available in Confluence 2.8.2 and later.)

Or, Go to the Confluence 'Administration Console':

- Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
- Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
- Select 'Manage Users' in the left-hand panel.
- The 'Manage Users' screen appears, as shown below. You can now choose to list all users or you can search for a specific user.

1. Open the 'Manage Users' screen as described above.
2. Click the 'Show all users' link. All members of the confluence-users group are listed in alphabetical order, by username. If there are more users than can fit on one page, the results will be divided into multiple pages.
3. To move to another page of results, click the numbered links, 'Next' or 'Previous' near the top or bottom of the page.
4. To specify how many results should be shown per page, click a number '10', '20', '50' or '100' near the top of the page.

Using the Simple User Search

To search for a specific user via the simple user search:

1. Open the 'Manage Users' screen as described above.
2. If the 'Simple' link is showing, click it. (If you see the 'Advanced' link and no 'Simple' link, then you're fine. The simple search is already active.)
3. The simple user search screen will appear, as shown below.
4. Type some information about the user into the ‘Search’ textbox. You can type all or part of their username, full name or email address.
5. Click the ‘Search’ button.
6. Confluence will display a list of matching users. Click the link on a username to see and edit the details for that user.

Using the Advanced User Search

The advanced user search allows you to specify the field in which your search term appears, i.e. username, full name or email address. You may find this useful if you need to limit the number of users appearing in the search results.

To search via the advanced user search:

1. Open the ‘Manage Users’ screen as described above.
2. If the ‘Advanced’ link is showing, click it. (If you see the ‘Simple’ link and no ‘Advanced’ link, then you're fine. The advanced search is already active.)
3. The advanced user search screen will appear, as shown below.
4. Complete one or more of the following fields:
   - **User Name** — Enter all or part of the person's username i.e. their login id, e.g. 'joe', or 'bloggs'.
   - **Full Name** — Enter all or part of the person's name, e.g. 'joe bloggs', or 'bloggs', or 'joe'.
   - **E-Mail** — Enter all or part of the person's email address, e.g. 'acme'
5. Click the ‘Search’ button.
6. Confluence will display a list of matching users. Click the link on a username to see and edit the details for that user.
1. **Multiple user directories**: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where Confluence 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](#).

2. **Crowd and the user search**: If you are using Atlassian's **Crowd** for user management, you will need Crowd 1.5.1 or later to use the 'Simple' option in the user search. If your version of Crowd does not support the simple user search, you will see only the 'Advanced' search form.

**RELATED TOPICS**

No content found for label(s) confluence-usermanagement.

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**Adding a New User**

There are a number of ways new users can be added to Confluence:

- **By public signup**: If public signup is enabled on your Confluence site, people can add themselves as users of the site.
- **By Confluence administrators**: Administrators with Confluence Administrator or System Administrator permissions can add new users from the **Administration Console**.
- **Via an external user directory**: See [Configuring User Directories](#).

**To add a new user to Confluence from the Administration Console**:

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'Manage Users' in the left-hand panel.
3. Click the link 'Add User' at the top of the page.
4. Enter the user’s details: username, password, name and email address.
5. Click **Create**.

**Notes**

- **Multiple user directories**: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where Confluence 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](#).

**RELATED TOPICS**

No content found for label(s) confluence-usermanagement.

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**Adding a Group**

A group is a collection of users. Administrators create groups so that the administrator can assign permissions to a number of people at once. For example, it is quicker to give group 'X' access to Confluence, rather than giving every team member access individually.

**To add a new group**:

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin**. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the 'Administration Console'.

   See [Managing Multiple Directories](#).

**RELATED TOPICS**

No content found for label(s) confluence-usermanagement.
2. Click **Manage Groups** in the left-hand panel.
3. Click **Add Group**.
4. Enter a name for your group and click **Save**.

You are now ready to start **adding users** to the group.

**Notes**

- **Multiple user directories**: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence **internal directory** and also connect to an **LDAP** directory server. In such cases, you can define the **directory order** to determine where Confluence 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**.

**Related Topics**

No content found for label(s) managing-groups.

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**Adding or Removing Users in Groups**

If you are a **Confluence Administrator**, you can add users and groups, and assign users to groups in order to determine their permissions.

This page tells you how to add a user to a group or remove a user from a group. For an overview of users and groups, please refer to **Users and Groups** and **Confluence User Management**.

You can edit group membership in two places:

- From the group management screen.
- From the user management screen for a particular user.

Both methods are described below.

---

**On this page:**

- Adding and Removing Members via the Group Management Screen
- Editing Group Membership from the User Management Screen
- Notes

---

**Adding and Removing Members via the Group Management Screen**

This is the recommended method, available in **Confluence 2.10** and later. It allows you to manage the group membership for a number of users at the same time.

**To add members to a group:**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse** > **Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the ‘Administration Console’.
2. Select ‘**Manage Groups**’ in the left-hand panel.
3. The ‘**Manage Groups**’ screen appears, showing a list of groups. Select the group to which you want to add users.
4. The ‘**Group Members**’ screen appears, showing the users who belong to the selected group. (See screenshot below.) Click the ‘**Add Members**’ link.
5. The ‘**Add Members**’ screen appears, as shown below. Type in the usernames of the people you want to add to the group.

   You can also search for and select users by clicking the **icon**, as described in **Searching for Users**.
6. When you have added the required username(s), click the **Add** button to add the member(s) to the group.

**To remove members from a group:**

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse** > **Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a **secure session** to access the ‘Administration Console’.
2. Select ‘**Manage Groups**’ in the left-hand panel.
3. The ‘**Manage Groups**’ screen appears, showing a list of groups. Select the group from which you want to remove the user.
4. The ‘Group Members’ screen appears, showing the users who belong to the selected group. (See screenshot below.) Click the ‘Remove user from group’ icon next to the user whose group membership you want to remove.

Edited Group Membership from the User Management Screen

You can update a user's group membership from the user management screen. This functionality allows you to update one user at a time.

To add a user to a group or remove a user from a group:

1. Go to the user management screen for the user concerned. There are two ways to do this:
   • Either,
     • Go to the user's Profile and click the ‘Administer User’ link on the user's profile screen. (This link is available in Confluence 2.8.2 and later.)
   • Or,
     • Go to the Confluence 'Administration Console':
       • Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
       • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
       • Select Manage Users in the left-hand panel.
       • The ‘Manage Users’ screen appears, as shown below. You can now choose to Show all users or you can search for a specific user by entering all or part of the person's username, full name or email address. (For more details about the user search, see Searching For and Managing Users.)
       • Click the link on the username you want to edit.
2. Now you should be able to see the user's current details, with links allowing you to edit the user's details and groups. See the screenshot showing a user's details below.
3. Click Edit Groups. This will display two lists of groups, as shown in the screenshot below. Update the user's group membership as follows:
   • Not a member of groups — This box shows all groups to which the user does not belong. To add the user to a group, select a group and click Join. Hold the Ctrl key down and click to select more than one group.
   • Member of groups — This box shows all groups to which the user belongs. Select a group and click Leave to remove the user from the group.
Multiple user directories: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence internal directory and also connect to an LDAP directory server. In such cases, you can define the directory order to determine where Confluence 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.

**RELATED TOPICS**

No content found for label(s) confluence-usermanagement.

**Changing Usernames**

A username is the name used to log into Confluence, eg. jsmith.
Currently, there is no straightforward method for changing a username and its associated content, to that of another user. The only practicable method currently available is to execute direct SQL queries on your database. There is a feature request to facilitate this process via a web interface and you can vote for it to improve its chances of being implemented. Be aware, however, that no matter what method you use to change usernames in Confluence, there is no support provided for this process. The instructions below provide suggested guidelines on how to change a username via SQL queries, although this may vary depending on your database.

Instructions For Changing Usernames

This document is for use with 3.5. If using an earlier version, please see the 3.4 version of the page.

The following SQL commands are only tested for MySQL and PostgreSQL Databases. If you have any other database please contact your DBA to determine the equivalent queries.

Usernames can only be changed through direct update to the Confluence database.

1. If you have a database administrator, request that they approve the database-related steps described below
2. If you are using JIRA user management, Revert from JIRA To Internal User Management
3. Backup Confluence
4. If you are using MySQL, make sure you are not running in safe updates mode:
   ```sql
   set sql_safe_updates=0;
   ```
5. Create a `userrmigration` table:
   ```sql
   create table userrmigration
   (oldusername varchar(255),
   newusername varchar(255))
   ```
6. Usernames that will be changed must be placed in the `userrmigration` table with their current and planned usernames:
   ```sql
   insert into userrmigration (oldusername, newusername)
   values ('oldusername', 'newusername');
   ```
7. Run the following SQL commands:
   a. If you have command line access to your database, download the scripts for MySQL or PostgreSQL then run them against your database:
      ```
      PostgreSQL
      $ psql -f PostgreSQLChangeUsernames.sql your_database_name
      ```
      ```
      MySQL
      $ mysql your_database_name < MySQLChangeUsernames.sql
      ```
   b. Otherwise, run the following:
      i. If your DB administration tool does not support multiple SQL queries, these must be entered individually:
         ```
         PostgreSQL
         update attachments
         ```
set creator = newusername from usermigration u
where creator = u.oldusername;

update attachments
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update content
set creator = newusername from usermigration u
where creator = u.oldusername;

update content
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update content
set username = newusername from usermigration u
where username = u.oldusername;

update content_label
set owner = newusername from usermigration u
where owner = u.oldusername;

update content_perm
set creator = newusername from usermigration u
where creator = u.oldusername;

update content_perm
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update content_perm
set username = newusername from usermigration u
where username = u.oldusername;

update contentlock
set creator = newusername from usermigration u
where creator = u.oldusername;

update contentlock
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update cwd_user
set lower_user_name = lower(newusername) from usermigration u
where lower_user_name = lower(u.oldusername);

update cwd_user
set user_name = newusername from usermigration u
where user_name = u.oldusername;

update extrnlks
set creator = newusername from usermigration u
where creator = u.oldusername;

update extrnlks
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update follow_connections
set followee = newusername from usermigration u
where followee = u.oldusername;

update follow_connections
set follower = newusername from usermigration u
where follower = u.oldusername;

update label
set owner = newusername from usermigration u
where owner = u.oldusername;

update links
set creator = newusername from usermigration u
where creator = u.oldusername;
update links
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update notifications
set creator = newusername from usermigration u
where creator = u.oldusername;

update notifications
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update notifications
set username = newusername from usermigration u
where username = u.oldusername;

update pagetemplates
set creator = newusername from usermigration u
where creator = u.oldusername;

update pagetemplates
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update remembermetoken
set username = newusername from usermigration u
where username = u.oldusername;

update spacegroups
set creator = newusername from usermigration u
where creator = u.oldusername;

update spacegroups
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update spacepermissions
set creator = newusername from usermigration u
where creator = u.old.username;

update spacepermissions
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update spacepermissions
set permusername = newusername from usermigration u
where permusername = u.oldusername;

update spaces
set creator = newusername from usermigration u
where creator = u.oldusername;

update spaces
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update trackbacklinks
set creator = newusername from usermigration u
where creator = u.oldusername;

update trackbacklinks
set lastmodifier = newusername from usermigration u
where lastmodifier = u.oldusername;

update ATTACHMENTS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;
update ATTACHMENTS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update CONTENT a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update CONTENT a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update CONTENT a, usermigration u
set a.username = u.newusername
where a.username = u.oldusername;

update CONTENTLOCK a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update CONTENTLOCK a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update CONTENT_LABEL a, usermigration u
set a.owner = u.newusername
where a.owner = u.oldusername;

update CONTENT_PERM a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update CONTENT_PERM a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update CONTENT_PERM a, usermigration u
set a.username = u.newusername
where a.username = u.oldusername;

update CWD_USER a, usermigration u
set a.lower_user_name = LOWER(u.newusername)
where a.lower_user_name = LOWER(u.oldusername);

update CWD_USER a, usermigration u
set a.user_name = u.newusername
where a.user_name = u.oldusername;

update EXTRNLNKS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update EXTRNLNKS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update FOLLOW_CONNECTIONS a, usermigration u
set a.followee = u.newusername
where a.followee = u.oldusername;

update FOLLOW_CONNECTIONS a, usermigration u
set a.follower = u.newusername
where a.follower = u.oldusername;

update LABEL a, usermigration u
set a.owner = u.newusername
where a.owner = u.oldusername;

update LINKS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update LINKS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;
update NOTIFICATIONS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update NOTIFICATIONS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update NOTIFICATIONS a, usermigration u
set a.username = u.newusername
where a.username = u.oldusername;

update PAGETEMPLATES a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update PAGETEMPLATES a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update REMEMBERMETOKEN a, usermigration u
set a.username = u.newusername
where a.username = u.oldusername;

update SPACEGROUPS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update SPACEGROUPS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update SPACEPERMISSIONS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update SPACEPERMISSIONS a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update SPACEPERMISSIONS a, usermigration u
set a.permusername = u.newusername
where a.permusername = u.oldusername;

update SPACES a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;

update SPACES a, usermigration u
set a.lastmodifier = u.newusername
where a.lastmodifier = u.oldusername;

update TRACKBACKLINKS a, usermigration u
set a.creator = u.newusername
where a.creator = u.oldusername;
ii. Reassign user preferences in the OS_PROPERTYENTRY table. Usernames in the OS_PROPERTYENTRY table need to be prefixed with 'CWD_'.

**PostgreSQL**

```sql
update os_propertyentry
set entity_name = 'CWD_' || newusername from usermigration u
where entity_name = 'CWD_' || u.oldusername;
```

**MySQL**

```sql
update OS_PROPERTYENTRY a, usermigration u
set a.entity_name = concat('CWD_', u.newusername)
where a.entity_name = concat('CWD_', u.oldusername);
```

iii. Reassign personal spaces and settings associated with the old username to the new username. The tilda (~) is required as it is prepended to the space key of all personal spaces:

**PostgreSQL**

```sql
update spaces
set spacekey = '~' || newusername from usermigration u
where spacekey = '~' || u.oldusername;

update bandana
set bandanacontext = '~' || newusername from usermigration u
where bandanacontext = '~' || u.oldusername;
```

**MySQL**

```sql
update SPACES a, usermigration u
set a.spacekey = concat('~', u.newusername)
where a.spacekey = concat('~', u.oldusername);

update BANDANA a, usermigration u
set a.bandanacontext = concat('~', u.newusername)
where a.bandanacontext = concat('~', u.oldusername);
```

8. Each username is associated with a full name. For example, username 'jsmith' may have a full name of 'John M Smith'. If this fullname needs to be changed, modify the first_name, lower_first_name, last_name and lower_last_name in the cwd_user table. Ensure the lower_ columns are merely copies of their normal counterparts but with all letters in lower case. Then modify the display_name and lower_display_name columns so that they are the first_name and last_name columns or the lower_first_name and lower_last_name columns put together but separated by a space.

**Rebuild the Indexes**

After all the updates, it's necessary to Rebuild the Indexes from Scratch

All old usernames in Confluence should now be replaced with the new usernames from the usermigration table.

**RELATED TOPICS**

No content found for label(s) confluence-usermanagement.
Editing User Details

To update a user's details:

1. First, go to the user management screen for the user concerned. There are two ways to do this:
   - Either, go to the user's Profile and click the 'Administer User' link on the user's profile screen.
   - Or, go to the Confluence 'Administration Console':
     - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
     - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
     - Select the link 'Manage Users' in the left-hand panel.
     - Locate the user by doing a search on the username or the groups to which they belong.
     - Click the user link.

2. Now you should be able to see the user's current details and links allowing you to edit them.
   - View Profile — View the user's profile.
   - Edit Groups — Add or remove this user from a group.
   - Edit Details — Change details such as the user's name, email address, contact details and team or department information.
     Changing a user's username is not supported. See Changing Usernames for information.
   - Set Password — Edit the user's password details.
   - Remove — You can remove a user permanently if the user has not added or edited any content on the site.
   - Disable — You can disable (i.e. deactivate) access for a user who has already added or edited any content on the site.

Multiple user directories: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence internal directory and also connect to an LDAP directory server. In such cases, you can define the directory order to determine where Confluence 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.

RELATED TOPICS

No content found for label(s) managing-users.
Global Groups Overview

There are two special default groups in Confluence:

1. **confluence-administrators**: This is a group of ‘super-users’ who can access the ‘Administration Console’ and perform site-wide administration. Members of this group can also see all spaces in the Confluence instance. Any user who is a member of this group has site-wide administration powers, regardless of any other setting. The settings on the Global Permissions screen do not affect the powers allowed to members of this group.

2. **confluence-users**: This is the default group for all new users. Permissions you assign to this group will be assigned to all newly signed-up users of Confluence.

---

**Confluence Administrator permission and confluence-administrators group are not related**

Going by the names, you would think the ‘confluence-administrators’ group and the ‘Confluence Administrator’ permission are related – but they are not. To resolve confusion, we want to make explicit that granting a user or group ‘Confluence Administrator’ permission is not the same as granting them membership to the ‘confluence-administrators’ group. Granting the ‘Confluence Administrator’ permission enables access to only a subset of the administrative functions. Granting membership to the ‘confluence-administrators’ group, on the other hand, gives complete access.

---

**Other user groups**: A Confluence administrator can also group users together into user groups for more convenient administration. Once created, groups become available at the space and page levels to allow for flexible access control. A user in one of these groups will automatically be granted all permissions granted to the group.

**Anonymous users**: Confluence treats all users who do not log in when they access Confluence as being ‘anonymous’. You can grant anonymous ‘Use Confluence’ permission via the Global Permissions screen. This will allow non-registered users to access pages and spaces in Confluence. A space administrator can then further control anonymous access per space via the space permissions.

---

**Related Topics**

No content found for label(s) confluence-usermanagement.

---

Global Permissions Overview

Permissions determine the actions which a user is allowed to perform within Confluence. Global permissions are one of the levels of permission provided by Confluence.

In order to assign these permissions, you must already have the global ‘Confluence Administrator’ or ‘System Administrator’ permission (described below). You can then assign global permissions to groups, individual users and anonymous users. Further permissions are granted from the space administration screens.

**On this page:**

- Overview of the Global Permissions
- Comparing the System Administrator with the Confluence Administrator Permission
- Comparing the Administrator Permissions with the confluence-administrators Group
- Updating Global Permissions
- Related Topics

**Overview of the Global Permissions**

Global permissions control access across the whole Confluence site. Here is a list:

<table>
<thead>
<tr>
<th>Global Permission</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can Use</td>
<td>This is the most basic permission that allows users to access the site. Users with this permission count towards the number of users allowed by your license. See the information on removing/deactivating users.</td>
</tr>
</tbody>
</table>
Attach Files to User Profile

This allows the user to upload files to be stored in their user profile. This feature was made obsolete by the introduction of personal spaces in Confluence 2.2. Hence, this permission is no longer relevant. Attachments can be accessed from a user profile view (for example, an image within the 'About Me' field of a profile view) by attaching these files to a page within that user's personal space and referencing them using appropriate wiki markup code.

Update User Status

This allows the user to update their user status message, which can be seen on the user's profile, pages in their personal space and on various activity streams accessible to other Confluence users.

Personal Space

This permission allows the user to create a personal space.

Create Space(s)

This permission allows users to create new spaces within your Confluence site. When a space is created, the creator automatically has the 'Admin' permission for that space and can perform space-wide administrative functions.

Confluence Administrator

This permission allows users to access the 'Administration Console' that controls site-wide administrative functions. Users with this permission can perform most, but not all, of the Confluence administrative functions. See the comparison of 'System Administrator' and 'Confluence Administrator' below.

System Administrator

This permission allows users to access the 'Administration Console' that controls site-wide administrative functions. Users with this permission can perform all the Confluence administrative functions, including the ones which the 'Confluence Administrator' permission does not allow. See the comparison of 'System Administrator' and 'Confluence Administrator' below. Refer also to the note about the 'confluence-administrators' group below.

The first system administrator is defined during installation

During the initial configuration of Confluence, the Setup Wizard asks for the username of the System Administrator. This user will have the 'System Administrator' permission and will be a member of the 'confluence-administrators' group.

Comparing the System Administrator with the Confluence Administrator Permission

New with Confluence 2.7 and later comes the ability to have two levels of administrator in Confluence:

- **System Administrator** – Users with this permission can perform all the Confluence administrative functions, including the ones which the 'Confluence Administrator' permission does not allow.
- **Confluence Administrator** – Users with this permission can perform most, but not all, of the Confluence administrative functions.

**Tip:** The two-tier administration is useful when you want to delegate some administrator privileges to project managers or team leaders. You can give 'Confluence Administrator' permission to users who should be able to perform most administrative functions, but should not be able to perform functions that can compromise the security of the Confluence system.

The following functions are excluded from the 'Confluence Administrator' permission:

<table>
<thead>
<tr>
<th>Administration Screen</th>
<th>Excluded Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Configuration</td>
<td>The following functionality is disallowed:</td>
</tr>
<tr>
<td></td>
<td>• Server Base URL</td>
</tr>
<tr>
<td></td>
<td>• Remote API plugin</td>
</tr>
<tr>
<td></td>
<td>• Public Signup</td>
</tr>
<tr>
<td></td>
<td>• Connection Timeouts</td>
</tr>
<tr>
<td>Security Configuration</td>
<td>The following functionality is disallowed:</td>
</tr>
<tr>
<td></td>
<td>• External user management</td>
</tr>
<tr>
<td></td>
<td>• Append wildcards to user and group searches</td>
</tr>
<tr>
<td></td>
<td>• Public Signup</td>
</tr>
<tr>
<td></td>
<td>• Anti XSS Mode</td>
</tr>
<tr>
<td></td>
<td>• Enable Custom Stylesheets for Spaces</td>
</tr>
<tr>
<td></td>
<td>• Show system information on the 500 page</td>
</tr>
<tr>
<td></td>
<td>• Maximum RSS Items</td>
</tr>
<tr>
<td></td>
<td>• XSRF Protection</td>
</tr>
</tbody>
</table>
The following functionality is disallowed:

- Upgrade
- Install
- Confluence Upgrade Check

This function is disallowed entirely.

Comparing the Administrator Permissions with the confluence-administrators Group

The 'confluence-administrators' group defines a set of 'super-users' who can access the Administration Console and perform site-wide administration. Members of this group can also see the content of all pages and spaces in the Confluence instance, regardless of space permissions. They cannot immediately see the pages for which they are excluded by page restrictions without knowing the direct URL to the page (restrictions can be removed by members of the confluence-administrators group in the Space Admin screen if need be). For example, they will not see restricted pages displayed by the children macro. But they are able to access restricted pages directly using the page URL. The settings on the 'Global Permissions' screen do not affect the powers allowed to members of this group.

Granting the 'System Administrator' or 'Confluence Administrator' permission to a user will not automatically grant the user access to all spaces in the site. These permissions will only give access to the Administration Console. Be aware, however, that users with 'System Administrator' can add themselves to the 'confluence-administrators' group and become a super-user.

Confluence Administrator permission and confluence-administrators group are not related

Going by the names, you would think the 'confluence-administrators' group and the 'Confluence Administrator' permission are related – but they are not. To resolve confusion, we want to make explicit that granting a user or group 'Confluence Administrator' permission is not the same as granting them membership to the 'confluence-administrators' group. Granting the 'Confluence Administrator' permission enables access to only a subset of the administrative functions. Granting membership to the 'confluence-administrators' group, on the other hand, gives complete access.

Read more about global groups.

Updating Global Permissions

To view the global permissions for a group or user:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select Global Permissions in the Security section of the left-hand panel. The View Global Permissions screen appears.

Read more about global groups.
Add or edit group and user permissions as follows:

**To add permissions for a group:**

1. First **add the group** to Confluence, if you have not already done so.
2. Click **Edit Permissions**. The 'Edit Global Permissions' screen appears, as shown below.
3. Enter the group name in the **Grant browse permission to** box in the ‘Groups’ section. You can search for the group name.
4. Click **Add**.
5. The group will appear in the list and you can now edit its permissions.

**To add permissions for a specific user:**

(Consider **adding the user to a group** and then assigning the permissions to the group, as described above, instead of assigning permissions to the specific user.)

1. First **add the user** to Confluence, if you have not already done so.
2. Click **Edit Permissions**. The 'Edit Global Permissions' screen appears, as shown below.
3. Enter the username in the **Grant browse permission to** box in the ‘Individual Users’ section. You can search for the username.
4. Click **Add**.
5. The username will appear in the list and you can now edit its permissions.

**To add or edit the permissions for a user or group:**

1. Select, or clear, the check box under the relevant permission in the row for the relevant user/group. A selected check box indicates that the permission is granted.
2. To allow anonymous access to your Confluence site, select the 'Use Confluence' and 'View User Profile' options in the ‘Anonymous Access’ section.
   - For more information about these permissions, refer to **Setting up Anonymous Access**.
3. Click **Save All** to save your changes.

Screenshot: Editing global permissions
About some error messages you may see

In Confluence 2.7.2 and later, Confluence will let you know if there is a problem with some permissions. In rare situations, you may see the following error messages below a permission:

- **User/Group not found** — This message may appear if your LDAP repository is unavailable, or if the user/group has been deleted after the permission was created.
- **Case incorrect. Correct case is: xxxxxx** — This message may appear if the upper/lower case in the permission does not match the case of the username or group name. If you see a number of occurrences of this message, you should consider running the routine supplied to fix the problem.

## Removing a Group

To remove a group:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select ‘Manage Groups’ in the left panel. A list of all existing groups is displayed along with links to remove them.
3. Click ‘Remove’ beside the group you want to remove. You will need to confirm your action before the group is deleted.

## Notes

- **Multiple user directories**: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence internal directory and also connect to an LDAP directory server. In such cases, you can define the directory order to determine where Confluence 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.

## Related Topics

No content found for label(s) other-settings.

## Removing or Deactivating a User

If you are a Confluence Administrator, you can remove and deactivate users.

You can remove a user from Confluence if they have not yet added or edited any content on the site. Such content includes pages and blog posts, and edits and comments on existing pages.

You can deactivate, or disable, a user, including one who has contributed content.

- Deactivated users can no longer log in to Confluence.
- Deactivating a user will not remove the content created by them from the site.
- Deactivated users do not count towards your license count. (See the notes below.)

To remove a user:

1. Go to the user’s Profile and click the ‘Administer User’ link.
2. Click ‘Remove’.

To deactivate a user:

1. Go to the user’s Profile and click the ‘Administer User’ link.
2. Click ‘Disable.’
The 'Administer User' link is only visible if you are logged in as an administrator.

You can also remove or disable users using the Administration Console.

You can edit the groups that a user belongs to if you don't wish to prevent their access to Confluence completely.

Multiple user directories: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence internal directory and also connect to an LDAP directory server. In such cases, you can define the directory order to determine where Confluence 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.

Number of users and your license. The Confluence 'License Details' screen tells you how many users your Confluence instance is licensed to support, and how many are currently registered. See Viewing and Editing License Details. The number of registered users includes only users who have the 'Can Use' global permission. Deactivated users, as described above, are not included.

Related Topics

No content found for label(s) confluence-usermanagement.

Setting up Anonymous Access

You can enable anonymous access (also known as public access) to your site by granting the 'Use Confluence' permission to 'Anonymous' users.

This user category has been created for convenient administration of users who have not logged into the site. Permissions assigned to this group apply to all anonymous users of the site.

Enabling Anonymous Access

To enable anonymous access to your site,
1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘Global Permissions’ in the left-hand panel.
3. Click ‘Edit Permissions’.
4. In the ‘Anonymous Access’ section, select the ‘can use’ check box to enable anonymous access to the content on your site.
5. If you selected the ‘can use’ check box in the previous step and want to allow anonymous access to user profile views, select the check box in the ‘View User Profiles’ section.
   Note: You cannot grant the ‘View User Profiles’ permission independently of the ‘Use Confluence’ permission.
6. Click ‘Save All’.
7. You can now grant further permissions from the space administration screens to Confluence permission.

Disabling Anonymous Access

To disable anonymous access to your site, clear the ‘can use’ check box and the ‘View User Profiles’ check box, then click ‘Save All’.

**RELATED TOPICS**

No content found for label(s) managing-users.

---

**Administrators Guide Home**  **Confluence Documentation Home**

**Viewing members of a group**

To view the members of a group:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click Manage Groups in the left-hand panel. This will list all the existing groups on the site.
3. Click a group name to display all the users in the group.

**Notes**

- **Multiple user directories**: You may define multiple user directories in Confluence, so that Confluence looks in more than one place for its users and groups. For example, you may use the default Confluence internal directory and also connect to an LDAP directory server. In such cases, you can define the directory order to determine where Confluence 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.

**Related Topics**

No content found for label(s) managing-groups.

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**Administrators Guide Home**  **Confluence Documentation Home**

**Restoring Passwords To Recover Admin User Rights**

Use this document if you are unable to log in to Confluence as administrator. The most common reason for using these instructions is if you have lost the administration password for your Confluence site.

**Before you Start**

Please note the following before you start:

- The following instructions include example SQL that should work on MySQL and PostgreSQL. You may need to customise the queries for other databases or for your installation.
- We strongly recommend testing the queries on a test database before modifying your production database.

**New user management in Confluence 3.5 and later**

- Confluence now uses the CWD_USER table in the database to store and refer to its users.
When you imported your backup on upgrade from Confluence 3.4.9 or earlier, the upgrade process copied the users from the `OS_USER` table (for upgrades from versions older than 2.7) or the `USERS` table (for versions 2.7 to 3.4) into the `CWD_USER` table.

The new user management framework also introduced user directories. Making modifications to users in the database will only fully work for users in Confluence's Internal Directory. The instructions below include extra steps for instances in which the user management has been delegated to external sources (via LDAP, Crowd or JIRA).

Please refer to the older documentation if you are still using `OSUser` or `AtlassianUser`.

**On this page:**
- Before you Start
- Step 0. Get access to the database
- Step 1. Identify Administrator
- Step 2. Replace Administrator Password
- Step 3. Put the Internal Directory in First Position
- Step 4. Clean Up
- Notes

**Step 0. Get access to the database**

If you are using the embedded HSQL database, you can find the files containing your database in `<confluence-home-directory>/database`. When you shut down Confluence, the SQL will be written to a `.script` or `.log` file in that directory to which you can append the SQL described below.

If you are using a proper production database, connect to the database with your normal tools. You will need to have permission to run queries and update data in the database.

**Step 1. Identify Administrator**

To find out which usernames have admin privileges, connect to your database using a database admin tool such as DBVisualiser. Please download a database admin tool now if you do not have one installed already. Then connect to your database and retrieve the list of administrator usernames and IDs with:

```sql
select u.id, u.user_name from cwd_user u
join cwd_membership m on u.id=m.child_user_id
join cwd_group g on m.parent_id=g.id
join cwd_directory d on d.id=g.directory_id
where g.group_name = 'confluence-administrators' and d.directory_name='Confluence Internal Directory';
```

If there are multiple results, choose one ID/username combination to use for the following steps. If there are no results, skip down to 'If No Local Users Exist' in Step 2.

**Step 2. Replace Administrator Password**

Confluence does not store passwords in plain text in the database, but uses hashes computed from the original password. You will need to insert a hash, rather than the plain password, over the existing password in the database. Below is the hash for the password `admin`:

```
x61Ey612K12gpPL56FT9weDnpSo4AV8j8+qx2AuTHdRyY036xxzTTrw10Ng3+4qQyB+XURPWx1ONxp3Y3pB37A==
```

**For an External Database**

To change the password to `admin` for a given username:

1. Shut down Confluence.
2. Connect to your database.
3. Run the following SQL:

   ```sql
   update cwd_user set credential = 'x61Ey612K12gpPL56FT9weDnpSo4AV8j8+qx2AuTHdRyY036xxzTTrw10Ng3+4qQyB+XURPWx1ONxp3Y3pB37A=='
   id=<id from Stage 1>;
   ```

**For the Evaluation Embedded HSQL Database**

To change the password to `admin` for a given username:

- Shut down Confluence.
- Connect to your database.
- Run the following SQL:

  ```sql
  update cwd_user set credential = 'x61Ey612K12gpPL56FT9weDnpSo4AV8j8+qx2AuTHdRyY036xxzTTrw10Ng3+4qQyB+XURPWx1ONxp3Y3pB37A=='
  id=<id from Stage 1>;
  ```
1. Shut down Confluence.
2. Open `<confluence-home>/database/confluencedb.script`, or confluencedb.log if the .script file looks empty.
3. Search for:

   ```insert into cwd_user values(```

4. Keep searching until you find the appropriate user, then replace their password with the hash value above.
5. Save the file.

### If No Local Users Exist

There may be no administrators in your Internal Directory. If this is the case, you need to add one:

1. Add a new admin user by running:

   ```
   insert into cwd_user(id, user_name, lower_user_name, active, created_date, updated_date, first_name, lower_first_name, last_name, lower_last_name, display_name, lower_display_name, email_address, lower_email_address, directory_id, credential) values (1212121, 'admin', 'admin', 'T', '2009-11-26 17:42:08', '2009-11-26 17:42:08', 'A. D.', 'a. d.', 'Ministrator', 'ministrator', 'A. D. Ministrator', 'a. d. ministrator', 'admin@example.com', 'admin@example.com', (select id from cwd_directory where directory_name='Confluence Internal Directory'),
   'x61Ey612K12gpFL56F79weDnpSo4AV8J8+qx2AuTbDhRY036xz8Trw10Wq53+4qQyB+XURPWx1ONx3y3pB37');
   ```

2. Add new groups by running:

   ```
   insert into cwd_group(id, group_name, lower_group_name, active, local, created_date, updated_date, description, group_type, directory_id) values ('888888', 'confluence-administrators', 'confluence-administrators', 'T', 'F', '2011-03-21 12:20:29', '2011-03-21 12:20:29', NULL, 'GROUP', (select id from cwd_directory where directory_name='Confluence Internal Directory'));
   insert into cwd_group(id, group_name, lower_group_name, active, local, created_date, updated_date, description, group_type, directory_id) values ('999999', 'confluence-users', 'confluence-users', 'T', 'F', '2011-03-21 12:20:29', '2011-03-21 12:20:29', NULL, 'GROUP', (select id from cwd_directory where directory_name='Confluence Internal Directory'));
   ```

3. Add group memberships into cwd_membership:

   ```
   insert into cwd_membership (id, parent_id, child_user_id) values (888888, (select id from cwd_group where group_name='confluence-users' and directory_id=(select id from cwd_directory where directory_name='Confluence Internal Directory')), 1212121);
   insert into cwd_membership (id, parent_id, child_user_id) values (999999, (select id from cwd_group where group_name='confluence-administrators' and directory_id=(select id from cwd_directory where directory_name='Confluence Internal Directory')), 1212121);
   ```

   With Oracle, use `sysdate` instead of a string to the `created` column.

### Step 3. Put the Internal Directory in First Position

Start Confluence, and try logging in with the username of the user you updated/created and the password `admin`. If this works, skip to Step 4. Otherwise, your Internal Directory does not have high enough priority.

To put your Internal Directory in first position:

1. Find the directory names and their order:

   ```
   select d.id, d.directory_name, m.list_index from cwd_directory d join cwd_app_dir_mapping m on d.id=m.directory_id;
   ```

2. Take note of the ID with list_index 0, and the list_index and ID of the Confluence Internal Directory.
Confluence 4.0 Documentation

3. Switch the order of the directories:

```
update cwd_app_dir_mapping set list_index = 0 where directory_id = <Internal Directory id>;
update cwd_app_dir_mapping set list_index = <Noted Internal Directory list_index>
where directory_id = <Directory id that had list_index 0>;
```

4. Check to see if the directory is active (the 'active' column should be set to 'T'):

```
select id, directory_name, active from cwd_directory where id = <Internal Directory id>;
```

5. If necessary, activate the directory:

```
update cwd_directory set active = 'T' where id = <Internal Directory id>;
```

Step 4. Clean Up

To tidy up:

1. Start Confluence.
2. Log in with your modified/created username and use password admin.
3. Change your password. Do not leave your password as admin, or your instance will not be secure.
4. If you created a new user in Stage 2, create a new admin via the UI and delete the admin you created in Stage 2.
5. If you followed Stage Three, go to Confluence Administration > User Directories and rearrange your directories so they are correctly configured again.

Notes

- Learn more about the password hash algorithm Confluence is using.

Resetting the Login Count for a User

Confluence records the number of failed logins attempts made against each user account. When the login attempts exceed a preset number (see Configuring Captcha for Failed Logins), the user will prompted to authenticate using CAPTCHA until they successfully log in.

If you are a Confluence Administrator, you can manually reset the failed login count for a user.

To reset the failed login count for a user,

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select 'Manage Users' in the left-hand panel. The 'Manage Users' screen appears, as shown below.
3. Search for the desired user and click the user in the search results. The 'View User' screen will be displayed.
4. Click the 'Reset Failed Login Count' for the user. The 'Current Failed Login Count' will be reset to 0.

Screenshot: Resetting failed login count for a user

Disabling the Built-In User Management

By selecting the ‘External user management’ option in Confluence, you can disable the group and user management screens in Confluence. You need system administrator permissions to set this option.

⚠️ Setting this option currently has no effect. Please see the notes below.

You will find it useful to select external user management under the following circumstances:
• When Crowd's directory permissions are configured so that Confluence cannot update the Crowd directories, then Confluence's external user management setting must be turned on. Otherwise, a 'System Error' will occur when Confluence attempts to write data into Crowd. For more information about integrating Crowd with Confluence, see Connecting to Crowd or JIRA for User Management.
• If you are using JIRA for user management, we recommend that you turn on Confluence's external user management setting. This centralises user management in JIRA. See Connecting to Crowd or JIRA for User Management and Connecting to JIRA 4.2 or Earlier for User Management.

To disable management of users and groups within Confluence:
1. Go to the Confluence ‘Administration Console’:
   • Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   • Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘Security Configuration’ in the left-hand panel.
4. Tick the ‘External user management’ check box.
5. Click ‘Save’.

Notes
• Please refer to the following bugs and improvement requests:
  • CONF-16709 – When the External User Management check box is ticked, the group and user management screens are still functional.
  • CONF-21158 – Enabling both public signup and external user management renders a blank screen during signup.
  • CONF-9830 – This is a request to rename this feature to better reflect its functionality.

RELATED TOPICS
No content found for label(s) external-usermanagement.
Adding an Application Link

This page describes how to add a new application link in Confluence. The process for adding an application link is different depending on whether the application that you are linking Confluence to, supports Application Links (i.e. has Application Links installed) or not.

If you are linking Confluence to an application that does not have Application Links, you will need to do additional configuration in that application. This is because Application Links in Confluence will not be able to automatically configure authentication in your remote application.

Please read the appropriate set of instructions below:

- Linking to an application that supports Application Links.
- Linking to an application that does not support Application Links.

Adding an Application Link to an Application That Supports Application Links

Before you begin:

- Make sure that the base URL is set correctly in Confluence. See Configuring the Server Base URL for instructions.
- Make sure that the base URL is set correctly in the application which you intend to link to. See the appropriate instructions: JIRA instructions | FishEye/Crucible instructions | Bamboo instructions). This is required for synchronisation to work correctly.

To link to an application that supports Application Links:

1. Log in as a system administrator and go to the administration page. Click 'Application Links' in the administration menu. The 'Configure Application Links' page will appear, showing the application links that have been set up.
2. Click 'Add Application Link'. Step 1 of the link wizard will appear.
3. Enter the server URL of the application that you want to link to (the 'remote application').
4. Click the 'Next' button. Step 2 of the link wizard will appear.
5. Enter the following information:
   - 'Create a link back to this server' – Tick this check box if you want to create a two-way link between the remote application and your application. If you want to do this, you will need to enter the username and password of an administrator for the remote application.
   - These credentials are only used to authenticate you to the remote application, so that Application Links can make the changes required for the new link. The credentials are not saved.
   - 'Reciprocal Link URL' – The URL you give here will override the base URL specified in your remote application's administration console, for the purposes of the application links connection. Application Links will use this URL to access the remote application.
6. Click the 'Next' button. Step 3 of the link wizard will appear.
7. Enter the information required to configure authentication for your application link:
   - 'The servers have the same set of users' or 'The servers have different sets of users' – Select one of these options depending on how you manage users between the two applications.
   - 'These servers fully trust each other' – Tick this check box 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.
   - For more information about configuring authentication, see Configuring Authentication for an Application Link.
8. Click the 'Create' button to create the application link.
Adding an Application Link to an Application That Does Not Support Application Links

Before you begin:

- Make sure that the base URL is set correctly in Confluence. See Configuring the Server Base URL for instructions.
- Make sure that the base URL is set correctly in the application which you intend to link to. See the appropriate instructions: JIRA instructions | FishEye/Crucible instructions | Bamboo instructions. This is required for synchronisation to work correctly.

To link to an application that does not support Application Links:

1. Log in as a system administrator and go to the administration page. Click 'Application Links' in the administration menu. The 'Configure Application Links' page will appear, showing the application links that have been set up.
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 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 type (Trusted Applications, OAuth, basic HTTP, none) for your new application link.
7. In your application that does not support Application Links, 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 Applications authentication in your Application-Links-enabled application, you also need log into your non-Application-Links application and manually configure Trusted Applications (see the relevant administrator's documentation for the application).
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 user base or not?
- Do you have administrative access to the application you are linking to?

Common scenarios include:

- If the two applications you are linking trust each other and share the same user base, configure two-way authentication using Trusted Applications for both incoming and outgoing authentication. For example, you may link your internal Confluence server to an internal JIRA server.
- If the two applications you are linking trust each other but do not share the same user base, configure two-way authentication using OAuth for both incoming and outgoing authentication. For example, you may link your internal Confluence server to an external (customer-facing) JIRA 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 Applications Authentication for an Application Link**

**Incoming and Outgoing Authentication**

**Security Implications for each Authentication Type**

If you configure Trusted Applications authentication for your application (i.e. your servers have the same set of users and they fully trust each other), please be aware of the following security implications:

- Trusted applications are a potential security risk. When you configure Trusted Applications 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 you are sure that the application will maintain the security of its private key.

If you configure OAuth authentication for your application (i.e. your servers have different sets of users and they fully trust each other), 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.
About Primary Authentication Types
You can configure multiple authentication types for each application link. 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 Application Links and depends on a weight defined by each authentication type method. However, every feature that uses Application Links can also choose to use a specific authentication type and might not use the default primary authentication type.

About Impersonating and Non-Impersonating Authentication Types
Applications Links allows you to configure 'impersonating' and 'non-impersonating' authentication types:
- **Impersonating authentication types** make requests on behalf of the user who is currently logged in. People will see only the information that they have permission to see. This includes OAuth and Trusted Applications authentication.
- **Non-impersonating authentication types** always use a pre-configured user when making a request. Everyone logged into the system will see the same information. This includes basic HTTP authentication.

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 Confluence 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 Confluence administrator on your Confluence server to a remote application, the remote application will be able to access all functions on your Confluence server that the Confluence administrator can access.
This method of authentication relies on the connection between Confluence and the remote application being secure. We recommend that you use Trusted Applications authentication or OAuth authentication for your application link instead, if possible.

**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 Confluence administrator to configure Basic HTTP authentication for an application link.

**Configuring Basic HTTP Authentication for Outgoing Authentication**

Configuring outgoing basic http authentication will allow Confluence to trust a remote application (i.e. allow the remote application to access specified functions in Confluence).

To configure basic http authentication for an outgoing application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
2. Click the ‘Configure’ link next to the application link that you want to configure 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 (username and password) that the remote application will use to log into your application.
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 Confluence (i.e. allow Confluence 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 a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
2. Click the ‘Configure’ link next to the application link that you want to configure 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 (username and password) that the your application will use to log in to the remote application.
6. Click the ‘Apply’ button to save your changes.

**Notes**

Related Topics

- Configuring OAuth Authentication for an Application Link
- Configuring Trusted Applications 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 JIRA 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 Confluence and an iGoogle page using OAuth authentication. This would allow you to view data from your Confluence server in a Confluence gadget on the iGoogle page (see Configuring Confluence Gadgets for Use in Other Applications).

A typical scenario is 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 Application Links plugin installed. In this case, you would 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.

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 the application) in addition to configuring the outgoing/incoming authentication for the application link (as described below).
- You must be a Confluence administrator to configure OAuth authentication for an application link.

Configuring OAuth for Outgoing Authentication

Configuring outgoing OAuth authentication will allow Confluence to access data in a remote application on behalf of a user (i.e. outgoing OAuth authentication will allow Confluence to access specified functions in the remote application).

To configure OAuth authentication for an outgoing application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
2. Click the ‘Configure’ link next to the application link that you want to configure OAuth 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 in to the remote application (or you logged in to the remote application under a variant of the application’s hostname, such as 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 data in Confluence.

To configure OAuth authentication for an incoming application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
2. Click the ‘Configure’ link next to the application link that you want to configure OAuth 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’.

Related Topics

- Configuring Basic HTTP Authentication for an Application Link
- Configuring Trusted Applications Authentication for an Application Link
- Configuring Confluence Gadgets for Use in Other Applications

Configuring Trusted Applications Authentication for an Application Link

The instructions on this page describe how to configure Trusted Applications for outgoing authentication and/or incoming authentication for an application link.
Trusted Applications authentication allows one application to allow access to specified functions on another application on behalf of any user, without the user having to log into the second application. For example, if you configure a JIRA server to trust a Confluence server, every Confluence user will see exactly the same list of issues when they view the Confluence ‘JIRA Issues’ macro as they see when they use the JIRA Issue Navigator as a logged-in JIRA user.

A typical scenario is setting up an application link between two applications which trust each other, have the same set of users and both have the application links plugin installed. In this case, you would configure Trusted Applications 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 Applications for Outgoing Authentication
- Configuring Trusted Applications for Incoming Authentication
- Notes

Before You Begin

- Trusted applications are a potential security risk. When you configure Trusted Applications 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 you are sure that the application will maintain the security of its private key.
- The instructions below 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 Trusted Applications, but does not have the Application Links plugin installed, you will need to configure Trusted Applications 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 Confluence administrator to configure Trusted Applications authentication for an application link.

Configuring Trusted Applications for Outgoing Authentication

Configuring outgoing Trusted Applications authentication will allow the remote application to trust Confluence (i.e. allow Confluence to access specified functions and data on the remote application).

To configure Trusted Applications authentication for an outgoing application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
2. Click the ‘Configure’ link next to the application link that you want to configure Trusted Applications authentication for.
3. Click the ‘Outgoing Authentication’ tab. The outgoing authentication page will show, with the ‘Trusted Applications’ 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 Applications 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 Applications 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. 192.168.*.1. (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 Applications 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 Applications 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,
5. Click the 'Apply' button to save your changes.

**Configuring Trusted Applications for Incoming Authentication**

Configuring incoming Trusted Applications authentication will allow Confluence to trust the remote application that you are linking it to (i.e. allow your ‘trusted’ remote application to access specified functions and data on Confluence).

To configure Trusted Applications authentication for an incoming application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The 'Configure Application Links' page will appear, showing the application links that have been set up.
2. Click the 'Configure' link next to the application link that you want to configure Trusted Applications authentication for.
3. Click the 'Incoming Authentication' tab. The incoming authentication page will show, with the 'Trusted Applications' tab displayed.
4. The tab will show whether Trusted Applications is currently enabled or not. Use the 'Modify' or 'Configure' button to configure Trusted Applications. The Trusted Applications 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.
   - **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 Applications 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.
To edit an application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
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 URL is used when displaying links to the application in the browser. When creating the application link, you may have used a URL that is not accessible to other users, such as an internal IP address. If so, you can change the display URL to an address in a domain that is accessible to other 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 to more than one of the same application type, e.g. you have linked your application to two JIRA servers, then one of the servers will be marked as the ‘Primary’ link. This means that any outgoing requests will be directed to the primary link’s application.

For example, if you have set up a Confluence server that is linked to two JIRA servers with two-way authentication for both links, you can nominate an application link to one of the JIRA servers as the primary link. Every time Confluence requests JIRA information (e.g. for a JIRA issues macro), it will request it from the primary link’s JIRA server. Note, both JIRA servers can still make requests of the Confluence server (e.g. a Confluence page gadget on the dashboards of each JIRA instance).
To make an application link the primary link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
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**

Please read Making a Project Link the Primary Link for information on how primary project links also influence the information shared between servers.

**Related Topics**

Making a Project Link the Primary Link

**Relocating an Application Link**

This page describes how to change the location of an application link. You will need to relocate an application link if the target application has been moved to a new address.

To relocate an application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
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 – The warning message**

**Screenshot above: Relocate link – Updating the URL**

**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 two situations below:

- Your Confluence instance has been upgraded from a version that does not include Application Links to a version that does.
- Your remote application has been upgraded to a version that includes Application Links.

For example, you may have configured Trusted Applications or OAuth in a Confluence 3.4 instance (does not include Application Links) and then upgraded to Confluence 3.5 (includes Application Links). For example, you had set up an application link in a Confluence 3.5 instance (includes Application Links) to JIRA 4.2 instance (does not include Application Links), and then upgrade to JIRA 4.3 (includes Application Links).

On this page:

- Upgrading an Application Link (Local App Upgraded to Include Application Links)
- Upgrading an Application Link (Remote App Upgraded to Include Application Links)
- Notes

Upgrading an Application Link (Local App Upgraded to Include Application Links)

When you upgrade from a Confluence version that does not include Application Links to version that does, you will have the option of converting any Trusted Applications or OAuth links to Application Links. The advantage of converting your links to Application Links is that link configuration will be simplified in future.

To upgrade an application link when your local application has been upgraded to include Application Links:

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 Applications and OAuth relationships that can be upgraded to Application 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.

Upgrading an Application Link (Remote App Upgraded to Include Application Links)

When an application link is created between a version of Confluence that supports Application Links, and a remote legacy application (either a non-Atlassian product, or an older version of an Atlassian product that did not ship with Application Links), this link is configured to run in "legacy mode". While there is no distinguishable difference to a user, connection and configuration without Application Links is a little different. For example:

- Setting up OAuth requires manual configuration by the administrator. In OAuth authentication for between applications that support Application 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 Application Links, 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 Application Links:

1. After you have upgraded your remote application to a version that includes Application Links, go to the administration console of your local application. A warning will be displayed, requesting that you upgrade the link to full Application Links mode.
2. Click 'Upgrade' in the warning message to start the upgrade wizard. Note the following:
   - You will be prompted to make your application link 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 a reciprocal link, you will also be able to make reciprocal links for your project 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.
Deleting an Application Link

Deleting an application link stops the two applications from sharing information. You will no longer be able to make requests from one application to the other. This means that certain features may not work, e.g. JIRA issues macro 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 project links set up for that application link.

To delete an application link:

1. Log in as a system administrator and go to the administration page. Click ‘Application Links’ in the administration menu. The

Related Topics
Adding an Application Link
Configuring Authentication for an Application Link
'Configure Application Links' page will appear, showing the application links that have been set up.
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.

RELATED TOPICS

Editing an Application Link
Relocating an Application Link

Configuring Project Links across Applications

Let's assume that you are managing a project or team. You would like to connect your project's Confluence space with your JIRA project, and link up your team's source repository too.

When you have connected your applications via Application Links, you can also connect the areas of those applications that contain information relating to your project or team. Using project links (also called entity links) you can associate one or more projects, spaces and repositories across the linked applications.

To connect all the information relating to the project or team that you are managing, you can link one or more of the following:

- JIRA projects.
- Confluence spaces.
- FishEye repositories.
- FishEye projects. A FishEye 'project' is the Crucible project if you have installed FishEye and Crucible, otherwise it is the paths associated via the 'FishEye Project Content' function in FishEye.
- Crucible projects.
- Bamboo projects.

Uses for Project Links

The following integration features use project links:

- Activity streams. For example, the project links determine the activity retrieved from JIRA to display in the activity stream of a FishEye repository or a Crucible project.
- The JIRA FishEye plugin. For example:
  - The link between a JIRA project and a FishEye repository determines the repository searched for a particular issue key when displaying the FishEye source tab in JIRA.
  - The link between a JIRA project and a Crucible project determines the Crucible project scanned for review activity when displaying the Crucible reviews tab in JIRA.
  - When you create a defect in Crucible, Crucible will know which JIRA project to put it in.
- Third-party plugins may make use of project links to enrich their functionality too.

Managing Project Links

- Adding Project Links between Applications
- Making a Project Link the Primary Link
- Deleting a Project Link

RELATED TOPICS

Adding an Application Link

Adding Project Links between Applications

Let's assume that you are managing a project or team. You would like to connect your project's Confluence space with your JIRA project, and link up your team's source repository too.

When you have connected your applications via Application Links, you can also connect the areas of those applications that contain information relating to your project or team. Using project links (also called entity links) you can associate one or more projects, spaces and repositories across the linked applications.

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- JIRA projects.
- Confluence spaces.
- FishEye repositories.
- FishEye projects. A FishEye 'project' is the Crucible project if you have installed FishEye and Crucible, otherwise it is the paths associated via the 'FishEye Project Content' function in FishEye.
- Crucible projects.
- Bamboo projects.

On this page:

- Adding a Project Link
**Adding a Project Link**

To link a Confluence space to a project in another application:

1. Choose Browse > Space Admin. **Space Admin** is displayed only if you are a space administrator for that space or you are a Confluence system administrator.
2. Click ‘Application Links’ in the left-hand panel.
3. Choose the Confluence space that you want to link from.
4. The instructions for adding a project link will vary depending on whether the target application has the Application Links functionality installed:
   - If the target application has Application Links:
     a. Click ‘Add Link’. A dropdown menu will appear listing the applications you have already linked to.
     b. In the dropdown menu, click the application that contains the project you want to link to. For example, if you want to link to a specific JIRA project, click the JIRA site that contains that project. If you want to link to a Confluence space, click the Confluence site that contains that space.
     c. Click one of the options on the ‘Authorization required’ screen:
        - ‘Authorize’ — Click this option if you want to grant your project authorised access to the target project. 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 project.
     d. In the ‘Name or Key’ field, enter the name/key of the project in the remote application that you want to link to. For example, if you want to link to a specific JIRA project, enter the project key. If you want to link to a Confluence space, enter the space key.
     e. Click the ‘Create’ button to create the project link.
   - If the target application does not have Application Links:
     a. Click ‘Add Link’. A dropdown menu will display listing the applications you have already linked to.
     b. In the dropdown menu, click the application that contains the project you want to link to. For example, if you want to link to a specific JIRA project, click the JIRA site that contains that project. If you want to link to a Confluence space, click the Confluence site that contains that space.
     c. In the ‘Key’ field, enter the name/key of the project 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. If you want to link to a Confluence space, enter the space key.
     d. (optional) Enter the alias for the project in the ‘Alias’ field. This is the display name for the project in your administration console.
     e. Click the ‘Create’ button to create the project link.

**Screenshots above:** Linking to a JIRA project (where the target JIRA server supports Application Links)

**RELATED TOPICS**

- Making a Project Link the Primary Link
- Deleting a Project Link

**Making a Project Link the Primary Link**

If you have set up project links to more than one project in the same application, for example you have linked your Confluence space to two JIRA projects, then one of the project links will be marked as the primary link. All outgoing requests will be directed to the primary link.

For example, if you have a Confluence space that is linked to two JIRA projects, you can nominate the link to one of the JIRA projects as the primary link. Every time Confluence requests JIRA information (for example, in a JIRA issues macro) it will request it from the primary link's JIRA project. Note, both JIRA projects can still request information from the Confluence space (for example, a
To make a project link the primary link:

1. Choose Browse > Space Admin.
   - Space Admin is displayed only if you are a space administrator for that space or you are a Confluence system administrator.

2. Click ‘Application Links’ in the left-hand panel.

3. Click the ‘Make Primary’ link in the ‘Action’ column for the project link that you want to make the primary link. A symbol will display in the ‘Primary’ column next to the link.
   - **Note:** The ‘Primary’ column and ‘Make Primary’ link will appear only if you have set up multiple project links to the same application, for example you have linked a Confluence space to a number of JIRA projects.

Deleting a Project Link

Deleting a project link stops the two projects from sharing information.

If you have set up multiple project links to the same application, for example you have linked a Confluence space to multiple JIRA projects, deleting the primary link will mean that another of the links will be made the primary link.

To delete a project link:

1. Choose Browse > Space Admin.
   - Space Admin is displayed only if you are a space administrator for that space or you are a Confluence system administrator.

2. Click ‘Application Links’ in the left-hand panel.

3. Click the ‘Delete’ link next to the link that you want to delete.

4. A confirmation screen will appear. Click the ‘Confirm’ button to delete the link.
Configuring OAuth

OAuth is a protocol that allows one application to share a defined set of its private resources and data (through gadgets, for example) with another application. These applications could be a Confluence or JIRA site, or a website such as iGoogle. All applications involved must be OAuth-compliant. In Confluence, use Application Links to set up an OAuth relationship with another application.

On this page:
- Configuring OAuth Authentication
- About OAuth
- Notes

Configuring OAuth Authentication

Application links are used to enable trust relationships between two applications. Linking two applications allows you to share information and access one application's functions from within the other. You can configure an application link to use OAuth as the authentication mechanism. For instructions, see Configuring OAuth Authentication for an Application Link.

About OAuth

Using OAuth, you can access data within a Confluence installation externally via a Confluence gadget published on a JIRA site's dashboard, another Confluence site's page, or a website like iGoogle. While some data in Confluence may be accessible anonymously on the external application, other data may be restricted to a specific user account within the Confluence installation. OAuth provides the facility to access this restricted data.

The key security advantage of OAuth is that Confluence's user-restricted resources can be shared without Confluence having to hand out user authentication details. Instead, access to these private resources is handled via an access token. Access tokens define what Confluence resources can be accessed by another application and the duration of this access. Access tokens are dissociated from a user's authentication details, since authentication to gain access to these resources is handled separately.

In OAuth terminology, an application that shares its resources is known as a service provider and an application that accesses a service provider's resources is known as a consumer.

Notes

- OAuth relationships provide the ability to access restricted data on the service provider when an individual's usernames on the service provider and consumer applications are different. This is different to Trusted Application relationships, also provided via [Application Links]Administering Application Links, where the usernames must be the same in both applications.
- Not all external gadgets used in Confluence require the establishment of an OAuth relationship. If the gadget does not need to access restricted resources on the service provider, then there should be no need to establish an OAuth relationship.
- For more information about OAuth, please refer to the OAuth protocol workflow section of our Gadgets and Dashboards documentation.

Related Topics

- Configuring Application Links
- Configuring OAuth Authentication for an Application Link

Confluence and JIRA

- Installing Confluence and JIRA Together
- Integrating JIRA and Confluence
- Setting Up Trusted Communication between JIRA and Confluence

RELATED TOPICS

- Connecting to Crowd or JIRA for User Management
- JIRA Issues Macro
- JIRA Portlet Macro

Installing Confluence and JIRA Together

This page describes Atlassian's recommendation for installing JIRA and Confluence on the same server. Refer to Here Be Dragons for instructions on integrating all Atlassian applications.

⚠️ 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 do not support deploying multiple Atlassian applications to a single Tomcat container for a number of practical reasons. Firstly, you must shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in that Tomcat container will be inaccessible.

Finally, we recommend not deploying any other applications to the same Tomcat container that runs Confluence, especially if these other applications have large memory requirements or require additional libraries in Tomcat's lib subdirectory.

**Recommended Setup - Separate Stand-Alone Installations**

Atlassian recommends running JIRA and Confluence in separate stand-alone instances running behind an Apache Web Server. See the guides for:

- Installing Confluence
- Running Confluence behind Apache
- Installing JIRA Standalone
- Integrating JIRA with Apache

**Advantages**

- Each application can be restarted without affecting the other.
- If one webapp hangs for any reason (e.g., running out of memory), it doesn't affect the other.
- Any problems can be debugged more easily. Logs are separate and product-specific, rather than everything going to catalina.out. Thread and heap dumps are smaller and more relevant.
- It reduces the likelihood of jar conflicts (e.g., jars that must be installed in common/lib or lib for Confluence running off Apache Tomcat version 6 or above), particularly if you later want to install a third webapp not from Atlassian.
- Apache HTTP Web Server is well suited for running publicly available sites, with extensive modules for security and efficiency. It also allows for flexibility with URLs (e.g., http://confluence.atlassian.com, http://confluence, and so on).

> Apache Web Server is recommended and reliable. It is also a third-party product, and therefore not developed nor supported by Atlassian. See [How to Get Legendary Support from Atlassian](http://confluence.atlassian.com) for details.

**Integrating JIRA and Confluence**

Please refer to the guide to [Installing Confluence and JIRA Together](http://confluence.atlassian.com).

JIRA and Confluence are designed to complement each other. Collect your team's thoughts, plans and knowledge in Confluence, track your issues in JIRA, and let the two applications work together to help you get your job done.

Below are some ways you can get JIRA and Confluence working together.

**On this page:**

- Setting Up Trusted Communication between JIRA and Confluence
- Inserting JIRA issues
- Combining Confluence Shortcuts and JIRA Quick Search
- Viewing Confluence Content in JIRA or JIRA Content in Confluence
  - Using Gadgets
  - Using the JIRA Issues macro
- Integrating JIRA and Confluence User Management
- Useful Plugins

**Setting Up Trusted Communication between JIRA and Confluence**

An administrator can configure JIRA (3.12.0 or later) and Confluence to communicate in a trusted way, so that Confluence can request information from JIRA on behalf of the currently logged-in user. JIRA will not ask the user to log in again or to supply a password.

Trusted communication is used when embedding information from one application (for example, a list of JIRA issues) into another application (for example, a Confluence page).

Read more about [trusted communication](http://confluence.atlassian.com).

**Inserting JIRA issues**

You can insert issues from a JIRA site onto your Confluence page using the 'Insert JIRA Issue' dialogue box. You can also use this dialogue box to create a new issue on the JIRA site. See [Inserting JIRA Issues](http://confluence.atlassian.com).

**Combining Confluence Shortcuts and JIRA Quick Search**

In our Confluence site's global configuration (Administration > Shortcut Links) we have the following shortcut defined:
Use the above option to create links using Confluence's shortcut notation.

- Link directly to JIRA issues like this: CONF-1000
- Use JIRA's quick-search functionality to create links to particular groups of issues. The following link will display a list of all open issues in the Confluence project of type 'Improvement': CONF open improvements

**Viewing Confluence Content in JIRA or JIRA Content in Confluence**

**Using Gadgets**

You can embed a Confluence activity stream or a Confluence page in JIRA's dashboard. Likewise, JIRA gadgets can be rendered on a Confluence page. See Adding a Confluence Gadget to a JIRA Dashboard and Gadget Macro for information on how to set up gadgets.

**Using the JIRA Issues macro**

For versions earlier than Confluence 3.1 and JIRA 4.0, use the \{jiraissues\} and \{jiraportlet\} macros to embed JIRA reports and portlets into your Confluence site.

Any JIRA search result can be embedded in a Confluence page using the JIRA Issues macro with your choice of included fields and field ordering, and any JIRA dashboard portlet can be embedded in a Confluence page using the JIRA Portlet macro.

**Integrating JIRA and Confluence User Management**

To save you having to enter users into both JIRA and Confluence, you may benefit from using Atlassian Crowd as the user repository for both applications. Alternatively you can configure Confluence to use JIRA's user database. See Connecting to Crowd or JIRA for User Management.

**Useful Plugins**

Before installing a plugin into your Confluence site, please check the plugin's information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

- The JIRA Linker plugin provides a custom field that helps you find the correct page.

**Setting Up Trusted Communication between JIRA and Confluence**

An administrator can configure JIRA and Confluence to communicate in a trusted way, so that Confluence can request information from JIRA on behalf of the currently logged-in user. JIRA will not ask the user to log in again or to supply a password.

When JIRA is configured to trust Confluence in this way, we call Confluence the 'trusted application' and JIRA the 'trusting application'.

Trusted communication is used when embedding information from one application (e.g. a list of JIRA issues) into another application (e.g. a Confluence page). Currently only JIRA can be configured to trust Confluence, and only the following two macros have been enhanced to use trusted communication:
Further implementations will follow, especially as we roll out the tight integration required between Atlassian products for JIRA Studio.

Potential security risk

Do not configure a trusted application unless you trust all code in that application to behave itself at all times. Trusted communication uses public/private key cryptography to establish the identity of the trusted server, so you must also be sure that the trusted application will maintain the security of its private key. Read the details of the security risks below.

On this page:
- Prerequisites
- Why do we need Trusted Communication?
- Overview
- Configuring JIRA to Trust Confluence Using Trusted Applications
- Configuring the Macro Plugin in Confluence
- Adding the Macro to a Confluence Page
- Viewing the Confluence Page
- Security Risks
- Troubleshooting
- Technical Overview of the Trusted Applications Authentication (TAA) Protocol

Prerequisites

- JIRA 3.12.0 or later.
- Confluence 2.7.0 or later.
- In order to authenticate successfully against JIRA, the Confluence user must also be registered as a JIRA user with the same username.

Common user base recommended

It is highly recommended that your JIRA and Confluence instances share a common user base, rather than two separate user bases with duplicated usernames. You will receive an error if Confluence passes JIRA a username which JIRA cannot recognise. Also, with separate user bases you run the risk that the same username may be used by two different people. The trusted application does not supply the user’s password, so the trusting application will assume the username belongs to the user registered in the trusting application’s own user base.

Tip: Try Atlassian Crowd for a tidy user management solution.

Why do we need Trusted Communication?

The JIRA Issues and the JIRA Portlet macros allow you to embed a list of JIRA issues into a Confluence page. Prior to Confluence 2.7, if you wanted to display JIRA issues that had restricted viewing, then you needed to store the JIRA user’s credentials (username and password) in the macro code directly on the Confluence page. This was not very secure.

The reasons we require the user credentials are:
- Your JIRA instance might not be public, and you might not want to allow anonymous access to your issues.
- You might have security restrictions on some of your issues. So you don’t want to allow someone to leak data from your JIRA project by using the JIRA Issues Macro on a Confluence page.

Overview

Here is a summary of the integration points in a trusted communications relationship. Each of the following points is described in more detail in the sections below.

- A JIRA System Administrator configures JIRA to trust Confluence.
- A Confluence System Administrator configures the macro plugin to use (or not use) trusted communication.
- A Confluence user adds one of the macros to a Confluence page.
- A Confluence user or anonymous user views the Confluence page.

Configuring JIRA to Trust Confluence Using Trusted Applications

Trust only has to be established once between the two applications. Once trust has been established, it is entirely transparent to the
Confluence users.

Application links are used to enable trust relationships between two applications. Linking two applications allows you to share information and access one application’s functions from within the other.

You can configure an application link to use Trusted Applications as the authentication mechanism. For instructions, see Configuring Trusted Applications Authentication for an Application Link.

**Configuring the Macro Plugin in Confluence**

By default, Confluence ships with trusted communication enabled for the following macros:

- JIRA Issues macro
- JIRA Portlet macro

A Confluence System Administrator can decide on the level of trusted communication used by the macros. The different levels are:

- Ignore trusted communications altogether. Trusted communication is turned off at the global level.
- Perform trusted communications whenever the macro is used on a Confluence page, but do not show certain warning messages.
- Perform trusted communications whenever the macro is used on a Confluence page, and show all warning messages. This is the default configuration.

**To change the default trusted communication level for the JIRA Macros plugin,**

1. Go to the Confluence 'Administration Console':
   - Choose **Browse > Confluence Admin.** The 'Administrator Access' login screen will be displayed.
   - Enter your password and click **Confirm.** You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select ‘Plugins’ in the left-hand panel.
3. The 'Plugin Manager' screen appears, showing a list of installed plugins. Scroll down and click the 'JIRA Macros' link.
4. The 'JIRA Macros' panel appears in the top middle of the screen, as shown below. Click ‘Enable’ or ‘Disable’ next to the following options:
   - ‘JIRA application trust support’ – With this option enabled, Confluence will attempt trusted communication with JIRA whenever a user views a page containing the JIRA Issues or Portlet macro, provided criteria are met as described below. With this option disabled, Confluence will never attempt trusted communication with JIRA for these macros.
   - **Enable** the above option if you do not intend to configure trusted communication between JIRA and Confluence.
   - ‘JIRA application trust warnings’ – With this option enabled, Confluence will display all error and warning messages that may arise from a problem during trusted communication (assuming that trusted communication is enabled). With this option disabled, Confluence will suppress certain warnings. See troubleshooting below.
   - **Enable** the above option if you have a large number of existing JIRA macros already on your Confluence instance, pointing at a diverse range of JIRA servers. Some of those JIRA servers may have a trusted communication link established (requiring the functionality to be enabled) while other JIRA servers may have no trusted communication link. In this case, you may want to turn off the warning messages so they do not appear on your Confluence pages where the JIRA macros point to non-trusting JIRA servers.

**Screenshot: JIRA Macros panel in Plugin Manager**
Adding the Macro to a Confluence Page

The Confluence user can add and edit the macros as described on the following pages:

- Using the JIRA Issues macro
- Using the JIRA Portlet macro

Success: Remove the username and password from your macro markup code

Prior to Confluence 2.7, you needed to include a username and password in the macro markup code if you wanted to display JIRA issues which had restricted viewing. Once your administrator has set up trusted communication between Confluence and JIRA, you no longer need to include a username and password in the markup code for your JIRA macros.

The following options are available for determining the issues which will be retrieved from JIRA and displayed on the Confluence page:
Display the JIRA issues which the logged-in user is authorised to see. And if the user is not logged in, display only issues which allow unrestricted viewing.

Do not specify any authentication parameters. In this case, the behaviour depends on the way your administrator has set up trusted communication between JIRA and Confluence. Here is a summary of the behaviour. If trusted communication is enabled, the authorisation will work seamlessly. When a logged-in user views your page, they will see only the JIRA issues they are allowed to see. And if they are not logged in, they will see only the issues which allow unrestricted viewing. If trusted communication is disabled, the Confluence page will show only the JIRA issues which allow unrestricted viewing.

Ensure that Confluence will display only the JIRA issues which allow unrestricted viewing.

anonymous

Regardless of who the user is (logged in or not), the Confluence page will show only anonymously-visible issues. Confluence will not attempt to set up a trusted communication link with JIRA in this case.

Use a pre-determined username and password to access the JIRA issues.

&os_username=MYNAME&ltos_password=MYPASSWORD

Not recommended. Prior to Confluence 2.7, this was the only way of displaying issues with restricted viewing. For Confluence 2.7 and later, this method will still work. Confluence will not attempt to set up a trusted communication link with JIRA in this case.

Refer to the section below for details of what happens when a user views a Confluence page containing a JIRA macro.

**Viewing the Confluence Page**

When a user views a Confluence page which contains a JIRA Issues or JIRA Portlet macro, this is what happens:

- If the macro markup contains an explicit username and password in the URL parameter, Confluence will not request trusted communication with JIRA. Confluence will retrieve the JIRA issues which the specified username is authorised to see. This behaviour is the same as Confluence versions prior to 2.7.
- If the macro markup contains the anonymous parameter, Confluence will retrieve only the JIRA issues which allow unrestricted viewing. Confluence will not attempt to set up a trusted communication link with JIRA in this case.
- If the user is anonymous (not logged in), Confluence will retrieve only the JIRA issues which allow unrestricted viewing. Confluence will not attempt to set up a trusted communication link with JIRA in this case.
- If trusted communication is disabled via the Plugin Manager in Confluence, then Confluence will not request trusted communication with JIRA. So if there is no explicit username and password in the markup code, Confluence will retrieve only the JIRA issues which allow unrestricted viewing. This behaviour is the same as Confluence versions prior to 2.7.
• If trusted communication is **enabled** via the Plugin Manager in Confluence:
  • If the user is logged in, then Confluence attempts trusted communication with JIRA. Confluence sends the username to JIRA. JIRA returns a set of issues which that username is authorised to access, based on the JIRA user base and the JIRA groups and permissions. Confluence displays those issues on the page.
  • If JIRA or Confluence encounters a problem during the trusted communication process, an error message may appear on the Confluence page above the macro output – see troubleshooting below.

**Security Risks**

Please take the following considerations into account when setting up trusted communication:

• When you configure JIRA to trust an application, you are allowing the application to access JIRA in the name of a particular user. The trusted application passes JIRA the user's login name, but no other authentication information. JIRA does not request the user's password. By doing this, you are **bypassing JIRA's authentication mechanism**.

• Do not configure a trusted application unless you **trust all code in that application** to behave itself at all times.

• Trusted communication uses public/private key cryptography to establish the identity of the trusted server. The trusted application needs to maintain the security of its private key. Confluence stores its private key in the database. **So you must be sure that the Confluence database is secure, and also any full backups of the database.**

• Ensure that you **specify an IP address** for your Confluence site when configuring trusted applications in JIRA. Do not use the wild card \*.*.*.* as the IP address. Failure to configure IP address restrictions is a security vulnerability, allowing an unknown site to log into your JIRA site under a user's login ID.

• Be aware of the risks associated with using separate user bases, as explained [above](#). **We strongly recommend a common user base between the trusted and trusting applications.**

• When configuring an application to trust another application, you should use a trusted network or SSL to protect the sensitive information passed between the applications during the configuration procedure. This will help to prevent **man-in-the-middle attacks.**

**Troubleshooting**

Below are the warning messages which may appear on your Confluence page, above the output of the JIRA Issues or JIRA Portlet macro.

<table>
<thead>
<tr>
<th>Warning Message</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>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</td>
<td>JIRA is running over SSL</td>
<td>Add JIRA's SSL Certificate to the Java Keystore</td>
</tr>
<tr>
<td>The JIRA server does not recognise your user name. Issues have been retrieved anonymously.</td>
<td>The logged-in Confluence user is not registered in the JIRA user base.</td>
<td>Add the username your JIRA user be is highly recommended to your JIRA and Confluence instances share a common base.</td>
</tr>
</tbody>
</table>
| The JIRA server does not trust this Confluence instance for user authentication. Issues have been retrieved anonymously. You can set the macro to always use an anonymous request by setting the 'anonymous' parameter to 'true'. | Your JIRA instance has not been configured to trust your Confluence instance. | One of the following solutions:  
  • Configure to trust Confluence  
  • Disable trusted communications for the JIRA macros in Confluence.  
  • Use the anonymous parameter your JIRA Issues or JIRA Portlet macros. |

There is a date/time difference between the JIRA server and Confluence server.

Consult Troubleshooting the JIRA Issues Macro and Trusted Applications for further troubleshooting.

### Technical Overview of the Trusted Applications Authentication (TAA) Protocol

Read this section if you want a bit more information on the technical side of things.

Atlassian has developed its own protocol to set up trust between JIRA and Confluence. Below is a technical overview of the process.

**Configuring JIRA to trust Confluence:**

1. When the JIRA System Administrator provides the base URL of the Confluence instance, JIRA requests a trusted application authentication certificate from Confluence. The certificate contains Confluence's trusted application ID and public key (generated specifically for use with the TAA protocol).
2. JIRA validates the certificate and asks the System Administrator for a few extra details about the trust relationship, such as a name for the Confluence instance, timeout, allowed IP addresses and allowed request URLs.
3. JIRA stores all this information in the database.

**Making a trusted request from Confluence to JIRA:**

1. Confluence sends a web request to JIRA, appending additional headers to the request, including:
   - Timestamp (nonce) of the request + user name of the currently logged-in Confluence user, encrypted with a symmetric key (generated on the fly).
   - The symmetric key, encrypted with Confluence's private key.
   - Confluence's application ID (as displayed when trusted communication was established).
2. JIRA attempts to decode the encrypted headers, using the stored information about the relationship. It conducts the following checks to validate the request:
   - The trusted application ID refers to a valid trusted application.
   - The given username exists in the JIRA user base.
   - The agreed timeout has not expired.
   - The request originated from a trusted IP address.
   - The resource being requested matches those specified in the URL match list.
3. If any of these checks fails, a response is sent to Confluence indicating the reason for failure. Otherwise, JIRA will authenticate the specified user for the duration of the single request, and respond with the resources (i.e. the JIRA issues).

**RELATED TOPICS**

JIRA Issues Macro  
JIRA Portlet Macro  
Connecting to LDAP or JIRA or Other Services via SSL  
Single Sign-on Integration with JIRA and Confluence  
Troubleshooting the JIRA Issues Macro and Trusted Applications

**Confluence Configuration Guide**

The pages listed below contain instructions on configuring Confluence. If you cannot find what you are looking for, try the search box in the left-hand navigation panel.
Application Server Configuration

The following pages contain information about configuring your application server for Confluence:

- Application Server URL encoding
- Managing Application Server Memory Settings
- Switching to Apache Tomcat

Application Server URL encoding

Application servers may have different settings for character encodings. We strongly suggest setting this to UTF-8 where possible.

Information on setting the character encoding is available at:

- Configuring Tomcat's URI Encoding

Configuring Tomcat's URI encoding

By default, Tomcat uses ISO-8859-1 character encoding when decoding URLs received from a browser. This can cause problems when Confluence's encoding is UTF-8, and you are using international characters in attachment or page names.

1. Edit conf/server.xml and find the line where the Coyote HTTP Connector is defined. It will look something like this, possibly with more parameters:

   `<Connector port="8090"/>

2. Add a `URIEncoding="UTF-8"` property to the connector:

   `<Connector port="8090" URIEncoding="UTF-8"/>

3. Restart Tomcat

If you are using mod_jk

You should apply the same URIEncoding parameter as above to the AJP connector if you are using mod_jk, and add the following
option to your Apache mod_jk configuration:

```xml
<Connector port="8009" protocol="AJP/1.3" URIEncoding="UTF-8"/>

JkOptions +ForwardURICompatUnparsed
```

More information using Apache with Tomcat

For comprehensive examples of how to use Tomcat and Apache with Confluence, see Running Confluence behind Apache.

Managing Application Server Memory Settings

The minimum and maximum JVM heap space allocated to the application server affects performance. Confluence administrators may wish to modify this value from the defaults depending on their server load. This document only provides guidelines rather than rules, so administrators optimising for performance should use this document as a starting point only.

For a comprehensive overview of memory management, and memory tuning in Confluence under Sun JRE, please read Garbage Collector Performance Issues.

Testing For Optimum Memory Settings

In the general case, both JIRA & Confluence users will benefit from setting the minimum and maximum values identical. In larger installations, there is benefit to memory tuning, if there is a perceived performance issue. If you are experiencing Out of Memory Heap errors, try doubling the -Xmx and -Xms values for your installation to see if this resolves or helps resolve your issue. If not, please lodge a support ticket as there may be other factors contributing.

Memory usage is most likely to be maximised under peak load, and when creating a site XML backup. In many cases, the backup can be the cause of the OOM, so increase -Xmx values and verify if a backup was occurring at the time of OOM. A quick rule of thumb for gauging the success of a memory adjustment is using simple anecdotal evidence from users. Is it snappier? The same? How does it handle while a backup is occurring?

Atlassian recommends in normal use, to disable the XML backup and use a Production Backup Strategy.

- If you normally perform manual XML site backups on your server, test your maximum memory requirements by performing a site XML backup while the server is under maximum load
- If you do not create manual XML site backups, simply monitor the server while under maximum load

Applying Memory Settings

See Fix Out of Memory Errors by Increasing Available Memory.

Related Topics

- Garbage Collector Performance Issues
- Fix Out of Memory Errors by Increasing Available Memory
- Server Hardware Requirements Guide
- Performance Tuning
- Troubleshooting Slow Performance Using Page Request Profiling
- Tomcat JVM options and Modify the Default JVM Settings

Switching to Apache Tomcat

Apache Tomcat is the only application server supported for Confluence. To move Confluence from an application server (e.g. WebSphere) to Tomcat using the same database, follow the instructions below.

Please note, you cannot simply copy the WAR file or expanded WAR directory from an old Confluence EAR/WAR version in the old application server to Tomcat. This will not work.

Follow these instructions:

1. Before You Start
2. Backing Up
3. Switching Application Servers
4. Applying Customisations
   - Confluence Server
1. Before You Start

1. The following instructions will only work if you are running the same major version of Confluence on both application servers. If you are running different major versions of Confluence, you will need to upgrade Confluence before you can switch to Tomcat.
2. Note that you need current software maintenance, as the process for changing application servers involves installing Confluence Standalone/EAR-WAR.
3. If the environment (e.g. the database system, the operating system and so on) that you are running Confluence in has changed, please ensure it still complies with the Confluence System Requirements.
4. If you are using an external database, familiarise yourself with all known issues for your specific database. Also make sure the Confluence database connector principal (the database user login) has sufficient permissions to modify the database schema.
5. Note any customisations that you have made to Confluence, e.g. enabled.installed plugins, modified layouts, custom themes, etc. You will need to reapply these after you have switched to Tomcat. You can view the list of customisations in the Reapplying Customisations section below.
6. We recommend that you do not run any other applications in your Tomcat application server that is running Confluence, to prevent performance issues.

2. Backing Up

Before you switching to Tomcat, you must back up the following:

1. **Back up your Confluence Home directory.** The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.
   - Tip: Another term for 'Home directory' would be 'data directory'. The location of the Home directory is stored in a configuration file called confluence-init.properties, which is located inside the confluence/WEB-INF/classes directory in your Confluence Installation directory.
2. **Back up your database.** Perform a manual backup of your external database before proceeding with the upgrade and check that the backup was created properly. If you are not a database expert or unfamiliar with the backup-restore facilities of your database, you should try to restore the backup to a different system to ensure that the backup worked before proceeding. This recommendation is not specific to Confluence usage, but it is good practice to ensure that your database backup is not broken.
   - The 'embedded database' is the HSQLDB database supplied with Confluence for evaluation purposes, you don't need to back it up since it is stored in the home directory. But you should not use this database for production systems anyway, so if you happen to accidentally still use HSQLDB in a production system, please migrate to a proper database before the upgrade.
3. **Back up your Confluence Installation directory** (if you are using Confluence Standalone) or your Confluence webapp (if you are using Confluence EAR-WAR edition). The 'Confluence Installation directory' is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the 'Confluence Install directory'.

3. Switching Application Servers

1. Install Confluence on your new application server. We recommend that you install Confluence Standalone (from the zip file) as it is preconfigured with Tomcat. If you want more control over the installation process, you can install Confluence EAR-WAR on Tomcat however this requires more manual configuration.
   - Regardless of which method you choose, as part of the installation process:
     - If you are connecting to your database via a standard JDBC connection, enter the URL, username and password for your existing database.
     - If you are connecting to your database via datasource, use the settings for your existing database when you configure the JDBC datasource in your new server. Refer to the appropriate guide below:
       - Configuring a MySQL Datasource in Apache Tomcat
       - Configuring a SQL Server Datasource in Apache Tomcat
       - Configuring a PostgreSQL Datasource in Apache Tomcat
2. Copy the following files from your old Confluence installation to your new one:
   - \CONFLUENCE_INSTALL\confluence\WEB-INF\classes\confluence-init.properties
   - \CONFLUENCE_INSTALL\confluence\WEB-INF\classes\atlassian-user.xml
   - \CONFLUENCE_INSTALL\confluence\WEB-INF\classes\osuser.xml (copy this over if you are using JIRA user management)
   - \CONFLUENCE_INSTALL\confluence\WEB-INF\classes\seraph-config.xml (copy this over if you using custom SSO)
   - \CONFLUENCE_INSTALL\confluence\WEB-INF\web.xml (copy this over if you have previously modified it,
2. e.g. to configure a datasource
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 attachments location is valid for the new server.
5. If you have applied special settings to their Confluence server and/or Confluence look and feel, you will need to reapply these customisations as described in below.

4. Applying Customisations

After switching to Tomcat, you need to review any customisations and other special configurations you previously used for your Confluence instance, and re-apply if necessary. This section also contains some Tomcat-specific customisations that you may wish to considering applying, if you haven't used Confluence with Tomcat before.

Before you apply customisations

Please ensure that your Confluence installation works correctly on Tomcat without any customisations before you apply any of customisations listed below. This will make it easier to identify problems, if you run into trouble during the switch to Tomcat.

Confluence Server

- For long-term use, we recommend that you configure Confluence to start automatically when the operating system restarts. For Windows servers, this means configuring Confluence to run as a Windows service.
- If you are using a Standalone Edition of Confluence and you have previously defined a CATALINA_HOME environment variable, please check that it points to the correct path for the new Confluence Tomcat server.
- If you were previously running Confluence on a non-standard port, edit your new <Installation-Directory>\conf\server.xml file as described in Change listen port for Confluence.

Plugins

- If you were previously using any plugins, install the latest compatible version and disable any plugins that are incompatible with your new instance of Confluence. The easiest way to do this is to use the Plugin Repository in the Confluence Administration Console.

Look and Feel

- If you are using any customised themes, please check that they are displaying as expected. Some further customisation may be required to ensure compatibility with your new version of Confluence.
- If you had previously customised the default site or space layouts, you will need to reapply your changes to the new defaults as described here. Please do not just copy your VM (velocity) files across. Ensure that Confluence works without your custom layouts then apply the layout via the Confluence Administration console.

Performance

- If the load on your Confluence instance is high, you may need more simultaneous connections to the database. Read more about this in the Performance Tuning guide.
- If you had previously modified the memory flags (Xms and Xmx) in either the <Installation-Directory>\bin\setenv.sh or the <Installation-Directory>\bin\setenv.bat file, you may want to make the modifications in your new installation. The parameters are specified in the JAVA_OPTS variable. See Fix Out of Memory Errors by Increasing Available Memory for more information.

Advanced Customisations

- If you were previously running Confluence over SSL, you will need to reapply your configuration as described in Running Confluence Over SSL or HTTPS.
- If you were using a custom SSO authenticator, change seraph-config.xml to the correct authenticator.
- If you had changed the Confluence interface text, you will need to copy over the ConfluenceActionSupport.properties file.
- If you had previously modified the Confluence source code, you will need to reapply your changes to the new version.

5. Testing Confluence

Make sure you test Confluence on the new server before deploying it in production.

The Working with Confluence Logs document contains the locations for the application logs, if you need to refer to them.
Database Configuration

This document provides information on configuring an external database.

The Embedded Database for Evaluation Purposes

The Confluence installation includes an embedded HSQLDB database, supplied for the purpose of evaluating Confluence.

If you are using the embedded database, the database files are stored in the \database folder under your Confluence Home directory. See also Important Directories and Files.

Embedded Database is Not Suitable for Production Instances of Confluence

Production instances of Confluence should use an external database. When using the default HSQLDB database, you run the risk of unrecoverable data loss due to not being transaction safe.

- Corruption is occasionally encountered after sudden power loss and can usually be corrected using this data recovery procedure.
- HSQLDB is still suitable for evaluation purposes, but the risk can only be eliminated by switching databases. External databases may also provide superior speed and scalability.

Selecting an External Database

The XML backup built into Confluence is not well suited for database migration for large data sets (see Production Backup Strategy). Choose your database wisely. If you need to migrate later, Atlassian support will refer you to a third party database migration tool. Vote for CONF-12599 to add a more robust strategy for large implementation migrations.

Below is more information on selecting and migrating to an external database:

- Migrating to a Different Database
- List Of Supported Databases
- Known Issues For Supported Databases

Database Setup

Setup instructions are shown below.

- Database JDBC drivers
- Database Setup for Oracle
- Database Setup for SQL Server
- Database Setup For Any External Database
- Database Setup for PostgreSQL
- Database Setup For MySQL

Optimising Database Performance

To improve database responsiveness:

- Improving Database Performance
- Known Issues For Supported Databases

Database Troubleshooting

For solving database-related problems:

- Troubleshooting External Database Connections
- Troubleshooting the Embedded Database (HSQL DB)
- Interpreting DB2 error codes
- Known Issues For Supported Databases

Obtain technical support from Troubleshooting Problems and Requesting Technical Support.

Known Issues For Supported Databases

Supported Databases

Please refer to the Supported Platforms topic.
Configuring Database Character Encoding

On this page:

- JDBC connection settings
- MySQL
- Creating a UTF-8 database
  - MySQL
  - PostgreSQL
  - For PostgreSQL running under Windows
  - For PostgreSQL running under Linux
- Updating existing database to UTF-8
  - MySQL database with existing data
- Testing database encoding

The database used with Confluence should be configured to use the same character encoding as Confluence. The recommended encoding is Unicode UTF-8.

There are two places where character encoding may need to be configured:

- when creating the database
- when connecting to the database (JDBC connection URL or properties).

The configuration details for each type of database are different. Some examples are below.

**JDBC connection settings**

**MySQL**

Append "useUnicode=true" to your JDBC URL:

```
jdbc:mysql://hostname:port/database?useUnicode=true&characterEncoding=utf8
```

If you are modifying `confluence.cfg.xml` directly rather than via the Confluence Installation GUI, you'll need to escape out the `&` in the URL string as this is a reserved `confluence.cfg.xml` XML token and will break the syntax when the XML is parsed. An effective URL could be similar to:

```
<property
  name="hibernate.connection.url">
  jdbc:mysql://hostname:port/database?useUnicode=true&amp;characterEncoding=utf8
</property>
```

**Creating a UTF-8 database**

**MySQL**

1. Create a UTF-8 database with binary UTF-8 collation.

   Binary UTF-8 provides case-sensitive collation.

   ```
   CREATE DATABASE confluence CHARACTER SET utf8 COLLATE utf8_bin;
   ```

2. You will also need to set the `Server Character Set` to utf8. This can be done by adding the following in `my.ini` for Windows or `my.cnf` for other OS. It has to be declared in the Server section, which is the section after `[mysqld]`:

   ```
   [mysqld]
   default-character-set=utf8
   ```

3. Use the `status` command to verify database character encoding information.
4. In some cases, the individual tables collation and character encoding may differ from the one that the database as a whole has been configured to use. Please use the command below to ensure all tables within your Confluence database are correctly configured to use UTF-8 character encoding and binary UTF-8 collation:

use confluence;
show table status;

Check for the value listed under the Collation column, to ensure it has been set to utf8_bin (that is, case-sensitive) collation for all tables.
If not, then this can be changed by the following command, executed for each table in the Confluence database:

ALTER TABLE tablename CONVERT TO CHARACTER SET utf8 COLLATE utf8_bin;

Please substitute the <tablename> above, with each table within the confluence database.

Relevant MySQL manual for more detailed explanation:

- Specifying Character Sets and Collations documentation.
- Connection Character Sets and Collations.
- SHOW TABLE STATUS Syntax.
- ALTER TABLE Syntax.

**PostgreSQL**

CREATE DATABASE confluence WITH ENCODING 'UNICODE';

Or from the command-line:

$ createdb -E UNICODE confluence

For more information see the PostgreSQL documentation.

For PostgreSQL running under Windows
Please note that international character sets are only fully supported and functional when using PostgreSQL 8.1 and above under Microsoft Windows.

**For PostgreSQL running under Linux**

Please make sure you check the following to ensure proper handling of international characters in your database:

When PostgreSQL creates an initial database cluster, it sets certain important configuration options based on the host environment. The command responsible for creating the PostgreSQL environment `initdb` will check environment variables such as `LC_CTYPE` and `LC_COLLATE` (or the more general `LC_ALL`) for settings to use as database defaults related to international string handling. As such it is important to make sure that your PostgreSQL environment is configured correctly before you install Confluence.

To do this, connect to your PostgreSQL instance using `psql` and issue the following command:

```
SHOW LC_CTYPE;
```

If `LC_CTYPE` is set to either "C" or "POSIX" then certain string functions such as converting to and from upper and lower case will not work correctly with international characters. Correct settings for this value take the form `<LOCALE>.<ENCODING>` (example).

If your `LC_CTYPE` is incorrect please check the PostgreSQL documentation for information on configuring database localisation. It is not easy to change these settings with a database that already contains data.

**Updating existing database to UTF-8**

**MySQL database with existing data**

If you're using an existing database, confirm the Character Encoding by executing the query:

```
SHOW VARIABLES LIKE 'character%';
SHOW VARIABLES LIKE 'collation%';
```

The results should be UTF-8.

Before proceeding with the following changes, please backup your database.

This example shows how to change your database from latin1 to utf8.

1. Dump the database to a text file using `mysqldump` tool from the command-line: `mysqldump -p --default-character-set=latin1 -u <username> --skip-set-charset confluence > confluence_database.sql`
2. Copy `confluence_database.sql` to `confluence_utf8.sql`
3. Open `confluence_utf8.sql` in a text editor and change all character sets from 'latin1' to 'utf8'
4. Encode all the latin1 characters as UTF-8: `recode latin1..utf8 confluence_utf8.sql` (the recode utility is described at [http://directory.fsf.org/recode.html](http://directory.fsf.org/recode.html); it can actually be downloaded from [http://recode.progiciels-bpi.ca/](http://recode.progiciels-bpi.ca/), and is available for Ubuntu via `apt-get`)

In MySQL:

1. DROP DATABASE confluence;
2. CREATE DATABASE confluence CHARACTER SET utf8 COLLATE utf8_bin;

Finally, reimport the UTF-8 text file:

```
mysql -u <username> -p --default-character-set=utf8 --max_allowed_packet=64M confluence < /home/confluence/confluence_utf8.sql
```

To support large imports, the parameter `--max_allowed_packet=64M` used above sets the maximum size of an SQL statement to be very large. In some circumstances, you may need to increase it further, especially if attachments are stored in the database.

**Testing database encoding**

See [Troubleshooting Character Encodings](#) for a number of tests you can run to ensure your database encoding is correct.

**RELATED TOPICS:**
Database Setup Guides

- Database JDBC drivers
- Database Setup for Oracle
- Database Setup for SQL Server
- Database Setup For Any External Database
- Database Setup for PostgreSQL
- Database Setup For MySQL

Database JDBC drivers

The JDBC drivers for all databases currently supported for Confluence are linked below. You will need to make the driver available to your application server, as described in the appropriate setup guide.

ℹ️ Please note, we bundle a number of JDBC drivers with Confluence, as shown below. You do not have to download or install the drivers for the relevant databases, if you are using a direct JDBC connection. If you are connecting via a datasource, you will still need to download and install the drivers manually.

<table>
<thead>
<tr>
<th>Database</th>
<th>JDBC Drivers Bundled with Confluence?</th>
<th>JDBC Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostgreSQL</td>
<td>✔️</td>
<td>8.4-701.jdbc3 (note, the JDBC 3 driver will work under the 1.6 JVM. If you want to use the JDBC 4 driver, you can download it from the PostgreSQL website. However, we recommend that you use the bundled JDBC 3 driver.)</td>
</tr>
<tr>
<td>MySQL</td>
<td>✔️</td>
<td>5.1.11</td>
</tr>
<tr>
<td>Microsoft SQL Server</td>
<td>✔️</td>
<td>JTD 1.2.2</td>
</tr>
<tr>
<td>Oracle</td>
<td>❌</td>
<td>JDBC driver downloads (see Database Setup for Oracle for required JDBC driver versions)</td>
</tr>
<tr>
<td>DB2</td>
<td>❌</td>
<td>JDBC drivers should be included with DB2, otherwise they can be downloaded from the IBM website</td>
</tr>
</tbody>
</table>

Database Setup for Oracle

This guide covers deploying Confluence standalone or WAR distribution with an Oracle database.

⚠️ This database can only be set up by an Oracle database administrator (DBA)

If you are not a DBA, you should not attempt to set up this database.

Oracle has a history of being extremely difficult to set up. If you do not have access to an experienced Oracle DBA in your organisation, you are recommended to select any free, scalable and easy-to-install alternative rather than proceeding with Oracle. Users evaluating Confluence are recommended to start with an alternative database and only consider migrating to Oracle after approval from their DBA. Atlassian’s technical support for Oracle setup difficulties will also reflect the high minimum skill requirements for attempting an Oracle setup.

Database Setup Information

This setup guide must be used in conjunction with the list of Known Issues For Oracle. Please review that page before continuing.

Schema Requirements

Confluence can be deployed to a schema in any Oracle instance.

Database Compatibility

Please refer to Supported Platforms for information about supported database versions. If your version of Oracle is not supported, please upgrade to a supported version before installing Confluence.
Check your database drivers, to see if you need an update.

- For Oracle 11.1, use the 10.2.0.4 or 11.1.0.7.0 driver (Java 6 ojdbc6.jar).
- For Oracle 11.2, use the 11.2.0.1.0 driver (Java 6 ojdbc6.jar).

Tip: search for the jar filename on the download site.

Check that your version of Oracle does not have any known issues:

<table>
<thead>
<tr>
<th>Oracle Version</th>
<th>Oracle Driver</th>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Pre 10g</td>
<td>Driver incompatibilities</td>
<td>Upgrade to latest 10g drivers if compatible</td>
</tr>
</tbody>
</table>

You may be also interested in the relevant JIRA documentation to check the compatibility of your Oracle server and driver.

**Deploying Confluence with Oracle**

Complete the instructions for installing Confluence standalone, then return to this document instead of proceeding to the Confluence Setup Guide.

**Database Preparation**

Tailor these instructions to your particular database version:

1. Perform any necessary database or driver upgrades. Download the latest compatible database drivers. See the Oracle JDBC driver FAQ.
2. Create a Confluence user and grant the following permissions to the user:

   ```
   grant connect to <user>;
   grant resource to <user>;
   ```

Do not grant the database user the `select any table` permission, or it can cause problems with other schemas. See CONF-3613 for a report.

**Adding a Datasource to Tomcat**

1. Open `<INSTALL>/conf/server.xml` for editing.
2. Locate the section Host -> Context

   ```
   <Host name="localhost" debug="0" appBase="webapps" unpackWARs="true" autoDeploy="false">
     <Context path="" docBase="..//confluence" debug="0" reloadable="true">
       <!-- Logger is deprecated in Tomcat 5.5. Logging configuration for Confluence is specified in confluence/WEB-INF/classes/log4j.properties -->
       <Manager pathname="" />
     </Context>
   </Host>
   ```

3. Paste in the Resource section provided, before Manager as shown:
4. Change the username and password to match the Oracle login.

5. Change url to match hostname, port and sid of the Oracle server. Note that sid stands for the Schema ID. For example:

   jdbc:oracle:thin:@hostname:port:sid

   For connecting to an Oracle RAC cluster, you'll need to edit the connection string using Oracle's connection syntax like this:


   This example has been broken up over multiple lines for clarity, but it should be compacted into a single line.

6. If required, choose different maxActive and maxIdle values. These set how many total database connections will be allowed at one time, and how many will be kept open even when there is no database activity.

   **Configuring Confluence Datasource Access**

   Configure Confluence to use this datasource:

   1. Edit the file `<INSTALL>/confluence/WEB-INF/web.xml`

   2. Go to the end of the file and just before `</web-app>`, insert the following:
<resource-ref>
  <description>Connection Pool</description>
  <res-ref-name>jdbc/confluence</res-ref-name>
  <res-type>javax.sql.DataSource</res-type>
  <res-auth>Container</res-auth>
</resource-ref>

3. Download the Oracle JDBC database drivers for your JDK version via the Database JDBC drivers page. We recommend using the thin drivers only. Copy the JAR file into `<confluence install>/WEB-INF/lib`. This directory path is potentially `<INSTALL>/lib` if Confluence is running off Apache Tomcat version 6 or above.

**Running the Confluence Setup Wizard**

Now Confluence is ready to attempt to connect to Oracle:

1. Startup Confluence using `<INSTALL>/bin/startup.bat` or `<INSTALL>/bin/startup.sh`
2. Insert your licence and select **External Database**.
3. Select **Datasource Connection** using your Oracle version.
4. Enter `java:comp/env/jdbc/confluence` for the name of the datasource.

Confluence should now deploy using the Oracle database specified. Please read this [comment](#) on Oracle database optimisation.

**Oracle Configuration Tips**

**24-hour time format with Oracle 8i**

We have received a report from a user that when an Oracle 8i database is configured to use 24-hour time as the default format, an exception like this may occur:

```
005-12-06 13:23:20 Loading root WebApplicationContext
2005-12-06 13:24:34 StandardContext[]: Exception sending context initialized event to listener instance
   of class com.atlassian.confluence.util.ConfluenceContextLoaderListener
   org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'userAccessor' defined in class path resource [applicationContext.xml]: Can't resolve reference to bean 'userAccessorTarget' while setting property 'target'; nested exception is org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'userAccessorTarget' defined in class path resource [applicationContext.xml]: Can't resolve reference to bean 'spacePermissionManager' defined in class path resource [securityContext.xml]: Can't resolve reference to bean 'spacePermissionManagerTarget' while setting property 'target'; nested exception is org.springframework.beans.factory.BeanCreationException: Error creating bean with name 'spacePermissionManagerTarget' defined in class path resource [securityContext.xml]: Initialization of bean failed; nested exception is org.springframework.jdbc.UncategorizedSQLException: (Hibernate operation): encountered SQLException [Cannot create PoolableConnectionFactory]; nested exception is org.apache.commons.dbcp.SQLNestedException: Cannot create PoolableConnectionFactory
   ...
org.apache.commons.dbcp.SQLNestedException: Cannot create PoolableConnectionFactory, cause:
   java.sql.SQLException: ORA-00604: error occurred at recursive SQL level 1
ORA-12705: invalid or unknown NLS parameter value specified
```
One symptom of this problem is that Confluence may refuse to start after midday.

The workaround is to go to 'General Configuration' and set the default time format to "HH:mm".

**RELATED TOPICS**

**Known Issues For Oracle**

**Database Setup for SQL Server**

Use this guide in conjunction with the more general Database Setup Guide for Any Database. These instructions add some reference notes specific to SQL Server.

1. Review the known issues for SQL Server.
2. Identify which character encoding to use. To do this, check the encoding currently used by your application server and Confluence. All three must use compatible encoding. For example, the default SQL Server encoding of USC-2 is compatible with UTF-8.
3. Create a new database (as an SQL administrator). If you set your application server and Confluence to use an encoding incompatible with USC-2, specify that character encoding for the database.
4. Set the default collation for the database to be 'SQL_Latin1_General_CP1_CS_AS' (case sensitive). You can do this by issuing the following SQL query:

   ```sql
   ALTER DATABASE <database_name> COLLATE SQL_Latin1_General_CP1_CS_AS
   ```

5. Configure the database to use the isolation level, Read Committed with Row Versioning. You can do this by issuing the following SQL query:

   ```sql
   ALTER DATABASE <database_name>
   SET READ_COMMITTED_SNAPSHOT ON
   WITH ROLLBACK IMMEDIATE;
   ```

6. Create a new SQL user account for Confluence (as an SQL administrator). Provide full create, read and write permissions for the database tables. Please note, Confluence must be able to create its own schema.
7. Install the database drivers, if needed:

   **SQL Server JDBC Drivers bundled with Confluence**
   
   The JDBC drivers for this database are bundled with Confluence. You do not have to download or install any JDBC drivers to use this database with Confluence, if you are using a direct JDBC connection. If you are connecting via a datasource, you will still need to download and install the drivers manually. See Database JDBC drivers for more information on the bundled JDBC drivers.
   
   - If you're not sure which connection you're using, it's most likely JDBC. A JNDI resource must be configured manually, as described in Configuring a MySQL Datasource in Apache Tomcat.

8. Start Confluence and visit the home URL (e.g. http://localhost:8090) to start the Confluence Setup Wizard and select a Custom Install, insert the relevant connection information.
   - When prompted for a *driver class name* in the database setup step enter:

   ```java
   net.sourceforge.jtds.jdbc.Driver
   ```
   
   - When prompted for the *jdbc url*, the format to use is:

   ```java
   jdbc:jtds:sqlserver://<server>:<port>/<database>
   ```

**Configuring a SQL Server Datasource in Apache Tomcat**

This page contains instructions on how to set up an SQL Server datasource connection for Confluence Standalone or EAR/WAR.

**On this page:**

- 1. Install the Driver
- 2. Shut down Tomcat
- 3. Configure Tomcat
- 4. Configure the Confluence web application
5. Configure Confluence

1. Install the Driver

2. After unpacking the file you have downloaded, you’ll find a file called something like jtds-1.2.5.jar (whatever is the latest version).
3. Copy this file into the `common/lib` directory of your Tomcat installation. Be aware that this directory may be just `lib` for Tomcat version 6 and beyond (i.e. `<tomcat-install>/lib` rather than `<tomcat-install>/common/lib`).

Alternatively you can get the driver from `/confluence/WEB-INF/lib/jtds-1.2.2.jar` and move it into the `common/lib` directory of your Tomcat installation.

2. Shut down Tomcat

1. Run `bin/shutdown.sh` or `bin/shutdown.bat` to bring Tomcat down while you are making these changes.

Make a backup of your `<CONFLUENCE_HOME>/confluence.cfg.xml` file and your `<CONFLUENCE_INSTALL>/conf/server.xml` file so you can easily revert should their be a problem.

3. Configure Tomcat

1. Firstly, you need to edit `<confluence install>/conf/server.xml` and find the following lines:

   ```xml
   <Context path="" docBase="../confluence" debug="0" reloadable="true">
   <!-- Logger is deprecated in Tomcat 5.5. Logging configuration for Confluence is specified in confluence/WEB-INF/classes/log4j.properties -->
   </Context>
   ```

   Within the Context tags, directly after the opening `<Context.../>` line, insert the `DataSource Resource` tag:

   ```xml
   <Resource name="jdbc/confluence" auth="Container" type="javax.sql.DataSource"
   username="yourDatabaseUser"
   password="yourDatabasePassword"
   driverClassName="net.sourceforge.jtds.jdbc.Driver"
   url="jdbc:jtds:sqlserver://localhost:1433/yourDatabaseName"
   maxActive="20"
   maxIdle="10"
   validationQuery="select 1" />
   ```

   Replace the username and password parameters with the correct values for your database

   In the `url` parameter, replace the word 'yourDatabaseName' with the name of the database your confluence data will be stored in.

   **Why is the validationQuery element needed?**

   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 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.

   **If switching from a direct JDBC connection to datasource, you can find the above details in your `<CONFLUENCE_HOME>/confluence.cfg.xml` file.**
The configuration properties for Tomcat's standard data source resource factory (org.apache.tomcat.dbcp.dbcp.BasicDataSourceFactory) are as follows:

- **driverClassName** — Fully qualified Java class name of the JDBC driver to be used.
- **maxActive** — The maximum number of active instances that can be allocated from this pool at the same time.
- **maxIdle** — The maximum number of connections that can sit idle in this pool at the same time.
- **maxWait** — The maximum number of milliseconds that the pool will wait (when there are no available connections) for a connection to be returned before throwing an exception.
- **password** — Database password to be passed to our JDBC driver.
- **url** — Connection URL to be passed to our JDBC driver. (For backwards compatibility, the property driverName is also recognized.)
- **user** — Database username to be passed to our JDBC driver.
- **validationQuery** — SQL query that can be used by the pool to validate connections before they are returned to the application. If specified, this query MUST be an SQL SELECT statement that returns at least one row.

4. **Configure the Confluence web application**
   1. Edit `/confluence/WEB-INF/web.xml` in your confluence installation
   2. Go to the end of the file and just before `</web-app>`, insert the following:

   ```xml
   <resource-ref>
   <description>Connection Pool</description>
   <res-ref-name>jdbc/confluence</res-ref-name>
   <res-type>javax.sql.DataSource</res-type>
   <res-auth>Container</res-auth>
   </resource-ref>
   ```

5. **Configure Confluence**
   - **If you have not yet set up Confluence**
     1. Follow the steps in the Confluence Setup Guide
     2. In the Database Setup section, choose the "Datasource Connection" option.
     3. Set the JNDI name to `java:comp/env/jdbc/confluence`
     4. Set the Database dialect to SQL Server.
   - **If you are changing an existing Confluence installation over to using a Tomcat datasource**
     1. Delete any line that contains a property that begins with hibernate.
     2. Insert the following at the start of the `<properties>` section.

     ```xml
     <property name="hibernate.setup">true</property>
     <property name="hibernate.dialect">net.sf.hibernate.dialect.SQLServerIntlDialect</property>
     <property name="hibernate.connection.datasource">java:comp/env/jdbc/confluence</property>
     ```

   4. Restart Confluence.

**RELATED TOPICS**

Configuring a MySQL Datasource in Apache Tomcat

**Database Setup For Any External Database**

If you are using Confluence in a production environment, data should be stored in an external database. The embedded database is bundled for evaluation purposes and does not offer full transactional integrity in the event of sudden power loss.

This document provides instructions for setting up Confluence for use with a production-ready database. It covers both migration from an evaluation installation of Confluence and installation of an empty database during initial setup. The following specific database guides have additional information:

- PostgreSQL Guide
- MySQL Guide
- Oracle Guide
- SQL Server

**Preparation**

Install the following on the Confluence server:

- Database administration tool, for example DBVisualizer
JDBC database drivers
The database server (unless accessed remotely)

The instructions refer to two particular directories:

- The `<Confluence Installation Directory>` is the directory where you unpacked the Standalone Confluence download.
- The `<Confluence Home Directory>` is the directory where Confluence stores its data, which you set by editing the `confluence-init.properties` file in `Confluence Installation Directory/confluence/WEB-INF/classes`.

### Database Setup

Create the schema and setup permissions:

1. Visit the [Database Configuration](#) page to review any known issues and database setup for your database.
2. Create a new schema using the correct database encoding.
3. Create a user with full read/write access to the Confluence schema, including the ability to create tables.
4. If the database only permits users to log in from approved hosts (e.g., `localhost`), grant database access permission for the Confluence server.
5. If the database is hosted remotely to the Confluence server, set up any firewall permissions.
6. Test the connection by using the database administration tool installed on the Confluence server to log in to the database.

<table>
<thead>
<tr>
<th>Migration From an Evaluation Instance of Confluence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue here if you are migrating from an evaluation instance with the built-in database. If you are installing Confluence for the first time, continue below.</td>
</tr>
</tbody>
</table>

### Create Backups

To keep any existing Confluence content:

1. If you are already using an external database, use your database administration tool to create a full database backup.
2. Manually create an XML backup of Confluence under 'Administration' -> 'Backup & Restore'. If you have less than 100MB of attachments, check 'Backup attachments' when creating the backup. If you have over 100MB of attachments, you should not check the 'Backup attachments' and instead you should manually copy the `/attachments` directory in your Confluence home to a backup location. This attachments directory will later be copied into the new home directory.
3. Download the backup file to a backup location.

### Database Connection Setup

Set up Confluence's database connection:

1. Stop Confluence if it is already running.
2. The JDBC database drivers for your database must be available to the application server. You can skip this step if the drivers are already loaded.
   a. Copy the database driver JAR file into the `lib` directory. In Confluence Standalone this directory is `/conf/WEB-INF/lib`. Other application servers will use a different path.
   b. If the application server does not support dynamic library loading, stop your application server.
3. Create a new Confluence home directory.
4. Open the `WEB-INF/classes/confluence-init.properties` file in your Confluence installation and change the `confluence.home` property to point to this new Confluence home directory.
5. Start up Confluence. Refer to the platform-specific installation instructions to learn how. You should be presented with the Confluence setup wizard. Enter your license information.
6. Select 'Custom install'.
7. Select a database from the drop down list.
8. Select Direct JDBC and then enter the username, password and database driver of the new database.
9. If you created a Confluence backup earlier and wish to restore it, import it into Confluence now.
10. Once the wizard is complete, if you did not check the 'Backup attachments', copy the backed up `/attachments` directory into the new Confluence home.

### RELATED TOPICS

Troubleshooting External Database Connections

### Database Setup for PostgreSQL

This document provides instructions for setting up Confluence for use with a PostgreSQL database. Please check the [Known Issues for PostgreSQL](#) before you start.

**On this page:**

- [1. Install PostgreSQL](#)
- [2. Create a User and a Database](#)
- [3. Configure Confluence to use the PostgreSQL Database](#)
- Troubleshooting
1. Install PostgreSQL

To install PostgreSQL,

1. Download the database software and installer from the PostgreSQL download site and save it to your desktop. Choose the package that matches your operating system. Where available, choose the One Click Installer. These instructions assume you will use the One Click Installer. For example:
   - PostgreSQL One Click Installer for Windows.
   - PostgreSQL One Click Installer for Linux.
   - PostgreSQL One Click Installer for Mac OS X.

2. Run the installer. Please note the following information when installing PostgreSQL:
   - The password that you are prompted to provide during the installation process is for the 'postgres' account, which is the db root level account.
   - The default port for PostgreSQL is 5432. If you decide to change the default port, please ensure that your new port number does not conflict with any services running on that port. You will also need to remember to update all further mentions of db port.
   - Choose the locale that best fits your geographic location, when prompted to enter a locale.
   - Do not launch Stack Builder at the completion of the installer.

3. PostgreSQL is now installed on your machine.

2. Create a User and a Database

All screenshots below are taken from a PostgreSQL configuration on a Windows machine.

To create a PostgreSQL user and database,
1. Start the `pgAdmin III` administration tool on your machine. The `pgAdmin III` administration console will display. The database user and database that will be used by Confluence are created via the `pgAdmin III` tool.

2. Connect to the PostgreSQL server (e.g. double-click on the server name in the object browser). Enter a `postgres` password when prompted.

3. Create a new user, i.e. login role (e.g. right-click click ‘Login Roles’ in the object browser and select ‘New Login Role...’):
   - Enter a name and password for the new user.
   - Do not select any role privileges.

4. Create a database (e.g. right-click ‘Databases’ and select ‘New Database...’):
   - Enter a name for the new database.
   - Set the owner of the database to the user you created in the previous step.
   - Select ‘UTF8’ for ‘Encoding’.

### Creating a User and Database via Linux command-line

If you are on Linux and do not have the above `pgAdmin III` administration tool, you can use the command line interface instead. Assuming that you are using the default installation directory of `/opt/PostgreSQL/8.3/bin/`, enter the following commands:

```bash
sudo -s -H -u postgres
# Create the Confluence user:
/opt/PostgreSQL/8.3/bin/createuser -S -d -r -P confuser
# Create the Confluence database:
/opt/PostgreSQL/8.3/bin/createdb -O confuser confluence
exit
```

3. Configure Confluence to use the PostgreSQL Database
Once you have installed and set up PostgreSQL, you will need to configure Confluence to use the PostgreSQL database.

To configure Confluence to use PostgreSQL,

1. Install Confluence, if you haven't done so already. Ensure that you download Confluence Standalone, not the evaluation installer.
2. Ensure that Confluence is stopped (for example, by ensuring that the application server or service which is running Confluence has been stopped or terminated).
3. Install the database drivers, if needed:
   - **PostgreSQL JDBC Drivers bundled with Confluence**
     The JDBC drivers for this database are bundled with Confluence. You do not have to download or install any JDBC drivers to use this database with Confluence, **if you are using a direct JDBC connection**. If you are connecting via a datasource, you will still need to download and install the drivers manually. See Database JDBC drivers for more information on the bundled JDBC drivers.
     - If you’re not sure which connection you’re using, it’s most likely JDBC. A JNDI resource must be configured manually, as described in Configuring a MySQL Datasource in Apache Tomcat.
     
     *Note: Confluence only bundles the JDBC 3 driver which will work under the 1.6 JVM. However, if you are using Java 6 and want to use the JDBC 4 driver, you can download it via Database JDBC drivers and install it as described below. You will need to remove the existing PostgreSQL JDBC 3 driver (e.g. postgresql-8.4-701.jdbc3), if you do want to use the JDBC 4 driver.*

   - If you are configuring a datasource to connect to your PostgreSQL database, you will need to place the jar file in `<confluence install>/WEB-INF/lib` (for Confluence 2.10 onwards) or `<confluence install>/common/lib` (for earlier versions). Information and links to the appropriate database drivers are available on Database JDBC drivers.
     - Windows renames .jar extensions to .zip! Just rename it back to .jar. You’ll have to set your folder options to view hidden file extensions if you can’t rename it without changing the file type (Tools >> Folder Options >> View >> Uncheck “Hide Extensions for known file types.”)

4. Start Confluence and after entering your license code on the 'Confluence Setup Wizard' page, click 'Custom Installation'. The 'Choose a Database Configuration' page will display.
5. Select 'PostgreSQL' and click 'External Database'. The 'Configure Database' page will display.
6. Choose your desired database connection method (please note that if you choose to connect via datasource, you will need to install the appropriate database drivers as described in the previous step).
7. Enter your PostgreSQL database setup details (as defined in the previous step above):

   ![Connecting to an SSL Database](image)

   **Connecting to an SSL Database**
   
   Simply add `ssl=true` parameter in the Database URL, for example:

   ```
   jdbc:postgresql://localhost:5432/confluence?ssl=true
   ```

   ![Running SQL Queries](image)

   **Running SQL Queries**

   For ongoing maintenance of your server, you can continue to use PGAdmin as your SQL browser.

   ![Warning](image)

   If the server that is hosting the PostgreSQL database is not the same server as Confluence, then please ensure that the confluence server can connect the database server and also refer to the PostgreSQL documentation on how to set up pg_hba.conf. If the pg_hba.conf file is not set properly, remote communication to the PostgreSQL server will fail.
Troubleshooting

- Known Issues for PostgreSQL contains common issues encountered when setting up your PostgreSQL database to work with Confluence.
- If you are unable to connect to the database from Confluence and they are on different machines, most likely you have a firewall in between the two machines or your pg_hba.conf file is misconfigured. Verify that your firewall is set to allow connections through 5432 or double check your hba configuration.
- If Confluence is complaining that it’s missing a class file, you might have forgotten to place the jdbc driver in the WEB-INF/lib folder or possibly have placed it in the wrong folder.
- If none of the above describes your issue, please create a support ticket at http://support.atlassian.com and be sure to include your logs (found in confluence-install/logs and confluence-data/logs).

Configuring a PostgreSQL Datasource in Apache Tomcat

This page contains instructions on how to set up a PostgreSQL datasource connection for Confluence Standalone or EAR/WAR.

On this page:

1. Install the Driver
2. Shut down Tomcat
3. Configure Tomcat
4. Configure the Confluence web application
5. Configure Confluence

1. Install the Driver

   2. Copy this file into the common/lib directory of your Tomcat installation. Be aware that this directory may be just lib for Tomcat version 6 and beyond (i.e. `<tomcat-install>/lib` rather than `<tomcat-install>/common/lib`).

      ![Tip]
      If you are using Confluence 3.2.0 or later you can get the driver from `/confluence/WEB-INF/lib/postgresql-8.4-701.jdbc3.jar` and move it into the common/lib directory of your Tomcat installation.

2. Shut down Tomcat

   1. Run `bin/shutdown.sh` or `bin/shutdown.bat` to bring Tomcat down while you are making these changes.

      ![Tip]
      Make a backup of your `<CONFLUENCE_HOME>/confluence.cfg.xml` file and your `<CONFLUENCE_INSTALL>/conf/server.xml` file so you can easily revert should their be a problem.

3. Configure Tomcat

   1. Firstly, you need to edit `<confluence install>/conf/server.xml` and find the following lines:

      ```xml
      <Context path="" docBase="../confluence" debug="0" reloadable="true">
      <!-- Logger is deprecated in Tomcat 5.5. Logging configuration for Confluence is specified in confluence/WEB-INF/classes/log4j.properties -->
      </Context>
      ```

   2. Within the Context tags, directly after the opening `<Context.../>` line, insert the DataSource Resource tag:
4. Configure the Confluence web application

1. Edit `/confluence/WEB-INF/web.xml` in your Confluence installation
2. Go to the end of the file and just before `</web-app>`, insert the following:

```xml
<resource-ref>
  <description>Connection Pool</description>
  <res-ref-name>jdbc/confluence</res-ref-name>
  <res-type>javax.sql.DataSource</res-type>
  <res-auth>Container</res-auth>
</resource-ref>
```

5. Configure Confluence

- If you have not yet set up Confluence
  1. Follow the steps in the Confluence Setup Guide
  2. In the Database Setup section, choose the "Datasource Connection" option.
  3. Set the JNDI name to `java:comp/env/jdbc/confluence`
  4. Set the Database dialect to Postgres.

- If you are changing an existing Confluence installation over to using a Tomcat datasource
  1. Edit the `/confluence/conf/confluence.cfg.xml` file
  2. Delete any line that contains a property that begins with hibernate.
3. Insert the following at the start of the `<properties>` section.

```xml
<property name="hibernate.setup"><![CDATA[true]]></property>
<property name="hibernate.dialect"><![CDATA[net.sf.hibernate.dialect.PostgreSQLDialect]]></property>
<property name="hibernate.connection.datasource"><![CDATA[java:comp/env/jdbc/confluence]]></property>
```

4. Restart Confluence.

**Database Setup For MySQL**

This page provides instructions for installing Confluence and the open-source MySQL database on Microsoft Windows, as well as how to set up and configure MySQL to work with Confluence. Additional instructions are also provided for migrating across any existing Confluence database content. Use this guide in conjunction with the more general Database Setup Guide for Any Database. These instructions add some important reference notes specific to MySQL.

**Please note the following points:**

- Throughout the instructions below, the Confluence Installation Directory refers to the directory where you extracted the Confluence zipped installer.
- The MySQL Database Setup procedure below will make modifications to your default MySQL Server settings. These modifications result in:
  1. The default collation (localisation) option being changed to `utf8_bin` (that is, case-sensitive binary UTF8), such that by default, all new database tables will be created with this type of case-sensitive collation.
  2. The default MySQL database storage engine being changed to 'InnoDB'.

**On this page:**

- 1. Install Confluence
- 2. Install MySQL Server
- 3. Set up your MySQL Database and User
- (Optional) 4. Back Up Confluence Data
- 5. Set Up your Database Connection
- Troubleshooting
- Related Documents

**1. Install Confluence**

Install Confluence if you have not done so already. Ensure that you download Confluence Standalone, not the evaluation installer.

**2. Install MySQL Server**

To install MySQL Server,

1. If you do not have an operational MySQL database server instance available, install 'MySQL Community Server' database server (version 5.0). The installation package can be downloaded from the MySQL download page or from the version 5.0 download page. Instructions for installing the MySQL 5.0 database server on Windows can found on the 'Installing MySQL on Windows' page of the MySQL web site.
2. Run the 'MySQL Server Instance Config Wizard':
   If you intend to connect Confluence to an existing, operational MySQL database server instance, we
   strongly recommend that you reconfigure this database server instance by running through the Config Wizard
   and initially choosing the Reconfigure Instance option.
   a. At the start of the Config Wizard (or after having chosen Reconfigure Instance), choose Detailed
      Configuration.
   b. Choose the type of MySQL Server that best suits your hardware requirements. This will affect
      the MySQL Server's usage of memory, disk and CPU resources. Refer to the relevant MySQL
      documentation for further information.
   c. Choose 'Transactional Database Only' for the database usage step. This ensures that your MySQL
      database will use InnoDB as its default storage engine.
      It is highly recommended that you only use the InnoDB storage engine with Confluence. Avoid
      using the MyISAM storage engine as this can lead to data corruption.
   d. Set the InnoDB Tablespace settings to your requirements. (The default settings are acceptable).
   e. Set the approximate number of concurrent connections permitted that best suits your Confluence
      usage requirements. You can use one of the presets if desired or enter a number manually. Refer to
      the relevant MySQL documentation for further information.
   f. For the networking options, ensure the 'Enable TCP/IP Networking' and 'Enable Strict Mode'
      options are selected (default). Refer to the MySQL documentation on setting the networking and
      server SQL modes for further information.
   g. For the MySQL server instance's default character set option, choose 'Best Support For
      Multilingualism' (i.e. UTF-8).
   h. For the Windows configuration option, choose whether or not to install the MySQL Server as a
      Windows Service. If your hardware is going to be used as a dedicated MySQL Server, you may wish
      to choose the 'Install As Windows Service' (and Launch the MySQL Server automatically)
      options. Refer to the relevant MySQL documentation for further information.
      If you choose not to install the MySQL Server as a Windows Service, you will need to ensure that
      the database service has been started before running Confluence.
   i. Finally, select the 'Modify Security Settings' option to enter and set your MySQL Server (root)
      access password.

3. Install the database drivers, if needed:

   MySQL JDBC Drivers bundled with Confluence
   The JDBC drivers for this database are bundled with Confluence. You do not have to
   download or install any JDBC drivers to use this database with Confluence, if you are
   using a direct JDBC connection. If you are connecting via a datasource, you will still need
   to download and install the drivers manually. See Database JDBC drivers for more
   information on the bundled JDBC drivers.
   • If you’re not sure which connection you’re using, it’s most likely JDBC. A JNDI
     resource must be configured manually, as described in Configuring a MySQL
     Datasource in Apache Tomcat.

   • If you are configuring a datasource to connect to your MySQL database, you will need to place the jar
     file (i.e. mysql-connector-java-5.x.y-bin.jar where x.y depends on the driver version) in
     <confluence install>/WEB-INF/lib (for Confluence 2.10 onwards) or <confluence
     install>/common/lib (for earlier versions). Information and links to the appropriate database
drivers are available on Database JDBC drivers.
4. Configure your MySQL server's settings by editing MySQL's `my.cnf` file (often named `my.ini` on Windows operating systems). Locate the `[mysqld]` section in the file and add/modify the following parameters:

- Specify the default character set to be UTF-8:

```
[mysqld]

...  
default-collation=utf8_bin  
character-set-server=utf8  
collation-server=utf8_bin  
default-character-set=utf8  
...
```

- Set the default storage engine to InnoDB:

```
[mysqld]

...  
default-storage-engine=INNODB  
...
```

- Specify/increase the value of `max_allowed_packet` to be at least 32M:

```
[mysqld]

...  
max_allowed_packet=32M  
...
```

(Refer to MySQL Option Files for detailed instructions on editing `my.cnf` and `my.ini`.)

5. Restart your MySQL server for the changes to take effect:

- On Windows, use the Service Manager to restart the service.
- On Linux, depending on your setup you will need to run either "`/etc/init.d/mysql stop`", "`/etc/init.d/mysqld stop`" or "service mysqld stop" followed by the same command with "stop" replaced with "start".
- On Mac OS X, run "sudo /Library/StartupItems/MySQLCOM/MySQLCOM restart".

### 3. Set up your MySQL Database and User

**To create the database and user privileges,**

1. Run the "mysql" command as a MySQL super user. The default is "root" with a blank password.
2. Create an empty Confluence database schema by running

   ```
   CREATE DATABASE confluence;
   ```

3. Create the Confluence database user by running

   ```
   GRANT ALL PRIVILEGES ON confluence.* TO 'confluenceuser'@'localhost' IDENTIFIED BY 'confluencepass';
   ```

Replace "confluenceuser" and "confluencepass" with a username and password of your choice. If Confluence is not running on the same server as your MySQL database server, replace "localhost" with the hostname or IP address of the Confluence server.

To support international languages in Confluence, you should **verify** that the newly created database is using UTF-8 encoding and re-examine the JDBC URL settings (configured in Stage 3).

**For an existing database**

If you're using a existing database, confirm the Character Encoding by executing the query:

- `SHOW VARIABLES LIKE 'character%';` and `SHOW VARIABLES LIKE 'collation%';`

The results should be UTF-8.
(Optional) 4. Back Up Confluence Data

- **This stage is only required if you have existing Confluence content you wish to transfer.**
- **To back up your Confluence data,**
  1. Manually create an XML backup of Confluence under Administration -> Backup & Restore. If you have less than 100MB of attachments, check 'Backup attachments' when creating the backup. If you have over 100MB of attachments, you should not check 'Backup attachments' and instead you should manually copy the /attachments directory in your Confluence home to another location. This attachments directory can then be copied into the new home directory as described later.
  2. Download the backup file to a backups folder.

5. Set Up your Database Connection

- **To set up your Confluence MySQL database connection or to switch to using this external database,**
  1. Ensure that Confluence is stopped (for example, by ensuring that the application server or service which is running Confluence has been stopped or terminated).
  2. If you haven't started Confluence yet, you can skip this step. If you have set up Confluence with the built-in (HSQLDB) database, edit Confluence Installation Directory_/confluence/WEB-INF/classes/confluence-init.properties and change the confluence.home property to point to a new directory. e.g. if you had

     ```
     confluence.home=c:/confluencedata
     ```

     You could change it to:

     ```
     confluence.home=c:/confluencedata_mysql
     ```

     *This is your new Confluence Home Directory. (The name doesn't have to end in _mysql – that's just an example)*
  3. Start Confluence and set up the new configuration.
     a. Enter your license key and click the 'Custom Installation' button.
     b. Under the 'External Database' heading, select 'MySQL' from the dropdown list and click 'External Database'.
     c. On the next page, click 'Direct JDBC'.
     d. Enter confluenceuser in the User Name field, and the password you chose earlier in the Password field.
     e. Click the Next button. If you get the error message *Could not successfully test your database: : Server connection failure during transaction. Due to underlying exception: 'java.sql.SQLException: Access denied for user 'confluenceuser'@'localhost' (using password: YES)'* verify that you have properly given the confluenceuser user all the right permissions when connecting from localhost.
     f. *(optional)* If you previously backed up your Confluence data, you can choose to restore it at the 'Load backed up your Confluence data' page. Choose 'Restore From Backup', browse for the backup you created and restore it. Otherwise choose either the example or empty site as you wish.

Troubleshooting

- **Known Issues for MySQL** contains common issues encountered when setting up your MySQL database to work with Confluence.
- If Confluence is complaining that it's missing a class file, you might have forgotten to place the jdbc driver in the WEB-INF/lib folder or possibly have placed it in the wrong folder.
- If none of the above describes your issue, please create a support ticket at http://support.atlassian.com and be sure to include your logs (found in confluence-install/logs and confluence-data/logs).

Related Documents

- Configuring Database Character Encoding
- Known Issues for MySQL

**Configuring a MySQL Datasource in Apache Tomcat**

This page tells you how to set up a MySQL datasource connection for Confluence Standalone or EAR/WAR.
1. **Shut down Tomcat**
   1. Run `bin/shutdown.sh` or `bin/shutdown.bat` to bring Tomcat down while you are making these changes.
   2. Make a backup of your `<CONFLUENCE_HOME>/confluence.cfg.xml` file and your `<CONFLUENCE_INSTALL>/conf/server.xml` file so that you can easily revert if you have a problem.

2. **Install the Drivers**
   2. After unpacking the file you have downloaded, you will find a file called something like `mysql-connector-java-3.0.10-stable-bin.jar`.
   3. Copy this file into the `<common/lib>` directory of your Tomcat installation. Be aware that this directory may be just `lib` for Tomcat version 6 and beyond (i.e. `<tomcat-install>/lib` rather than `<tomcat-install>/common/lib`).

3. **Configure Tomcat**
   1. If you are using the Standalone distribution of Confluence, edit the `conf/server.xml` file in your Tomcat installation. If you are running your own Tomcat instance, edit the XML file where you declared the Confluence Context descriptor.
   2. If editing `conf/server.xml`, find the following lines:

   ```xml
   <Context path="" docBase="../confluence" debug="0" reloadable="true">
   <!-- Logger is deprecated in Tomcat 5.5. Logging configuration for Confluence is specified in confluence/WEB-INF/classes/log4j.properties -->
   </Context>
   ```

   Within the `Context` tags, directly after the opening `</Context/>` line, insert the `DataSource` Resource tag:

   ```xml
   <Resource name="jdbc/confluence" auth="Container" type="javax.sql.DataSource"
   username="yourusername"
   password="yourpassword"
   driverClassName="com.mysql.jdbc.Driver"
   url="jdbc:mysql://localhost:3306/confluence?useUnicode=true&characterEncoding=utf8"
   maxActive="15"
   maxIdle="7"
   defaultTransactionIsolation="READ_COMMITTED"
   validationQuery="Select 1" />
   ```

   - Replace the username and password parameters with the correct values for your database.
   - In the `url` parameter, replace the word 'confluence' with the name of the database your Confluence data will be stored in.
   - If you plan to use non-Latin characters, you will also need to add "&useUnicode=true&characterEncoding=utf8" on the end of the above URL. These options are not required for any database other than MySQL.

   **Notes**
   - If switching from a direct JDBC connection to datasource, you can find the above details in your `<CONFLUENCE_HOME>/confluence.cfg.xml` file.
   - Why is the validationQuery element needed? When a database server reboots, or there is a network failure, all the connections in the connection pool are broken and this normally requires an application server reboot.

   However, the Commons DBCP (Database Connection Pool) which is used by the Tomcat application server 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.

   - The configuration properties for Tomcat's standard data source resource factory (org.apache.tomcat.dbcp.dbcp.BasicDataSourceFactory) are as follows:
     - `driverClassName` – Fully qualified Java class name of the JDBC driver to be used.
     - `maxActive` – The maximum number of active instances that can be allocated from this pool at the same time.
     - `maxPoolSize` – The maximum number of connections that can sit idle in this pool at the same time.
     - `maxWait` – The maximum number of milliseconds that the pool will wait (when there are no available connections) for a connection to be returned before throwing an exception.
     - `password` – Database password to be passed to our JDBC driver.
     - `url` – Connection URL to be passed to our JDBC driver. (For backwards compatibility, the property `driverName` is also recognized.)
     - `user` – Database username to be passed to our JDBC driver.
• validationQuery – SQL query that can be used by the pool to validate connections before they are returned to the application. If specified, this query MUST be an SQL SELECT statement that returns at least one row.

4. Configure the Confluence Web Application

1. Edit confluence/WEB-INF/web.xml in your Confluence installation.
2. Go to the end of the file and insert the following element just before </web-app>:

   ```xml
   <resource-ref>
     <description>Connection Pool</description>
     <res-ref-name>jdbc/confluence</res-ref-name>
     <res-type>javax.sql.DataSource</res-type>
     <res-auth>Container</res-auth>
   </resource-ref>
   ```

5. Configure Confluence

If you have not yet set up Confluence:

1. Follow the steps in the Confluence Setup Guide
2. In the Database Setup section, choose the “Datasource Connection” option.
3. Set the JNDI name to `java:comp/env/jdbc/confluence`
4. Set the Database dialect to MySQL.

If you are changing an existing Confluence installation over to using a Tomcat datasource:

1. Find your ConfluenceHome directory (see: Confluence Home Directory if you don't know where it is).
2. Edit the confluence.cfg.xml file
3. Delete any line that contains a property that begins with `hibernate`.
4. Insert the following at the start of the <properties> section:

   ```xml
   <properties>
     <property name="hibernate.setup"><![CDATA[true]]></property>
     <property name="hibernate.dialect"><![CDATA[net.sf.hibernate.dialect.MySQLDialect]]></property>
     <property name="hibernate.connection.datasource"><![CDATA[java:comp/env/jdbc/confluence]]></property>
   </properties>
   ```

6. Restart Confluence

Run `bin/startup.sh` or `bin/startup.bat` to start Tomcat with the new settings.

RELATED TOPICS

- Database Setup For MySQL
- Creating Database Schema Manually

Creating Database Schema Manually

Database Schema Creation

This document provides information on how to find the SQL for database table creation.

Often, DBAs will require that table creation be done manually. To find the required SQL statements, you can use the script generated from our evaluation version's HSQLDB database.

- Install Confluence with no external database.
- Shut down Confluence.
- Find the file located in `<confluence-home>/database/confluencedb.script`.

The `confluence-home` directory is not your installation directory, its the directory specified in `confluence-init.properties`. For more information, see Confluence Home Directory and Confluence Installation Directory.

To see some example SQL statements, click 'Tools' and select 'Attachments' on this wiki page.

To get Confluence to run against this established schema, configure the database with the normal procedure, then modify the `hibernate.connection.url`, `username` and `password` from `confluence-home/confluence.cfg.xml` or `server.xml`, depending on whether it's a direct jdbc or resource connection. This is described in Migrating Confluence Between Servers.

RELATED TOPICS

- Database Configuration
Migrate to Another Database

Limitations of Database Migration

The XML backup built into Confluence is not well suited for database migration for large data sets (see Production Backup Strategy for reference). If the procedures below do not work, use a commercial database migration tool.

Database Migration

This document outlines how to migrate your data from your existing database to another database. It is designed for migrating from an evaluation to a production database. Large data sets will require third party database migration tools. You should use this method when moving from the embedded DB to an external DB, or from one type of external DB to another (e.g. Oracle to Postgres).

If you are simply moving your DB from one server to another you can just change the JDBC URL in <confluence.home>/confluence.cfg.xml (if you are using a direct JDBC connection) or in the definition of your datasource (if you are connecting via a datasource).

There are two ways you can perform the migration:

1. Method one is the standard procedure.
2. For large installations of Confluence using version 2.2 or later: If the total size of attachments on your installation exceeds 500MB, use method two.

On this page:

- Method One - Standard Procedure
  - Step One: Backing up your data
  - Step Two: Configuring the Confluence Home Directory
  - Step Three: Setting up the new database
  - Step Four: Setting up Confluence with the new database
- Method Two - For large installations
  - Step One: Backing up your data
  - Step Two: Configuring the Confluence Home Directory
  - Step Three: Setting up new database
  - Step Four: Setting up Confluence with the new database
  - A Note about Case Sensitivity in your Database
- Troubleshooting

Method One - Standard Procedure

Step One: Backing up your data
1. Create a backup of your existing data. This is done from the Administration Console. Instructions on how to create a backup can be found here.
2. Shut down and backup the Confluence Home Directory.
3. If you are already using an external database, please make a backup of it using the utilities that were installed with it.

Note which plugins are currently installed/enabled, so that you can reinstate them later.

Step Two: Configuring the Confluence Home Directory
1. Create a new Confluence Home Directory. You can place this directory anywhere you like and give it a name of your choice.
2. Open WEB-INF/classes/confluence-init.properties file in your Confluence installation and change the confluence.home property to point to this new Confluence Home Directory.

Step Three: Setting up the new database

Perform the database setup instructions for your database.

Step Four: Setting up Confluence with the new database

If your databases are not already configured for Confluence, refer to Database Configuration to setup your database access.

1. Make sure that the JDBC drivers for your database are available to the application server. If you don't already have the
1. JDBC driver, please download one from here.
2. Make sure that your database is using a case-sensitive collation. Please refer to the section on case sensitivity below and see this issue for more details: CONF-7917.
3. If you are running the standalone version of Confluence, copy your JDBC database driver (a .jar file), into the <confluence-install>/lib folder.
4. Start up Confluence. You will see the Confluence Setup Wizard.
5. Select 'Custom Install'.
6. Select your database from the drop down list.
7. Select 'Direct JDBC' and then enter the details of the new database you want to migrate to.
   Read the documentation on the Setup Wizard for more detailed explanation.
8. When prompted, restore the contents of the backup you made in Step One into the new Confluence site.

Your old Confluence data will now be imported to your new database.

Method Two - For large installations

Step One: Backing up your data
1. Before proceeding with these instructions please check that:
   • you are upgrading from at least Confluence version 2.2 and
   • your attachments are stored in the file system, and not in your database. (To migrate between attachment storage systems, please see Attachment Storage Configuration)
   These instructions will not work if either of the above is not true.
2. From Confluence, go to Administration -> Backup & Restore and create a manual backup that excludes attachments.
3. Shut down and back up the Confluence Home Directory.
4. If you are already using an external database, please make a backup of it using the utilities that were installed with it.

Step Two: Configuring the Confluence Home Directory
1. Create a new Confluence Home Directory. You can place this directory anywhere you like and give it a name of your choice.
2. Open WEB-INF/classes/confluence-init.properties file in your Confluence installation and change the confluence.home property to point to this new Confluence Home Directory.

Step Three: Moving your attachments
Move the contents of your attachments directory from your old Confluence Home to your new Confluence Home.

Step Four: Setting up new database
Perform the database setup instructions for your database.

Step Five: Setting up Confluence with the new database
If your databases are not already configured for Confluence, refer to Database Configuration to setup your database access.

A Note about Case Sensitivity in your Database

'Collation' refers to a set of rules that determine how data is sorted and compared. Case sensitivity is one aspect of collation. Other aspects include sensitivity to kana (Japanese script) and to width (single versus double byte characters).

Case sensitive or case insensitive collation – how should you create your Confluence database? What about when you are migrating your existing Confluence instance from one database to another?

Setting up a New Confluence Instance

For new Confluence instances, we recommend using case sensitive collation for your Confluence database. This is the default collation type used by many database systems.

Note: Even if the database is configured for case sensitive collation, Confluence reduces all usernames to lower case characters before storing them in the database. For example, this means that 'joebloggs', 'joeBloggs' and 'JoeBloggs' will be treated as the same username.
Migrating an Existing Confluence Instance to a Different Database

The default Confluence Standalone configuration uses case sensitive database collation. This is typical of databases created under default conditions. If you are migrating from this type of configuration to a new database, we recommend that the new database uses case sensitive collation. If you use case insensitive collation, you may encounter data integrity problems after migration (for example, via an XML import) if data stored within your original Confluence site required case sensitive distinctions.

Troubleshooting

If you’re unable to restore your XML backup, consult our Troubleshooting Guide.

RELATED TOPICS

No content found for label(s) database-configuration.

The Embedded HSQLDB Database

The Confluence installation includes an embedded HSQLDB database, supplied for the purpose of evaluating Confluence.

If you are using the embedded database, the database files are stored in the \database folder under your Confluence Home directory. See also Important Directories and Files.

- Embedded Database is Not Suitable for Production Instances of Confluence
  - Production instances of Confluence should use an external database. When using the default HSQLDB database, you run the risk of unrecoverable data loss due to not being transaction safe.
  - Corruption is occasionally encountered after sudden power loss and can usually be corrected using this data recovery procedure.
  - HSQLDB is still suitable for evaluation purposes, but the risk can only be eliminated by switching databases. External databases may also provide superior speed and scalability.

RELATED TOPICS

Important Directories and Files
Database Configuration

Troubleshooting the Embedded Database (HSQL DB)

java.sql.SQLException: User not found: SA

Also see http://hsqldb.sourceforge.net/doc/guide/ch01.html#N101C2.

HSQLDB periodically must update its files to represent changes made in the database. In doing so, it must delete the current confluencedb.data file on the filesystem (beneath conf.home/database) and replace it with a new one.

If an administrator issues a shutdown on Confluence in this period, data can be lost, and is typically noticed by the error message, when starting Confluence up again, of ‘User not found: SA’.

Users encountering this problem should seek to restore backups, contained in the backup directory beneath confluence.home. If daily backups have been turned off, and no other copy of data remains, the data is lost.

- HSQLDB should not be used as a production database. It is included for evaluation purposes only.

Hibernate logging

It can be useful to enable detailed Hibernate logging when debugging problems with HSQL.

Connecting to the Embedded Database

Connecting to the Embedded HSQL Database can be quite difficult. You may need to connect to the database to retrieve information, or for troubleshooting purposes.

Please follow the instructions on how to you can connect to the embedded HSQL Database using the free Database Administration Tool DBVisualizer.
Connecting to HSQLDB using DBVisualizer

The purpose of this guide is to walk you through connecting to Confluence's embedded Hypersonic SQL Database using the Database Administration tool DBVisualizer.

Below are step by step instructions on how to Configure DBVisualizer and connect it to HSQLDB.

Prerequisites
1. Download and install the latest copy of DBVisualizer.
2. You will also need to download a copy (preferably the latest version) of HSQLDB
3. Extract the contents of the HSQLDB archive
4. Ensure that Confluence is not running.

Connection Procedure

Please ensure that you read and follow the instructions below carefully.

**Remember to backup your `<confluence-home>/database` folder before attempting any modifications**

1. Enter Connection Name

   1. Click on the icon highlighted in Red
   2. Enter an identifiable name for the connection. e.g. conf2.5.4-std

2. Select JDBC Driver
1. From the drop down list select HSQLDB Embedded
2. Click on Load Driver Files
3. Browse to directory where the HSQLDB.jar file is located. Confluence bundles this and it can be found at
   `<confluence-installation>/confluence/WEB-INF/lib/hsqldb-*.jar`

3. Select Database Path
   1. Browse to your `<Confluence-Home>` directory
   2. Open the Database folder
   3. Select the confluencedb.properties file

4. Enter Connection Details
1. Remove the ".properties" from the end of confluencedb.
2. Type in sa for the username
3. Leave the password field blank

Refer to the example screenshot above if you are unsure.

5. Connect to embedded Database

1. Click on Test Connection to verify that the details are correct.
2. Click on "Finish" to complete the setup
3. Select the connection from the list on the left hand side.
4. You can now click on "Connect" to connect to the embedded database.

**HSQL database manager**

Alternatively, you can use HSQLDB's database manager. Just copy the value of hibernate.connection.url in confluence.cfg.xml as the URL and you're good to go.

**Related Topics**
Database Tables Reference

Below is a diagram of the Table References in Confluence (2.5.4).

This may be useful for Database Administrators that need to manually create the Database tables.

Right Click and Select Save Link As here to download this image.

Troubleshooting External Database Connections

A common administration issue when configuring Confluence is identifying database connectivity problems. This page tells you about a helper utility, in the form of a JSP page, that can help you to isolate database connectivity issues. It checks whether you can connect to a database with your application server. If your application server cannot connect to the database, Confluence will not be able to connect to the database either.

Introduction to the Atlassian Database Check Utility

You can use this utility to:

- Check that your application server can successfully query your database, either via immediate JDBC connectivity or a datasource in the context of your application server.
- Pinpoint problems in your configuration which may occur if the above is failing.

This is what the utility does:

- Check that a JDBC driver can be loaded into memory and view what is already loaded.
- Connect to a JDBC URL and do a 'select 1' from the database.
- Find a DataSource in the JNDI environment and do the above.
- View the System classpath (to ensure that the JDBC JAR file is there).

Using the Utility

If you have already set up Confluence completely

1. Download the attached testdatabase.jsp to your \<confluence-install>\confluence directory.
2. Restart Confluence
4. Check that your database driver is loaded into memory. If not, check the system classpath for the JDBC driver file, and that the driver is in the \<confluence-install>\lib directory (for Confluence version 2.10 onwards) or \<confluence-install>\common\lib (for earlier versions). Here are some instructions.
5. Enter the DB settings Confluence is using and test the database. If an error appears, check that the db service is running, the location matches, and that any users specified actually exist with the right login and permissions. You may be able to find a workaround by Googling the error.

If you cannot set up Confluence because of an error in 'Configuring Database'

1. Record the DB settings you are using for your direct JDBC or datasource connection in the 'Configure Database' step of your setup.
2. Download the attached testdatabase.jsp to your \<confluence-install>\confluence directory.
3. Rename your \<confluence-install>\confluence\WEB-INF\web.xml file to backup web.xml. This disables
redirection.
4. Restart Confluence.
6. Check that your database driver is loaded into memory. If not, check the system classpath for the JDBC driver file, and that the driver is in the <confluence-install>/common/lib directory as described in these instructions.
7. Enter the DB settings you recorded and test the database. If an error appears, check that the db service is running, the location matches, and that any users specified actually exist with the right login and permissions. You may be able to find a workaround by Googling the error.
8. After correcting the error, rename <confluence-install>/confluence/WEB-INF/backup web.xml back to web.xml.

Notes
If you use this utility, please let us know ways in which we could improve it or leave helpful hints for others here.

For a comprehensive set of database instructions that might be helpful for troubleshooting, please refer to the following links:

- PostgreSQL
- MySQL

Requesting Technical Support
If you are still stuck after attempting the suggestions above, [lodge a free technical support request](http://example.com) with information on your database setup.

**Configuring database query timeout**

If database queries are taking too long to perform, and your application is becoming unresponsive, you can configure a timeout for database queries. There is no default timeout in Confluence.

To configure a database query timeout, do the following on your test server:

1. Shut down Confluence.
2. Extract databaseSubsystemContext.xml from the confluence-x.x.x.jar that is in confluence/WEB-INF/lib/, and put a copy in confluence/WEB-INF/classes/.
3. Edit confluence/WEB-INF/classes/databaseSubsystemContext.xml to add the defaultTimeout property to the "transactionManager" bean:

```xml
<bean id="transactionManager" class="org.springframework.orm.hibernate.HibernateTransactionManager">
  <property name="sessionFactory">
    <ref bean="sessionFactory"/>
  </property>
  <property name="defaultTimeout" value="120"/>
</bean>
```

The timeout is measured in seconds and will forcibly abort queries that take longer than this. In some cases, these errors are not handled gracefully by Confluence and will result in the user seeing the Confluence error page.

4. Start Confluence.

Once the timeout is working properly in your test environment, migration the configuration change to Confluence.

⚠️ You will need to reapply these changes when upgrading Confluence, as the original databaseSubsystemContext.xml file changes from version to version.

**Improving Database Performance**

**Diagnosis**

Use native database tools to assess the impact of your database. If you'd like to check what Confluence is doing from it's side, you can enable sql logging. If you analyze thread dumps, as this is done in general Troubleshooting Confluence Hanging or Crashing guide, you may find the kinds of threads like this:
These threads are waiting for a database connection. It could be that the database is not performing optimally, or it may just need tuning for allowing more connection threads. Both are discussed below.

**Upgrade your Database and Drivers**

SQL Server 2000, Oracle 9i, and MySQL with 3.1 drivers are among some of the issues with database performance. Ensure you are using updated versions of databases and their drivers.

**Upgrade your hardware**

Atlassian does not offer specific recommendations on hardware for database performance. Use good judgment and native OS and database tools for your assessment.

**Ensure you have the Latest Database Indices**

Confluence has improved database performance over time. You’ll want to make sure you have all the latest, if you’re getting hung threads waiting for db connections.

**Confluence 2.10 or Manual .ddl Indices**

With 2.10 and later, Confluence includes database indices bundled. Confluence 2.10 automatically creates the necessary database indexes when you upgrade. If you are not on 2.10, you may have run the ddl manually during the upgrade process. To check, you can look against these.

**Additional Indices not Included in 2.10**

- One import db index is the **lower case page title index**. Prior to Confluence 3.0, querying for a page by title and space key can take a long time due to table scans necessary on a lowercase where clause. On most databases it is possible to add a lowercase index on these columns that helps with performance. See [Creating a Lowercase Page Title Index](#) for instructions on how to do this. Prior to 2.10, apply lowercase title indexes (all Confluence versions).

  - The compound database index for the ATTACHMENTDATA table is described in CONF-13819.
  - A composite index on some of the columns in SpacePermissions table is described in CONF-14488.

**Tuning the Database Connection Pool**

This is described in the knowledge base article [Confluence Slows and Times out During Periods of High Load due to DB Connection Pool](#).

**Configure a Database Query Timeout**

If a database is getting overloaded, you can prevent it from crashing Confluence by [Configuring a Database Query Timeout](#).

**Related Articles**

[Troubleshooting Database Issues](#).

**Creating a Lowercase Page Title Index**

**Diagnosis**

Confluence sometimes has performance problems retrieving pages by title because the query uses the lower() function. For example, the query looks something like this:

```sql
select * from CONTENT where lower(TITLE) = :title and SPACEID = :spaceid
```

Database profiling might show a query like the following taking a long time to execute (emphasis added):

```sql
select ... from CONTENT page0_, SPACES space1_
where page0_.CONTENTTYPE='PAGE'
```
Typically, databases don't use indexes when you use a function in a where clause; they do a table scan instead. This makes the performance of this query not ideal (CONF-11577).

**Generic solution**

On many databases (e.g. Oracle, PostgreSQL, DB2 for z/OS), it is possible to create the index using the normal "create index" syntax, just using the function instead of the column name.

```sql
create index CONFTITLE_LOWER on CONTENT(lower(TITLE));
```

Sources:
- [http://www.postgresql.org/docs/current/static/sql-createindex.html](http://www.postgresql.org/docs/current/static/sql-createindex.html)
- [http://asktom.oracle.com/tkyte/article1/](http://asktom.oracle.com/tkyte/article1/)

**SQL Server**

On SQL Server, you can add a computed column to the database table and then add an index on this column.

```sql
alter table CONTENT add TITLE_LOWER as lower(TITLE);
create index CONFTITLE_LOWER on CONTENT(TITLE_LOWER);
```

Sources:

**MySQL**

It is not currently possible to create a lowercase index on MySQL. Confluence 3.0 includes some caching improvements which should alleviate this performance problem on this database.

Source:

**Workaround for MySQL databases, using a case-insensitive collation:**

Please check whether your MySQL database has been set to use case-sensitive or case-insensitive collation. The queries to check whether your database is set to case-insensitive collation are:

```sql
show full columns from content where field = 'title';
show full columns from spaces where field = 'spacekey';
```

If the `collation_name` is returned as `<encoding>_ci`, the `ci` indicates case-insensitive collation.

If the database has been set to use case-insensitive collation, you can try removing `lower` from the following queries, in your `ContentEntityObject.hbm.xml` file residing in your `<Confluence-Install>/confluence/WEB-INF/lib/confluence-2.x.x.jar/com/atlassian/confluence/core/`
DB2 for Linux or Windows

DB2 supports indexes on generated columns which are used for queries with a matching predicate. You can implement it like this:

```
ALTER TABLE CONTENT ADD COLUMN TITLE_LOWER GENERATED ALWAYS AS (LOWER(TITLE));
CREATE INDEX CONFTITLE_LOWER ON CONTENT(TITLE_LOWER)
```

Related pages
- Improving Database Performance
- CONF-10030: Queries that use 'lower' do not use index because of case sensitivity

Webserver Configuration

- Apache and Apache Connector Tips
- Configure Web Proxy Support for Confluence
- Running Confluence behind Apache
  - General Apache Configuration Notes
  - Using Apache with mod_jk
  - Using Apache with mod_proxy
  - Using Apache with virtual hosts and mod_proxy
  - Using mod_rewrite to Modify Confluence URLs

Apache and Apache Connector Tips

The speed of downloading attachments is extremely slow. We are experiencing the following speeds

Large file served directly through Apache: 15000 KB/sec
Large file served directly from Tomcat HTTP connector: 14500 KB/sec
Large file served from Confluence (using Apache/mod_jk/Tomcat): 84 KB/sec

You can see that the file served from Confluence is ~176 times slower!

Solution

We upgraded mod_jk from version 1.2.8 to 1.2.10 and the download speed improved significantly to ~12000 KB/sec.

Configure Web Proxy Support for Confluence

Some of Confluence's macros, such as \{rss\} and \{jiraissues\} need to make web requests to remote servers in order to retrieve data. If Confluence is deployed within a data-centre or DMZ, it may not be able to access the Internet directly to make these requests. If you find that the \{rss\} macro does not work, ask your network administrator if Confluence needs to access the Internet through a web proxy.

Configuring an outbound HTTP proxy in Confluence

Proxy support is configured by passing certain system properties to the Java Virtual Machine on startup. These properties follow the conventions defined by Oracle:

- http.proxyHost
- http.proxyPort (default: 80)
• http.nonProxyHosts (default: <none>)

At a minimum, you need to define http.proxyHost to configure an HTTP proxy. System property configuration is described on the Configuring System Properties page.

Properties http.proxyHost and http.proxyPort indicate the proxy server and port that the http protocol handler will use.

```
-Dhttp.proxyHost=proxy.example.org -Dhttp.proxyPort=8080
```

Property http.nonProxyHosts indicates the hosts which should be connected to directly and not through the proxy server. The value can be a list of hosts, each separated by a pipe character | . In addition, a wildcard character (asterisk) * can be used for matching. For example:

```
-Dhttp.nonProxyHosts=*.foo.com|localhost
```

Note: You may need to escape the pipe character | in some command-line environments.

If the http.nonProxyHosts property is not configured, all web requests will be sent to the proxy.

```
-Dhttp.proxyHost=yourProxyURL
-Dhttp.proxyPort=yourProxyPort
-Dhttp.proxyUser=yourUserName
-Dhttp.proxyPassword=yourPassword
```

Configuring HTTP proxy authentication

Proxy authentication is also configured by providing system properties to Java in your application server’s configuration file. Specifically, the following two properties:

• http.proxyUser – username
• http.proxyPassword – secret

Authentication has a few more options in Confluence 2.10 and later, as documented below.

**HTTP proxy (Microsoft ISA) NTLM authentication (2.10 and later)**

Confluence 2.10 and later supports NTLM authentication for outbound HTTP proxies when Confluence is running on a Windows server.

To clarify, this means the {rss} and {jiraissues} macro will be able to contact external websites if requests have to go through a proxy that requires Windows authentication. This support is not related to logging in Confluence users automatically with NTLM, for which there is a user-contributed authenticator available.

To configure NTLM authentication for your HTTP proxy, you need to define a domain system property, http.auth.ntlm.domain, in addition to the properties for host, port and username mentioned above:

```
-Dhttp.auth.ntlm.domain=MYDOMAIN
```

**Configuring authentication order (2.10 and later)**

Sometimes multiple authentication mechanisms are provided by an HTTP proxy. If you have proxy authentication failure messages, you should first check your username and password, then you can check for this problem by examining the HTTP headers in the proxy failure with a packet sniffer on the Confluence server. (Describing this is outside the scope of this document.)

To set the order for multiple authentication methods, you can set the system property http.proxyAuth to a comma-separated list of authentication methods. The available methods are: ntlm, digest and basic; this is also the default order for these methods.
For example, to attempt Basic authentication before NTLM authentication, and avoid Digest authentication entirely, you can set the `http.proxyAuth` property to this value:

```
-Dhttp.proxyAuth=basic,ntlm
```

**Troubleshooting**

1. There's a diagnostic jsp file in CONF-9719 for assessing the connection parameters.
2. 'Status Code [407]' errors are described in APR-160.
3. Autoproxies are not supported yet. See CONF-16941.

## Running Confluence behind Apache

**Introduction**

Running Confluence behind a web server should be done for performance reasons in high-load environments. In general, web server caching and thread management is far superior to that provided by your application server's HTTP interface.

To run Confluence behind the Apache httpd web server, there are two main configuration options: **mod_jk** or **mod_proxy**.

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Features</th>
</tr>
</thead>
</table>
| mod_proxy (also known as reverse proxy) | • recommended connection method  
• simple HTTP proxy to application server  
• works with all application servers  
• if application paths are consistent, there is minimal load on the web server |
| mod_jk (also known as AJP)     | • uses the AJP binary protocol  
• provides failover (and load balancing, which Confluence supports only with a clustered license)  
• only works with some application servers (typically Tomcat)  
• if application paths are consistent, there is some load on the web server to translate requests to AJP |

Features common to both mod_proxy and mod_jk

• application paths must be consistent to avoid complex and slow URL rewriting  
• works with name-based virtual hosting, both on web server and app server  
• web server keeps a pool of connections to application server

**Mod_proxy documentation**

- **Using Apache with mod_proxy** is the main documentation for this configuration.
- If you want to set up the common configuration of JIRA and Confluence virtual hosts, you can use Apache's virtual hosts with separate application servers.

**Mod_jk documentation**

- **Using Apache with mod_jk** is the main documentation for this configuration.
- You can follow a similar method to the mod_proxy documentation above for setting up virtual hosts in Apache and Tomcat, if required.

**Mod_jk2 not supported**

The misleadingly-named mod_jk2 is an older method of connecting to Tomcat from Apache. Since mod_jk2 is no longer supported by the Apache Foundation, we do not support this configuration, and are not updating our mod_jk2 documentation. Mod_jk2 also has unresolved problems with Unicode URLs; you need to use either mod_proxy or mod_jk for international characters to work correctly in Confluence.

**Other related documentation**

- Apache and Apache Connector Tips
- Using the (older) mod_jk2 connector
- Configuring Tomcat's URI encoding
- Running Confluence Over SSL or HTTPS
General Apache Configuration Notes

On this page:

- Prefer Apache mod_deflate to Confluence's built-in gzip implementation
- Ensure keepalive is enabled
- Enable keepalive for recent MSIE user agents

Prefer Apache mod_deflate to Confluence's built-in gzip implementation

1. Disable gzip in Confluence. See Compressing an HTTP Response within Confluence.

2. Enable gzip compression in Apache. For RedHat distributions this can be achieved by adding the following lines:

   ```
   AddOutputFilterByType DEFLATE text/html text/plain text/xml text/css application/x-javascript
   # ensure sensible defaults
   DeflateBufferSize 8192
   DeflateCompressionLevel 4
   DeflateMemLevel 9
   DeflateWindowSize 15
   ```

Ensure keepalive is enabled

```
KeepAlive On
```

Enable keepalive for recent MSIE user agents

The standard Apache SSL configuration is very conservative when it comes to MSIE and SSL. By default all keepalives are disabled when using HTTPS with MSIE. While MSIE will always be special, the issues with SSL and MSIE have been solved since Service Pack 2 for Windows XP, released over 4 years go. For anyone using an XP machine SP2 or above, it is safe to allow keepalive for MSIE 6 and above.

Remove the following lines:

```
SetEnvIf User-Agent ".*MSIE.*" \
    nokeepalive ssl-unclean-shutdown \
    downgrade-1.0 force-response-1.0
```

Add these in their place:

```
BrowserMatch "MSIE [1-5]" nokeepalive ssl-unclean-shutdown downgrade-1.0 force-response-1.0
BrowserMatch "MSIE [6-9]" ssl-unclean-shutdown
```

RELATED TOPICS

- Running Confluence behind Apache
- Apache and Apache Connector Tips
- Configuring Tomcat's URI encoding
- Running Confluence Over SSL or HTTPS

Using Apache with mod_jk

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian can not guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

Introduction

The Apache web server is often used in front of an application server to improve performance in high-load environments. Mod_jk
allows request forwarding to an application via a protocol called AJP. Configuration of this involves enabling mod_jk in Apache, configuring a AJP connector in your application server, and directing Apache to forward certain paths to the application server via mod_jk.

Mod_jk is sometimes preferred to mod_proxy because AJP is a binary protocol, and because some site administrators are more familiar with it than with mod_proxy.

The scope of this documentation is limited to configuring the AJP connector in Tomcat 5.x. Other application servers may support AJP connectors; please consult your application server documentation for instructions on how to configure it.

The configuration below assumes your Confluence instance is accessible on the same path on the application server and the web server. For example:

<table>
<thead>
<tr>
<th>Externally accessible (web server) URL</th>
<th><a href="http://www.example.com/confluence/">http://www.example.com/confluence/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Application server URL (HTTP)</td>
<td><a href="http://app-server.internal.example.com:8090/confluence/">http://app-server.internal.example.com:8090/confluence/</a></td>
</tr>
</tbody>
</table>

The AJP connection of the application server is set to: app-server.internal.example.com:8009.

Configuring mod_jk in Apache

The standard distribution of Apache does not include mod_jk. You need to download it from the JK homepage and put the mod_jk.so file in your Apache modules directory.

Next, add the following in httpd.conf directly or included from another file:

```apache
# Put this after the other LoadModule directives
LoadModule jk_module modules/mod_jk.so

# Put this in the main section of your configuration (or desired virtual host, if using Apache virtual hosts)
JkWorkersFile conf/workers.properties
JkLogFile logs/mod_jk.log
JkLogLevel info

JkMount /confluence worker1
JkMount /confluence/* worker1
```

Configuring workers.properties

Create a new file called 'workers.properties', and put it in your Apache conf directory. (The path for workers.properties was one of the configuration settings above.)

```
worker.list=worker1
worker.worker1.host=app-server.internal.example.com
worker.worker1.port=8009
worker.worker1.type=ajp13
```

Tomcat 5.x configuration

In Tomcat 5, the AJP connector is enabled by default on port 8009. An absolutely minimal Tomcat server.xml is below for comparison. The relevant line is the Connector with port 8009 – make sure this is uncommented in your server.xml.
<Server port="8000" shutdown="SHUTDOWN">
  <Service name="Catalina">
    <!-- Define a HTTP/1.1 Connector on port 8090 -->
    <Connector port="8090" />
    <!-- Define an AJP 1.3 Connector on port 8009 -->
    <Connector port="8009" protocol="AJP/1.3" />
    <Engine name="Catalina" defaultHost="localhost">
      <Host name="localhost" appBase="webapps">
        <Context path="/confluence" docBase="/opt/webapps/confluence-2.2/confluence" />
        <Logger className="org.apache.catalina.logger.FileLogger" />
      </Host>
    </Engine>
  </Service>
</Server>

Points to note:

- the Connector on port 8009 has protocol of "AJP/1.3". This is critical.
- the Context path of the Confluence application is "/confluence". This must match the path used to access Confluence on the web server.
- we recommend keeping your application Contexts outside the server.xml in Tomcat 5.x. The above example includes them for demonstration only.

**Improving the performance of the mod_jk connector**

The most important setting in high-load environments is the number of processor threads used by the Tomcat AJP connector. By default, this is 200, but you should increase it to match Apache's maxThreads setting (256 by default):

```xml
<Connector port="8009" minSpareThreads="5" maxThreads="256" protocol="AJP/1.3" />
```

All the configuration parameters for the AJP connector are covered in the Tomcat documentation.

**Ensuring UTF-8 compatibility**

If you have problems downloading attachments with non-ASCII characters in the filename, add the following to your Apache configuration:

```xml
JkOptions +ForwardURICompatUnparsed
```

And specify UTF-8 as the URIEncoding in the AJP connector configuration:

```xml
<Connector port="8009" protocol="AJP/1.3" URIEncoding="UTF-8" />
```

These settings are discussed further on Configuring Tomcat's URI encoding.

**More information**

The Tomcat Jk website has complete documentation on workers.properties and Apache configuration. You can also find information there on how to use mod_jk with IIS.

**Alternatives**

If you're not happy with mod_jk, or find it too difficult to configure, you can:

- use mod_proxy, which works with any application server, and together with mod_proxy_html allows complex URL rewriting to deal with different application paths on the web server and the application server.

**Using Apache with mod_proxy**

This page describes how to integrate Confluence into an Apache website using mod_proxy.
On this page:

- Simple configuration
  - Set the context path
  - Configure mod_proxy
  - Set the URL for redirection
- Complex configuration
  - Adding SSL
  - More information
  - Alternatives

There are some common situations where you might do this:

- You have an existing Apache-based website, and want to add Confluence to the mix (for example, http://www.example.com/confluence).
- You have two or more Java applications, each running in their own application server on different ports, for example, http://localhost:8090/confluence and http://localhost:8080/jira. By setting up Apache with mod_proxy, you can have both available on the regular HTTP port (80) – for example, at http://www.example.com/confluence and http://www.example.com/jira. This allows each application to be restarted, managed and debugged separately.

This page describes how to configure mod_proxy. We describe two options:

- If you want a URL like http://www.example.com/confluence/, go to the simple configuration.
- If you want a URL like http://confluence.example.com/, go to the complex configuration.

**Simple configuration**

**Set the context path**

First, set your Confluence application path (the part after hostname and port) correctly. Say you want Confluence available at http://www.example.com/confluence/ and you currently have it running at http://localhost:8090/. The first step is to get Confluence available at http://localhost:8090/confluence/.

To do this in Tomcat (bundled with Confluence), edit conf/server.xml, locate the "Context" definition:

```
<Context path="" docBase="../confluence" debug="0" reloadable="true">
```

and change it to:

```
<Context path="/confluence" docBase="../confluence" debug="0" reloadable="true">
```

Then restart Confluence, and ensure you can access it at http://localhost:8090/confluence/

**Configure mod_proxy**

Now enable mod_proxy in Apache, and proxy requests to the application server by adding the example below to your Apache httpd.conf (note: the files may be different on your system; the JIRA docs describe the process for Ubuntu/Debian layout):
# Put this after the other LoadModule directives
LoadModule proxy_module /usr/lib/apache2/modules/mod_proxy.so
LoadModule proxy_http_module /usr/lib/apache2/modules/mod_proxy_http.so

# Put this in the main section of your configuration (or desired virtual host, if using
Apache virtual hosts)
ProxyRequests Off
ProxyPreserveHost On

<Proxy *>
  Order deny,allow
  Allow from all
</Proxy>

ProxyPass /confluence http://localhost:8090/confluence
ProxyPassReverse /confluence http://localhost:8090/confluence

<Location /confluence>
  Order allow,deny
  Allow from all
</Location>

Note to Windows Users
It is recommended that you specify the absolute path to the mod_proxy.so and mod_proxy_http.so files.

**Set the URL for redirection**

You will need to modify the server.xml file in your tomcat's conf directory and set the URL for redirection.

Locate this code segment

```
<Connector port="8090" maxHttpHeaderSize="8192"
  maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
  enableLookups="false" redirectPort="8443" acceptCount="100"
  connectionTimeout="20000" disableUploadTimeout="true" />
```

And append the following segment:

```
<Connector port="8090" maxHttpHeaderSize="8192"
  maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
  enableLookups="false" redirectPort="8443" acceptCount="100"
  connectionTimeout="20000" disableUploadTimeout="true"
  *proxyName="www.example.com" proxyPort="80" />
```

Replace www.example.com with the URL you wish to be redirected to.

![Tip](https://via.placeholder.com/150)

If this isn't working for you, try adding a scheme attribute to your Connector tag: `scheme="https"`.

**Complex configuration**

Complex configuration involves using the mod_proxy_html filter to modify the proxied content en-route. This is required if the Confluence path differs between Apache and the application server. For example:

<table>
<thead>
<tr>
<th>Externally accessible (Apache) URL</th>
<th><a href="http://confluence.example.com/">http://confluence.example.com/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Application server URL</td>
<td><a href="http://app-server.internal.example.com:8090/confluence/">http://app-server.internal.example.com:8090/confluence/</a></td>
</tr>
</tbody>
</table>

Notice that the application path in the URL is different in each. On Apache, the path is /, and on the application server the path is /confluence.
For this configuration, you need to install the `mod_proxy_html` module, which is not included in the standard Apache distribution. Alternative solutions are discussed below.

```
# Put this after the other LoadModule directives
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_http_module modules/mod_proxy_http.so
LoadModule proxy_html_module modules/mod_proxy_html.so

<VirtualHost *
  ServerName confluence.example.com

  # Put this in the main section of your configuration (or desired virtual host, if using Apache virtual hosts)
  ProxyRequests Off
  ProxyPreserveHost On

  <Proxy *>
    Order deny,allow
    Allow from all
  </Proxy>

  ProxyPass / http://app-server.internal.example.com:8090/confluence
  ProxyPassReverse / http://app-server.internal.example.com:8090/confluence

  ProxyHTMLURLMap / /confluence/

  <Location />
    Order allow,deny
    Allow from all
  </Location>
</VirtualHost>
```

The `ProxyHTMLURLMap` configuration can become more complex if you have multiple applications running under this configuration. The mapping should also be placed in a Location block if the web server URL is a subdirectory and not on a virtual host. The Apache Week tutorial has more information on how to do this.

**Adding SSL**

If you’re running Apache in front of Tomcat, it’s a good idea to terminate your SSL configuration at Apache, then forward the requests to Tomcat over HTTP. You can set up Apache to terminate the SSL connection and use the `ProxyPass` and `ProxyPassReverse` directives to pass the connection through to Tomcat (or the appropriate application server) which is running Confluence.

1. Create a new SSL host by creating a virtual host on 443
2. The standard http connection on apache could be used to redirect to https if you want or it could just be firewalled.
3. Within the VirtualHost definition:
   a. define the SSL options (SSLEngin and SSLCertificateFile)
   b. define the ProxyPass and ProxyPassReverse directives to pass through to Tomcat.

Because of how the `ProxyPass` and `ProxyPassReverse` directives work, you should not need to modify the tomcat installation at all.

Most of the relevant Apache Config:

```
Listen 443
NameVirtualHost *:443
<VirtualHost *:443>
  SSLEngine On
  SSLCertificateFile /etc/apache2/ssl/apache.pem
  ProxyPass / http://localhost:8090/
  ProxyPassReverse / http://localhost:8090/
</VirtualHost>
```

**More information**

- The `mod_proxy_html` site has documentation and examples on the use of this module in the complex configuration.
Alternatives

If Tomcat is your application server, you have two options:

- use `mod_jk` to send the requests to Tomcat
- use Tomcat’s virtual hosts to make your Confluence application directory the same on the app server and the web server, removing the need for the URL mapping.

If your application server has an AJP connector, you can:

- use `mod_jk` to send the requests to your application server.

Using Apache with virtual hosts and `mod_proxy`

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian cannot guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

Introduction

The Apache web server is often used in front of an application server to improve performance in high-load environments. `Mod_proxy` simply redirects requests for certain URLs to another web server, so it typically requires no additional configuration on the application server.

This page documents a very common configuration request: configuring JIRA and Confluence on two Apache virtual hosts, running on different application servers. This is just a special case of `mod_proxy` configuration.

You can use virtual hosts in your application server if you want to run JIRA and Confluence on the same application server. There is a sample configuration for Tomcat you can use after configuring Apache.

Apache configuration

For this configuration to work properly, the application paths must be the same on both the application servers and the web server. For both JIRA and Confluence below, this is `/`.

<table>
<thead>
<tr>
<th>JIRA external URL</th>
<th><a href="http://jira.example.com/">http://jira.example.com/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>JIRA application server URL</td>
<td><a href="http://jira-app-server.internal.example.com:8080/">http://jira-app-server.internal.example.com:8080/</a></td>
</tr>
<tr>
<td>Confluence external URL</td>
<td><a href="http://confluence.example.com/">http://confluence.example.com/</a></td>
</tr>
<tr>
<td>Confluence application server URL</td>
<td><a href="http://confluence-app-server.internal.example.com:8090/">http://confluence-app-server.internal.example.com:8090/</a></td>
</tr>
</tbody>
</table>

Add the following to your Apache httpd.conf:
Points to note:

- ProxyPass and ProxyPassReverse directives send traffic from the web server to your application server.
- The application path is the same on the application server and on the web server (both are /).
- Because the above configuration uses name-based virtual hosting, you must configure your DNS server to point both names (jira.example.com, confluence.example.com) to your web server.

More information

For different ways to configure mod_proxy, see Using Apache with mod_proxy.

If you use Tomcat, mod_jk provides a different way of connecting Apache via AJP. You can also use the above configuration with just one application server if you use Tomcat's virtual hosts.

Using mod_rewrite to Modify Confluence URLs

Confluence requires URL rewriting for proper functionality. If Confluence is accessible via different domain names without URL rewriting, you will experience an array of problems. See Various Issues Caused when Server Base URL Does Not Match the URL Used to Access Confluence.

In some cases, you may wish to access Confluence from different domains.

- http://wiki (from an internal network)
- http://wiki.domain.com (the externally visible domain)

To configure Confluence over multiple domains,
1. Add a DNS entry mapping \texttt{http://wiki} to the externally visible IP address of the Confluence server.
2. Configure Confluence's server base URL to \texttt{http://wiki.domain.com}.
3. Add Apache HTTP proxy, using the instructions from \textit{Running Confluence behind Apache}.
4. Add the mod_rewrite module, to change the URL.

### Start Confluence Automatically on System Startup

Confluence can be configured to start automatically on system startup, allowing it to recover automatically after a reboot.

#### Start Confluence Automatically on Linux

On Linux/Solaris, the best practice is to install, configure and run each service (including Confluence) as a dedicated user with only the permissions they require.

To install, configure and run Confluence automatically on Linux/Solaris:

1. Create a \texttt{confluence} user for instance, using the following command:

   ```bash
   sudo useradd --create-home -c "Confluence role account" confluence
   ```

2. Create a directory to install Confluence into:

   ```bash
   sudo mkdir /usr/local/confluence
   sudo chown confluence: /usr/local/confluence
   ```

3. Log in as the \texttt{confluence} user to install Confluence:

   ```bash
   sudo su - confluence
   cd /usr/local/confluence/
   tar xzvf /tmp/confluence-3.0.1-std.tar.gz
   ln -s confluence-3.0.1-std/ current
   ```

4. Edit \texttt{<CONFLUENCE_INSTALL_DIRECTORY>/confluence/WEB-INF/classes/confluence-init.properties} file, and set \texttt{confluence.home=/usr/local/confluence/<Confluence_Data_Home>} (ensure you have removed the comment `#`)

5. Then back as root, create the file \texttt{/etc/init.d/confluence} (code shown below), which will be responsible for starting up Confluence after a reboot (or when manually invoked).

   ```bash
   #!/bin/bash
   /usr/local/confluence/current/bin/start.sh
   ```

   If you are running Ubuntu Jaunty (or later) do not perform this step. Please use the instructions further down this page.
#!/bin/sh -e
# Confluence startup script
#chkconfig: 2345 80 05
#description: Confluence

# Define some variables
# Name of app ( JIRA, Confluence, etc )
APP=confluence
# Name of the user to run as
USER=confluence
# Location of application's bin directory
CATALINA_HOME=/usr/local/confluence/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 $USER -c "$CATALINA_HOME/bin/startup.sh &> /dev/null"
    ;;
  # Stop command
  stop)
    echo "Stopping $APP"
    /bin/su -m $USER -c "$CATALINA_HOME/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

6. Make this file executable:

    sudo chmod +x /etc/init.d/confluence

7. Set this file to run at the appropriate runlevel. For example, use sudo chkconfig --add confluence on Redhat-based systems, sudo update-rc.d confluence defaults or rcconf on Debian-based systems.

8. You should now be able to start Confluence with the init script. A successful startup output typically looks like this:

```
$ sudo /etc/init.d/confluence start
Starting Confluence:
If you encounter issues starting up Confluence Standalone, please see the Installation guide at
http://confluence.atlassian.com/display/DOC/Confluence+Installation+Guide
Using CATALINA_BASE: /usr/local/confluence/current
Using CATALINA_HOME: /usr/local/confluence/current
Using CATALINA_TMPDIR: /usr/local/confluence/current/temp
Using JRE_HOME: /usr/lib/jvm/java-1.5.0-sun
done.
```

You should then see this running at http://<server>:8090/

The port for this will be whatever is defined in your Confluence server.xml file.
**Adding Confluence as a service for Ubuntu Jaunty (or later)**

To continue configuring Confluence to start automatically as a service on Ubuntu Jaunty (or later):

1. **After logging in as the confluence user to install Confluence, create start and stop scripts in /usr/local/confluence:**

   Example **start script**:
   ```bash
   #!/bin/bash
   export JAVA_HOME=/usr/lib/jvm/java-6-sun-1.6.0.16/ 
   export JDK_HOME=/usr/lib/jvm/java-6-sun-1.6.0.16/ 
   cd /usr/local/confluence/current/bin 
   ./startup.sh
   ```

   Example **stop script**:
   ```bash
   #!/bin/bash
   export JAVA_HOME=/usr/lib/jvm/java-6-sun-1.6.0.16/ 
   export JDK_HOME=/usr/lib/jvm/java-6-sun-1.6.0.16/ 
   cd /usr/local/confluence/current/bin 
   ./shutdown.sh
   ```

2. Make both of these scripts executable. For example, by issuing the command: `sudo chmod a+x /usr/local/confluence/start /usr/local/confluence/stop`.

3. **Karmic and later:** Create two text files in /etc/init called **confluence-up.conf** and **confluence-down.conf**:

   **confluence-up:**
   ```
   start on runlevel [2345]
   script
   date >> /tmp/confluence-startup.out 
   exec sudo -u confluence /usr/local/confluence/start >> /tmp/confluence-startup.out 2>&1
   end script
   ```

   **confluence-down:**
   ```
   start on runlevel [16]
   expect fork
   respawn
   exec sudo -u confluence /usr/local/confluence/stop >> /tmp/confluence-shutdown.out 2>&1
   ```

   ... and make them readable to all users:
   ```
   sudo chmod a+r /etc/init/confluence-up.conf /etc/init/confluence-down.conf
   ```

1. **Jaunty, Intrepid:** Create two text files in /etc/event.d called **confluence-up** and **confluence-down**:

   **confluence-up:**
   ```
   ```

   **confluence-down:**
   ```
   ```
1. On runlevel 2, runlevel 3, runlevel 4, and runlevel 5:

```
exec sudo -u confluence /usr/local/confluence/start >> /tmp/confluence-startup.out
2>&1
```

2. On runlevel 1 and runlevel 6:

```
exec sudo -u confluence /usr/local/confluence/stop >> /tmp/confluence-shutdown.out
2>&1
```

... and make them readable to all users:

```
sudo chmod a+r /etc/event.d/confluence-up /etc/event.d/confluence-down
```

### RELATED TOPICS

- Start Confluence Automatically on System Startup
- Start Confluence Automatically on Windows as a Service
- For long-term use, we recommend that you configure Confluence to start automatically when the operating system restarts. For Windows servers, this means configuring Confluence to run as a Windows service.

There are two ways to install Confluence Standalone as a service: via the Confluence installer or manually as described below.

#### On this page:
- Reasons for Starting Confluence as a Service
- Changing the User Running the Service
- Manually Installing Confluence Standalone as a Service
- Managing Confluence as a Service
- Upgrading Confluence
- Troubleshooting Confluence while Running as a Windows Service
- Requesting Support

### Problem with 64-bit Windows

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. **Please ensure that you are using a 32-bit JDK.** Refer to our knowledge base article for more information.

### Reasons for Starting Confluence as a Service

Installation as a Windows service offers these advantages:

- Reduced risk of shutting down Confluence by accident (If you start Confluence manually, a console window opens and there is a risk of someone accidentally shutting down Confluence by closing the window).
- Automated Confluence recovery after server restart.
- Improved troubleshooting through logging server output to file.

You can read more about Windows services in the Microsoft Developer Network.

### Changing the User Running the Service

If you wish to run the service as a non-administrator user for security, or if you are using network drives for backups, attachments or indexes, you can run the service as another user. To change users, open the Apache Tomcat Confluence properties, go to the ‘Log On’ tab and enter the required username and password. Go to your Windows Control Panel -> User Accounts and confirm that the user has write permissions for the %CATALINA_HOME%, index and database directories. Note that any network drives must be specified by UNC and not letter mappings (eg. `\backupserver\confluence` not `z:\confluence`).
For more detail, see Creating a Dedicated User Account on the Operating System to Run Confluence.

Manually Installing Confluence Standalone as a Service

From your Windows-based server:

1. Open a command prompt in the `<CONFLUENCE-INSTALL>/bin` directory.

2. Confirm that the JAVA_HOME variable is set to the JDK base directory with the command:

   ```
   echo %JAVA_HOME%
   ```

   Note that any directory in the path with spaces (e.g. C:\Program Files must be converted to its eight-character equivalent (e.g. C:\Progra~1).

3. If you are installing Confluence on a Windows 2008 server, be sure to run the command prompt using 'run as administrator'. (Otherwise running 'service.bat', as described in the next step, will fail.)

4. Use the following command to install the service with default settings:

   ```
   service.bat install Confluence
   ```

5. Now, to have the service start automatically when the server starts, run:

   ```
   tomcat6 //US//Confluence --Startup auto
   ```

6. If you have a less than a 512 megabytes of memory, skip this step. For users with large Confluence installations, you can increase the maximum memory Confluence can use. (The default is 256MB). For example, you can set the maximum memory to 512 megs using:

   ```
   tomcat6 //US//Confluence --JvmMx 512
   ```

7. If you do not have any JVM parameters you pass to your standalone distribution of Confluence, you can skip this step. If you do, add them to the service using:

   ```
   tomcat6 //US//Confluence ++JvmOptions="-Djust.an.example=True"
   ```

8. For further configuration options, please refer to the Tomcat Windows Service How-To guide.

9. Go to your Windows Control Panel -> Administrative Tools -> Services -> Apache Tomcat Confluence and right-click on Properties to verify the settings are correct.

10. Confluence is now installed as a service, but will not automatically start up until the next server reboot.

11. Start the Confluence service with the command:

    ```
    net start Confluence
    ```

Managing Confluence as a Service

You can manage the Confluence service from the command prompt.

- Stop Confluence with:

  ```
  net stop Confluence
  ```

- Uninstall the Confluence service with:

  ```
  service.bat remove Confluence
  ```

Upgrading Confluence

After upgrading Confluence, you can either uninstall and reinstall the Windows service or change the StartPath parameter to your
Troubleshooting Confluence while Running as a Windows Service

- Check the Knowledge Base articles:
  
  No content found for label(s) windows_service.

- If none of the above solves your problem, please refer to the complete list of known issues in our Knowledge Base.

- When investigating memory issues or bugs, it may be useful to view information from Confluence's garbage collection. To turn on the verbose garbage collection, use the command:

  ```
  tomat06 \US\Confluence
  ++JvmOptions="-Xloggc:<Confluence-INSTALL>\logs\atlassian-gc.log"
  ```

- The Confluence 2.9 installer does not work when installed as service, due to a missing semi-colon in service.bat. Please refer to reported issue CONF-12785.

- You can use a Sysinternals tool called `Procmon.exe` from the The Microsoft Windows Sysinternals Team, to check that the error occurred at the specific time when the Confluence service started. You need to match the time when Tomcat failed, as captured by this tool, against the time in the Windows Event Viewer.

  **Note**

  We do not recommend that you run this tool for too long as it may disrupt other Atlassian applications. Once you have captured the required information you will need to press **Ctrl + E** to stop capturing.

Requesting Support

If, after following the troubleshooting guide above, you still cannot make Confluence run as a Windows Service or if there is an error when setting the JVM configuration for the service, you can create a support request at [http://support.atlassian.com](http://support.atlassian.com).

Please provide the following information when creating your support request, because we will need it to assist you:

- Are you running a 32 bit or 64 bit Windows?
- Give us the result of running `java -version` from Windows command line console.
- A screen shot of your Windows Registry setting for Tomcat.
- If you have modified `service.bat`, please give us a copy of this file for review.
- What application server are you using? eg. Are you using the Confluence Standalone distribution?

**RELATED TOPICS**

- Start Confluence Automatically on System Startup
- Fix Out of Memory Errors by Increasing Available Memory

**Confluence Data Model**

On this page:

- General Database Diagram
- Authentication
  - Atlassian-user
  - OpenSymphony
- Content
- Clustering
  - System information
  - Spaces
- Appearance
- Miscellaneous

**Note**

The Hibernate mapping files are the authoritative reference. These are the *.hbm.xml files which have been bundled into the main Confluence .jar file in recent releases.

This document is little more than the Confluence schema with added comments, but the priority was placed on making the information available.

**General Database Diagram**
Authentication

Atlassian-user

This is the "new" authentication system, which is more flexible and extensible than OpenSymphony.

Table "groups"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>groupname</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:

"groups_pkey" PRIMARY KEY, btree (id)

Table "users"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>name</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>password</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>email</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>created</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>fullname</td>
<td>character varying(255)</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:

"users_pkey" PRIMARY KEY, btree (id)
"users_name_key" UNIQUE, btree (name)

local_members: establishes many-to-many association between users and groups.

Table "local_members"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>userid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>groupid</td>
<td>bigint</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:

"local_members_pkey" PRIMARY KEY, btree (groupid, userid)

Foreign-key constraints:

"fk6b8fb445117d5fda" FOREIGN KEY (groupid) REFERENCES groups(id)
"fk6b8fb445ce2b3226" FOREIGN KEY (userid) REFERENCES users(id)

external_entities: Maps users from LDAP (or any other external authentication system) to IDs in Confluence DB
### Table "external_entities"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>name</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "external_entities_pkey" PRIMARY KEY, btree (id)

**external_members**: associates LDAP (or other external) users with local groups.

### Table "external_members"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>extentityid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>groupid</td>
<td>bigint</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "external_members_pkey" PRIMARY KEY, btree (groupid, extentityid)
- Foreign-key constraints:
  - "fkd8c8d8a5f2175fda" FOREIGN KEY (groupid) REFERENCES groups(id)
  - "fkd8c8d8a5f25e5d5f" FOREIGN KEY (extentityid) REFERENCES external_entities(id)

---

**OpenSymphony**

The "old" authentication system, which was the default prior to 2.7.

### Table "os_group"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>groupname</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "os_group_pkey" PRIMARY KEY, btree (id)
- "os_group_groupname_key" UNIQUE, btree (groupname)

### Table "os_user"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>username</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>passwd</td>
<td>character varying(255)</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "os_user_pkey" PRIMARY KEY, btree (id)
- "os_user_username_key" UNIQUE, btree (username)

### Table "os_user_group"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>group_id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>user_id</td>
<td>bigint</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "os_user_group_pkey" PRIMARY KEY, btree (user_id, group_id)
- Foreign-key constraints:
  - "fk932472461e2e76db" FOREIGN KEY (group_id) REFERENCES os_group(id)
  - "fk93247246f73ae0f" FOREIGN KEY (user_id) REFERENCES os_user(id)

---

**Content**

The actual information that users are storing and sharing.
attachmentdata: stores the binary data for attached files. Only used when Confluence is configured to store attachments in the database; otherwise, attachments are stored in the local filesystem.

<table>
<thead>
<tr>
<th>Table &quot;attachmentdata&quot;</th>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>attachmentdataid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>attversion</td>
<td>integer</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>data</td>
<td>bytea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attachmentid</td>
<td>bigint</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "attachmentdata_pkey" PRIMARY KEY, btree (attachmentdataid)
- "attch_data_idx" btree (attachmentid)

Foreign-key constraints:
- "fk9dc3e3d34a4917e" FOREIGN KEY (attachmentid) REFERENCES attachments(attachmentid)

attachments: metadata for attachments.

<table>
<thead>
<tr>
<th>Table &quot;attachments&quot;</th>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>attachmentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>title</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>contenttype</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>pageid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>filesize</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attachment_comment</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>attversion</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>prevver</td>
<td>bigint</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "attachments_pkey" PRIMARY KEY, btree (attachmentid)
- "att_pageid_idx" btree (pageid)
- "att_prevver_idx" btree (prevver)

Foreign-key constraints:
- "fk54475f9017d4a070" FOREIGN KEY (prevver) REFERENCES attachments(attachmentid)
- "fk54475f908c38f6bae" FOREIGN KEY (pageid) REFERENCES content(contentid)

bodycontent: stores the actual content of Confluence pages. No versioning information or other metadata is stored here, though; that's all in the content table.

<table>
<thead>
<tr>
<th>Table &quot;bodycontent&quot;</th>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bodycontentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td></td>
<td>body</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td></td>
<td>contentid</td>
<td>bigint</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "bodycontent_pkey" PRIMARY KEY, btree (bodycontentid)
- "body_content_idx" btree (contentid)

Foreign-key constraints:
- "fka898d4778d4f173d" FOREIGN KEY (contentid) REFERENCES content(contentid)

content: a persistence table for the ContentEntityObject class of objects. The subclass is indicated by the contenttype column.
Table "content"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>contentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>contenttype</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>title</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>version</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>versioncomment</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td>prever</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>content_status</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>spaceid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>parentid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>messageid</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>draftpageid</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>draftsacekey</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>drafttype</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>draftpageversion</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td>pageid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>parentcommentid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>username</td>
<td>character varying(255)</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "content_pkey" PRIMARY KEY, btree (contentid)
- "c_draftpageid_idx" btree (draftpageid)
- "c_draftspacekey_idx" btree (draftspacekey)
- "c_drafttype_idx" btree (drafttype)
- "c_messageid_idx" btree (messageid)
- "c_parentcommid_idx" btree (parentcommentid)
- "c_parentid_idx" btree (parentid)
- "c_prevver_idx" btree (prever)
- "c_spaceid_idx" btree (spaceid)
- "c_title_idx" btree (title)
- "c_username_idx" btree (username)

Foreign-key constraints:
- "fk6382c05917ddaf070" FOREIGN KEY (prever) REFERENCES content(contentid)
- "fk6382c05974b1345" FOREIGN KEY (parentid) REFERENCES content(contentid)
- "fk6382c0598e38f60a" FOREIGN KEY (pageid) REFERENCES content(contentid)
- "fk6382c0598db6e081" FOREIGN KEY (spaceid) REFERENCES spaces(spaceid)
- "fk6382c059b97e9230" FOREIGN KEY (parentcommentid) REFERENCES content(contentid)

content_label: Arbitrary text labels for content.

Table "content_label"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>labelid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>contentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>spacekey</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>owner</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "content_label_pkey" PRIMARY KEY, btree (id)
- "cl_contentid_idx" btree (contentid)
- "cl_labelid_idx" btree (labelid)
- "cl_lastmoddate_idx" btree (lastmoddate)
- "cl_spacekey_idx" btree (spacekey)

Foreign-key constraints:
- "fkf0e7436e27072ae" FOREIGN KEY (labelid) REFERENCES label(labelid)
- "fkf0e7436e6dd1734" FOREIGN KEY (contentid) REFERENCES content(contentid)

label: the other half of the content_label system.
### Table "label"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>labelid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>name</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>owner</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>namespace</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "label_pkey" PRIMARY KEY, btree (labelid)
- "l_name_idx" btree (name)
- "l_namespace_idx" btree (namespace)
- "l_owner_idx" btree ("owner")

### content_perm: content-level permissions objects.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>cp_type</td>
<td>character varying(10)</td>
<td>not null</td>
</tr>
<tr>
<td>username</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>groupname</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>cps_id</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "content_perm_pkey" PRIMARY KEY, btree (id)
- "cp_gn_idx" btree (groupname)
- "cp_os_idx" btree (cps_id)
- "cp_un_idx" btree (username)

Foreign-key constraints:
- "fkbd74b31676e33274" FOREIGN KEY (cps_id) REFERENCES content_perm_set(id)

### content_perm_set: one-to-many mapping for content items and their permissions, with added metadata.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>cont_perm_type</td>
<td>character varying(10)</td>
<td>not null</td>
</tr>
<tr>
<td>content_id</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "content_perm_set_pkey" PRIMARY KEY, btree (id)
- "cps_content_idx" btree (content_id)

Foreign-key constraints:
- "fkbf45a7992caf22c1" FOREIGN KEY (content_id) REFERENCES content(contentid)

### Clustering

**clustersafety:** normally, this table only contains one row. The value of the safety number is what Confluence uses to find out whether another instance is sharing its database without being part of the cluster.
Table "clustersafety"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>clustersafetyid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>safetynumber</td>
<td>integer</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
"clustersafety_pkey" PRIMARY KEY, btree (clustersafetyid)

System information

confversion used by the upgrade system to determine what to expect from the database, so as to negotiate upgrades.

Table "confversion"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>confversionid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>buildnumber</td>
<td>integer</td>
<td>not null</td>
</tr>
<tr>
<td>installdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>versiontag</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
"confversion_pkey" PRIMARY KEY, btree (confversionid)
"confversion_buildnumber_key" UNIQUE, btree (buildnumber)

plugindata: records which plugins have been installed, and when. data is a blob of the actual plugin .jar file. This is principally cluster-related.

Table "plugindata"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>plugindataid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>pluginkey</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>filename</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>data</td>
<td>bytea</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
"plugindata_pkey" PRIMARY KEY, btree (plugindataid)
"plugindata_filename_key" UNIQUE, btree (filename)
"plugindata_pluginkey_key" UNIQUE, btree (pluginkey)

Spaces

spacegroups: this table is only used by the hosted environment.

Table "spacegroups"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>spacegroupid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>spacegroupname</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>spacegroupkey</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>licensekey</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
"spacegroups_pkey" PRIMARY KEY, btree (spacegroupid)
"spacegroups_spacegroupkey_key" UNIQUE, btree (spacegroupkey)
Table "spacepermissions"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>permid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>spaceid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>permtype</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>permgroupname</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>permusername</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "spacepermissions_pkey" PRIMARY KEY, btree (permid)
- "sp_permtype_idx" btree (permtype)
- "sp_pgname_idx" btree (permgroupname)
- "sp_puname_idx" btree (permusername)
- "sp_spaceid_idx" btree (spaceid)

Foreign-key constraints:
- "fkd33f23beb2dc6081" FOREIGN KEY (spaceid) REFERENCES spaces(spaceid)

spaces: information about the spaces themselves: key, human-friendly name and numeric ID.

Table "spaces"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>spaceid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>spacename</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>spacekey</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>spacedescid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>homepage</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>spacetype</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>spacegroupid</td>
<td>bigint</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "spaces_pkey" PRIMARY KEY, btree (spaceid)
- "spaces_spacekey_key" UNIQUE, btree (spacekey)
- "s_homepage_idx" btree (homepage)
- "s_spacedescid_idx" btree (spacedescid)
- "s_spacegroupid_idx" btree (spacegroupid)

Foreign-key constraints:
- "fk9228242d11b7bfee" FOREIGN KEY (homepage) REFERENCES content(contentid)
- "fk9228242d16994414" FOREIGN KEY (spacegroupid) REFERENCES spacegroups(spacegroupid)
- "fk9228242d2c72d3d2" FOREIGN KEY (spacedescid) REFERENCES content(contentid)

Appearance

decorator: storage of custom display templates, for customising layouts.

Table "decorator"

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>decoratorid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>spacekey</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>decoratorname</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>body</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "decorator_pkey" PRIMARY KEY, btree (decoratorid)
- "dec_key_idx" btree (spacekey)
- "dec_name_idx" btree (decoratorname)
Miscellaneous

### os_propertyentry

For arbitrary association of entities and properties.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>entity_name</td>
<td>character varying(125)</td>
<td>not null</td>
</tr>
<tr>
<td>entity_id</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>entity_key</td>
<td>character varying(200)</td>
<td>not null</td>
</tr>
<tr>
<td>key_type</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td>boolean_val</td>
<td>boolean</td>
<td></td>
</tr>
<tr>
<td>double_val</td>
<td>double precision</td>
<td></td>
</tr>
<tr>
<td>string_val</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>text_val</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td>long_val</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>int_val</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td>date_val</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

**Indexes:**

"os_propertyentry_pkey" PRIMARY KEY, btree (entity_name, entity_id, entity_key)

### bandana

A catch-all persistence layer. It contains things like user settings and space- and global-level configuration data, and is used as storage by plugins such as the Dynamic Task List plugin. Essentially, for storing arbitrary data that doesn't fit anywhere else.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>bandanaid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>bandanacontext</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>bandanakey</td>
<td>character varying(100)</td>
<td></td>
</tr>
<tr>
<td>bandanavalue</td>
<td>text</td>
<td></td>
</tr>
</tbody>
</table>

**Indexes:**

"bandana_pkey" PRIMARY KEY, btree (bandanaid)
"band_context_idx" btree (bandanacontext)
"band_key_idx" btree (bandanakey)

### extrnlnks

Storage of referral links.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>linkid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>contenttype</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>viewcount</td>
<td>integer</td>
<td>not null</td>
</tr>
<tr>
<td>url</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>contentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

**Indexes:**

"extrnlnks_pkey" PRIMARY KEY, btree (linkid)
"el_contentid_idx" btree (contentid)

Foreign-key constraints:

"fk97c10fe78dd41734" FOREIGN KEY (contentid) REFERENCES content(contentid)

### hibernate_unique_key

Used by the high/low ID generator - the subsystem which generates our primary keys. Mess with this at the cost of being able to create objects.

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>next_hi</td>
<td>integer</td>
<td></td>
</tr>
</tbody>
</table>

### indexqueueentries

Arbitrates full-content indexing across the system.
This table generally contains the last 12 hours or so of updates, to allow re-syncing of cluster nodes after restarts.

**Table "indexqueueentries"**

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>entryid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>type</td>
<td>integer</td>
<td></td>
</tr>
<tr>
<td>handle</td>
<td>character varying(255)</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "indexqueueentries_pkey" PRIMARY KEY, btree (entryid)

**keystore**

-used by the trusted apps framework to store the server's private key, and other servers' public keys.

**Table "keystore"**

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>keyid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>alias</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>type</td>
<td>character varying(32)</td>
<td>not null</td>
</tr>
<tr>
<td>algorithm</td>
<td>character varying(32)</td>
<td>not null</td>
</tr>
<tr>
<td>keyspec</td>
<td>text</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "keystore_pkey" PRIMARY KEY, btree (keyid)

**links**

-tracks links within the server (i.e. across and within spaces).

**Table "links"**

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>linkid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>destpagetitle</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>destspacekey</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>contentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "links_pkey" PRIMARY KEY, btree (linkid)
- "l_contentid_idx" btree (contentid)
- "l_destspacekey_idx" btree (destspacekey)

Foreign-key constraints:
- "fk45157998dd41734" FOREIGN KEY (contentid) REFERENCES content(contentid)

**notifications**

-storage of page- and space-level watches.

**Table "notifications"**

<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>notificationid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>pageid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>spaceid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>username</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "notifications_pkey" PRIMARY KEY, btree (notificationid)
- "n_pageid_idx" btree (pageid)
- "n_spaceid_idx" btree (spaceid)

Foreign-key constraints:
- "fk594acc88c38f3ea" FOREIGN KEY (pageid) REFERENCES content(contentid)
- "fk594acc8b2d6081" FOREIGN KEY (spaceid) REFERENCES spaces(spaceid)
pagetemplates: acts as the back-end of the templates feature.

Table "pagetemplates"
<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>templateid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>templatename</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>templatedesc</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>labels</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>content</td>
<td>text</td>
<td></td>
</tr>
<tr>
<td>spaceid</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>prevver</td>
<td>bigint</td>
<td></td>
</tr>
<tr>
<td>version</td>
<td>integer</td>
<td>not null</td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "pagetemplates_pkey" PRIMARY KEY, btree (templateid)
- "pt_prevver_idx" btree (prevver)
- "pt_spaceid_idx" btree (spaceid)

Foreign-key constraints:
- "fkbc7ce96a17d4a070" FOREIGN KEY (prevver) REFERENCES pagetemplates(templateid)
- "fkbc7ce96ab2dc6081" FOREIGN KEY (spaceid) REFERENCES spaces(spaceid)

Table "trackbacklinks"
<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>linkid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>contenttype</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>viewcount</td>
<td>integer</td>
<td>not null</td>
</tr>
<tr>
<td>url</td>
<td>character varying(255)</td>
<td>not null</td>
</tr>
<tr>
<td>title</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>blogname</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>excerpt</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>contentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>creator</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>creationdate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
<tr>
<td>lastmodifier</td>
<td>character varying(255)</td>
<td></td>
</tr>
<tr>
<td>lastmoddate</td>
<td>timestamp without time zone</td>
<td></td>
</tr>
</tbody>
</table>

Indexes:
- "trackbacklinks_pkey" PRIMARY KEY, btree (linkid)
- "tbl_contentid_idx" btree (contentid)

Foreign-key constraints:
- "fkf6977a478dd41734" FOREIGN KEY (contentid) REFERENCES content(contentid)

confancestors: used to speed up permissions checks, by allowing quick lookup of all a page's ancestors.

Table "confancestors"
<table>
<thead>
<tr>
<th>Column</th>
<th>Type</th>
<th>Modifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>descendentid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>ancestorid</td>
<td>bigint</td>
<td>not null</td>
</tr>
<tr>
<td>ancestorposition</td>
<td>integer</td>
<td>not null</td>
</tr>
</tbody>
</table>

Indexes:
- "confancestors_pkey" PRIMARY KEY, btree (descendentid, ancestorposition)

Foreign-key constraints:
- "fk9494e23c773e35a2e" FOREIGN KEY (ancestorid) REFERENCES content(contentid)
- "fk9494e23cc45e94dc" FOREIGN KEY (descendentid) REFERENCES content(contentid)

Known Issues with Enterprise or Webhosting environments

When you attempt to run Confluence, you may get the following error:
Some of the libraries Confluence relies on to function make use of features of the Java language that may be restricted by Java security policies. This does not normally cause any problems: the default security configuration of most application servers will happily run Confluence. However, in some shared-hosting or enterprise environments, security settings may be such that Confluence can not function.

The permissions required by Confluence to run are detailed in the sample policy file below. You may need to give this information to your systems administrator so that they can be deployed with the Confluence application.

```java
grant codeBase "file:${catalina.home}/webapps/confluence/-" {
  permission java.security.AllPermission;
};
grant {
  permission java.lang.RuntimePermission "accessDeclaredMembers";
  permission java.lang.reflect.ReflectPermission "suppressAccessChecks";
  permission java.lang.RuntimePermission "defineCGLIBClassInJavaPackage";
};
```

### Setting Up Public Access

Granting of permissions to use Confluence can be done on the basis of membership of a group, to a particular user, or to the 'Anonymous' user. There is not an actual user named 'Anonymous', it is just a name for a category of granted permissions.

In the security administration of Confluence, the 'Anonymous' user includes all logged-in users, and anonymous users who have not logged in. That is, if you allow the 'Anonymous' user to do something, you are allowing all users to do it.

To enable public access to a confluence space, you must give 'Anonymous' the following permissions:

- The global 'Use Confluence' permission. This permission determines whether a user can access the Confluence installation at all, and is set by the site administrator in Administration -> Global Permissions.
- The relevant space permissions. The 'Anonymous' user must have at least the 'View Space' permission for a space to be publicly accessible. You set these permissions via 'Browse Space' -> 'Space Admin' -> 'Permissions'.

While these two permissions are the bare minimum necessary for public access to a space, you may wish to give 'Anonymous' additional permissions if you want a space to allow anonymous comments, or anonymous editing.

We severely warn against giving the 'Anonymous' user any administrative privileges, either within a space, or especially globally over the Confluence instance. Giving administrative privileges to untrusted users may lead to a serious security compromise of your site.

### Related

No content found for label(s) public.

### Setting Up a Mail Session in Confluence Standalone

Set up a mail session in Confluence Standalone to use Gmail as follows:

1. Stop Confluence.
2. Move (don't copy) activation-1.0.2.jar and mail-1.4.1.jar from `<confluence-install>/confluence/WEB-INF/lib` to `<confluence-install>/lib`.
3. Add the following to your server.xml file found in `<confluence-install>/conf/` (add it just before the `</Context>` tag):
### For Confluence 3.5.x

```xml
<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="yourEmailAddress@gmail.com"
  password="yourPassword"
  mail.smtp.starttls.enable="true"
  mail.transport.protocol="smtps"
  mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"/>
```

4. Restart Confluence.
5. Go to Browse > Confluence Admin and click on Mail Servers. Choose either Edit an existing configuration, or Add a new SMTP mail server.
6. Edit the server settings as necessary, and set the JNDI Location as:

```
javax:comp/env/mail/GmailSMTPServer
```

Note that the JNDI Location is case sensitive and must match the resource name specified in server.xml.
7. Submit, and send a test email.

### Troubleshooting SQL Exceptions

If you get an exception similar to those shown below, it is a good idea to increase the logging levels of your Confluence instance. If you request Atlassian support, this additional logging will help us work out the cause of the error.

Increased logging levels will enable us to diagnose errors like these:

```java
org.springframework.dao.DataIntegrityViolationException: (HibernateTemplate): data integrity violated by SQL ''); nested exception is java.sql.BatchUpdateException: Duplicate entry '1234' for key 1
```

or

```java
{HibernateTemplate): data integrity violated by SQL ''; nested exception is java.sql.BatchUpdateException: ORA-00001: unique constraint (CONFLUENCE.SYS_C0012345) violated
```

This document outlines the steps to take to increasing logging on your system.

#### Changing the logging levels via the Administration Console

With Confluence 2.7 and later, you can adjust logging levels at runtime via the Administration Console — read the instructions. Below we tell you how to edit the log4j files directly.

1. Open `confluence/WEB-INF/classes/log4j.properties` and uncomment the following lines. The double ## lines are comments, leave them intact.
## logging hibernate prepared statements/SQL queries (equivalent to setting 'hibernate.show_sql' to 'true')
```
#log4j.logger.net.sf.hibernate.SQL=DEBUG
```
## logging hibernate prepared statement parameter values
```
#log4j.logger.net.sf.hibernate.type=DEBUG
```
If you cannot locate these lines in your `log4j.properties` file, please add them to the end of it.

1. Restart Confluence.
2. Redo the steps that led to the error.
3. Zip up your logs directory and attach it to your support ticket.
4. If you are using Oracle and received a constraint error, please ask your database administrator which table and column the constraint that is `CONFLUENCE.SYS_C0012345` refers to and add that information to your support ticket.
5. Open `confluence/WEB-INF/classes/log4j.properties` again and remove the 4 lines you added in step 1. (The additional logging will impact performance and should be disabled once you have completed this procedure.)

### RELATED TOPICS
- Enabling Detailed SQL Logging
- Working with Confluence Logs
- Troubleshooting failed XML site backups

## Confluence Installation and Upgrade Guide

The pages listed below contain information on installing and upgrading Confluence:

- **System Requirements**
  - Server Hardware Requirements Guide
  - Example Size and Hardware Specifications From Customer Survey
- **Confluence Installation Guide**
  - Installing Confluence
  - Installing the Confluence EAR-WAR Edition
  - Confluence Cluster Installation
  - Creating a Dedicated User Account on the Operating System to Run Confluence
  - Getting a Confluence License
  - Running Confluence in a Virtualised Environment
- **Confluence Setup Guide**
  - External Database
  - Load Content for the Site
  - Restoring from Backup During Setup
  - Configuring JIRA Integration in the Setup Wizard
- **Upgrading Confluence**
  - Upgrading Beyond Current Licensed Period
  - Confluence Post-Upgrade Checks
  - Upgrading Confluence EAR-WAR Distribution
  - Upgrading Confluence Manually
- **Supported Platforms**
  - Supported Platforms FAQ
  - End of Support Announcements for Confluence

### System Requirements

Confluence works with a broad range of operating systems, database systems and application servers. Provided you have the technical knowledge, it is very likely that you will be able to run Confluence with an 8-year-old database or even on some 8-year-old hardware. Realistically, it is not technically feasible for us to provide our legendary support service on all environments available. There can only be a finite number of platforms and release versions of those that we support.

Our rule of thumb when releasing a new version of Confluence is that we will officially support platforms that have been released within the last one to two years (or the latest version of that platform if no new version of it was released in that period). This does not necessarily mean that you will need to upgrade your database or application server every time you upgrade Confluence. However, if you do run into problems with an unsupported version of a database or application server, we may have to ask you to upgrade to something newer.

Please refer to our Supported Platforms topic for details on platforms that we currently support in this version of Confluence and our Supported Platforms FAQ topic for details on our support handling procedures.
Confluence Software Requirements

Please read the Supported Platforms page for Confluence. That page contains important information about all client and server software requirements for Confluence 4.0.

Server Software Requirements

Please read the following additional information regarding server software requirements for Confluence.

Operating Systems

If you would like to run Confluence on VMware, please read our Running Confluence in a Virtualised Environment document first.

Confluence on Virtualised Environments

Atlassian officially supports non-clustered installations of Confluence 3.0 and later on VMware. Although possible, we do not recommend (nor support) running versions of Confluence prior to 3.0 on VMware, since Confluence 3.0 resolved many performance issues that were present in earlier versions. Be aware that we also do not support clustered installations of Confluence on VMware. Please comment or vote on the feature request at CONF-19559.

Application Servers

Atlassian supports the application servers listed on the Supported Platforms page, provided they are running on Windows, Linux, or Solaris. If you are using earlier, or other, application servers, we may ask you to migrate to one of the supported application servers before we can provide you with further support.

If you have no preference for a particular application server and wish to set up Confluence for production purposes, we highly recommend installing Confluence Standalone, which includes the Apache Tomcat application server.

Databases

Atlassian supports the databases listed on the Supported Platforms page, provided they are running on Windows, Linux, or Solaris.

If you have no preference for a particular database and wish to set up Confluence for production purposes, we highly recommend using PostgreSQL. This is a scalable, robust and free database server that is also easy to set up. For database setup information, please refer to Database Setup For Any External Database.

We assume that Confluence 4.0 works fine with the database versions listed below. However, we do not test these versions regularly and we may ask you to migrate to one of the supported databases before we can provide you with further support.

- PostgreSQL — 8.2, 8.3, 8.4
- MySQL — 5.0.28+, 5.1 (using the InnoDB storage engine, not MyISAM)
- Oracle — 11.1, 11.2
- DB2 — 9.7

Java

If using the Zip or archive distribution of Confluence, will need to install a supported Java Development Kit (JDK). The automated installer bundles Java and will install this for you.

For instructions on installing the JDK for Windows and Linux/Solaris, please refer to Installing Java for Confluence.
**Important notes about installing a JDK for Confluence**

- Confluence requires the full installation of a JDK. It is not enough to run Confluence on a Java Runtime Environment (JRE) alone.

**Antivirus Software Configuration**

The presence of antivirus software on your operating system running Confluence greatly decreases the performance of Confluence. Antivirus software that intercepts access to the hard disk is particularly detrimental and may even cause errors in Confluence.

You should configure your antivirus software to ignore the following directories:

- Confluence home directory
- Confluence's index directory
- All database-related directories

⚠️ This recommendation above is particularly important if you are running Confluence on Windows. No matter how fast your hardware is, antivirus software will almost always have a negative impact on Confluence's performance and may render Confluence impossible to use.

**Confluence Hardware Requirements**

Please be aware that while some of our customers run Confluence on SPARC-based hardware, Atlassian only officially supports Confluence running on x86 hardware and 64-bit derivatives of x86 hardware.

See [Server Hardware Requirements Guide](#) for details.

Refer also to the tips on reducing out of memory errors, in particular the section on Permanent Generation Size.

**Atlassian Hosted Solutions**

If you do not have the resources to set up and maintain a Confluence installation locally, consider Atlassian hosted solutions. Atlassian can run and maintain your own installation of Confluence, handling all the testing, monitoring and upgrading processes for you. For more information, please refer to our [Confluence Hosted](#) and our integrated [JIRA Studio](#) solutions on our [website](#).

**Related Topics**

- End of Support Announcements for Confluence
- Confluence Installation Guide
- Confluence Setup Guide
- Installing Confluence on Windows
- Installing the Confluence EAR-WAR Edition
- Confluence Cluster Installation
- Example Size and Hardware Specifications From Customer Survey
- Installing Confluence and JIRA Together
- Confluence Documentation Home
- Server Hardware Requirements Guide
- Supported Platforms FAQ

**Server Hardware Requirements Guide**

Server administrators can use this guide in combination with the free Confluence trial period to evaluate their server hardware requirements. Because server load is difficult to predict, live testing is the best way to determine what hardware a Confluence instance will require in production.

Peak visitors are the maximum number of browsers simultaneously making requests to access or update pages in Confluence. Visitors are counted from their first page request until the connection is closed and if public access is enabled, this includes internet visitors as well as logged in users. Storage requirements will vary depending on how many pages and attachments you wish to store inside Confluence.

**Minimum Hardware Requirements**

On small instances, server load is primarily driven by peak visitors.

5 Concurrent Users

- 2GHz+ CPU
- 512MB RAM
- 5GB database space
25 Concurrent Users

- Quad 2GHz+ CPU
- 2GB+ RAM
- 10GB database space

Please be aware that while some of our customers run Confluence on SPARC-based hardware, Atlassian only officially supports Confluence running on x86 hardware and 64-bit derivatives of x86 hardware.

Example Hardware Specifications

These are example hardware specifications for non-clustered Confluence instances. It is not recorded whether the RAM refers to either total server memory or memory allocated to the JVM, while blank settings indicate that the information was not provided.

<table>
<thead>
<tr>
<th>Accounts</th>
<th>Spaces</th>
<th>Pages</th>
<th>CPUs</th>
<th>CPU (GHz)</th>
<th>RAM (Meg)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>30</td>
<td>1,000</td>
<td>1</td>
<td>2.6</td>
<td>1,024</td>
<td></td>
</tr>
<tr>
<td>350</td>
<td>100</td>
<td>15,000</td>
<td>2</td>
<td>2.8</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>5,000</td>
<td>500</td>
<td></td>
<td>4</td>
<td>3</td>
<td>2,024</td>
<td></td>
</tr>
<tr>
<td>10,000</td>
<td>350</td>
<td>16,000</td>
<td>2</td>
<td>3.8</td>
<td>2,024</td>
<td></td>
</tr>
<tr>
<td>10,000</td>
<td>60</td>
<td>3,500</td>
<td>2</td>
<td>3.6</td>
<td>4,048</td>
<td></td>
</tr>
<tr>
<td>21,000</td>
<td>950</td>
<td></td>
<td>2</td>
<td>3.6</td>
<td>4,048</td>
<td></td>
</tr>
<tr>
<td>85,000</td>
<td>100</td>
<td>12,500</td>
<td>4</td>
<td>2.6</td>
<td>4,048</td>
<td>3 machines total: application server, database server, Apache HTTPD + LDAP tunnel server. See Accenture’s slides and video for full details</td>
</tr>
</tbody>
</table>

Server Load & Scalability

When planning server hardware requirements for your Confluence deployment, you will need to estimate the server scalability based on peak visitors, the editor to viewer ratio and total content.

- The editor to viewer ratio is how many visitors are performing updates versus those only viewing content
- Total content is best estimated by a count of total spaces

Confluence scales best with a steady flow of visitors rather than defined peak visitor times, few editors and few spaces. Users should also take into account:

- Total pages is not a major consideration for performance. For example, instances hosting 80K of pages can consume under 512 meg of memory
- Always use an external database, and check out the performance tuning guides.

As mentioned on the documentation for Operating Large or Mission-Critical Confluence Installations, some important steps are loadtesting your usecase and monitoring the system continuously to find out where your system could do better and what might need to improve in order to scale further.

Maximum Reported Usages

These values are largest customer instances reported to Atlassian or used for performance testing. Clustering for load balancing, database tuning and other performance tuning is recommended for instances exceeding these values.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Spaces</td>
<td>1700</td>
</tr>
<tr>
<td>Most Internal Users</td>
<td>15K</td>
</tr>
<tr>
<td>Most LDAP Users</td>
<td>100K</td>
</tr>
</tbody>
</table>
Most Pages 80K

**Hard Disk Requirements**

All wiki content is stored in the database, while attachments use either the database or filesystem. For example, the wiki instance you are reading now uses approximately 1 GB of database space and 9.4 GB of disk space.

Here is a breakdown of the disk usage requirements for this wiki, as at December 2008:

<table>
<thead>
<tr>
<th><strong>Database size</strong></th>
<th>1003 MB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Home directory size</strong></td>
<td>9.4 GB</td>
</tr>
</tbody>
</table>

**Size of selected database tables**

<table>
<thead>
<tr>
<th>Data</th>
<th>Rows</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content bodies (incl. all versions of blogs, pages and comments)</td>
<td>170462</td>
<td>145 MB</td>
</tr>
<tr>
<td>Content metadata (incl. title, author)</td>
<td>188697</td>
<td>48 MB</td>
</tr>
<tr>
<td>Content and user properties</td>
<td>193652</td>
<td>42 MB</td>
</tr>
<tr>
<td>Users</td>
<td>20679</td>
<td>5.8 MB</td>
</tr>
<tr>
<td>Attachment metadata</td>
<td>25718</td>
<td>5.0 MB</td>
</tr>
<tr>
<td>Labels</td>
<td>43235</td>
<td>4.5 MB</td>
</tr>
</tbody>
</table>

Note: not all database tables or indexes are shown, and average row size may vary between instances.

**Size of selected home directory components**

<table>
<thead>
<tr>
<th>Data</th>
<th>Files</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attachments (incl. all versions)</td>
<td>27484</td>
<td>5.9 GB</td>
</tr>
<tr>
<td>Usage index (now disabled)</td>
<td>240</td>
<td>2.6 GB</td>
</tr>
<tr>
<td>Search index</td>
<td>10</td>
<td>236 MB</td>
</tr>
<tr>
<td>Office Connector cache</td>
<td>44</td>
<td>222 MB</td>
</tr>
<tr>
<td>Temporary files</td>
<td>7269</td>
<td>201 MB</td>
</tr>
<tr>
<td>Plugin files</td>
<td>1508</td>
<td>139 MB</td>
</tr>
<tr>
<td>Thumbnails</td>
<td>10154</td>
<td>84 M</td>
</tr>
<tr>
<td>Did-you-mean search index</td>
<td>3</td>
<td>9.9 MB</td>
</tr>
</tbody>
</table>

Note: not all files are shown, and average file size may vary between instances.

**Private & Online Comparison**

Private instances manage their users either internally or through a user repository such as LDAP, while online instances have public signup enabled and must handle the additional load of anonymous internet visitors. Please keep in mind that these are examples only, not recommendations:
<table>
<thead>
<tr>
<th>Use Case</th>
<th>Spaces</th>
<th>User Accounts</th>
<th>Editors</th>
<th>Editor To Viewer Ratio</th>
<th>Pages</th>
<th>Page Revisions</th>
<th>Attachments</th>
<th>Comments</th>
<th>Total Data Size (GB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Documentation</td>
<td>140</td>
<td>11,500</td>
<td>1,000</td>
<td>9%</td>
<td>8,800</td>
<td>65,000</td>
<td>7,300</td>
<td>11,500</td>
<td>10.4</td>
</tr>
<tr>
<td>Private Intranet</td>
<td>130</td>
<td>180</td>
<td>140</td>
<td>78%</td>
<td>8,000</td>
<td>84,000</td>
<td>3,800</td>
<td>500</td>
<td>4.5</td>
</tr>
<tr>
<td>Company-Wide Collaboration</td>
<td>100</td>
<td>85,000</td>
<td>1,000+</td>
<td>1%+</td>
<td>12,500</td>
<td>120,000</td>
<td>15,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Professional Assistance**

For large instances, it may be worthwhile contacting an Atlassian partner for expertise on hardware sizing, testing and performance tuning. Simply contact a local partner directly or email our partner manager for a recommendation.

**Related Pages**

No content found for label(s) sizing-guide.

**Example Size and Hardware Specifications From Customer Survey**

Below are the results of a survey conducted by Atlassian in July 2007, showing some capacity statistics for Confluence users. The figures are broken down by industry and number of users.

<table>
<thead>
<tr>
<th>Num Users</th>
<th>Length of time in production</th>
<th>Database</th>
<th>Application Server</th>
<th>Num CPUs/Cores</th>
<th>Physical Memory/RAM</th>
<th>Operating System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banking/Finance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 - 50</td>
<td>3-6 Months Ago</td>
<td>Microsoft SQL Server</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>2G</td>
<td>Windows</td>
</tr>
<tr>
<td>26 - 50</td>
<td>2 Years Ago</td>
<td>Sybase ASE</td>
<td>Weblogic</td>
<td>&gt;8</td>
<td>&gt;16G</td>
<td>Unix</td>
</tr>
<tr>
<td>51 - 250</td>
<td>3-6 Months Ago</td>
<td>Oracle</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>4G</td>
<td>Unix</td>
</tr>
<tr>
<td>501 - 1,000</td>
<td>3-6 Months Ago</td>
<td>Microsoft SQL Server</td>
<td>Websphere</td>
<td>2</td>
<td>2G</td>
<td>AIX</td>
</tr>
<tr>
<td>1,001 - 5,000</td>
<td>3-6 Months Ago</td>
<td>Oracle</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>4G</td>
<td>Windows</td>
</tr>
<tr>
<td>1,001 - 5,000</td>
<td>2 Years Ago</td>
<td>Oracle</td>
<td>Websphere</td>
<td>4</td>
<td>&gt;16G</td>
<td>Solaris</td>
</tr>
<tr>
<td>5,001 - 10,000</td>
<td>10-12 Months Ago</td>
<td>Microsoft SQL Server</td>
<td>Standalone/Apache Tomcat</td>
<td>4</td>
<td>16G</td>
<td>Linux</td>
</tr>
</tbody>
</table>

**Education**
### Confluence Installation Guide

#### Prerequisites

Before beginning to install Confluence, please check that:

- Your system meets the **minimum system requirements** to run Confluence.
- This version of the Confluence documentation matches the version of Confluence that you are installing. The Confluence documentation version you are currently viewing is indicated toward the top of the page tree on the left or in the 'breadcrumb trail' in the top banner of this page. If you need to access a different version of the Confluence documentation, use the control at the top of the page tree on the left or you can access it from the [documentation home page](#).

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
<th>DB</th>
<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25</td>
<td>2 Years Ago</td>
<td>DB2</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>2G</td>
<td>Linux</td>
</tr>
<tr>
<td>26 - 50</td>
<td>10-12 Months Ago</td>
<td>MySQL</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>2G</td>
<td>Linux</td>
</tr>
<tr>
<td>51 - 250</td>
<td>&lt;3 Months Ago</td>
<td>Oracle</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td>1G</td>
<td>Windows</td>
</tr>
<tr>
<td>51 - 250</td>
<td>10-12 Months Ago</td>
<td>Oracle</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td>2G</td>
<td>Unix</td>
</tr>
</tbody>
</table>

**Engineering/Aerospace**

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
<th>DB</th>
<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>251 - 500</td>
<td>7-9 Months Ago</td>
<td>Oracle</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td>1G</td>
<td>Mac OS</td>
</tr>
<tr>
<td>1,001 - 5,000</td>
<td>7-9 Months Ago</td>
<td>Microsoft SQL Server</td>
<td>JBoss</td>
<td>2</td>
<td>4G</td>
<td>Linux</td>
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</tbody>
</table>

**Entertainment**

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
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<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,001 - 5,000</td>
<td>10-12 Months Ago</td>
<td>PostgreSQL</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>8G</td>
<td>Linux</td>
</tr>
</tbody>
</table>

**Government**

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
<th>DB</th>
<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>51 - 250</td>
<td>2 Years Ago</td>
<td>MySQL</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>2G</td>
<td>Mac OS</td>
</tr>
</tbody>
</table>

**Technology**

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
<th>DB</th>
<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>501 - 1,000</td>
<td>7-9 Months Ago</td>
<td>MySQL</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td>2G</td>
<td>Linux</td>
</tr>
</tbody>
</table>

**Telecommunications & Media**

<table>
<thead>
<tr>
<th>Category</th>
<th>Date Range</th>
<th>DB</th>
<th>DB Type</th>
<th>Middleware Type</th>
<th>Memory</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25</td>
<td>3-6 Months Ago</td>
<td>Standalone/HSQ</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td></td>
<td>Linux</td>
</tr>
<tr>
<td>1-25</td>
<td>7-9 Months Ago</td>
<td>MySQL</td>
<td>Standalone/Apache Tomcat</td>
<td>1</td>
<td>2G</td>
<td>Linux</td>
</tr>
<tr>
<td>26 - 50</td>
<td>10-12 Months Ago</td>
<td>MySQL</td>
<td>Standalone/Apache Tomcat</td>
<td>2</td>
<td>2G</td>
<td>Linux</td>
</tr>
</tbody>
</table>
Choose the Confluence Installation Type

Choose the type of Confluence installation you'd like from the table below, and follow the link(s) to the installation instructions.

<table>
<thead>
<tr>
<th>Installation Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Installing Confluence on Windows</td>
<td>Install Confluence via the Atlassian installer. This is the easiest method of installing Confluence. This is the best option for evaluators.</td>
</tr>
<tr>
<td>• Installing Confluence on Linux</td>
<td></td>
</tr>
<tr>
<td>• Installing from a Zip File on Windows</td>
<td>This option requires you to manually carry out installing the files and configuring system properties. Use this option if there is no specific installer for your operating system.</td>
</tr>
<tr>
<td>• Installing From an Archive File on Linux</td>
<td></td>
</tr>
<tr>
<td>EAR/WAR distribution (Zip Archive)</td>
<td>This distribution allows you to deploy Confluence onto your own existing application server, instead of the Apache Tomcat server bundled with the regular distribution.</td>
</tr>
<tr>
<td>Confluence Clusters (Zip Archive)</td>
<td>Install Confluence as a series of clusters, to improve performance or availability. Please read the Confluence Clustering Overview and the Cluster Checklist before you consider installing Confluence in a cluster.</td>
</tr>
</tbody>
</table>

Please read Running Confluence in a Virtualised Environment if you are interested in running Confluence in a virtual machine. If you wish to upgrade Confluence, see Upgrading Confluence.

**Related Topics**

Upgrading Confluence
System Requirements

**Installing Confluence**

Choose the type of Confluence installation you'd like from the table below and follow the link to the installation instructions. When you have finished the installation phase, you will be prompted to start the setup phase.

<table>
<thead>
<tr>
<th>Installation Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Installing Confluence on Windows</td>
<td>Install Confluence via the Atlassian installer. This is the easiest method of installing Confluence. This is the best option for evaluators.</td>
</tr>
<tr>
<td>• Installing Confluence on Linux</td>
<td></td>
</tr>
<tr>
<td>• Installing from a Zip File on Windows</td>
<td>This option requires you to manually carry out installing the files and configuring system properties. Use this option if there is no specific installer for your operating system.</td>
</tr>
<tr>
<td>• Installing From an Archive File on Linux</td>
<td></td>
</tr>
</tbody>
</table>

If you have not already done so, please verify that this version of the Confluence documentation matches that of the Confluence version you are installing. The Confluence documentation version you are currently viewing is indicated toward the top of the page tree on the left or in the 'breadcrumb trail' in the top banner of this page. If you need to access a different version of the Confluence documentation, use the control at the top of the page tree on the left or you can access it from the documentation home page.

Take me back to the Confluence Installation Guide.

**Installing Confluence on Windows**

This guide describes how to install a new Confluence installation on Windows using the automated 'Windows Installer'. If you are upgrading Confluence, please refer to the Upgrading Confluence guide.

You can also install Confluence from a 'zip' archive — see Installing Confluence on Windows from Zip File for details.
1. Using the Installation Wizard

   1. Download and Run the Confluence 'Windows Installer'
   2. Starting Confluence
   3. Run the Setup Wizard
   4. Next Steps

   Performing an Unattended Installation
   - Download and Run the Confluence 'Windows Installer' in Unattended Mode

Using the Installation Wizard

Use the installation wizard if you are installing Confluence on your server for the first time or you wish to specify your installation options.

If you have previously installed Confluence using the installation wizard and wish to re-install Confluence again with the same installation options, you can re-install Confluence in 'unattended mode' without any user input required (see below for details).

1. Download and Run the Confluence ‘Windows Installer’

   ✔ To install Confluence as a service, the Windows Installer must be run using a Windows administrator account. While you can run the Windows Installer with a non-administrator account, your installation options will be much more limited.

   1. Download the Confluence 'Windows Installer' (.exe) file from the Confluence Download page.
   2. Run the installer file to start the installation wizard.

   1. If a Windows 7 (or Vista) ‘User Account Control’ dialog box requests if you want to allow the installation wizard to make changes to your computer, click 'Yes'. If you do not, the installation wizard will have restricted access to your operating system and any subsequent installation options will be limited.

   3. Choose the 'Create a new Confluence installation' option.
   4. You will be prompted to specify the following options:
      - The 'Destination Directory' in which to install Confluence.
      - The Confluence Home Directory (which must be unique for each Confluence installation).
      - The Windows ‘Start’ menu folder options.
      - The TCP ports (i.e. an HTTP connector port and a control port) that Confluence will operate on.
      - If you are running the installer using an administrator account, you will be prompted to 'Install Confluence as a service' (recommended). You can also do this manually later, as described in Start Confluence Automatically on Windows as a Service.

   ✔ If you installed Confluence as a service, you must start Confluence through the Windows 'Start' menu, since Confluence will not start if you run start-confluence.bat at the Windows Command Prompt.

   5. The installation wizard will install Confluence onto your operating system and will start Confluence automatically when the wizard finishes. Confluence will also be launched automatically in your browser window if you chose this option.

Please Note:

- If you chose to install Confluence as a service, the Confluence service will be run as the Windows 'SYSTEM' user account. To change this user account, see Changing the Windows user that the Confluence service uses.
- If you do not install Confluence as a service, then once started, Confluence will be run as the Windows user account under which Confluence was installed.
- If you use Confluence running on a Windows Server in production, we strongly recommend creating a dedicated user account (e.g. with username 'confluence') for running Confluence.
  - For more information about creating a dedicated user account and defining which directories this account should have write access to, refer to our guidelines.
  - If your Windows Server is operating under Microsoft Active Directory, ask your Active Directory administrator to create a dedicated user account that you can use to run Confluence (with no prior privileges).
- If Confluence is installed as a service, do not forget to change the user account that runs the Confluence service to your dedicated user account for running Confluence.

2. Starting Confluence

If Confluence is not already started, you can start Confluence using the appropriate Windows 'Start' menu shortcut or command prompt option.

Once Confluence is started, you can access Confluence from the appropriate Windows ‘Start’ menu shortcut or a browser on any computer with network access to your Confluence server.

2.1 Windows ‘Start’ Menu Shortcuts

The Installer will have created the following Windows ‘Start’ menu shortcuts:

- Access Confluence — opens a web browser window to access your Confluence application.
- Your Confluence server must have been started for this shortcut to work.
• **Start Confluence Service** — starts up the Apache Tomcat application server which runs your Confluence installation, so that you can access Confluence through your web browser.
• **Stop Confluence Service** — stops the Apache Tomcat application server which runs your Confluence installation. You will not be able to access Confluence through your web browser after choosing this shortcut.
• **Uninstall Confluence** — uninstalls Confluence from your Windows operating system.

### 2.2 Starting and Stopping Confluence from a Command Prompt

Enter the `bin` subdirectory of your Confluence installation directory and run the appropriate file:

- `start-confluence.bat` (to start Confluence)
- `stop-confluence.bat` (to stop Confluence)

If you followed our guidelines for running Confluence with a dedicated user account, then to run Confluence as this user account (e.g. 'confluence'), use the `runas` command to execute `start-confluence.bat`. For example:

- `runas /env /user:<DOMAIN>\confluence start-confluence.bat`

(where `<DOMAIN>` is your Windows domain or computer name.)

### 2.3 Accessing Confluence from a Browser

You can access Confluence from any computer with network access to your Confluence server by opening a supported web browser on the computer and visiting this URL:

- `http://<computer_name_or_IP_address>:<HTTP_port_number>`

where:

- `<computer_name_or_IP_address>` is the name or IP address of the computer on which Confluence is installed and
- `<HTTP_port_number>` is the HTTP port number specified when you installed Confluence (above).

If Confluence does not appear in your web browser, you may need to change the port that Confluence runs on.

### 3. Run the Setup Wizard

See the Confluence Setup Guide.

### 4. Next Steps

- **See Confluence 101.**
- If you did not install Confluence as a service, you will need to start Confluence manually every time you restart your computer. To change your Confluence installation to run as a service, please see Start Confluence Automatically on Windows as a Service. To get the most out of Confluence, please see Performance Tuning.

### Performing an Unattended Installation

If you have previously installed Confluence using the installation wizard (above), you can use a configuration file from this Confluence installation (called `response.varfile`) to re-install 'unattended mode' without any user input required.

Installing Confluence in unattended mode saves you time if your previous Confluence installation was used for testing purposes and you need to install Confluence on multiple server machines based on the same configuration.

**Please Note:**

- The `response.varfile` file contains the options specified during the installation wizard steps of your previous Confluence installation. Hence, do not uninstall your previous Confluence installation just yet.
- If you intend to modify the `response.varfile` file, please ensure all directory paths specified are absolute, for example, `sys.installationDir=C:\Program Files\Atlassian\Confluence`

Unattended installations will fail if any relative directory paths have been specified in this file.

#### Download and Run the Confluence 'Windows Installer' in Unattended Mode

1. Download the Confluence 'Windows Installer' (.exe) file from the Confluence Download Center to a suitable location.
2. Open the Windows command prompt and perform the remaining steps in the command prompt.
3. Copy the `response.varfile` file located in the `install4j` subdirectory of your previous Confluence installation directory, to the same location as the downloaded 'Windows Installer' file.

   You can uninstall your previous Confluence installation after this step. Save your `response.varfile` if you need to install Confluence on multiple machines.

4. Change directory (cd) to the location of the 'Windows Installer' file and run the following command:
atlassian-confluence-X.Y.exe -q -varfile response.varfile

Where:

- X.Y — refers to the version of Confluence you are about to install.
- -q — instructs the installer to operate in unattended mode (i.e. 'quietly').
- -varfile response.varfile — specifies the configuration file containing the configuration options used by the installer. The location and name of the configuration file should be specified after the -varfile option.

5. Confluence will start automatically when the silent installation finishes. Continue from step 2 Starting Confluence (above).

Installing Confluence on Windows from Zip File

These instructions apply to:

- Confluence distributed as an archive file. This distribution includes Apache Tomcat as a standalone application server.
- Windows systems. For other operating systems please refer to the Confluence Installation Guide.
- Manual installation and configuration using a zipped download file. For a simpler installation process, please use the Confluence Installer instead.

Also, please check that the version of Confluence which you are installing coincides with the version that this documentation is written for.

On this page:

1. Before you Start

Please check the following points:

1. Ensure that your system meets the minimum requirements to run Confluence. For more information, please refer to our Supported Platforms topic and for further details, our System Requirements topic.
2. Have your Confluence license key ready. You can obtain a trial, free or commercial license now, or retrieve your existing license key.

2. Install a Java Development Kit (JDK)

Please refer to the Installing Java for Confluence topic for details on installing a JDK for Confluence. If you are certain that this has already been installed and that the JAVA_HOME environment variable has been correctly configured, then proceed to the next step.

3. Download the Confluence Installation File

1. If you have not downloaded Confluence already, download the zip file.
2. Please check your unzip program before extracting the downloaded zip file. You should use a third-party unzip program like 7Zip or Winzip. If you do not have one, please download and install one of these before continuing:
   - 7Zip (recommended). If in doubt, download the ‘32-bit.exe’ version.
   - Winzip.
3. Use your unzip program to unzip the installation file to a directory such as c:\confluence.
   - Do not use spaces in your directory path.

The directory into which you unzipped the Confluence installation is called the Confluence Installation directory. Next, you will define the Confluence Home directory.

4. Define your Confluence Home Directory

Now you need to define the Confluence Home directory. This is where Confluence will store its configuration information, indexes and attachments.

Tip: Another term for ‘home directory’ would be ‘data directory’.

We suggest using different paths for your installation and home directories. This will facilitate easier upgrades.

Examples of Installation and Home Directories

<table>
<thead>
<tr>
<th>Installation directory</th>
<th>Home directory</th>
</tr>
</thead>
<tbody>
<tr>
<td>c:\confluence\confluence-vX.X</td>
<td>c:\confluence\data</td>
</tr>
</tbody>
</table>

1. Open your Confluence Installation directory (created when you unzipped Confluence — see above).
2. Under the Installation directory, open this file: confluence\WEB-INF\classes\confluence-init.properties in a
Confluence 4.0 Documentation

2. Scroll to the bottom of the text and find this line:

```
# confluence.home=c:/confluence/data
```

3. Remove the ‘#’ and the space at the beginning of this line, so that Confluence no longer regards the line as a comment. The line should now begin with `confluence.home`

4. If you decide to change the Confluence Home directory from the default, please note the following:
   - Avoid spaces in the directory path or file name.
   - Use forward slashes ‘/’ to define the path.
   - For example:
     `confluence.home=c:/data/confluence-home`

5. Check the Ports

If you have another application running on your machine which is using the same ports that Confluence uses by default, you may need to change the port which Confluence will use. For example, if you have a Standalone installation of JIRA running on this machine, JIRA might be already using the port which Confluence requests by default.

By default, Confluence listens on port ‘8090’. If this port is already in use in your installation, follow these instructions to change the ports:

- The page Change listen port for Confluence Standalone does not exist.

You will find more information on [this page](#).

6. Select an External Database

This step is optional for users evaluating Confluence. However, if you are installing Confluence for production purposes, this step is mandatory. Please refer to the [database requirements listed on our System Requirements topic](#) for help in choosing an external database.

- External databases are those listed on our [Supported Platforms topic](#), excluding HSQLDB, which is bundled with Confluence and should not be used in production.

When you have chosen your external database, follow the [database setup guide](#) for setting up your database to work with Confluence.

You can learn more about migration from an existing installation or use of the evaluation database [here](#). You will continue to use the Database Setup Guide during the Confluence Setup Wizard. (See step 8 below.)

7. Start Confluence

1. Go to your Confluence Installation directory (created when you unzipped Confluence — see above).
2. Under your Confluence Installation directory, open the `bin` directory and run the startup script: `startup.bat`. A command prompt window should appear.

   Please do not close this command prompt window. If you do so, Confluence will stop running.

   **Troubleshooting**

   If the window closes immediately when started, this means that an error is preventing Confluence from starting. To view this error:

   a. Open a command prompt: Click on your “Start” menu, then click ‘Run’. In the Run box, type `cmd` and click ‘OK’.
   b. From the command prompt, go to your Confluence Installation directory.
   c. Go into the `bin` subdirectory.
   d. Run `catalina.bat run`.

   ![You should not run `startup.bat` at this point, because that would still produce a popup window that would close straight away.](#)
   e. Read the error message.
   f. Find the solution to that error in the Installation FAQ.

   - If you changed the port earlier, use the port you specified in step 5 above.
If your web browser window shows an error, try waiting for 30 seconds or so and then refresh the browser page.

8. Next Step is the Confluence Setup Wizard

The Confluence Setup Wizard should appear in your web browser, prompting you to enter your license key. Follow the instructions on the screens, and read more guidelines on the Confluence Setup Wizard.

If the web browser shows an error instead of the Setup Wizard, check the Installation FAQ.

9. Start Confluence automatically on Windows as a Service

Confluence should be run as a service.

Related Topics

Confluence Setup Wizard
Installation FAQ

Uninstalling Confluence from Windows

This page describes the procedure for uninstalling an instance of Confluence which has been installed using the Windows Installer.

To uninstall Confluence from Windows:

1. Log in to Windows as the same user that was used to install Confluence with the Windows Installer.
2. Start the uninstaller by doing either of the following:
   - Click the Windows Start Menu > All Programs > Confluence > Uninstall Confluence
   - Open the Windows Control Panel, choose Add or Remove Programs (on Windows XP) or Programs and Features (on Windows 7, Vista) and then select Confluence X.Y from the list of applications and click Uninstall/Change.
   - Open the Windows command prompt and do the following:
     a. Change directory to your Confluence installation directory
     b. Run the uninstall.exe file
3. Follow the prompts to uninstall Confluence from your computer.

Please note:

- The uninstaller will not delete the Confluence Home Directory.
- All log files that were generated while Confluence was running will not be deleted.
- All files within the Confluence Installation Directory will be deleted (with the exception of the Tomcat log folder located in the Confluence Installation Directory).
- The uninstaller can be made to operate in unattended mode by specifying the --q option at the Windows command prompt — i.e. uninstall -q
- If you wish to re-install Confluence in 'unattended mode', do not uninstall your previous installation of Confluence just yet. See Using the Silent Installation Feature for more information.

Installing Confluence on Linux

This guide describes how to install a new Confluence installation on Linux using the automated 'Linux Installer'. If you are upgrading Confluence, please see Upgrading Confluence.

You can also install Confluence from a ‘zip’ archive — see Installing Confluence on Linux from Archive File for details.

There are two ways to install Confluence using the Linux Installer:

Using the Console Wizard

Use the console wizard if you are installing Confluence on your server for the first time or you wish to specify your installation options.

If you have previously installed Confluence using the installation wizard and wish to re-install Confluence again with the same installation options, you can re-install Confluence in 'unattended mode' without any user input required (see below for details).

1. Download and Install the Confluence 'Linux Installer'

   If you execute the Linux Installer with ‘root’ user privileges, the installer will create and run Confluence using a dedicated user account. You can also execute the Linux Installer without ‘root’ user privileges, although your installation options will be much more limited and a dedicated user account (to run Confluence) will not be created. To run Confluence as a service, the Linux Installer must
Confluence 4.0 Documentation

1. Download the appropriate Confluence 'Linux 64-bit / 32-bit Installer' (.bin) file from the Confluence Download page.

   Please Note:
   - To access the 32-bit installer, you may need to click the 'Show all' link on the 'Confluence Download' page to access the other installation packages.
   - The difference between the 64-bit / 32-bit .bin installers relates to their bundled Java platforms that run Confluence. Bear in mind that a Confluence installation installed using the 64-bit installer may require additional memory (to run at a similar level of performance) to a Confluence installation installed using the 32-bit installer. This is because a 64-bit Java platform's object references are twice the size as those for a 32-bit Java platform.

2. Open a Linux console and change directory (cd) to the .bin file's directory.

   Please Note:
   - If the .bin file is not executable after downloading it, make it executable, for example:
     
   chmod a+x atlassian-confluence-X.Y.bin
   (where X.Y represents your version of Confluence)

3. Execute the .bin file to start the console wizard.

4. When prompted to choose between creating a new Confluence installation or upgrading an existing installation, choose the 'Create a new Confluence installation' option.

5. During subsequent steps of the console wizard, you will be prompted to customise the following options (which are pre-populated with default values):
   - The 'Destination Directory' in which to install Confluence.
   - The Confluence Home directory (which must be unique for each Confluence installation).
   - The TCP ports (i.e. an HTTP and a Control port) that Confluence will run through.
   - If you are running the installer with 'root' user privileges, you will be prompted to 'Run Confluence as a service' (recommended). You can also do this manually later, as described in Start Confluence Automatically on Linux.

6. The console wizard will install Confluence onto your operating system and will start Confluence automatically when the wizard finishes.

   Please Note:
   - If you executed the Linux Installer with 'root' user privileges, the Linux Installer creates a dedicated Linux user account with username 'confluence', which is used to run Confluence. This account has only:
     - Full write access to your Confluence Home Directory.
     - Limited write access to your Confluence Installation Directory.

   If you executed the Linux Installer without 'root' user privileges, be aware that Confluence can still be run with 'root' privileges. However, to protect the security of your operating system, this is not recommended.

2. Start Confluence

If Confluence is not already started, you can start Confluence using the appropriate command at the Linux console.

Once Confluence is started, you can access Confluence from a browser on any computer with network access to your Confluence server.

2.1 Starting and Stopping Confluence manually

In the Linux console, enter the bin subdirectory of your Confluence installation directory and execute the appropriate file:

- start-confluence.sh (to start Confluence)
- stop-confluence.sh (to stop Confluence)

Confluence will be ready to access (from a browser window) when the following message appears in the application's log file:

******************************************************************************************
... You can now access Confluence through your web browser.
******************************************************************************************

2.2 Accessing Confluence from a Browser

You can access Confluence from any computer with network access to your Confluence server by opening a supported web browser on the computer and visiting this URL:

http://<computer_name_or_IP_address>:<HTTP_port_number>

where:
- <computer_name_or_IP_address> is the name or IP address of the computer on which Confluence is installed and
- <HTTP_port_number> is the HTTP port number specified when you installed Confluence (above).

If Confluence does not appear, you may need to change the port that Confluence runs on.
Note: Application server logs (i.e. for Apache Tomcat) will be written to logs/catalina.out.

3. Run the Setup Wizard

See the Confluence Setup Guide.

4. Next Steps
   - See Confluence 101.
   - If you did not install Confluence to run as a service, you will need to start Confluence manually every time you restart your computer. To change your Confluence installation to run as a service, please see Start Confluence Automatically on Linux.
   - To get the most out of Confluence, please see Performance Tuning.

Performing an Unattended Installation

If you have previously installed Confluence using the console wizard (above), you can use a configuration file from this Confluence installation (called response.varfile) to re-install Confluence in 'unattended mode' without any user input required.

Installing Confluence in unattended mode saves you time if your previous Confluence installation was used for testing purposes and you need to install Confluence on multiple server machines based on the same configuration.

⚠️ Please Note:
   - The response.varfile file contains the options specified during the installation wizard steps of your previous Confluence installation. Hence, do not uninstall your previous Confluence installation just yet.
   - If you intend to modify the response.varfile file, please ensure all directory paths specified are absolute, for example, 
     ```
     sys.installationDir=/opt/atlassian/confluence
     ```
   
   Unattended installations will fail if any relative directory paths have been specified in this file.

Download and Run the Confluence 'Linux Installer' in Unattended Mode

1. Download the Confluence 'Linux Installer' (.bin) file from the Confluence Download Center to a suitable location.
2. Open a Linux console.
3. Copy (cp) the file .install4j/response.varfile located in your previous Confluence installation directory, to the same location as the downloaded 'Linux Installer' file.
   - You can uninstall your previous Confluence installation after this step. Save your response.varfile if you need to install Confluence on multiple machines.
4. Change directory (cd) to the location of the 'Linux Installer' file and execute the following command:

   ```
   atlassian-confluence-X.Y.bin -q -varfile response.varfile
   ```

Where:
   - X.Y — refers to the version of Confluence you are about to install.
   - -q — instructs the installer to operate in unattended mode (i.e. 'quietly').
   - -varfile response.varfile — specifies the configuration file containing the configuration options used by the installer. The location and name of the configuration file should be specified after the -varfile option.

5. Confluence will start automatically when the silent installation finishes. Continue from the step above, Starting Confluence.

Installing Confluence on Linux from Archive File

These instructions apply to:
   - Confluence distributed as an archive file. The distribution includes Apache Tomcat as the application server.
   - Linux or Solaris systems. If you are installing Confluence on a different system, please refer to Installing Confluence.

Also, please check the version of Confluence which you are installing. Refer to the documentation home page to verify the latest Confluence version and to find documentation for older versions.

Hint: If you are evaluating Confluence on Solaris or you are unsure which version to install, this is the one to use.

On this page:
   - 1. Before you Start
   - 2. Install the JDK (Java Development Kit)
1. Before you Start

Please check the following points:

1. Ensure that your system meets the minimum requirements to run Confluence. For more information, please read the detailed system requirements.
2. Have your Confluence license key ready. You can obtain a trial, free or commercial license now, or retrieve your existing license key.
3. You must be able to use a command prompt and install Java to continue. If not, please contact your system administrator to assist you or consider the Confluence Hosted evaluation option.
4. Make sure that you use a Gnu version of zip application - Solaris and AIX are known to have problems with zip, because they use their own (old) versions instead of the Gnu version.

2. Install the JDK (Java Development Kit)

Confluence requires Java 6 (JDK 1.6) or later

Confluence needs JDK 1.6 or newer to be installed on your computer.

- A JRE (Java Runtime Environment) is not enough.
- Confluence will not work with JDK 1.5 or earlier.

OpenJDK is currently not supported. A JIRA issue to request support for this JDK has been created.

1. If you are not sure whether you have JDK installed correctly, please confirm by doing the following:
   a. Open a shell console.
   b. Type echo $JAVA_HOME in the shell console and then press Enter
   c. View the result:
      - If a line is displayed such as /opt/jdk1.6.0_12 or /usr/lib/jvm/java-6-sun, then your JDK is installed and properly configured.
      - If nothing is displayed, then you either need to install the JDK or set the $JAVA_HOME environment variable. You can set this environment variable in your user account's 'profile' file. Alternatively, you can set this after installing Confluence (in step 4 below) by defining this path in your Confluence installation's setenv.sh file, usually located in the Confluence bin directory.
      - If you have installed an unsupported JDK and you want to use SSL then you need to install the Sun JSSE package.

2. If you need to install the JDK, follow these instructions:
   - Go to the Java download page.
   - Download the version entitled 'JDK 6 Update XX', where 'XX' stands for some number. (The latest version is available on that page.)
   - When the download has finished, run the Java installer. Detailed installation instructions are provided on Oracle's website.

   At one point, you will be asked to choose an installation directory. Make a note of this directory for use later.

3. Download and Extract the Confluence Installation File

1. If you have not downloaded Confluence already, download the TAR.GZ file.

Use your unzip program to unzip the installation file to a directory such as /home/jsmith/confluence-2.7.0-std/.

Most Linux/Solaris users can use any unzip program (such as GNU Tar) to extract the Confluence installer. However, Solaris users should not use the Solaris Tar program due to a known issue associated with its use in extracting Confluence. Use another application such as GNU Tar instead.

For example, change directory to your home directory in Linux and enter the following commands in the shell console:

- gunzip confluence-<version>-std.tar.gz
- tar -xf confluence-<version>-std.tar

(Where <version> refers to the Confluence version you downloaded.)

As usual on Linux/Solaris-based operating systems, avoid using spaces in your directory path. The directory into which you unzipped the Confluence installation is called the Confluence Installation directory. Next you will define the Confluence Home directory.

4. Define your Confluence Home Directory

Now you need to define the Confluence Home directory. This is where Confluence will store its configuration information, indexes and attachments.
Tip: Another term for 'Home directory' would be 'data directory'.

We suggest using different paths for your installation and home directories. This will facilitate upgrades. Examples of Installation and Home Directories:

- **Installation directory**: `/usr/local/confluence/

  If you wish to install or maintain multiple versions of Confluence, you can add a version number to the Confluence installation directory name like `/usr/local/confluence-3.1-std/` and optionally, create the symbolic link `/usr/local/confluence/ that points to /usr/local/confluence-3.1-std/`

- **Home directory**: `/usr/local/confluence-data/`
  1. Open your Confluence installation directory (created when you unzipped Confluence — see above).
  2. Under the Installation directory, find this file: `confluence/WEB-INF/classes/confluence-init.properties`
  3. Open the `confluence-init.properties` file in a text editor.
  4. Scroll to the bottom and find this line:

```
# confluence.home=c:/confluence/data
```

5. Remove the `#` and the space at the beginning of this line, so that Confluence no longer regards the line as a comment. The line should now begin with `confluence.home`

6. If you decide to change the Confluence Home directory from the default, use an absolute path rather than a symbolic link to specify the path and file name. For example:

```
confluence.home=/home/jsmith/confluence-data/
```

5. **Check the Ports**

If you have another application running on your machine which is using the same ports that Confluence uses by default, you may need to change the port which Confluence will use. For example, if you have a installation of JIRA running on this machine, JIRA might be already using the port which Confluence requests by default.

By default, Confluence listens on port '8090'. If this port is already in use in your installation, follow these instructions to change the ports:

- The page Change listen port for Confluence Standalone does not exist.

You will find more information on [this page](http://localhost:8090/).

6. **Select an External Database**

This step is optional for users evaluating Confluence. However, if you are installing Confluence for production purposes, this step is mandatory. Please refer to the [database requirements](http://localhost:8090/) listed on our [System Requirements](http://localhost:8090/) topic for help in choosing an external database.

- **External databases** are those listed on our [Supported Platforms](http://localhost:8090/) topic, excluding HSQLDB, which is bundled with Confluence and should not be used in production.

When you have chosen your external database, follow the [database setup guide](http://localhost:8090/) for setting up your database to work with Confluence.

You can learn more about migration from an existing installation or use of the evaluation database [here](http://localhost:8090/). You will continue to use the Database Setup Guide during the Confluence Setup Wizard. (See step 8 below.)

7. **Start Confluence**

1. Go to your Confluence Installation directory (created when you unzipped Confluence — see above).
2. Under your Confluence installation directory, open the `bin` directory and run the startup script: `startup.sh`.
3. Once Confluence is running, open a web browser and visit `http://localhost:8090/`

   **Hint**: If you changed the port earlier, use the port you specified in step 6 above.

8. **Confluence Setup Wizard**

The Confluence Setup Wizard should appear in your web browser, prompting you to enter your license key. Follow the instructions on the screens, and read more guidelines on the [Confluence Setup Wizard](http://localhost:8090/).

If the web browser shows an error instead of the Setup Wizard, check the [Installation FAQ](http://localhost:8090/).

Related Topics

- Change listen port for Confluence
Uninstalling Confluence from Linux

This page describes the procedure for uninstalling Confluence, which had been installed using the Linux Installer.

To uninstall Confluence from Linux:

1. Open a Linux console.
2. Change directory (`cd`) to your Confluence installation directory.
3. Execute the command `uninstall`. This command must be executed as the same user account that was used to install Confluence with the Linux Installer.
4. Follow the prompts to uninstall Confluence from your computer.

Please note:

- The uninstaller will not delete the Confluence Home Directory.
- All log files that were generated while Confluence was running will not be deleted.
- All files within the Confluence Installation Directory will be deleted (with the exception of the Tomcat log folder located in the Confluence Installation Directory).
- The uninstaller can be made to operate in unattended mode by specifying the `-q` option — i.e. `uninstall -q`
- If you wish to re-install Confluence in ‘unattended mode’, do not uninstall your previous installation of Confluence just yet. See Using the Silent Installation Feature for more information.

Change listen port for Confluence

Problem

This page tells you what to do if you get errors like the following when starting Confluence, when you can't access Confluence on port 8090.

If you see this error:

```
java.net.BindException: Address already in use: JVM_Bind:8090
```

This means you are running other software on Confluence's default port of 8090. This may be another other process running on the same port. It may also be a previous instance of Confluence that hasn't been shut down cleanly.

To find out what process is listening on that port, load a command prompt and type: `netstat -an`

```
-a : Displays all active TCP connections and the TCP and UDP ports on which the computer is listening.
-n : Displays active TCP connections, however, addresses and port numbers are expressed numerically and no attempt is made to determine names.
```

There is also Process Explorer tool available to determine what is binding port 8090.

Solution: Change the Ports which Confluence Listens On

To change the ports for Confluence, open the file `conf/server.xml` under your Confluence Installation directory. The first four lines of the file look like this:

```
<Server port="8000" shutdown="SHUTDOWN" debug="0">
  <Service name="Tomcat-Standalone">
    <Connector className="org.apache.coyote.tomcat4.CoyoteConnector" port="8090" minProcessors="5" maxProcessors="75" enableLookups="true" redirectPort="8443" acceptCount="10" debug="0" connectionTimeout="20000" useURIVerification="false"/>
    ...
  </Service>
</Server>
```

You need to modify both the server port (default is 8000) and the connector port (default is 8090) to ports that are free on your machine.

Hint: You can use netstat to identify free ports on your machine. See more information on using netstat on Windows or on Linux.
For example, here are the first four lines of a modified server.xml file, using ports '8020' and '8099':

```xml
<Server debug="0" shutdown="SHUTDOWN" port="8020">
    <Service name="Tomcat-Standalone">
        <Connector className="org.apache.coyote.tomcat4.CoyoteConnector" port="8099"
            minProcessors="5" maxProcessors="75" enableLookups="true" redirectPort="8443" acceptCount="10" debug="0"
            connectionTimeout="20000" useURIValidationHack="false"/>
        ...
    </Service>
</Server>
```

To access Confluence in this configuration, point your web browser to `http://localhost:8099/`.

NOTES

[1] For more information on netstat, see using netstat on Windows, or netstat man page (Linux).

[2] JIRA Standalone runs on port 8080 by default. If you're looking to change the port of JIRA Standalone, see Changing JIRA Standalone's port.

RELATED PAGES

Installing Confluence
Documentation Home

Installing the Confluence EAR-WAR Edition

The Confluence EAR-WAR distribution is intended for deployment into an existing J2EE application server.

To use this method of installation, you need to know how to deploy a web application on an existing application server. If not, please use the Confluence Standalone distribution instead.

On this page:

- Step 1. Check the System Requirements and Known Issues
- Step 2. Download and Extract EAR-WAR Installation File
- Step 3. Review Application Server Memory Allocation
- Step 4. Configure confluence-init.properties
- Step 5. Edit Tomcat Context Descriptors
- Step 6. Add UTF-8 Encoding
- Step 7. (Optional) Configure Tomcat to Run on a Different Port
- Step 8. (Optional) Configure Confluence to Run as a Windows Service
- Step 8. Run the Confluence Setup Wizard
- Notes

Step 1. Check the System Requirements and Known Issues

1. Please check the Confluence system requirements.
2. In addition to the above requirements, the EAR-WAR distribution requires the Apache Tomcat application server. For more information on Confluence's supported application servers, please refer to our Supported Platforms page.
3. If deploying as an unexploded WAR, Ant 1.3 or later is required. This is bundled with the WAR download.
4. Confluence, the database and application server must use the same character encoding. UTF-8 is recommended.
5. 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 do not support deploying multiple Atlassian applications to a single Tomcat container for a number of practical reasons. Firstly, you must shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in that Tomcat container will be inaccessible.

   Finally, we recommend not deploying any other applications to the same Tomcat container that runs Confluence, especially if these other applications have large memory requirements or require additional libraries in Tomcat's lib subdirectory.

6. Read through the Known Issues for Apache Tomcat.

Step 2. Download and Extract EAR-WAR Installation File

This section gives detailed instructions for installing Confluence EAR-WAR edition on an Apache Tomcat 5.5, or 6 server.

1. Download the Confluence EAR/WAR zip file. (You need to click the 'Show all' link to see the EAR/WAR zip file.)
2. Please check your unzip program before extracting the downloaded zip file. Some archive-extract programs cause errors when unzipping the Confluence zip file:
Windows users must avoid the Windows built-in unzip utility, as it doesn't extract all the files. Use a third-party unzip program like 7Zip or Winzip.

Solaris users will need to use GNU tar to handle the long file names.

3. Extract the downloaded zip file.
4. You have now unzipped your Confluence installation directory, which should contain the version number e.g. confluence-4.0.1 or confluence-4.0.2. This directory will be later referred to as the Confluence installation directory. Inside is a confluence subdirectory, referred to later as the (Exploded) Confluence WAR directory. Record the absolute path to the Confluence WAR directory.

### Step 3. Review Application Server Memory Allocation

Confluence requires a maximum heap allocation (Xmx) of at least 256 MB for normal operation. Also, remember to set the maximum PermGen memory allocation (XX:MaxPermSize). See Increasing Application Server Memory.

⚠️ Do not configure a heap allocation so large that it does not allow enough remaining physical memory for your operating system and other applications on the server. The heap allocation should be large enough for Confluence, but not so large that the memory would be paged to disk during normal operation.

### Step 4. Configure confluence-init.properties

1. Inside the Confluence installation directory, edit ...confluence/WEB-INF/classes/confluence-init.properties in a text editor.
2. Now define your Confluence Home directory, by setting the confluence.home property to a directory of your choosing.

**Tip:** Another term for 'Home directory' would be 'data directory'.

### Step 5. Edit Tomcat Context Descriptors

1. Create a file called confluence.xml in your Tomcat installation directory. For Tomcat 6, you must create the Catalina and localhost directories.
2. Open your new confluence.xml file and add these lines:

   ```xml
   <Context path="/confluence"
   docBase="CONFLUENCE_INSTALLATION_DIRECTORY_PATH>/confluence" debug="0"
   reloadable="true">
   
   </Context>
   
   More on Context Path

   To run Confluence without a context path, change the path in the Context tag to an empty string (""). If not using a context path, your config will need to be saved as ROOT.xml rather than confluence.xml.

   In Tomcat, a context path name follows the name of its xml file (except for ROOT.xml where no context path is used. Hence if you wish to change the context path to a different name, change both the context path and the name of the xml file. eg. "wiki" context path should be saved in file wiki.xml.

   3. For docBase, specify the value you noted down earlier.
   4. Restart Tomcat, and Confluence should be accessible under /confluence/ on your Tomcat server.
   5. Follow the link below to proceed with the setup wizard.

### Step 6. Add UTF-8 Encoding

1. Edit conf/server.xml and find the line where the Coyote HTTP Connector is defined. It will look something like this, possibly with more parameters:

   ```xml
   <Connector port="8080"/>
   
   2. Add a URIEncoding="UTF-8" property to the connector:

   ```xml
   <Connector port="8080" URIEncoding="UTF-8"/>
   
### Step 7. (Optional) Configure Tomcat to Run on a Different Port
See Switching to Apache Tomcat.

Step 8. (Optional) Configure Confluence to Run as a Windows Service

Confluence can be run as a service.

Step 8. Run the Confluence Setup Wizard

Once Confluence is running, open a web browser and visit http://localhost:8080/ (Tomcat default port).

If you changed the port earlier, use the port you specified. Note that the Confluence installer normally uses port 8090 as the default, to avoid conflicts with JIRA (using port 8080).

The Confluence Setup Wizard should appear in your web browser, prompting you to enter your license key. Follow the instructions on screen, and read more guidelines on the Confluence Setup Wizard.

Notes

- Tomcat users, take care not to unzip the Confluence installation into your Tomcat webapps folder, as this may cause Confluence to be deployed more than once. It may cause a Cluster Panic error.
- If you deploy Confluence on an unsupported server, server-related issues cannot be covered by Atlassian technical support. You can try Atlassian Answers for assistance instead.

Known Issues for Apache Tomcat

On this page:

- Supported Application Servers
- Tomcat Documentation
- Known Issues

Supported Application Servers

Check the list of supported application servers on the Supported Platforms topic.

Tomcat Documentation

An excellent resource for Tomcat configuration is the Apache documentation.

Known Issues

No content found for label(s) tomcat.

RELATED TOPICS

Running Confluence behind Apache
Configuring a MySQL Datasource in Apache Tomcat

Installing Java for Confluence

This page contains instructions for installing a Java Development Kit (JDK). This is a manual step that is only required for Confluence installations where you are installing from a zip or archive file.

If you are using the automated installer, the required Java files are bundled and will be automatically put in place, hence you will not need to follow the instructions on this page.

Please refer to our Supported Platforms topic for details of the Java versions that are supported for Confluence. Please note: a JRE (Java Runtime Environment) is not enough to run Confluence, the JDK is required.

Installing the JDK

A JDK needs to be installed on the same server machine that will have Confluence installed.

For Windows: (click to expand)

Installing the JDK on Windows

1. If you are not sure whether you have a JDK installed correctly, please confirm by doing the following:
   - Run a complete directory search (using the 'All File and Folders' option if available) on your drives for the occurrence of 'jdk' in the filename.
   - If your results retrieve a folder with the name 'jdk' immediately followed by a series of version numbers (for example, jdk1.6.0_17), then the JDK has been installed. You should double-check the contents of this
folder to ensure that the installation files are intact. If you are unsure about this, proceed to step 2 to re-install the JDK. Otherwise, proceed to step 3 to check that your JAVA_HOME environment variable has been set correctly.

- If you do not retrieve a result like this, then it is highly likely that the JDK has not been installed.

2. To install the JDK, follow these instructions:

   - Go to the Java download page.
   - Download the version entitled 'JDK 6 Update XX', where 'XX' stands for some number. (The latest version will be available on that page.)
   - When the download has finished, run the Java installer. At one point, you will be asked to choose a directory to install to. Copy or write this directory down for use later.

3. Check that the JAVA_HOME environment variable has been set correctly.

   - Open the Start menu, choose Run, type cmd in the Run dialog box and click OK.
   - In the command prompt window, type echo %JAVA_HOME% and then press Enter.
   - View the result:
     - If a directory path is displayed that looks similar to one of the following examples, with the letters 'jdk' immediately preceding a series of version numbers, and this path matches the location where you installed the JDK in step 2, then your JDK has been successfully installed and your JAVA_HOME environment variable has been set correctly.
       Examples of typical JAVA_HOME environment variable values:
       
       - C:\Program Files\Java\jdk1.6.0_17
       - C:\Program Files\Java\jdk1.6.0_17
       - C:\java\jdk1.6.0_17
       - C:\jdk1.6.0_17

       - If nothing is displayed or you do not see 'jdk' immediately followed by a series of version numbers (like one of the examples above), then you need to set the JAVA_HOME environment variable. Please follow these instructions to set your JAVA_HOME environment variable to the directory where you have just installed the JDK. By default, this directory is under C:\Program Files\Java.

For Linux: (click to expand)

Installing the JDK on Linux

1. If you are not sure whether you have JDK installed correctly, please confirm by doing the following:
   a. Open a shell console.
   b. Type echo $JAVA_HOME in the shell console and then press Enter.
   c. View the result:
      - If a line is displayed such as /opt/jdk1.6.0_12 or /usr/lib/jvm/java-6-sun, then your JDK is installed and properly configured.
      - If nothing is displayed, then you have either need to install the JDK or set the JAVA_HOME environment variable. You can set this environment variable in your user account's 'profile' file. Alternatively, you can set this after installing Confluence (in step 4 below) by defining this path in your Confluence installation's setenv.sh file, usually located in the Confluence bin directory.
      - If you have installed an unsupported JDK and you want to use SSL then you need to install the Sun JSSE package.

2. If you need to install the JDK, follow these instructions:

   - Go to the Java download page.
   - Download the version entitled 'JDK 6 Update XX', where 'XX' stands for some number. (The latest version is available on that page.)
   - When the download has finished, run the Java installer. Detailed installation instructions are provided on Oracle's website.

Setting the JAVA_HOME Variable in Windows

This information is only relevant if you are installing Confluence on a Windows server.

After you have installed the Java Development Kit (JDK) in Windows, you must set the JAVA_HOME environment variable to the JDK installation directory.

Stage 1. Locate the JDK Installation Directory

If you already know the installation path for the Java Development Kit, go to Stage 2 below. Otherwise, find the installation path by following these instructions:

1. Unless you changed the installation path for the Java Development Kit during installation, it will be in a directory under C:\Program Files\Java. Using Explorer, open the directory C:\Program Files\Java.

2. Inside that path will be one or more subdirectories such as jdk1.6.0_17. If you have just installed the Java Development Kit, it will be installed to the newest directory, which you can find by sorting by date. For example, it may be installed in C:\Program Files\Java\jdk1.6.0_17. This is the installation path.

Stage 2. Set the JAVA_HOME Variable

Once you have identified the JDK installation path:

1. Right-click the My Computer icon on your desktop and select Properties.
2. Click the Advanced tab.
3. Click the Environment Variables button.
5. Enter the variable name as JAVA_HOME.
6. Enter the variable value as the installation path for the Java Development Kit.
   - If your Java installation directory has a space in its path name, you should use the shortened path name (e.g.
6. Place \( C:\text{Progra~1}\text{Java}\text{jdk1.6.0_24} \) in the environment variable instead.
7. Click OK.
8. Click Apply Changes.
9. Restart Windows. (This is not always necessary, but it often prevents problems.)
10. If you are running Confluence as a EAR/WAR rather than the Standalone, you may need to restart your application server.

This screenshot shows setting the JAVA_HOME variable to an installation path of \( c:\text{j2sdk1.4.2} \):

If you came here from Installing Confluence Standalone Using the Windows Evaluation Installer, go back and begin Stage 3.

Related Topics
- Installing Confluence Standalone Using the Windows Evaluation Installer
- Starting Tomcat as a Windows Service
- Installing Confluence in Linux

**Confluence Cluster Installation**

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

**Overview**

There are two methods of installing Confluence in a cluster, depending on whether you have existing data. This page describes a fresh installation with no existing data.

See also Confluence Cluster Installation with Existing Data.
Oracle Coherence Licensing Change:

- Due to a license agreement change, Confluence is now available in two editions:
  - Standard Edition — Confluence with Ehcache's caching technology (available to customers with non-clustered Confluence licenses).
  - Clustered Edition — Confluence with Oracle’s Coherence clustering and distributed caching technology (available to customers with Confluence clustered licenses only).

**Important:** If you are currently running a clustered installation of Confluence, please do not upgrade it with a standard edition of Confluence.

For more information about these changes, please refer to the Coherence License Changes document.

Clustered commercial licenses may be purchased through the Confluence website. Clustered evaluation licenses may be obtained by emailing sales@atlassian.com.

A cluster can run using two copies of Confluence Standalone. However, cluster administrators must understand how to configure an application server and web server with load balancing, so we recommend you are comfortable installing Confluence as a EAR/WAR in your application server before proceeding with a clustered installation.

Installation with no existing data

To get Confluence running in a two-node cluster, you must do the following:

1. Ensure you meet the clustering requirements, including obtaining a clustered license key from Atlassian for each node.
2. Install Confluence on a single node, configuring an external database and a cluster name.
3. Load test the single node installation, see whether clustering is required.
4. Shut down the first node, copy the Confluence application and Confluence home directory to the second node.
5. Start the first node, wait until it is running, then bring up the second node and it will automatically join the cluster.
6. Test the cluster is working correctly.
7. Configure a load balancer in front of the two clustered nodes.

Each of these steps will be described in detail below.

1. Clustering requirements

Your Confluence cluster installation must meet all the following criteria for clustering:

- You must have a clustered license.
- You must use an external database.
- You must use a load balancer with session affinity in front of the cluster.

Clustered commercial licenses may be purchased through the Confluence website. Clustered evaluation licenses may be obtained by emailing sales@atlassian.com.

2. Installation on first node

Cluster administrators should already be comfortable with the normal installation method, so it won't be repeated here. There are two differences in the Confluence Setup Wizard from a normal installation:

- You must use an external database.
- You must enter a cluster name.

```
Enter a cluster name to create a new cluster
```

**Technical note**

The cluster name will be converted into a unique multicast IP address and port for your Confluence cluster. UDP multicast traffic is used for Confluence to automatically discover other nodes in the cluster when they start up.

3. Load test the single node

Most Confluence installations do not need to be clustered. Ensure you have tested your single node installation with the number of users you expect to host before going ahead with the additional complexity of clustering.
Check out our performance tuning tips for ways to improve the performance of a single instance of Confluence.

You can upgrade your single node to a multi-node cluster at any time by resuming this guide from step 4 below.

### 4. Copy Confluence to second node

Confluence clusters must use the same JDK, application server and application. The easiest way to ensure this is to shut down Confluence on the first node, then copy its web application and home directory to the second node:

1. Shut down Confluence on node #1.
2. Shut down your application server on node #2, or stop it automatically loading web applications.
3. Copy the Confluence web application from node #1 to node #2.
4. Copy the Confluence home directory from node #1 to node #2.

Copying the web application ensures any modifications you have made to the application itself, custom LDAP settings (atlassian-user.xml), and any other advanced configuration are copied to node #2.

Copying the home directory ensures the Confluence search index (the index/ directory), the database and cluster configuration (confluence.cfg.xml), and any other home directory settings are copied to node #2.

### 5. Start Confluence on the first node, wait, then start Confluence on second node

For the most stable start-up process, it is important to start Confluence one server at a time.

1. Start Confluence on node #1.
2. Wait for Confluence to become available on node #1.
3. Start Confluence on node #2.
4. Wait for Confluence to become available on node #2.

### 6. Test cluster connectivity

The Cluster Administration page (Administration, Cluster Configuration) includes information about the active cluster. When the cluster is running properly, this page displays:

- a correct count of the nodes in the cluster
- a status display for each node in the cluster
- an uptime for each node that is accurate.

A simple process to ensure your cluster is working correctly is:

1. Create a new document on node #1.
2. Ensure the new document is visible by accessing it directly on node #2.
3. Wait one minute (Confluence does batch indexing once per minute).
4. Search for the new document on node #1, ensure it appears.
5. Search for the new document on node #2, ensure it appears.

**Technical note**

If Confluence detects more than one instance accessing the database but not in a working cluster, it will shut itself down in a cluster panic. This can be fixed by troubleshooting the network connectivity of the cluster.

### 7. Configure load balancer

For the moment, configuring the load balancer is outside the scope of this document.

However, a simple Apache and Tomcat load-balancing configuration is available, which includes sample configuration for the Apache Tomcat and the Apache web server, using its load-balancing JK connector.
Troubleshooting

If you have problems with the above procedure, please see our Cluster Troubleshooting guide.

Upgrading a cluster

It is important that upgrades follow the procedure for Upgrading a Confluence Cluster.

Related documentation

Overview of Confluence Clusters
Clustering in Confluence
Confluence Cluster Installation with Existing Data
Confluence Installation Guide
Upgrading a Confluence Cluster
Cluster Administration page

Confluence Cluster Installation with Existing Data

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Overview

There are two methods of installing Confluence in a cluster, depending on whether you have existing data. This page describes how to upgrade an existing Confluence instance into a cluster.

See also Cluster installation without existing data.

Oracle Coherence Licensing Change:

- Due to a license agreement change, Confluence is now available in two editions:
  - Standard Edition — Confluence with Ehcache's caching technology (available to customers with non-clustered Confluence licenses).
  - Clusters Edition — Confluence with Oracle's Coherence clustering and distributed caching technology (available to customers with Confluence clustered licenses only).
- If you are currently running a clustered installation of Confluence, please do not upgrade it with a standard edition of Confluence.
- For more information about these changes, please refer to the Coherence License Changes document.
- If you have a Confluence clustered license, are running a clustered installation of Confluence and wish to upgrade to Confluence version 2.6 or later, please ensure that you download only a clustered edition of Confluence and please refer to the Confluence 3.0.1 Upgrade Notes for additional upgrade information.

Cluster installation from an existing copy of Confluence

BEFORE ATTEMPTING THIS, PLEASE MAKE A BACKUP. To upgrade an existing copy of Confluence to run in a two-node cluster, you must do the following:

1. Ensure that your standalone version of Confluence has been upgraded to the version you want to run the Cluster on. Do not upgrade your version of Confluence and switch to the clustered version at the same time. First upgrade your system (e.g. from Confluence 2.5.8 Standalone to 2.7.1 Standalone) and make sure everything works fine (e.g. for a week) before switching (e.g. from Confluence 2.7.1 Standalone to 2.7.1 Clustered).
2. Ensure you meet the clustering requirements, including obtaining a clustered license key from Atlassian for each node.
3. Due to CONF-8959, you need to perform attachment migration to the database before you change your license to a clustered license.
4. Upgrade the existing Confluence instance to a clustered license. Do this by going to Admin> Licence Details. Confluence should warn you that this version of Confluence is not capable of clustering.
5. Shutdown Confluence. Deploy a clustered version of Confluence (Do not attempt to install any version of Confluence that is not the Clustered equivalent to your current release). Edit confluence-init.properties (confluence-ver-clustered/confluence/WEB-INF/classes/confluence-init.properties) to set confluence.home to the same path as the old home. Start the first node, and verify that things are working correctly.
6. Shut down the first node, copy the Confluence application and Confluence home directory to the second node.
7. Start the first node, wait until it is running, then bring up the second node and it will automatically join the cluster.
8. Test the cluster is working correctly.
9. Configure a load balancer in front of the two clustered nodes.

Each of these steps will be described in detail below.
1. Clustering requirements

Your Confluence cluster installation must meet all the following criteria for clustering:

- you must be running Confluence 2.3 or later
- you must have a clustered license
- you must use an external database
- you must use a load balancer with session affinity in front of the cluster.

Clustered commercial licenses may be purchased through Confluence website. Clustered evaluation licenses may be obtained by emailing sales@atlassian.com.

A cluster can run using two copies of Confluence Standalone. However, cluster administrators must understand how to configure an application server and web server with load balancing, so we recommend you are comfortable installing Confluence as a EAR/WAR in your application server before proceeding with a clustered installation.

You can follow the instructions to Migrate Confluence to an external database.

2. Upgrade existing instance to clustered license

Once you've obtained your clustered license from Atlassian, you can simply update the license in your running Confluence instance:

1. Go to 'Administration'.
2. Go to 'License Details', and paste in the new license.
3. Click 'Save'.

When you enter a clustered license, you will see a new line appear on this page: Licensed Clustered Nodes. This tells you how many nodes your Confluence license will allow.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Atlassian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Purchased</td>
<td>Aug 15, 2006</td>
</tr>
<tr>
<td>License Type</td>
<td>Confluence: Commercial Server</td>
</tr>
<tr>
<td>Licensed Users</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Licensed Clustered Nodes</td>
<td>8 nodes (2 nodes currently clustered).</td>
</tr>
</tbody>
</table>

License Details page shows the number of cluster nodes permitted

3. Migrate your attachments to the Database

You can do this by navigating to Admin> Attachment Storage > Edit, and changing it to "Database".

4. Copy Confluence to second node

For the remaining steps in setting up a cluster with existing data, please continue from step 4 in the normal Confluence cluster installation guide.

5. Start Confluence on the first node, wait, then start Confluence on second node

See comment in step 4.

6. Test cluster connectivity

See comment in step 4.

7. Configure load balancer

See comment in step 4.

Troubleshooting

If you have problems with the above procedure, please see our Cluster Troubleshooting guide.

Upgrading a cluster

It is important that upgrades follow the procedure for Upgrading a Confluence Cluster.

Related documentation

Overview of Confluence Clusters
Upgrading a Confluence Cluster

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

This page contains instructions for upgrading an existing Confluence cluster to a new version of Confluence. If you are not running a clustered instance of Confluence and wish to, see Confluence Cluster Installation with Existing Data.

Oracle Coherence Licensing Change:
- Due to a license agreement change, Confluence is now available in two editions:
  - **Standard Edition** — Confluence with Ehcache's caching technology (available to customers with non-clustered Confluence licenses).
  - **Clustered Edition** — Confluence with Oracle's Coherence clustering and distributed caching technology (available to customers with Confluence clustered licenses only).
- * If you are currently running a clustered installation of Confluence, please do not upgrade it with a standard edition of Confluence.
- * If you have a Confluence clustered license, are running a clustered installation of Confluence and wish to upgrade to Confluence version 2.6 or later, please ensure that you download only a clustered edition of Confluence and please refer to the Confluence 3.0.1 Upgrade Notes for additional upgrade information.

You can download the latest version of Confluence from here.

**Overview**

The steps involved in upgrading a multi-node Confluence cluster are:

1. Backup your confluence instance.
2. Read the Release Notes for this version and check you have the required expertise to perform the upgrade.
3. Stop each node in the cluster.
4. Install the new version into the application server on the first node.
5. Install the new version into the application server onto the remaining nodes.

**Step One: Backing up**

We highly recommend that you backup your Confluence home and install directories and your database before proceeding.

For specific files to backup see Upgrading Confluence.

**Step Two: Things you need to check ...**

- Always check the release-notes for the version of Confluence you are installing for upgrade instructions specific to that version.
- To perform this upgrade you must be familiar with the usage of the application server running your Confluence Cluster, and the web server load balancing it.
- Check the Confluence Configuration Guide for your application server and database, to make sure there isn't anything extra you need to do to get Confluence running.
- Check that you know what configurations or customisations have been made to your Confluence instance. These may include specialised user management configurations and changes to Confluence's Java classes and Velocity templates.

**Step Three: Stopping the cluster**

It is vital that all nodes in the cluster are running the same version of Confluence. That's why the first step is to stop all the nodes.

Stop the Confluence application on each node using your application server.

**Step Four: Upgrading the first node**
We advise configuring your load balancing web server to redirect traffic away from Confluence until the upgrade is complete on multiple nodes.

Upgrading a cluster node uses the same process as Upgrading Confluence.

1. Unzip the new version.
2. Edit its confluence-init.properties to point to the existing home directory.
3. Port any immediately required customisations from the old version to the new one. Eg atlassian-user.xml.
4. Install the new version into the application server. Eg for Tomcat edit confluence.xml or server.xml to point to the new location, and restart Tomcat.
5. Wait for the Node to finish upgrading and confirm that you can log in and view pages before continuing to Step Five.
6. Port any additional customisations from the old version to the new version. Eg modifications to Java classes or Velocity templates.

Step Five: Upgrading other nodes

Copy the confluence installation, complete with customisations, to the next node.

1. Edit its confluence-init.properties to point to the existing home directory.
2. Install the new version into the application server. Eg for Tomcat 5 edit confluence.xml to point to the new location, and restart Tomcat.
3. Wait for the Node to finish upgrading and confirm that you can log in and view pages before continuing with the next node.

Troubleshooting

For suggested troubleshooting techniques, see our Cluster Troubleshooting page.

Related documentation

Overview of Confluence Clusters
Confluence Installation Guide
Cluster Troubleshooting
Confluence Cluster Installation
Confluence Cluster Installation with Existing Data
Confluence User Guide

Apache and Tomcat load balancing

Please be aware that Confluence clustered is not available for version 4.0 yet. It will be forthcoming in a minor release of Confluence following the release of version 4.0.

Overview

The following is a description of how to set up a Confluence Cluster on a Windows machine using Apache and mod_jk to handle the loadbalancing.

The characteristics of this cluster are:

- Session affinity: sessions are associated with single servers.
- Failover: if a server dies, a connection will be directed to the nearest available server. (NOTE: sessions are not replicated)
- Failback: when a server comes back online, it will rejoin the cluster.
- Weighted load balancing: the load balancing can be controlled to take into account machine differences. (See the mod_jk documentation for details on this.)

What do you need?

1. Download and install one copy of Apache httpd. Do not install Apache as a service, but set it to listen on port 8080. (Tested with Apache httpd 2.0.55.)
2. Download the latest version of mod_jk. Copy this file into the Apache modules/ directory and rename it to mod_jk.so. (Tested with JK-1.2.19.)
3. Download and extract one copy of the ZIP distribution of Apache Tomcat. (Tested with Tomcat 5.5.)

Apache configuration

Edit the main Apache config file, conf/http.conf:
Confluence 4.0 Documentation

- add the following immediately after the other LoadModule directives:

```
LoadModule jk_module modules/mod_jk.so
```

- add the following just before the end of the file:

```
JkWorkersFile conf/workers.properties
JkLogFile logs/mod_jk.log
JkLogLevel info
JkMount /confluence loadbalancer
JkMount /confluence/* loadbalancer
```

Create a workers.properties file in the Apache conf/ directory. This version of the workers.properties file is configured to use 2 Tomcat instances: `tomcat1` and `tomcat2`:

```
worker.list=loadbalancer
worker.tomcat1.port=18081
worker.tomcat1.host=localhost
worker.tomcat1.type=ajp13
worker.tomcat1.lbfactor=1
worker.tomcat2.port=28081
worker.tomcat2.host=localhost
worker.tomcat2.type=ajp13
worker.tomcat2.lbfactor=1
worker.loadbalancer.type=lb
worker.loadbalancer.balanced_workers=tomcat1, tomcat2
worker.loadbalancer.method=Busyness
```

**Tomcat configuration**

The Tomcat configuration below will run multiple instances from the same binaries in the main Tomcat directory. For complete documentation of this configuration, see the `RUNNING.txt` file in the Tomcat distribution.

**Create instance home directories**

Create a directory for each instance of Tomcat, somewhere outside where you installed Tomcat. For example, if you extracted Tomcat to `/opt/apache/tomcat-5.5`, your instances could be in `/var/tomcat-instances/tomcat1`, `/var/tomcat-instances/tomcat2`. These folders will be referred to as the *instance home directories*.

Copy the following folders from the Tomcat installation directory into each instance home directory. Some of the folders may be empty, but copy them anyway.

- conf
- logs
- shared
- webapps

**Configure server.xml in each instance**

Edit `conf/server.xml` in the instance home directories to include the Confluence application and have distinct listen ports for Server, HTTP Connector and AJP13 Connector. All nodes can use the same Confluence webapp as long as you set `confluence.home` via a system property (see startup scripts below).

Attached are two sample configurations:

- `tomcat1/conf/server.xml` - listens on port 18080 (http) and 18081 (ajp13)
- `tomcat2/conf/server.xml` - listens on port 28080 (http) and 28081 (ajp13)

**To use these sample config files, you will need to edit them to set the Confluence web-app location and the data source configuration.**

If editing the configuration files yourself, the points to note are:

- 'Server' port must be distinct
- 'Connector' for HTTP must be uncommented and use a distinct port. Use this port for testing the node individually.
- 'Connector' for AJP13 must be uncommented and use a distinct port. This port must match the port of the worker in Apache's workers.properties.
- 'Engine' for localhost must have jvmRoute matching the name of the worker in Apache's workers.properties.
- 'Context' for Confluence must be added inside the 'Host' tag, and include a 'Resource' for the datasource, as per normal Confluence installation under Tomcat.

**Create a startup script for each instance**

The startup scripts for each instance must set the CATALINA_BASE environment variable and confluence.home system property. The variables in the sample scripts below should reference:

- CATALINA_HOME - Tomcat installation directory
- CATALINA_BASE - Tomcat instance home directory (distinct for each node)
- JRE_HOME - Java runtime directory
- JAVA_OPTS - include a confluence-home system property (distinct for each node)

```bash
tomcat1/startup.bat:
set CATALINA_HOME=C:\home\mryall\opt\apache\apache-tomcat-5.5.16
set CATALINA_BASE=C:\home\mryall\var\tomcat-instances\tomcat1
set JAVA_OPTS=-Dconfluence.home=C:\home\mryall\data\confluence\cluster\tomcat1 -Xmx512m
%CATALINA_HOME%\bin\startup.bat

tomcat2/startup.bat:
set CATALINA_HOME=C:\home\mryall\opt\apache\apache-tomcat-5.5.16
set CATALINA_BASE=C:\home\mryall\var\tomcat-instances\tomcat2
set JAVA_OPTS=-Dconfluence.home=C:\home\mryall\data\confluence\cluster\tomcat2 -Xmx512m
%CATALINA_HOME%\bin\startup.bat
```

**Continue setting up Confluence**

Follow the Confluence Cluster Installation procedure with the steps following the app server setup.

**Troubleshooting**

**General advice**

The above tomcat configurations enable HTTP connectors on each Tomcat instance so that you can connect to the nodes individually. To check whether the load balancer (Apache & mod_jk) is causing the problem, try connecting to the individual Tomcat instances. Please note that you should not allow users to directly access individual nodes in production mode: You don’t want people to bookmark nodes since the node details might change, or single nodes may be taken out of the cluster for maintenance while the cluster itself is still available.

**Session-affinity doesn't seem to be working?**

Ensure the name you use for your worker in workers.properties (e.g. tomcat1) matches the jvmRoute attribute of the engine tag in your Tomcat server.xml. For an example, search for 'Engine' in the attached sample config.

For troubleshooting your Confluence cluster, see Cluster Troubleshooting.

**References**

**General**


**Tomcat Clustering support**

http://tomcat.apache.org/tomcat-3.3-doc/mod_jk-howto.html

Clustering and Load Balancing in Tomcat 5, Part 1
Clustering and Load Balancing in Tomcat 5, Part 2

**Creating a Dedicated User Account on the Operating System to Run Confluence**
This step is optional if you are evaluating Confluence, but should be mandatory for Confluence installations used in production. If you have used the Confluence installer on Linux, this user will be created automatically.

A dedicated user should be created to run Confluence, because Confluence runs as the user it is invoked under and therefore can potentially be abused. For example:

- If your operating system is *nix-based (for example, Linux or Solaris), type the following in a console:
  
  ```
  $ sudo /usr/sbin/useradd --create-home --comment "Account for running Confluence" --shell /bin/bash confluence
  ```

- If your operating system is Windows:

  1. Create the dedicated user account by either:
     
     a. Typing the following at the Windows command line:
        
        ```
        > net user confluence mypassword /add /comment:"Account for running Confluence"
        ```
        
        (This creates a user account with user name 'confluence' and password 'mypassword'. You should choose your own password.)
     
     b. Opening the Windows 'Computer Management' console to add your 'confluence' user with its own password.

  2. (Optional) Use the Windows 'Computer Management' console to remove the 'confluence' user's membership of all unnecessary Windows groups, such as the default 'Users' group.

  ✔ If Windows is operating under Microsoft Active Directory, ask your Active Directory administrator to create your 'confluence' account (with no prior privileges).

Ensure that only the following directories can be written to by this dedicated user account (e.g. 'confluence'):

- The following subdirectories of your Confluence Installation Directory:
  
  - logs
  - temp
  - work

- Your Confluence Home Directory.

Do not make the Confluence Installation Directory itself writeable by the dedicated user account.

See also Best Practices for Configuring Confluence Security.

## Getting a Confluence License

Need a Confluence license or license key?

- If you do not yet have a license, you can get a free multi-user evaluation license or a 10-user starter license immediately.
- If you already have a Confluence license, you can retrieve your key or generate a new key from the license viewer.
- For enterprise, non-profit, open source and educational licenses, see Confluence licensing and pricing.
- If you cannot find your key or are having problems, contact sales@atlassian.com.

## Running Confluence in a Virtualised Environment

This page provides some performance data and observations on running Confluence with VMware. The information on this page is intended to help you decide whether or not to run Confluence using a VMware product. It does not contain detailed instructions on how to set this up (please refer to the appropriate VMware product documentation instead).

On this page:

- Summary
- Recommendations
  - General
  - VMware ESX 3.5
  - VMware ESX 4i
- Performance Testing Setup
  - Server Configuration
  - Installed Software
  - Testing Tool
- Test Results
  - Result Descriptions
  - Low-to-Medium-load Confluence
  - Medium-to-High-load Confluence

### Summary
Confluence on Virtualised Environments

Atlassian officially supports non-clustered installations of Confluence 3.0 and later on VMware. Although possible, we do not recommend (nor support) running versions of Confluence prior to 3.0 on VMware, since Confluence 3.0 resolved many performance issues that were present in earlier versions. Be aware that we also do not support clustered installations of Confluence on VMware. Please comment or vote on the feature request at CONF-19559.

Confluence is generally slower in a virtualised environment. As can be seen in the test results below, the amount by which Confluence 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 Confluence’s 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 medium-to-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 medium-to-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.

VMware ESX 3.5

- If possible, upgrade to VMware ESX 4i.
- Under low-to-medium-load, using a non-virtualised database will generally result in better response times.

VMware ESX 4i

- Under low-to-medium-load, keep the database inside the virtual machine if there is enough CPU time for both the database and application.
- Using VMware ESX 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.

<table>
<thead>
<tr>
<th>Platform</th>
<th>CPU</th>
<th>Real Ram</th>
<th>Disk</th>
<th>Virtualisation Software</th>
<th>Virtual machine version</th>
<th>Virtual CPU’s</th>
<th>Virtual Ram</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell R810</td>
<td>2 x Intel 'Nehalem' Xeon E5520 (Quad Core)</td>
<td>32Gb (8x 4Gb DDR3)</td>
<td>2 x 15K 146Gb SAS, Raid 1 4,5</td>
<td>VMware ESX 3.5</td>
<td>4</td>
<td>4</td>
<td>32Gb</td>
</tr>
<tr>
<td>Dell R810</td>
<td>2 x Intel 'Nehalem' Xeon E5520 (Quad Core)</td>
<td>32Gb (8x 4Gb DDR3)</td>
<td>2 x 15K 146Gb SAS, Raid 1 4,5</td>
<td>VMware ESXi 4</td>
<td>7</td>
<td>4</td>
<td>32Gb</td>
</tr>
<tr>
<td>Dell R810</td>
<td>2 x Intel 'Nehalem' Xeon E5520 (Quad Core)</td>
<td>32Gb (8x 4Gb DDR3)</td>
<td>2 x 15K 146Gb SAS, Raid 1 5</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Atlassian Product</th>
<th>Confluence 3.0.1-rc2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database</td>
<td>PostgreSQL 8.2.6</td>
</tr>
<tr>
<td>Application Server</td>
<td>Tomcat 6.0.14</td>
</tr>
<tr>
<td>Java</td>
<td>Java(TM) SE (build 1.6.0_07-b06), Java HotSpot(TM) 64-Bit Server VM (build 10.0-b23, mixed mode)</td>
</tr>
<tr>
<td>Operating System</td>
<td>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:</td>
</tr>
</tbody>
</table>

```plaintext
net.ipv4.ip_forward = 0
net.ipv4.conf.default.route_link = 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.shmmax = 131072000
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_syncookies = 1
net.core.netdev_max_backlog = 2500
```

Testing Tool

Performance tests were conducted with Apache Jakarta JMeter 2.3.4 using the standard Confluence 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.

Result Descriptions

The following descriptions relate to the result graphs below.

- **Average time Comparison** — The average response time of the requests in the scenario - the lower the better.
- **95 percent Comparison** — The time (in milliseconds) by which 95% of all requests in the scenario have completed. This is not an average value – rather, you can think of it as a 'how long the slowest requests (except the very worst 5% cases) take to complete' scenario.
- **Scenarios:**
  - **Dashboard** — Simulates visiting the Confluence dashboard.
- **Edit Page** — Simulates saving a page back to Confluence and notifying all people who are watching this page.
- **View Page** — Simulates loading one out of hundreds of different Confluence pages. Some are short, others are long. Some have many images, others have many comments. Some have many macros, others do not. The pages are accessed through their full URL, as if someone had clicked a link within the application or a bookmark.
- **Search Site** — Simulates a search across the whole system.
- **Browse User Personal Space** — Simulates regular browsing of pages in a user's personal space.
- **Ext-DB** (In the legend of each graph) — Indicates scenarios in which the database resides on a separate, non-virtualised physical server.

**Low-to-Medium-load Confluence**

This test performs around **18 requests/second** on the Confluence instance. This is not enough to saturate the host CPU time and during the test there is around **50-75% idle time**. You could expect to see similar results if your Confluence instance has enough resources available to it.

**Medium-to-High-load Confluence**

This test tries to perform double the requests/second of the lower load test (i.e. approximately **36 requests/second**) on the Confluence instance. This is enough load to saturate the available CPU time on a 4 CPU machine. This test is designed to simulate an instance which does not have enough resources to serve the number of requests being made to it.
Before running the Confluence Setup Wizard, as described below, you should have already completed installing Confluence.

When you access Confluence in your web browser for the first time, you will see the Confluence Setup Wizard. This is a series of screens which will prompt you to supply some default values for your Confluence site. It will also offer some more advanced options for setting up data connections and restoring data from a previous installation.

1. **Start the Setup Wizard**
   1. If Confluence is not already running, start it now:
      * If you are running Confluence Standalone on Windows, click **Start > Programs > Confluence > Start Confluence Server**.
      * Or, run the start-up script found in the bin folder of your installation directory:
         * start-confluence.bat for Windows.
         * start-confluence.sh for Linux-based systems.
   2. Go to the following web address in your web browser: [http://localhost:8090](http://localhost:8090)
      The above web address uses port ‘8090’. If you chose a different port during installation, change ‘8090’ to the number you chose.
      * You should see the licensing screen described below.
      * If an error message appears, first check that you are using the port which you specified during installation. Then check the Installation FAQ.
2. Enter your License Key

**Confluence Setup Wizard**

Confluence needs some information before it is fully installed. If at any stage of the installation you need more information, check out the online setup guide. If you get stuck, you can lodge a support request with us and we will assist you further with your licensing query.

**Enter License**

Please enter your Confluence license key below - either commercial or evaluation. You can generate an evaluation license online and then return to this page.

Server ID: EYWJ-P433-BABM-EXTA

License Key:

**Choose Installation Type**

There are two ways to install Confluence:

**Evaluation Installation**

Install Confluence with default settings and an embedded database. This is recommended for anyone evaluating or demonstrating Confluence, as it will get you up and running as quickly as possible. This option is not advised for running a production instance of Confluence.

[Evaluation Installation]

**Production Installation**

Perform a custom setup. Select this option if you want to configure Confluence with an external database, or initialise the server with your own data. This is strongly recommended for running a production instance, as the use of an external database is essential for data integrity.

[Production Installation]

**Screenshot above: Licensing and installation type**

Find your Confluence license key and paste it into the License Key field, shown on the screenshot above.

If you already have a license key, you can retrieve it from the Atlassian website.

If you do not already have a Confluence license, you can obtain one now:

- To get a free evaluation license:
  1. Click generate an evaluation license online on the setup wizard, shown on the screenshot above.
  2. Follow the prompts to generate your license key and insert it into the setup wizard's licensing screen automatically.
To get a commercial, academic, non-profit or open source license:
1. Copy your Server ID from the setup wizard's licensing screen, shown on the screenshot above.
2. Choose the license type you need from the list on the Atlassian website.
3. Complete the online order form.

3. Choose your Installation Type

Refer to the screenshot above. In this step, you will choose whether you want an evaluation or a production installation.

Option 1: Evaluation Installation — Set up Confluence with the embedded HSQLDB database and default settings. This option will also install a Demonstration space with some example content to get you working with Confluence as quickly and easily as possible. You may upgrade to another type of database later on.

Who should choose this option?

- Choose the evaluation installation if you are evaluating Confluence or if you are new to Confluence.
- This option is not recommended for production instances of Confluence.

For production use, we strongly recommend that you connect to an external database rather than using the embedded database. The evaluation installation is therefore not suitable for production environments.

Next, you will be asked for details of your system administrator. Go to step 10 below. Yes, you really can skip all the steps between.

Option 2: Production Installation — Customise your Confluence instance to use your own database and your own data.

The production installation offers the following options:

- Connect Confluence to an external database. Recommended for Confluence used in production environments.
- Restore data from an existing Confluence database.
- Install Confluence without the demonstration content.

4. Production Installation: Database Configuration

Choose a Database Configuration

Choose where Confluence should store its data

**Embedded Database**

The embedded database will allow Confluence to operate without an external database. We strongly recommend against using this on a production server. This is recommended for evaluating and demonstrating Confluence only. Production systems should consider an external database for improved scalability and reliability. A guide on how to migrate your data can be found [here](https://confluence.hippo7.com/display/DOC/Confluence+Documentation).

**External Database**

If you wish to store your Confluence data in an external database, choose it from the list of supported databases. This is recommended for production systems.

Confluence supports a number of databases, and does not strongly recommend any one database. Atlassian provides only limited support for maintaining and tuning databases, so if you already have an established, supported database of choice within your organisation it is advisable to use this database. The benefit of having an expert to diagnose operational and performance issues far outweighs any differences between the databases themselves.

If you have no established database and do not have a strong preference for any of our supported databases, we recommend the latest version of PostgreSQL which is free and thoroughly tested against.

If your database is not listed in the menu, you may configure an "Unsupported Database", but be aware that Confluence may not be fully tested against this database.

*Screenshot above: Database configuration*

The above screen appears if you have chosen a production installation of Confluence. You can choose to use the embedded database supplied with your Confluence installation, or to connect to an external database.
* Option 1: Embedded Database — If you select this option, Confluence will use an embedded HSQLDB database. You should only select this option for the purposes of evaluating or demonstrating the use of Confluence. You can migrate to an external database later on if you wish.

* Option 2: External Database — If you wish Confluence to use an external database, select your database type from the database dropdown list and then click the 'External Database' button.

For production purposes, you *should use an external database* to ensure your data is kept safe and consistent. Read the page about supported platforms for more information about which databases are supported. For details about choosing an external database, refer to the page on system requirements.

5. Production Installation: External Database

Before you Start

- **Character encoding:**
  - We strongly recommend that character encoding is consistent across your database, application server and web application, and that you use **UTF-8** encoding.
  - Before setting up your database, please read about configuring character encoding.
- **Database name:** When creating a new external database, give it the name 'confluence'.

You can choose to configure your database via a standard JDBC connection or via a server-managed datasource connection. Choose one of the two options below.

**Option 1: Standard Database Connection** — This uses a standard JDBC database connection. Connection pooling is handled within Confluence.

### Setup Standard Database

- **Driver Class Name:** com.mysql.jdbc.Driver
- **Database URL:** jdbc:mysql://localhost/confluence
- **User Name:**
- **Password:**

You will also need to know:

- The size of the connection pool Confluence should maintain. If in doubt, just go with the default provided.
- What kind of database you're connecting to, so you can tell Confluence which dialect it needs to use.

**Option 2: Datasource Connection** — This asks the Java application server for a database connection. You will need to have configured a datasource into your application server.

### Setup Datasource Connection

If "java:comp/env/jdbc/DataSourceName" doesn't work, try "jdbc/DataSourceName" (or vice versa)

- **Datasource Name:** java:comp/env/jdbc/

**Screenshot above: Standard (JDBC) connection**

Supply the following information:

- **Driver Class Name** — The Java class name for the appropriate database driver. This will depend on the JDBC driver, and will be found in the documentation for your database. You will also need to put the appropriate database driver 'jar' file in the server's classpath. For the standalone version, this means copying the jar file into the <confluence-install>/lib directory.
- **Database URL** — The JDBC URL for the database you will be connecting to. This will depend on the JDBC driver, and will be found in the documentation for your database.
- **User Name** — A valid username which Confluence will use to access your database.
- **Password** — The password corresponding to the above username.

You will also need to know:

- The size of the connection pool Confluence should maintain. If in doubt, just go with the default provided.
- What kind of database you're connecting to, so you can tell Confluence which dialect it needs to use.

**Screenshot above: Datasource connection**
Supply the following information:

- **Datasource Name** — The JNDI name of the datasource, as configured in the application server. Note: Some servers will have JNDI names like `jdbc/datasourcename`; others will be of the form `java:comp/env/jdbc/datasourcename`. Consult your application-server documentation.

You will also need to know:

- What kind of database you're connecting to, so you can tell Confluence which dialect it needs to use.

### 6. Production Installation: Load Content

**Load Content**

If you are evaluating or demonstrating Confluence, or are introducing Confluence to users who are new to the idea of a Wiki, we recommend the example site as the best way to become acquainted with what Confluence can do for you. More experienced users will want to start with an empty site, or restore a backup of their own.

- **Example Site**
  
  Recommended: Load the 'Demonstration Space' to begin working with Confluence immediately.

- **Empty Site**
  
  Start with an empty site. After finishing the setup you will need to create at least one space before you can add any content of your own.

- **Restore From Backup**
  
  Use data from a previous installation of Confluence. If you are upgrading or replicating Confluence you will probably want to select this option.

**Screenshot above: Load content**

Select one of the following options:

- **Example Site** — This option will load Confluence's 'Demonstration Space'. Select this if you are using Confluence for the first time, or if you want the Demonstration Space for your other Confluence users. The Demonstration Space helps to familiarise you with Confluence and what it can do for you. You can then continue using your Confluence deployment as normal — there's no need to reinstall later.

- **Empty Site** — Select this option if you are already familiar with Confluence. You will need to create at least one space before you can start adding content to the site.

- **Restore from Backup** — Select this option if you want to use Confluence data from a previous installation.

### 7. Production Installation: Restore Data from Backup

This option allows you to reload your data from an existing Confluence installation into your new Confluence site during the initial setup procedure. You can choose to upload data from a zipped backup file, or to restore from a backup file on your file system.

**Option 1: Upload a zipped backup to Confluence** — This option will load the data from a zipped backup file.

 às To create a backup file from your existing version of Confluence, go to the 'Backup & Restore' section of your Administration Console.

To restore from a zipped backup:

1. Browse for the relevant daily backup file or a file you have created via a manual backup.
2. Check 'Build Index' to build the data index, used for the search.
3. Click the 'Upload and Restore' button.

**Option 2: Restore a backup from the filesystem** — This option is recommended if you have a very large daily backup file (greater than 100MB), or a daily backup file that is already on the server and doesn't require uploading.

1. Copy the XML backup file into the `restore` directory inside your confluence `Home directory` and then refresh the page. You
should now see your backup file appear on the ‘Restore Data’ screen (pictured above), in the box beneath the heading ‘Restore a backup from the filesystem’.

2. Check ‘Build Index’ to build the data index, used for the search.

3. Click the ‘Restore’ button.

When the restore process has finished, you are ready to log in to Confluence. The system administrator account and all other information has been transferred from your previous Confluence installation.

8. Production Installation: Set Up User Management

**User Management Setup**

Choose how Confluence should manage its users.

**Manage Users and Groups within Confluence**

Confluence will maintain its own database of users and groups. If you are unsure, choose this option. You can always change the user management configuration after Confluence has been set up.

If you are planning to connect to an LDAP or Crowd server, you should choose this option, and complete your user management configuration after Confluence is set up. Learn more about configuring LDAP integration.

**Manage Users and Groups with JIRA**

If you have JIRA 4.3 or later, Confluence can use JIRA for user management. This is not recommended for more than 500 users. Learn more about configuring JIRA integration.

Screenshot above: User management

You can choose to manage Confluence’s users and groups inside Confluence or in JIRA.

- If you do not have Atlassian JIRA installed, or if you would prefer to set up external user management later, choose Manage users and groups within Confluence.
- If you have JIRA installed, the setup wizard gives you the opportunity to configure the JIRA connection automatically. This is a quick way of setting up your JIRA integration with the most common options. It will configure a JIRA user directory for Confluence, and set up application links between JIRA and Confluence for easy sharing of data. Choose Connect to JIRA.

9. Production Installation: Connect to JIRA
Enter the following information:

- **JIRA Base URL** – The web address of your JIRA server. Examples:
  
  - http://www.example.com:8080/jira/
  - http://jira.example.com

- **JIRA Administrator Login: Username** – Enter the username of a user with the ‘JIRA System Administrators’ global permission in JIRA.

- **JIRA Administrator Login: Password** – Enter the password that the above user uses to sign in to JIRA.

- **Confluence Base URL** – JIRA will use this URL to access your Confluence server. If Confluence is behind a proxy, you may need to change the URL given here.

- **User Groups** – Specify one or more JIRA groups whose members should be able to use Confluence. The default group is jira-users. (These groups will receive the ‘can use’ permission in Confluence.)

- **Admin Groups** – Specify one or more JIRA groups whose members should have administrative access to Confluence. The default group is jira-administrators. (These groups will receive the ‘Confluence system administrator’ and ‘Confluence administrator’ permissions in Confluence.)

For full details and a troubleshooting guide, see Configuring JIRA Integration in the Setup Wizard.

### 10. Set Up System Administrator
Setup System Administrator

Please configure the system administrator account for this Confluence installation.

Configure Account

- **Username**: admin
- **Password**: 
- **Confirm**: 
- **Name**: 
- **Email**: 

[Next >>]

Screenshot above: System administrator

The system administrator has full administrative power over your Confluence instance. This person will be able to add more users, create spaces, and set further Confluence options. Please refer to the overview of global permissions for more information.

✔️ Hint: If you are evaluating Confluence, set yourself up as the administrator.

1. Enter the following information to set up your system administrator's user account:
   - **Username** — The username under which the system administrator will log in to Confluence, e.g. 'jsmith'.
   - **Password** — The password which the system administrator will use to log in.
   - **Confirm** — Enter the same password again.
   - **Name** — The system administrator's full name, e.g. 'John Smith'.
   - **Email** — The system administrator's email address, e.g. 'jsmith@example.com'.

2. Click 'Next'.

11. Setup is Complete

Confluence Setup Successful

Confluence has now been installed with the Demonstration Space!

Start using Confluence now.

Learn how to import data from another wiki.

Screenshot above: Setup is complete

Congratulations! You have installed and set up Confluence. Click the Start using Confluence now link to open the Demonstration space in your Confluence wiki. This space contains some sample content and ideas, to help you get started quickly.

If you wish, you can click the link to learn how to import data from another wiki. This link leads to an overview page on your own Confluence server, containing information about the Universal Wiki Converter, a standalone application that you can use to import data from other wiki types such as MediaWiki, DokuWiki and others.

RELATED TOPICS

Confluence 101
Documentation Home

External Database

Custom Installation - Connecting to an External Database

This page is part of the Confluence Setup Guide.
Before you Start

- Character encoding:
  - We strongly recommend that character encoding is consistent across your database, application server and web application, and that you use **UTF-8** encoding.
  - Before setting up your database, please read about configuring character encoding.
- **Database name:** When creating a new external database, give it the name 'confluence'.

You can choose to configure your database via a standard JDBC connection or via a server-managed datasource connection. Choose one of the two options below.

**Option 1: Standard Database Connection** — This uses a standard JDBC database connection. Connection pooling is handled within Confluence.

### Setup Standard Database

Supply the following information:

- **Driver Class Name** — The Java class name for the appropriate database driver. This will depend on the JDBC driver, and will be found in the documentation for your database. You will also need to put the appropriate database driver 'jar' file in the server's classpath. For the standalone version, this means copying the jar file into the `<confluence-install>/lib` directory.
- **Database URL** — The JDBC URL for the database you will be connecting to. This will depend on the JDBC driver, and will be found in the documentation for your database.
- **User Name** — A valid username which Confluence will use to access your database.
- **Password** — The password corresponding to the above username.

You will also need to know:

- The size of the connection pool Confluence should maintain. If in doubt, just go with the default provided.
- What kind of database you're connecting to, so you can tell Confluence which dialect it needs to use.

**Option 2: Datasource Connection** — This asks the Java application server for a database connection. You will need to have configured a datasource into your application server.

### Setup Datasource Connection

If "java:comp/env/jdbc/DataSourceName" doesn't work, try "jdbc/DataSourceName" (or vice versa)

Supply the following information:

- **Datasource Name** — The JNDI name of the datasource, as configured in the application server. Note: Some servers will have JNDI names like `jdbc/datasourcename`; others will be of the form `java:comp/env/jdbc/datasourcename`. Consult your application-server documentation.

You will also need to know:

- What kind of database you're connecting to, so you can tell Confluence which dialect it needs to use.
Next Step

Load content for the site

RELATED TOPICS

Database Configuration
Confluence Setup Guide
Confluence User’s Guide
Confluence Documentation Home

Load Content for the Site

This page is part of the Confluence Setup Guide.

Load Content

If you are evaluating or demonstrating Confluence, or are introducing Confluence to users who are new to the idea of a Wiki, we recommend the example site as the best way to become acquainted with what Confluence can do for you. More experienced users will want to start with an empty site, or restore a backup of their own.

- **Example Site**
  Recommended: Load the ‘Demonstration Space’ to begin working with Confluence immediately.

- **Empty Site**
  Start with an empty site. After finishing the setup you will need to create at least one space before you can add any content of your own.

- **Restore From Backup**
  Use data from a previous installation of Confluence. If you are upgrading or replicating Confluence you will probably want to select this option.

![Screenshot above: Load content](image)

Select one of the following options:

- **Example Site** — This option will load Confluence’s ‘Demonstration Space’. Select this if you are using Confluence for the first time, or if you want the Demonstration Space for your other Confluence users. The Demonstration Space helps to familiarise you with Confluence and what it can do for you. You can then continue using your Confluence deployment as normal — there’s no need to reinstall later.
- **Empty Site** — Select this option if you are already familiar with Confluence. You will need to create at least one space before you can start adding content to the site.
- **Restore From Backup** — Select this option if you want to use Confluence data from a previous installation.

Next Steps

Restore your data from backup, if you have chosen that option.
Start using Confluence — see the Confluence User’s Guide.

RELATED TOPICS

Confluence Setup Guide
Universal Wiki Converter
Confluence User’s Guide
Confluence Documentation Home

Restoring from Backup During Setup

This page is part of the Confluence Setup Guide.

This option allows you to reload your data from an existing Confluence installation into your new Confluence site during the initial setup procedure. You can choose to upload data from a zipped backup file, or to restore from a backup file on your file system.
Option 1: Upload a zipped backup to Confluence — This option will load the data from a zipped backup file.

To create a backup file from your existing version of Confluence, go to the 'Backup & Restore' section of your Administration Console.

To restore from a zipped backup:

1. Browse for the relevant daily backup file or a file you have created via a manual backup.
2. Check 'Build Index' to build the data index, used for the search.
3. Click the 'Upload and Restore' button.

Option 2: Restore a backup from the filesystem — This option is recommended if you have a very large daily backup file (greater than 100MB), or a daily backup file that is already on the server and doesn't require uploading.

1. Copy the XML backup file into the restore directory inside your confluence Home directory and then refresh the page. You should now see your backup file appear on the 'Restore Data' screen (pictured above), in the box beneath the heading 'Restore a backup from the filesystem'.
2. Check 'Build Index' to build the data index, used for the search.
3. Click the 'Restore' button.

When the restore process has finished, you are ready to log in to Confluence. The system administrator account and all other information has been transferred from your previous Confluence installation.

RELATED TOPICS
Confluence Setup Guide
Confluence User's Guide
Confluence Documentation Home

Configuring JIRA Integration in the Setup Wizard

This page describes the Connect to JIRA step in the Confluence setup wizard.

Overview

You can connect your application to a JIRA server, to manage your users via JIRA and share information with JIRA. When you are installing the application, the setup wizard gives you the opportunity to configure the JIRA connection automatically. This is a quick way of setting up your JIRA integration with the most common options.

You can also configure the JIRA connections via the application administration screens. In that case, you will need to set up connections individually. There are two parts to the integration process:

- A peer-to-peer link between JIRA and the application for sharing information and facilitating integration features. This link is set up via Application Links.
- A client-server link between the application and JIRA for delegating user and group management to your JIRA server.

Requirements: You need JIRA 4.3 or later.

On this page:

- Overview
- Connecting to JIRA in the Setup Wizard
- Troubleshooting
  - Solution 1: Removing a Partial Configuration — The Easiest Way
  - Solution 2: Removing a Partial Configuration — The Longer Way
- Notes

Connecting to JIRA in the Setup Wizard
Connect to JIRA

Fill in the details of the JIRA server you wish to retrieve user and group information from. You will need a valid administrator account on that JIRA server. Learn more about configuring JIRA integration.

**JIRA Server Location**

- **JIRA Base URL** – The web address of your JIRA server. Examples:
  - http://www.example.com:8080/jira/
  - http://jira.example.com

**JIRA Administrator Login**

Confluence will need to log in to JIRA with administrative privileges to retrieve user information.

- **Username** – Enter the username of a user with the 'JIRA System Administrators' global permission in JIRA.
- **Password** – Enter the password that the above user uses to sign in to JIRA.

**Advanced Options**

- **Confluence Base URL**
  - http://localhost:8090
  - JIRA will use this URL to access your Confluence server. If Confluence is behind a proxy, you may need to change the URL given here.

- **User Groups**
  - jira-users
  - Users in these groups will have access to Confluence. Comma-separated.

- **Admin Groups**
  - jira-administrators
  - Users in these groups will have administrator access to Confluence. Comma-separated.

Screenshot above: Connecting to JIRA in the Confluence setup wizard

Enter the following information:

- **JIRA Base URL** – The web address of your JIRA server. Examples:
  - http://www.example.com:8080/jira/
  - http://jira.example.com

- **JIRA Administrator Login: Username** – Enter the username of a user with the 'JIRA System Administrators' global permission in JIRA.
- **JIRA Administrator Login: Password** – Enter the password that the above user uses to sign in to JIRA.
- **Confluence Base URL** – JIRA will use this URL to access your Confluence server. The URL you give here will override the base URL specified in your Confluence administration console, for the purposes of the JIRA connection.
- **User Groups** – Specify one or more JIRA groups whose members should be able to use Confluence. The default group is jira-users. (These groups will receive the 'can use' permission in Confluence.)
- **Admin Groups** – Specify one or more JIRA groups whose members should have administrative access to Confluence. The default group is jira-administrators. (These groups will receive the 'Confluence system administrator' and 'Confluence administrator' permissions in Confluence.)

**Troubleshooting**

This section describes the possible problems that may occur when integrating your application with JIRA via the setup wizard, and the solutions for each problem.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
The setup wizard displays one of the following error messages:

- Failed to create application link from JIRA server at <URL> to this <application> server at <URL>.
- Failed to create application link from this <application> server at <URL> to JIRA server at <URL>.
- Failed to authenticate application link from JIRA server at <URL> to this <application> server at <URL>.
- Failed to authenticate application link from <application> server at <URL> to this JIRA server at <URL>.

The setup wizard failed to complete registration of the peer-to-peer application link with JIRA. JIRA integration is only partially configured.

Remove the partial configuration if it exists, try the 'Connect to JIRA' step again, and then continue with the setup. Detailed instructions are below.

The setup wizard displays one of the following error messages:

- Failed to register <application> configuration in JIRA for shared user management. Received invalid response from JIRA: <response>
- Failed to register <application> configuration in JIRA for shared user management. Received: <response>

The setup wizard failed to complete registration of the client-server link with JIRA for user management. The peer-to-peer link was successfully created, but integration is only partially configured.

Remove the partial configuration if it exists, try the 'Connect to JIRA' step again, and then continue with the setup. Detailed instructions are below.

The setup wizard displays the following error message:

- Error setting Crowd authentication

The setup wizard successfully established the peer-to-peer link with JIRA, but could not persist the client-server link for user management in your config.xml file. This may be caused by a problem in your environment, such as a full disk.

Please investigate and fix the problem that prevented the application from saving the configuration file to disk. Then remove the partial configuration if it exists, try the 'Connect to JIRA' step again, and then continue with the setup. Detailed instructions are below.

The setup wizard displays the following error message:

- Error reloading Crowd authentication

The setup wizard has completed the integration of your application with JIRA, but is unable to start synchronizing the JIRA users with your application.

Restart your application. You should then be able to continue with the setup wizard. If this solution does not work, please contact Atlassian Support.

The setup wizard displays the following error message:

- An error occurred: java.lang.IllegalStateException: Could not create the application in JIRA/Crowd (code: 500). Please refer to the logs for details.

The setup wizard has not completed the integration of your application with JIRA. The links are only partially configured. The problem occurred because there is already a user management configuration in JIRA for this <application> URL.

Remove the partial configuration if it exists, try the 'Connect to JIRA' step again, and then continue with the setup. Detailed instructions are below.

No users can log in after you have set up the application with JIRA integration.

Possible causes:

- There are no users in the group that you specified on the 'Connect to JIRA' screen.
- For FishEye: There are no groups specified in the 'groups to synchronize' section of your administration console.

Go to JIRA and add some usernames to the group. For FishEye: Go to the FishEye administration screens and specify at least one group to synchronize. The default is 'jira-users'. If this solution does not work, please contact Atlassian Support.
Solution 1: Removing a Partial Configuration – The Easiest Way

If the application’s setup wizard fails part-way through setting up the JIRA integration, you may need to remove the partial configuration from JIRA before continuing with your application setup. Please follow the steps below.

Remove the partial configuration if it exists, try the ‘Connect to JIRA’ step again, and then continue with the setup wizard:

1. Log in to JIRA as a user with the ‘JIRA System Administrators’ global permission.
2. Click the ‘Administration’ link on the JIRA top navigation bar.
3. Remove the application link from JIRA, if it exists:
   a. Click ‘Application Links’ in the JIRA administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
   b. Look for a link to your application. It will have a base URL of the application linked to JIRA. For example:
      - If you want to remove a link between JIRA and FishEye, look for the one where the ‘Application URL’ matches the base URL of your FishEye server.
      - If you want to remove a link between JIRA and Confluence, look for the one where the ‘Application URL’ matches the base URL of your Confluence server.
   c. Click the ‘Delete’ link next to the application link that you want to delete.
   d. A confirmation screen will appear. Click the ‘Confirm’ button to delete the application link.
4. Remove the user management configuration from JIRA, if it exists:
   - Unable to render [include] The included page could not be found.
5. Go back to the setup wizard and try the ‘Connect to JIRA’ step again.

Solution 2: Removing a Partial Configuration – The Longer Way

If solution 1 above does not work, you may need to remove the partial configuration and then add the full integration manually. Please follow these steps:

1. Skip the ‘Connect to JIRA’ step and continue with the setup wizard, to complete the initial configuration of the application.
2. Log in to JIRA as a user with the ‘JIRA System Administrators’ global permission.
3. Click the ‘Application Links’ link on the JIRA top navigation bar.
4. Remove the application link from JIRA, if it exists:
   a. Click ‘Application Links’ in the JIRA administration menu. The ‘Configure Application Links’ page will appear, showing the application links that have been set up.
   b. Look for a link to your application. It will have a base URL of the application linked to JIRA. For example:
      - If you want to remove a link between JIRA and FishEye, look for the one where the ‘Application URL’ matches the base URL of your FishEye server.
      - If you want to remove a link between JIRA and Confluence, look for the one where the ‘Application URL’ matches the base URL of your Confluence server.
   c. Click the ‘Delete’ link next to the application link that you want to delete.
   d. A confirmation screen will appear. Click the ‘Confirm’ button to delete the application link.
5. Remove the user management configuration from JIRA, if it exists:
   - Unable to render [include] The included page could not be found.
6. Add the application link in JIRA again, so that you now have a two-way trusted link between JIRA and your application:
   a. Click ‘Add Application Link’. Step 1 of the link wizard will appear.
   b. Enter the server URL of the application that you want to link to (the ‘remote application’).
   c. Click the ‘Next’ button.
   d. Enter the following information:
      - ‘Create a link back to this server’ – Tick this check box to add a two-way link between the two applications.
      - ‘Username’ and ‘Password’ – Enter the credentials for a username that has administrator access to the remote application.
      - ‘Reciprocal Link URL’ – The URL you give here will override the base URL specified in your remote application’s administration console, for the purposes of the application links connection. Application Links will use this URL to access the remote application.
   e. Click the ‘Next’ button.
   f. Enter the information required to configure authentication for your application link:
      - ‘The servers have the same set of users’ – Tick this check box, because the users are the same in both applications.
      - ‘These servers fully trust each other’ – Tick this check box, because you trust the code in both applications and are sure both applications will maintain the security of their private keys.
      - For more information about configuring authentication, see Configuring Authentication for an Application Link.
   g. Click the ‘Create’ button to create the application link.
7. Configure a new connection for user management in JIRA:
   a. Go to the JIRA administration screen for configuring the applications that have been set up to use JIRA for user management:
      - In JIRA 4.3: Click ‘Other Applications’ in the ‘Users, Groups & Roles’ section of the JIRA administration screen.
      - In JIRA 4.4: Select ‘Administration’ > ‘Users’ > ‘JIRA User Server’.
   b. Add an application.
   c. Enter the application name and password that your application will use when accessing JIRA.
   d. Enter the IP address or addresses of your 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.
8. Set up the JIRA user directory in the application.
   - For Confluence:
     a. Go to the Confluence Administration Console.
     b. Click 'User Directories' in the left-hand panel.
     c. Add a directory and select type ‘Atlassian JIRA’.
     d. Enter the following information:
        - Name – Enter the name of your JIRA server.
        - Server URL – Enter web address of your JIRA server. Examples:
          http://www.example.com:8080/jira/
          http://jira.example.com
        - Application name and Application password – Enter the values that you defined for Confluence in the settings on JIRA.
     e. Save the directory settings.
     f. Define the directory order by clicking the blue up- and down-arrows next to each directory on the 'User Directories' screen.
     For details see Connecting to Crowd or JIRA for User Management.
   - For FishEye/Crucible:
     a. Click 'Authentication' on the FishEye/Crucible 'Admin Menu'.
     b. Click 'Edit' in the section titled 'JIRA or Crowd Authentication'.
     c. Enter the following information:
        - Application name and Application password – Enter the values that you defined for your application in the settings on JIRA.
        - JIRA/Crowd URL – The web address of your JIRA server. Examples:
          http://www.example.com:8080/jira/
          http://jira.example.com
        - Auto-add – Select 'Create a FishEye/Crucible user on successful login' (default) to ensure that your JIRA users will be automatically enrolled into FishEye/Crucible when they first log in via JIRA.
        - Synchronize users with JIRA/Crowd – Select 'Yes' (default) to ensure that JIRA will synchronize all changes in the user information on a regular basis. The synchronization interval is set to 60 minutes (1 hour) by default.
        - Single sign on (SSO) – This option is not available when using JIRA for user management.
        - Groups of users to synchronize – Select at least one group to synchronize. The default is 'jira-users'.
     d. Click 'Apply changes'.

Notes
- When you connect to JIRA in the setup wizard, the setup procedure will configure Trusted Applications authentication for your application. Please be aware of the following security implications:
  - Trusted applications are a potential security risk. When you configure Trusted Applications 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 you are sure that the application will maintain the security of its private key.
  - In the next step, you will specify the username and password of your Confluence system administrator. If you have connected to JIRA, the setup wizard will add the Confluence administrator’s username and password to both JIRA and Confluence. This is done so that you can still access Confluence even if JIRA is down. Please note that the password in Confluence is not linked to the password in JIRA. If you subsequently change the administrator’s password, only the password in JIRA will change. This is because the JIRA user directory is placed first in the list of user directories. See Managing Multiple Directories.

Related Topics
User Management Limitations and Recommendations
Confluence Setup Guide
Configuring Application Links

Upgrading Confluence

This document describes the standard, recommended procedure for upgrading to Confluence 4.0
Use this procedure when upgrading from Confluence version 3.5 or later on Windows or Linux.

If you are changing the operating system that will run Confluence, the database it is using, or the location of its files, please see Upgrading Confluence Manually.
Upgrading to Confluence 4.0?

If so, please review the Confluence 4.0 Release Notes for important information about this version of Confluence. Ensure that you have read the Confluence Knowledge Base.

Also, we strongly recommend that you check the upgrade notes for every major version of Confluence that you are skipping, since there might be specific changes between Confluence versions that could affect your Confluence installation. The upgrade notes for recent major versions of Confluence are accessible from the Upgrade Notes Overview page.

Finally, please check the Supported Platforms page to ensure that your Java version, operating system, application server, database and browser are supported for this release of Confluence. The End of Support Announcements for Confluence page has important information regarding supported platforms.

On this page:

- Before you Start
- Backing Up
- Testing the Upgrade in a Test Environment
  - Upgrade Overview
  - Performing the Upgrade
    - Upgrading Confluence on Windows
    - Upgrading Confluence on Linux
  - Upgrade Check List
    - Back Up Your External Database
    - Check Plugin Compatibility

Before you Start

Changing your Database?

If you are planning to change to a different database, we recommend that you complete the Confluence upgrade first. Then follow the instructions on migrating to a different database.

1. Note that you need current software maintenance to perform the upgrade.
2. Confirm that your license support period is still valid before you try to upgrade.
3. If your current license has expired but you have a new license with you, please update your license in Confluence before performing the upgrade.
   
   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.
4. Check the release notes for the new version of Confluence you are installing, plus the upgrade notes for any major versions you are skipping. It is important to read these upgrade notes as there might be specific changes between Confluence versions that could affect your Confluence instance. The upgrade notes pages for recent major versions of Confluence are accessible from the Upgrade Notes Overview page. (Each upgrade notes page is a ‘child’ of its respective release notes page.)
5. Make sure that your environment (e.g. the database system, the operating system, the application server and so on) still complies with the Confluence System Requirements. A newer version of Confluence may have different requirements than the previous version.
6. If you are using Confluence EAR-WAR edition, check Installing the Confluence EAR-WAR Edition to see if there is anything extra you will need to do to get Confluence running.
7. If you are using an external database, familiarise yourself with all known issues for your specific database. Also make sure the Confluence database connector principal (the database user account) has sufficient permissions to modify the database schema.
8. Note which plugins are installed and enabled on your current Confluence instance. Please verify whether a compatible version of the plugin is available in the version of Confluence you are upgrading to. This information is available via the ‘Plugins’ menu in your Administration screens, and selecting Confluence Upgrade Check. This will tell you which plugins have an updated version which is compatible with your target upgrade version. You can also check the respective home pages for these plugins on the Atlassian Plugin Exchange. Once you have confirmed the availability of compatible versions, you should upgrade your plugins after successfully upgrading Confluence. Please test these first by applying them to the latest Confluence version in a test environment.
9. If you have made any customisations to Confluence, please verify their compatibility in the latest version. For example, if you have modified any layouts or are using your own custom theme, please test these first by applying them to the latest Confluence version in a test environment. You can see the customisations applied to your Confluence installation.

Backing Up

Before you begin the Confluence upgrade, you must back up the following:
1. **Back up your Confluence Home directory.** The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.

   - **Tip:** Another term for 'Home directory' would be 'data directory'. The location of the Home directory is stored in a configuration file called `confluence-init.properties`, which is located inside the `confluence/WEB-INF/classes` directory in your Confluence Installation directory. The Confluence installer will automatically prompt you to run a backup, storing the files in a .zip archive at the same level as your Confluence Home directory.

2. **Back up your database.** Perform a manual backup of your external database before proceeding with the upgrade, and double check that the backup was actually created properly. If you are not a database expert, or unfamiliar with the backup-restore facilities of your database, simply restore the backup to a different system to ensure the backup worked before proceeding. This recommendation is generally a good best practice. Surprisingly, many companies get in trouble for broken database backups because they skip this basic but vital "smoke test" of the operation.

3. **Back up your Confluence Installation directory or your Confluence webapp** (if you are using Confluence EAR-WAR edition). The Confluence installer will automatically back up these files, storing the files in a .zip archive at the same level as your Confluence installation directory. The 'Confluence Installation directory' is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the 'Confluence Install directory'.

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### Testing the Upgrade in a Test Environment

**Be sure to test the upgrade in a test environment before proceeding on your production server.**

1. Create a snapshot of your current production Confluence environment on a test server, as described in the page on Moving Confluence Between Servers.

   - **Important:** Importing an old XML backup file to a new major version (i.e Confluence 3.5 to Confluence 4.0) is not recommended. Please recreate your production instance in a test environment first.

2. Perform the upgrade on your cloned environment.

3. Test all your unsupported plugins and any customisations with the new version before proceeding on your production server. You can read more about supported and unsupported plugins.

### RELATED TOPICS

**Upgrading Confluence**

### Upgrade Overview

The upgrade feature of the **Linux** and **Windows** Installers automates the following tasks for you:

1. Backs up the Installation and Home Directories of the existing Confluence installation to be upgraded.
2. Installs **Confluence 4.0** whilst migrating the following from your existing Confluence installation to the new **Confluence 4.0** installation:
   - TCP port values in your existing Confluence installation's `server.xml` file. Be aware that other configurations or customisations in this file are not migrated during upgrade, and will need to be re-applied.
   - Custom values in your existing Confluence installation's `confluence-init.properties` (confluence.home property) and `setenv.sh`/`setenv.bat` files (JAVA_OPTS parameters)

   The upgrade feature detects and notifies you of any files in the `confluence` subdirectory of your existing Confluence Installation Directory which have been deleted, added or modified from a 'default' Confluence installation. This informs you of any customisations you will need to migrate manually over to your upgraded Confluence installation directory. Note that modifications to files in directories other than `confluence` will not be detected when you upgrade to Confluence 4.0, for example any modifications to start-up scripts under the `bin` directory will not be detected. The next time you upgrade (e.g. to version 4.0.1) the the upgrade feature will cover modifications across the whole Confluence Installation Directory.

**Please Note:**

- The upgrade process requests that you conduct a backup of your database using your database's backup utilities. If your database does not support online backups, you can stop the upgrade process, shut down Confluence, perform your database backup and then restart the upgrade process to continue on.
- If you have made customisations to your `server.xml` file or any other files in your Confluence installation directory which are not handled by the upgrade wizard, these must be re-applied manually.
- If your attachments and index files are located outside your Confluence Home Directory, then backups of these directories must be performed manually.
Performing the Upgrade

Refer to the appropriate upgrade instructions below for your operating system:

Upgrading Confluence on Windows

1. Download the Confluence 'Windows Installer' (.exe) file (for the new version of Confluence) from the Confluence Download Center.
2. Run the .exe file to start the upgrade wizard.
   • If a Windows 7 (or Vista) 'User Account Control' dialog box requests if you want to allow the upgrade wizard to make changes to your computer, specify 'Yes'. If you do not, the installation wizard will have restricted access to your operating system and any subsequent installation options will be limited.
3. At the 'Upgrading Confluence?' step, choose the 'Upgrade an existing Confluence installation' option.
4. In the 'Existing Confluence installation directory' field, specify the Confluence Installation Directory of your Confluence installation to be upgraded.
   • The upgrade wizard will attempt to find an existing Confluence installation and use its location to pre-populate this field. However, always verify this location, particularly if you have multiple Confluence installations running on the same machine.
5. During subsequent steps of the upgrade wizard, you will be prompted to specify or do the following options:
   a. At the 'Back up Confluence directories' step, ensure the 'Back up Confluence home' option is selected. This creates 'zip' archive file backups of your existing Confluence Installation and Confluence Home Directories in their respective parent directory locations.
   • Please Note:
     • Choosing this option is strongly recommended!
   b. At this point, the upgrade wizard notes any customisations in your existing Confluence Installation Directory which it cannot automatically migrate to your upgraded Confluence installation. If you are notified by the installer about any files containing such customisations, please make a note of the locations of these files as you will need to manually migrate their customisations (which are not mentioned in the overview above) to your upgraded Confluence installation. One relatively common customisation that the upgrade wizard cannot automatically migrate is an SSL configuration defined in the conf/server.xml file of the Confluence Installation Directory. Please Note: when upgrading to Confluence 4.0 the customisations can only be detected if the conf subdirectory of your existing Confluence Installation Directory. Modifications to files in directories other than conf will not be detected when you upgrade to Confluence 4.0, for example, modifications to conf/server.xml. However the next time you upgrade (e.g. to version 4.0.1) the upgrade feature will cover modifications across the whole Confluence Directory.
   c. At the 'Upgrade Check List' step, back up your external database and check that any non-bundled plugins will be compatible with your upgraded Confluence version. You may have already conducted the latter (in step 5 of the Before You Start section above).
   d. Upon clicking 'Next', your existing Confluence installation will be shut down if it is still running. The upgrade wizard will then:
      i. Back up your existing Confluence installation.
      ii. Delete the contents of the existing Confluence Installation Directory.
      iii. Install the new version of Confluence to the existing Confluence Installation Directory.
      iv. Starts your new (upgraded) Confluence installation.
      • Please Note:
        • If you noted any files that contain customisations which must be migrated manually to your upgraded Confluence installation (above), then:
          1. Stop the upgraded Confluence installation.
          2. Migrate the customisations from these files into the upgraded Confluence Installation Directory.
          3. Restart the upgraded Confluence installation.
6. At the last step of the upgrade wizard, select the option to launch the upgraded Confluence installation in a browser so you can check the upgrade.

Congratulations, you have completed upgrading your Confluence installation on Windows!

Upgrading Confluence on Linux

1. Download the appropriate Confluence 'Linux 64-bit / 32-bit Installer' (.bin) file that suits your operating system (for the new version of Confluence) from the Confluence Download Center.
2. Open a Linux console and change directory (<cd>) to the .'bin' file's directory.
   • If the .'bin' file is not executable after downloading it, make it executable, for example:
     chmod a+x atlassian-confluence-X.Y.bin
     (where X.Y represents your version of Confluence)
3. Execute the .'bin' file to start the upgrade wizard.
4. When prompted to choose between creating a new Confluence installation or upgrading an existing installation, choose the 'Upgrade an existing Confluence installation' option.
5. Specify the Confluence Installation Directory of your Confluence installation to be upgraded.
   • The upgrade wizard will attempt to find an existing Confluence installation and will provide its location as a choice. However, always verify this location, particularly if you have multiple Confluence installations running on the same machine.
6. During subsequent steps of the upgrade wizard, you will be prompted to specify or do the following options:
   a. Choose the option to back up Confluence's directories. This creates 'zip' archive file backups of your existing Confluence Installation and Confluence Home directories in their respective parent directory locations.
   • Please Note:
     • Choosing this option is strongly recommended!
     • At this point, the upgrade wizard notes any customisations in your existing Confluence Installation Directory which it cannot automatically migrate to your upgraded Confluence installation. If you are notified of any...
files containing such customisations, please make a note of the locations of these files as you will need to manually migrate their customisations (which are not mentioned in the overview above) to your upgraded Confluence installation. One relatively common customisation that the upgrade wizard cannot automatically migrate is an SSL configuration defined in the `conf/server.xml` file of the Confluence Installation Directory. 

Please Note: when upgrading to Confluence 4.0 the customisations can only be detected in the `confluence` subdirectory of your existing Confluence Installation Directory. Modifications to files in directories other than `confluence` will not be detected when you upgrade to Confluence 4.0, for example, modifications to `conf/server.xml`. However the next time you upgrade (e.g. to version 4.0.1) the upgrade feature will cover modifications across the whole Confluence Installation Directory.

b. At the Upgrade Check List step, back up your external database and check that any non-bundled plugins will be compatible with your upgraded Confluence version. You may have already conducted the latter (in step 5 of the Before You Start section above).

c. Upon proceeding, your existing Confluence installation will be shut down if it is still running. The upgrade wizard will then:

   i. Back up your existing Confluence installation.
   ii. Delete the contents of the existing Confluence installation directory.
   iii. Install the new version of Confluence to the existing Confluence installation directory.
   iv. Starts your new (upgraded) Confluence installation.

   If you noted any files that contain customisations which must be migrated manually to your upgraded Confluence installation (above), then:
      1. Stop the upgraded Confluence installation.
      2. Migrate the customisations from these files into the upgraded Confluence Installation Directory.
      3. Restart the upgraded Confluence installation.

7. The last step of the upgrade wizard provides you with a link to launch the upgraded Confluence installation in a browser, so you can check the upgrade.

Congratulations, you have completed upgrading your Confluence installation on Linux!

Upgrade Check List

The upgrade wizard requests that you perform the following tasks before it actually commences the upgrade of your existing Confluence installation.

Back Up Your External 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 support ‘online backups’ (i.e. which would typically create a 'snapshot' of your Confluence database while the database is still in use), you can leave the upgrade wizard running while you perform the database backup and then continue on with the wizard after verifying that the database backup was created correctly.
- If your database’s native backup tools do not allow you to perform an ‘online backup’ of your Confluence database, you should:
   1. Quit the upgrade wizard now.
   2. Use your database’s native backup tools to perform an ‘offline backup’ of your Confluence database and verify that this backup was created correctly.
   3. Re-run the Linux / Windows Installer to start the upgrade wizard again and continue from where you left off.

- If you are using HSQLDB as the Confluence internal database, please note that this should be used for evaluating Confluence only. If you happen to accidentally use the HSQLDB database for a production system, quit the upgrade wizard now and use the Migrating Confluence Between Servers procedure to upgrade Confluence.

Inconsistent database backups may not restore correctly! If you are unfamiliar with your database's native backup/restore facilities, then test your database backup's integrity by doing the following:

1. Restoring the database backup to a different (test) system, 
2. Connecting a test instance of your current Confluence version to this restored database.

Alternatively, use the Migrating Confluence Between Servers procedure to upgrade Confluence instead.

Check Plugin Compatibility

If you have installed any 3rd-party Confluence plugins (i.e. not included in Confluence), please verify that they will be compatible with the version of Confluence 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 Confluence. This can be done by navigating to Browse > Confluence Admin > Configuration > Plugins.

Upgrading Beyond Current Licensed Period

This page explains the recovery process should you mistakenly try to upgrade your Confluence installation to a version beyond your current license entitlement.

The information on this page applies to Confluence 2.7.2 and later.
License Warnings

During an upgrade an obvious indication that your license has expired can be found in your log file. You will see a 'WARN' level entry similar to this:

```
[confluence.upgrade.impl.DefaultUpgradeManager] isUpgradeAllowed
Your license is now outside of it's support period. You need to renew the license before you can upgrade to this version of Confluence.
```

When you try to connect to the Confluence instance, you will see the following warning screen:

You cannot access Confluence at present. Look at the table below to identify the reasons.

<table>
<thead>
<tr>
<th>Time</th>
<th>Level</th>
<th>Type</th>
<th>Description</th>
<th>Exception</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-02-04 10:51:04</td>
<td>null</td>
<td>(EventType: upgrade)</td>
<td>Cannot proceed with upgrade. Your current license does not entitle you to upgrade to this version of Confluence. Please check that the support period of your license has not expired or that you have the correct partner license. If you wish to renew your license, please contact <a href="mailto:sales@atlassian.com">sales@atlassian.com</a>. If you have a new license, please enter it on this <a href="https://confluence.atlassian.com/doc/">page</a> and <a href="https://confluence.atlassian.com/doc/">restart</a>.</td>
<td>fatal</td>
</tr>
</tbody>
</table>

**Updating the Confluence License**

1. Contact Atlassian Sales to arrange for a new license to be issued, as instructed on the warning screen illustrated above.
2. Once you have received a suitable license, supply the license key to Confluence:
   - Click the link given on the license warning screen, illustrated above.
   - You will first be asked to log in as a Confluence administrator.
   - Then you will be presented with a simplified license administration screen. Enter the credentials of a Confluence system administrator.
   - Copy the license key into the 'License' field and click 'Save':

   Please enter your new license.
   You must authenticate as a Confluence administrator to do so.

   **Support Period**
   Your commercial Confluence support has ended on 07/09/07 15:00
   Confluence updates created after 07/09/07 15:00 are not available under this license. If you wish to [renew your license](https://confluence.atlassian.com/doc/) please [contact us](https://confluence.atlassian.com/doc/).

   **Username**
   
   **Password**
   
   **License**
   
   ![License field](https://confluence.atlassian.com/doc/

3. Restart Confluence to continue the upgrade.

RELATED TOPICS

Upgrading Confluence

Confluence Post-Upgrade Checks

This article provides a list of items for Confluence Administrators to check after a Confluence upgrade to ensure that it has completed successfully. This list is not exhaustive, but it does cover common upgrade mistakes.

Before You Begin

After you have completed an upgrade, you should see the following message in the `atlassian-confluence.log` file:
2010-03-08 08:03:58,899 INFO [main] [atlassian.confluence.upgrade.AbstractUpgradeManager] upgradeFinished Upgrade completed successfully

If you do not see the line in your log similar to the one above, this means that your upgrade has not completed successfully. Please check our Troubleshooting Upgrades documentation to check for a suitable recommendation or fix. If there are no errors logged or if none of the errors are referenced in the the Troubleshooting Upgrades documentation, please contact Atlassian Support using the Support Utilities in your administration console.

Upgrade Checklist

Below is a recommended list of items to check after completing an upgrade.

1. Layout and Menu

Visit the Confluence dashboard and check that it is accessible and displays as expected. Test the different Internet browsers that you have in use in your environment. In addition, confirm that the layout appears as expected and that the menus are clickable and functioning.

2. Search

Try searching for content, for example pages, attachments or user names. Check that the expected results are returned.

3. Permissions

Confirm that you can visit a page that has viewing restrictions, but you have permission to view. Confirm that you can edit a page that has edit restrictions but you have permission to edit. Make sure that the permissions of child pages are functioning as well. Involve as many space administrators as possible to confirm they are working. Confirm that anonymous or forbidden users cannot access or modify restricted pages.

4. Attachments

Confirm that attachments are accessible and searchable.

5. Plugins

Outdated third-party plugins can cause upgrade failure. Quite often, they will just be incompatible and simply do not work anymore. If you discover that your plugin is no longer working, please check for the latest version for your plugin in the Atlassian Plugin Exchange.

RELATED TOPICS

Troubleshooting Upgrades
Upgrading Confluence

Upgrading Confluence EAR-WAR Distribution

This document tells you how to upgrade from one version of Confluence to a later version. These instructions apply to the EAR-WAR Distribution of Confluence, deployed on your own existing application server.

If you want to upgrade the regular Confluence distribution, which includes Apache Tomcat as the standalone application server, please refer to Upgrading Confluence instead.

Please also check the following before you start using this guide:

- The version of Confluence that you will be upgrading to. Refer to the documentation home page to verify the latest Confluence version and to find documentation for older versions.
- The supported platforms for the version that you will be upgrading to. Please see the Supported Platforms page for the version of Confluence that you will be upgrading to, as well as the End of Support Announcements for Confluence.
- If you are running Confluence on a cluster, please see Upgrading a Confluence Cluster instead of this document.
Upgrading to Confluence 4.0?

If so, please review the Confluence 4.0 Release Notes for important information about this version of Confluence. Ensure that you have read the Confluence Knowledge Base.

Also, we strongly recommend that you check the upgrade notes for every major version of Confluence that you are skipping, since there might be specific changes between Confluence versions that could affect your Confluence installation. The upgrade notes for recent major versions of Confluence are accessible from the Upgrade Notes Overview page.

Finally, please check the Supported Platforms page to ensure that your Java version, operating system, application server, database and browser are supported for this release of Confluence. The End of Support Announcements for Confluence page has important information regarding supported platforms.

On this page:

- Before you Start
- Backing Up
- Testing the Upgrade in a Test Environment
- Performing the Upgrade
- Reapplying Customisations to your New Confluence
- Checking for Known Issues and Troubleshooting the Confluence Upgrade

Before you Start

Changing your Database?

If you are planning to change to a different database, we recommend that you complete the Confluence upgrade first. Then follow the instructions on migrating to a different database.

1. Note that you need current software maintenance to perform the upgrade.
2. Confirm that your license support period is still valid before you try to upgrade.
3. If your current license has expired but you have a new license with you, please update your license in Confluence before performing the upgrade.
   - 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.
4. Check the release notes for the new version of Confluence you are installing, plus the upgrade notes for any major versions you are skipping. It is important to read these upgrade notes as there might be specific changes between Confluence versions that could affect your Confluence instance. The upgrade notes pages for recent major versions of Confluence are accessible from the Upgrade Notes Overview page. (Each upgrade notes page is a 'child' of its respective release notes page.)
5. Make sure that your environment (e.g. the database system, the operating system, the application server and so on) still complies with the Confluence System Requirements. A newer version of Confluence may have different requirements than the previous version.
6. If you are using Confluence EAR-WAR edition, check Installing the Confluence EAR-WAR Edition to see if there is anything extra you will need to do to get Confluence running.
7. If you are using an external database, familiarise yourself with all known issues for your specific database. Also make sure the Confluence database connector principal (the database user account) has sufficient permissions to modify the database schema.
8. Note which plugins are installed and enabled on your current Confluence instance. Please verify whether a compatible version of the plugin is available in the version of Confluence you are upgrading to. This information is available via the Plugins menu in your Administration screens, and selecting Confluence Upgrade Check. This will tell you which plugins have an updated version which is compatible with your target upgrade version. You can also check the respective home pages for these plugins on the Atlassian Plugin Exchange. Once you have confirmed the availability of compatible versions, you should upgrade your plugins after successfully upgrading Confluence. Please test these first by applying them to the latest Confluence version in a test environment.
9. If you have made any customisations to Confluence, please verify their compatibility in the latest version. For example, if you have modified any layouts or are using your own custom theme, please test these first by applying them to the latest Confluence version in a test environment. You can see the customisations applied to your Confluence installation.

Backing Up

Before you begin the Confluence upgrade, you must back up the following:

1. Back up your Confluence Home directory. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.
   - Tip: Another term for ‘Home directory’ would be ‘data directory’. The location of the Home directory is stored in a
configuration file called `confluence-init.properties`, which is located inside the `confluence/WEB-INF/classes` directory in your Confluence Installation directory. The Confluence installer will automatically prompt you to run a backup, storing the files in a .zip archive at the same level as your Confluence Home directory.

2. **Back up your database.** Perform a manual backup of your external database before proceeding with the upgrade, and double check that the backup was actually created properly. If you are not a database expert, or unfamiliar with the backupRestore facilities of your database, simply restore the backup to a different system to ensure the backup worked before proceeding. This recommendation is generally a good best practice. Surprisingly, many companies get in trouble for broken database backups because they skip this basic but vital "smoke test" of the operation.

The 'embedded database' is the HSQLDB database supplied with Confluence for evaluation purposes. You don't need to back it up since it is stored in the Confluence home directory. You should not be using this database for production systems at all, so if you happen to be using HSQLDB in a production system, please migrate to a proper database *before* the upgrade. Read about the various shortcomings of HSQLDB.

3. **Back up your Confluence Installation directory or your Confluence webapp** (if you are using Confluence EAR-WAR edition). The Confluence installer will automatically back up these files, storing the files in a .zip archive at the same level as your Confluence installation directory. The 'Confluence Installation directory' is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the 'Confluence Install directory'.

### Testing the Upgrade in a Test Environment

> Be sure to test the upgrade in a test environment before proceeding on your production server.

1. Create a snapshot of your current production Confluence environment on a test server, as described in the page on Moving Confluence Between Servers.

   * Importing an old XML backup file to a new major version (i.e Confluence 3.5 to Confluence 4.0) is **not recommended**. Please [recreate](#) your production instance in a test environment first.

2. Perform the upgrade on your cloned environment.

3. Test all your unsupported plugins and any customisations with the new version before proceeding on your production server. You can read more about supported and unsupported plugins.

### Performing the Upgrade

> If you are migrating servers or migrating databases, perform those operations in separate steps.

The upgrade process allows you to unzip the new Confluence installation into a directory of your choice and then edit the configuration files to point your new installation to your existing data files. Follow these instructions:

1. Shut down your existing Confluence instance.
2. Download the Confluence EAR-WAR zip file: Go to the [Download Center](#) and click 'Show all' to find the EAR-WAR zip file.
3. If you are on Windows, please check your unzip program before extracting the downloaded zip file. Some archive-extract programs cause errors when unzipping the Confluence zip file. You should use a third-party unzip program like 7Zip or Winzip. If you do not have one, please download and install one before continuing:
   - 7Zip — Recommended. If in doubt, download the '32-bit.exe' version
   - Winzip
4. Use your unzip program to unzip the installation file. You should now have a new directory called `confluence-<version>`,
   - In the rest of this document, we will refer to this as the `<installation-directory>`.
   - Do not use spaces in your directory path.
   - You can read more about the [Confluence Installation directory](#).
5. Edit the `confluence-init.properties` file found at:
   ```xml
   <installation-directory>/confluence/WEB-INF/classes/confluence-init.properties
   ```
   and update `confluence.home` to point to your existing [Confluence Home directory](#).
   - Make sure you have first backed up your Home directory.
   - Open the `confluence-init.properties` file in a text editor such as Notepad.
   - Scroll to the bottom and find this line:
   ```properties
   # confluence.home=c:/confluence/data
   ```
   - Remove the '#' and the space at the beginning of this line, so that Confluence no longer regards the line as a comment. The line should now begin with `confluence.home`.
   - Update the directory name after the `=` sign, to point to your existing Confluence Home directory.
6. If you are using Tomcat, you need to update either your `confluence.xml` or `server.xml` (depending on where you have defined the Confluence context descriptor) to point to the location of the new Confluence installation (also remember to copy over any customisations such as a [tomcat datasource](#) if you have one).
7. If you have delegated your user management to JIRA, LDAP or any other external user management system, copy the following files from your old Confluence installation to your new Confluence installation:
   - `<Installation-Directory>/confluence/WEB-INF/classes/osuser.xml`.
   - `<Installation-Directory>/confluence/WEB-INF/classes/atlassian-user.xml` (if you are upgrading from Confluence 2.2 or later).

![Upgrading to Confluence 3.5+ and using JIRA user management?](
Please review our KB article first: Upgrade to Confluence 3.5 with JIRA User Management Fails

- ![If you are upgrading from an earlier version of Confluence (2.5.5 and earlier) and are copying your existing atlassian-user.xml file from your previous instance, please ensure that the hibernate cache parameter in this file has been enabled, to avoid performance related issues. (NOTE: If you use Crowd for your user management, you do not need to do this.):](

   ```xml
   <hibernate name="Hibernate Repository"
   key="hibernateRepository" description="Hibernate Repository"
cache="true"/>
   ```

8. If you have delegated your user management to Crowd, you will also need to copy the Crowd client library and configuration files from your old Confluence installation to your new Confluence installation:

   `<Installation-Directory>/confluence/WEB-INF/lib/crowd-integration-client-X.X.X.jar`

   `<Installation-Directory>/confluence/WEB-INF/classes/crowd.properties`

   If you need more information, please refer to the Crowd documentation.

9. Restart your application server and start Confluence.

   **Please note** that Confluence will need to re-index attachments and this can take 5-10 minutes. Please wait until Confluence has finished indexing the attachments before trying to access Confluence via your web browser. (There is no easy and quick way to determine if the indexing process is completed. Please wait for approximately 10 minutes after the server start up before accessing Confluence via a web browser.)

10. During the startup process Confluence will create any missing database indexes. If you created any database indexes on your own, please check those afterwards and remove those that duplicate the indexes added by Confluence. Just in case you run into any errors which prevent Confluence from starting up, you can set the system property `hibernate.hbm2ddl.skip_creating_missing_indexes` to `true` to skip automatic index creation.

11. Visit Confluence in your web browser and log in using a username from your previous Confluence installation. You should be able to log in immediately, without seeing the Setup Wizard.

12. Take a quick look around your Confluence site to confirm that all your spaces and pages are present and everything looks normal. You should see the new Confluence version number in the page footer.

13. Consider any adjustments you need to make to customisations and special configurations, as described below.

---

**Reapplying Customisations to your New Confluence**

**Hint: The steps below are for advanced Confluence users, who have applied special settings to their Confluence server and/or Confluence look and feel**

After upgrading your Confluence installation to a later version of Confluence, you need to consider any customisations you have applied to your system and other special configurations:

- If you had previously installed **Confluence/Tomcat as a Windows service**, uninstall the service (to ensure that the old Confluence cannot start automatically when the server restarts) and reinstall the new one. For details please see [Start Confluence Automatically on Windows as a Service](

- If you are using a Standalone Edition of Confluence and you have previously defined a **CATALINA_HOME environment variable**, please check that it points to the correct path for the new Confluence Tomcat server.

- If you had previously connected your Confluence installation to an **external database** via a JNDI datasource or you implemented **SSL**, edit your new `web.xml` file and and copy over any relevant modifications from your old `web.xml` file, which relate to these customisations.

- If you were previously running Confluence on a **non-standard port**, edit your new `<Installation-Directory>\conf\server.xml` file as described in [Change listen port for Confluence](

- If you had previously defined a **Tomcat datasource**, edit your new `<Installation-Directory>\conf\server.xml` and copy over the datasource definition from your old `server.xml`.

- If you were previously using any **plugins**, install the latest compatible version and disable any plugins that are incompatible with your new version of Confluence. The easiest way to do this is to use the **Plugin Repository** in the Confluence Administration Console.

- If you are using any **customised themes**, please check that they are displaying as expected. Some further customisation may be required to ensure compatibility with your new version of Confluence.

- If you had previously customised the **default site or space layouts**, you will need to reapply your changes to the new defaults as described here.
If you had previously modified the Confluence source code, you will need to reapply your changes to the new version.

If you were previously running Confluence over SSL, you will need to reapply your configuration as described in Running Confluence Over SSL or HTTPS.

If you had previously modified the memory flags (Xms and Xmx) in either the <Installation-Directory>\bin\setenv.sh or the <Installation-Directory>\bin\setenv.bat file, you may want to make the modifications in your new installation. The parameters are specified in the JAVA_OPTS variable.

If you had changed the Confluence interface text, you will need to pull over the ConfluenceActionSupport.properties file.

If you were using a custom SSO authenticator, change seraph-config.xml to the correct authenticator.

Checking for Known Issues and Troubleshooting the Confluence Upgrade

After you have completed the steps required to upgrade your Confluence installation, check all the items on the Confluence post-upgrade checklist to ensure that everything works as expected. If something is not working correctly, please check for known Confluence issues and try troubleshooting your upgrade as described below:

• Check for known issues. Sometimes we find out about a problem with the latest version of Confluence after we have released the software. In such cases we publish information about the known issues in the Confluence Knowledge Base. Please check the known issues for the relevant release on this page of the Knowledge Base and follow the instructions to solve the problem.

• Did you encounter a problem during the Confluence upgrade? Please refer to the guide to troubleshooting upgrades in the Confluence Knowledge Base.

RELATED TOPICS

Upgrading Confluence
Upgrading Confluence
Confluence Installation Guide
Important Directories and Files
Site Backup and Restore
Database Configuration

Upgrading Confluence Manually

This document tells you how to upgrade from one version of Confluence to a later version. This document refers to Confluence that runs "standalone", including Apache Tomcat as the bundled application server.

If you want to upgrade an EAR/WAR distribution deployed on your own existing application server, please refer to Upgrading Confluence EAR-WAR Distribution instead.

Please also check the following before you start using this guide:

• The version of Confluence that you will be upgrading to. Refer to the documentation home page to verify the latest Confluence version and to find documentation for older versions.

• The supported platforms for the version that you will be upgrading to. Please see the Supported Platforms page for the version of Confluence that you will be upgrading to, as well as the End of Support Announcements for Confluence.

• If you are running Confluence on a cluster, please see Upgrading a Confluence Cluster instead of this document.

Upgrading to Confluence 4.0?

If so, please review the Confluence 4.0 Release Notes for important information about this version of Confluence. Ensure that you have read the Confluence Knowledge Base.

Also, we strongly recommend that you check the upgrade notes for every major version of Confluence that you are skipping, since there might be specific changes between Confluence versions that could affect your Confluence installation. The upgrade notes for recent major versions of Confluence are accessible from the Upgrade Notes Overview page.

Finally, please check the Supported Platforms page to ensure that your Java version, operating system, application server, database and browser are supported for this release of Confluence. The End of Support Announcements for Confluence page has important information regarding supported platforms.

On this page:

• Before you Start
• Backing Up
• Testing the Upgrade in a Test Environment
• Performing the Upgrade
• Reapplying Customisations to your New Confluence
• Checking for Known Issues and Troubleshooting the Confluence Upgrade
• Useful Plugins

Before you Start
**Changing your Database?**

If you are planning to change to a different database, we recommend that you complete the Confluence upgrade first. Then follow the instructions on **migrating to a different database**.

1. Note that you need current **software maintenance** to perform the upgrade.
2. Confirm that your **license support period** is still valid before you try to upgrade.
3. If your current license has expired but you have a new license with you, please **update your license** in Confluence before performing the upgrade.

   **Important**: 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**.

4. Check the release notes for the new version of Confluence you are installing, plus the upgrade notes for any major versions you are skipping. It is important to read these upgrade notes as there might be specific changes between Confluence versions that could affect your Confluence instance. The upgrade notes pages for recent major versions of Confluence are accessible from the **Upgrade Notes Overview** page. (Each upgrade notes page is a 'child' of its respective release notes page.)

5. Make sure that your environment (e.g. the database system, the operating system, the application server and so on) still complies with the **Confluence System Requirements**. A newer version of Confluence may have different requirements than the previous version.

6. If you are using Confluence EAR-WAR edition, check installing the Confluence EAR-WAR Edition to see if there is anything extra you will need to do to get Confluence running.

7. If you are using an external database, familiarise yourself with all known issues for your specific database. Also make sure the Confluence database connector principal (the database user account) has sufficient permissions to modify the database schema.

8. Note which plugins are installed and enabled on your current Confluence instance. Please verify whether a compatible version of the plugin is available in the version of Confluence you are upgrading to. This information is available via the ‘**Plugins**’ menu in your **Administration** screens, and selecting **Confluence Upgrade Check**. This will tell you which plugins have an updated version which is compatible with your target upgrade version. You can also check the respective home pages for these plugins on the Atlassian Plugin Exchange. Once you have confirmed the availability of compatible versions, you should upgrade your plugins after successfully upgrading Confluence. Please test these first by applying them to the latest Confluence version in a test environment.

9. If you have made any customisations to Confluence, please verify their compatibility in the latest version. For example, if you have modified any layouts or are using your own custom theme, please test these first by applying them to the latest Confluence version in a test environment. You can see the customisations applied to your Confluence installation.

---

**Backing Up**

Before you begin the Confluence upgrade, you must back up the following:

1. **Back up your Confluence Home directory**. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.

   **Tip**: Another term for ‘Home directory’ would be ‘data directory’. The location of the Home directory is stored in a configuration file called `confluence-init.properties`, which is located inside the `confluence/WEB-INF/classes` directory in your Confluence Installation directory. The Confluence installer will automatically prompt you to run a backup, storing the files in a .zip archive at the same level as your Confluence Home directory.

2. **Back up your database**. Perform a manual backup of your external database before proceeding with the upgrade, and double check that the backup was actually created properly. If you are not a database expert, or unfamiliar with the backup-restore facilities of your database, simply restore the backup to a different system to ensure the backup worked before proceeding. This recommendation is generally a good best practice. Surprisingly, many companies get in trouble for broken database backups because they skip this basic but vital "smoke test" of the operation.

3. **Back up your Confluence Installation directory or your Confluence webapp (if you are using Confluence EAR-WAR edition)**. The Confluence installer will automatically back up these files, storing the files in a .zip archive at the same level as your Confluence installation directory. The ‘Confluence Installation directory’ is the directory into which the Confluence application files and libraries have been unpacked (unzipped) when Confluence was installed. Confluence does not modify or store any data in this directory. This directory is also sometimes called the ‘Confluence Install directory’.

---

**Testing the Upgrade in a Test Environment**

Be sure to test the upgrade in a test environment before proceeding on your production server.

1. Create a snapshot of your current production Confluence environment on a test server, as described in the page on **Moving Confluence Between Servers**.

   **Important**: Importing an old XML backup file to a new major version (i.e Confluence 3.5 to Confluence 4.0) is **not recommended**.
Please recreate your production instance in a test environment first.

2. Perform the upgrade on your cloned environment.

3. Test all your unsupported plugins and any customisations with the new version before proceeding on your production server. You can read more about supported and unsupported plugins.

Performing the Upgrade

To install Confluence, unzip the new Confluence installation zip file into a directory of your choice and then edit the configuration files to point your new installation to your existing data files. Follow these instructions:

1. Shut down your existing Confluence instance.
2. Download the Confluence Standalone zip file.
3. If you are on Windows, please check your unzip program before extracting the downloaded zip file. Some archive-extract programs cause errors when unzipping the Confluence zip file. You should use a third-party unzip program like 7Zip or Winzip. If you do not have one, please download and install one before continuing:
   - 7Zip — Recommended. If in doubt, download the '32-bit.exe' version
   - Winzip
4. Use your unzip program to unzip the installation file. You should now have a new directory called confluence-<version>, e.g. confluence-4.0.0-std.
   - In the rest of this document, we will refer to this as the <Installation-Directory>.
   - If you decide to change the location from the default, make sure that you choose a different location from your existing Confluence installation, because legacy files may cause problems if you install the new Confluence version into an existing directory.
   - Do not use spaces in your directory path.
   - You can read more about the Confluence Installation directory
5. Edit the confluence-init.properties file found at:
   <Installation-Directory>/confluence/WEB-INF/classes/confluence-init.properties
   and update 'confluence.home' to point to your existing Confluence Home directory.
   - You can read more about the Confluence Home directory.
   - Make sure you have first backed up this directory, as instructed above.
   - Open the confluence-init.properties file in a text editor such as Notepad.
   - Scroll to the bottom and find this line:
   # confluence.home=c:/confluence/data
   - Remove the '#' and the space at the beginning of this line, so that Confluence no longer regards the line as a comment. The line should now begin with confluence.home.
   - Update the directory name after the = sign, to point to your existing Confluence Home directory.
6. If you are running Confluence as a Windows service, use the command prompt and type <Installation-Directory>/bin/service.bat remove Confluence.
   - It is vital that you stop and remove the existing service prior to uninstalling the old instance of Confluence! For more information on running Confluence as Windows service, please refer to the Start Confluence Automatically on Windows as a Service topic.

To remove the service installed by the Confluence installer, you need to run the <confluence auto installer installation folder>/UninstallService.bat.

7. If you are using an external database (i.e. not the embedded HSQLDB database supplied for evaluation purposes), copy the jdbc driver jar file from your old Confluence Standalone installation to the new Confluence Standalone installation. The jdbc driver jar file in the old Confluence Standalone installation should be located in either the <Install-Directory>/common/lib or <Install-Directory>/confluence/WEB-INF/lib directories. Once you have identified this file, copy it to either the <Install-Directory>/lib or <Install-Directory>/confluence/WEB-INF/lib directories of your Confluence installation.
8. If you have delegated your user management to JIRA, LDAP, Crowd, or any other external user management system, copy the following files from your old Confluence installation to your new Confluence installation:
   - <Install-Directory>/confluence/WEB-INF/classes/osuser.xml.
   - <Install-Directory>/confluence/WEB-INF/classes/atlassian-user.xml (if you are upgrading from Confluence 2.2 or later).
If you are upgrading from an earlier version of Confluence (2.5.5 and earlier) and are copying your existing atlassian-user.xml file from your previous instance, please ensure that the hibernate cache parameter in this file has been enabled, to avoid performance related issues. (NOTE: If you use Crowd for your user management, you do not need to do this.):

```xml
<hibernate name="Hibernate Repository"
key="hibernateRepository" description="Hibernate Repository"
cache="true" />
```

9. If you have delegated your user management to Crowd, you will also need to copy the Crowd configuration file from your old Confluence installation to your new Confluence installation:

```
<Installation-Directory>/confluence/WEB-INF/classes/crowd.properties.
```

If you need more information, please refer to the Crowd documentation.

10. Consider any adjustments you need to make to customisations and special configurations, as described below.

⚠️ Your new version of Confluence may not function correctly or could encounter problems or errors if these are not implemented.

11. Start your new version of Confluence.

ℹ️ Please note that Confluence will need to re-index attachments and this can take 5-10 minutes. Please wait until Confluence has finished indexing the attachments before trying to access Confluence via your web browser.

12. During the startup process Confluence will create any missing database indexes. If you created any database indexes on your own, please check those afterwards and remove those that duplicate the indexes added by Confluence. Just in case you run into any errors which prevent Confluence from starting up, you can set the system property hibernate.hbm2ddl.skip_creating_missing_indexes to true to skip automatic index creation.

13. Visit Confluence in your web browser and log in using a username from your previous Confluence installation. You should be able to log in immediately, without seeing the Setup Wizard.

14. Take a quick look around your Confluence site to confirm that all your spaces and pages are present and everything looks normal. You should see the new Confluence version number in the page footer.

---

## Reapplying Customisations to your New Confluence

### Hint: The steps below are for advanced Confluence users, who have applied special settings to their Confluence server and/or Confluence look and feel

After upgrading your Confluence installation to a later version of Confluence, you need to consider any customisations you have applied to your system and other special configurations:

- If you had previously installed Confluence/Tomcat as a Windows service, uninstall the service (to ensure that the old Confluence cannot start automatically when the server restarts) and reinstall the new one. For details please see [Start Confluence Automatically on Windows as a Service](https://confluence.atlassian.com/server/start-confluence-on-windows-automatically-2220674159.html).
- If you are using a Standalone Edition of Confluence and you have previously defined a CATALINA_HOME environment variable, please check that it points to the correct path for the new Confluence Tomcat server.
- If you had previously connected your Confluence installation to an external database via a JNDI datasource or you implemented SSL, edit your new `server.xml` file and copy over any relevant modifications from your old `server.xml` file, which relate to these customisations.
- If you had previously running Confluence on a non-standard port, edit your new `server.xml` file as described in [Change listen port for Confluence](https://confluence.atlassian.com/server/configure-confluence-listen-port-2416286253.html).
- If you had previously defined a Tomcat datasource, edit your new `server.xml` file and copy over the datasource definition from your old `server.xml`.
- If you were previously using any plugins, install the latest compatible version and disable any plugins that are incompatible with your new version of Confluence. The easiest way to do this is to use the Plugin Repository in the Confluence Administration Console.
- If you are using any customised themes, please check that they are displaying as expected. Some further customisation may be required to ensure compatibility with your new version of Confluence.
- If you had previously customised the default site or space layouts, you will need to reapply your changes to the new defaults as described here.
- If you had previously modified the Confluence source code, you will need to reapply your changes to the new version.
- If you were previously running Confluence over SSL, you will need to reapply your configuration as described in [Running Confluence Over SSL or HTTPS](https://confluence.atlassian.com/server/running-confluence-over-ssl-2416286253.html).
- If you had previously modified the memory flags (Xms and Xmx) in either the `setenv.bat` file, you may want to make the modifications in your new installation. The parameters are specified in the JAVA_OPTS variable.
- If you had changed the Confluence interface text, you will need to pull over the ConfluenceActionSupport.properties file.
- If you were using a custom SSO authenticator, change seraph-config.xml to the correct authenticator.

---

## Checking for Known Issues and Troubleshooting the Confluence Upgrade
After you have completed the steps required to upgrade your Confluence installation, check all the items on the Confluence post-upgrade checklist to ensure that everything works as expected. If something is not working correctly, please check for known Confluence issues and try troubleshooting your upgrade as described below:

- **Check for known issues.** Sometimes we find out about a problem with the latest version of Confluence after we have released the software. In such cases we publish information about the known issues in the Confluence Knowledge Base. Please check the known issues for the relevant release on this page of the Knowledge Base and follow the instructions to solve the problem.

- **Did you encounter a problem during the Confluence upgrade?** Please refer to the guide to troubleshooting upgrades in the Confluence Knowledge Base.

### Useful Plugins

Before installing a plugin into your Confluence site, please check the plugin’s information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

- Appfire’s Upgrade Assistant for Confluence (UAC) is a commercial plugin that simplifies the upgrade process into an easy-to-use wizard.

### Related Topics

- Upgrading Confluence
- Upgrading Confluence EAR-WAR Distribution
- Confluence Installation Guide
- Important Directories and Files
- Site Backup and Restore
- Database Configuration

### Supported Platforms

This page describes the supported platforms for Confluence. Please review them before installing Confluence. The information on this page applies to Confluence 4.0.

Further information:

- Please read End of Support Announcements for Confluence for important information regarding the end of support for various platforms and browsers when used with Confluence.
- Please read System Requirements for any further information about these supported platforms and hardware requirements.

**Key:** ✓ = Supported. ✗ = Not Supported

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<th>Java Version</th>
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<table>
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497
PostgreSQL | 8.2, 8.3, 8.4
---|---
MySQL (3) | 5.1
Oracle | 11.1, 11.2
DB2 | 9.7
HSQLDB (4) | (for evaluation purposes only)

**Web Browsers**

Microsoft Internet Explorer (Windows) | Tested with 8, 9 (5)
---|---
Mozilla Firefox (all platforms) | Latest stable version supported
---|---
Google Chrome (Windows and Mac) | Latest stable version supported
---|---
Safari (Windows and Mac) (6) | Latest stable version supported

1. Confluence is a pure Java application and should run on this platform provided the JDK requirement is satisfied.

2. While some of our customers run Confluence on SPARC-based hardware, Atlassian only officially supports Confluence running on x86 hardware and 64-bit derivatives of x86 hardware.

3. Ensure that you configure your Confluence MySQL database to use the InnoDB storage engine as the MyISAM storage engine could lead to data corruption.

4. HSQLDB: Confluence ships with a built-in HSQL database. While this database is fine for evaluation purposes, it is somewhat susceptible to data loss during system crashes. Hence, for production environments, we recommend that you configure Confluence to use an external database.

5. Internet Explorer 8 and 9 do not support the drag-and-drop functionality of HTML5.

6. We do not support editing in Safari on iOS devices (such as iPhone and iPad). Please refer to CONF-19524 for information on the progress of this issue.

**Related**

Confluence Installation Guide
Confluence Setup Guide
Installing Confluence on Windows
Installing the Confluence EAR-WAR Distribution
Confluence Cluster Installation
Example Size and Hardware Specifications From Customer Survey
Installing Confluence and JIRA Together
Confluence Documentation Home
Server Hardware Requirements Guide
Supported Platforms FAQ

**Supported Platforms FAQ**

Q: How does Atlassian choose which JDK versions, application servers and databases to support?

For application servers and databases, we try to pick a good cross-section of open source options and popular commercial platforms. We then choose which JDK versions to support based on the recommended environments for these servers.
Q: What is a supported platform?

A supported platform is one that:

- Confluence is regularly tested on during the development cycle
- One that is available within Atlassian for support technicians and developers to reproduce problems
- Bugs raised against it will be given a high priority

Supporting a platform means we know how to get Confluence running in that environment and can troubleshoot Confluence issues within it. It does not mean we have any particular expertise beyond that. As such, we may not be able to provide assistance with customising or tuning that application server or database. (Atlassian support is not a substitute for a good database administrator.)

Q: Can I get assistance with running Confluence on a platform that is not supported?

If you are running Confluence on an unsupported platform, then we cannot guarantee providing any support for it. Furthermore, we will recommend that you switch to a platform which is supported.

Q: If you write your application to standards like J2EE, JDBC and SQL, doesn’t that mean it should run on any compliant server?

Confluence is a complicated application and we commonly encounter interesting edge-cases where different servers have interpreted the specifications differently. Then again, each server has its own different collection of bugs.

Q: How can I get Atlassian to support Confluence on a new platform?

Supporting a new platform involves a significant investment of time by Atlassian, both up-front costs to set up new testing environments and fix any issues we might encounter and the ongoing costs involved in maintaining the application against this new environment in the future. As such, supporting a new platform is not something we will do unless we know there is significant demand for it.

Please be aware that your interest alone will not be enough for us to add support for your application server or database. We would need to see a significant number of votes on the issue raised in our public JIRA site or a significant level of interest in our forums, before considering supporting that platform.

Q: My organisation has standardised on an operating environment that Confluence does not support. What can I do?

In this situation, you have the following two options:

1. Run Confluence in the unsupported environment, with the caveats mentioned above.
2. Make an exception to your standardised operating environment and set up Confluence based on its supported platforms.

End of Support Announcements for Confluence

This page contains announcements of the end of support for various platforms and browsers when used with Confluence. This is summarised in the table below. Please see the sections following for the full announcements.

End of Support Matrix for Confluence

The table below summarises information regarding the end of support announcements for upcoming Confluence releases. If a platform (version) has already reached its end of support date, it is not listed in the table.

<table>
<thead>
<tr>
<th>Platform</th>
<th>Confluence End of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer 7 web browser</td>
<td>Confluence 4.0 (announcement)</td>
</tr>
<tr>
<td>Safari 4 web browser</td>
<td>Confluence 4.0 (announcement)</td>
</tr>
<tr>
<td>Firefox 3.5 web browser</td>
<td>Confluence 4.0 (announcement)</td>
</tr>
<tr>
<td>MySQL 5.0 database</td>
<td>Confluence 4.0 (announcement)</td>
</tr>
<tr>
<td>Mac OS X operating system (as server platform)</td>
<td>Confluence 4.0 (announcement)</td>
</tr>
</tbody>
</table>
Why is Atlassian ending support for these platforms?

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, databases, web browsers, etc., with setup and ongoing maintenance of automated tests. Moving forward, we want to reduce the time spent there to increase Confluence development speed significantly.

On this page (most recent announcements first):

- Deprecated Operating Systems for Confluence (21 July 2011)
- Deprecated Databases for Confluence (7 January 2011)
- Deprecated Web Browsers for Confluence (7 January 2011)
- Deprecated Databases for Confluence (12 October 2010)
- Deprecated Web Browsers for Confluence (12 October 2010)
- Deprecated Web Browsers for Confluence (6 July 2010)
- Deprecated Databases for Confluence (6 July 2010)
- Deprecated Databases for Confluence (24 March 2010)
- Deprecated Application Servers for Confluence (27 January 2010)
- Deprecated Java Platforms for Confluence (27 January 2010)
- Deprecated Web Browsers for Confluence (14 December 2009)

**Deprecated Operating Systems for Confluence (21 July 2011)**

This section announces the end of Atlassian support for certain operating systems for Confluence. End of support means that Atlassian will not fix bugs related to running Confluence server on that operating system past the support end date.

We will stop supporting the following operating systems from Confluence 4.0, due in late 2011:

- Mac OS X (as a Confluence server platform).

The details are below. Please refer to the list of supported platforms for details of platform support for Confluence. If you have questions or concerns regarding this announcement, please email eol-announcement at atlassian dot com.

**End of Life Announcement for Operating System Support**

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac OS X (as a Confluence server platform)</td>
<td>When Confluence 4.0 releases, due in late 2011</td>
</tr>
</tbody>
</table>

- Mac OS X Notes:
  - Atlassian intends to end support for Mac OS X (as a server platform) in Confluence 4.0 (due for release in late 2011). Confluence 3.5 is the last version that will support Mac OS X.
  - The Sun/Oracle JDK/JRE 1.6 is the only JDK platform officially supported by Atlassian. This means that Apple Mac OS X is not a supported operating system for the Confluence server, as the Sun/Oracle JDK does not run on Mac OS X.
  - Accessing Confluence as a user from Mac OS X via a compatible web browser will still be supported for the foreseeable future.

**Deprecated Databases for Confluence (7 January 2011)**

This section announces the end of Atlassian support for certain database versions for Confluence. End of support means that Atlassian will not fix bugs related to certain database versions past the support end date.

We will stop supporting the following database versions from Confluence 4.0, due in late 2011:

- MySQL 5.0.

The details are below. Please refer to the list of supported platforms for details of platform support for Confluence. If you have questions or concerns regarding this announcement, please email eol-announcement at atlassian dot com.

**End of Life Announcement for Database Support**
**MySQL Notes:**
- Atlassian intends to end support for MySQL 5.0 in Confluence 4.0 (due for release in the middle of 2011). Confluence 3.5 is the last version that will support MySQL 5.0.
- MySQL 5.1 will still be supported.
- 'Support End Date' means that Confluence 3.5 and previously released versions will continue to work with MySQL 5.0. However, we will not fix bugs affecting MySQL 5.0 past the support end date.
- Confluence 4.0 will not be tested with MySQL 5.0.

### Deprecated Web Browsers for Confluence (7 January 2011)

This section announces the end of Atlassian support for certain web browser versions for Confluence. End of support means that Atlassian will not fix bugs related to certain web browser versions past the support end date.

We will **stop supporting the following web browser versions** from Confluence 4.0, late middle of 2011:

- Microsoft Internet Explorer 7 (IE7).
- Safari 4.
- Firefox 3.5.

The details are below. Please refer to the list of supported platforms for details of platform support for Confluence. 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

<table>
<thead>
<tr>
<th>Web Browser</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Internet Explorer (version 7 only)</td>
<td>When Confluence 4.0 releases, late the middle of 2011</td>
</tr>
<tr>
<td>Safari (version 4 only)</td>
<td>When Confluence 4.0 releases, due in late of 2011</td>
</tr>
<tr>
<td>Firefox (version 3.5 only)</td>
<td>When Confluence 4.0 releases, due in late of 2011</td>
</tr>
</tbody>
</table>

**Internet Explorer Notes:**
- Atlassian intends to end support for IE7 in Confluence 4.0 (due for release in the middle of 2011). Confluence 3.5 is the last version that will support IE7.
- IE8 will still be supported.
- 'Support End Date' means that Confluence 3.5 and previously released versions will continue to work with IE7. However, we will not fix bugs affecting IE7 past the support end date.
- Confluence 4.0 will not be tested with IE7.

**Safari Notes:**
- Atlassian will introduce support for Safari 5 in Confluence 3.5.
- We intend to end support for Safari 4 in Confluence 4.0 (due for release in the middle of 2011). Confluence 3.5 is the last version that will support Safari 4.
- 'Support End Date' means that Confluence 3.5 and previously released versions will continue to work with Safari 4. However, we will not fix bugs affecting Safari 4 past the support end date.
- Confluence 4.0 will not be tested with Safari 4.

**Firefox Notes:**
- Atlassian will end support for Firefox 3.0 in Confluence 3.5, as previously announced.
- We intend to end support for Firefox 3.5 in Confluence 4.0 (due for release in the middle of 2011). Confluence 3.5 is the last version that will support Firefox 3.5.
- Firefox 3.6 will still be supported.
- 'Support End Date' means that Confluence 3.5 and previously released versions will continue to work with Firefox 3.5. However, we will not fix bugs affecting Firefox 3.5 past the support end date.
- Confluence 4.0 will not be tested with Firefox 3.5.

### Deprecated Databases for Confluence (12 October 2010)

This section announces the end of Atlassian support for certain database versions for Confluence. End of support means that Atlassian will not fix bugs related to certain database versions past the support end date.
We will **stop supporting the following database versions**:

- From Confluence 3.5, due in the first half of 2011, Confluence will no longer support PostgreSQL 8.1. *Note, PostgreSQL 8.2 and PostgreSQL 8.4 will still be supported.*

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. If you have questions or concerns regarding this announcement, please email eol-announcement at atlassian dot com.

### End of Life Announcement for Database Support

<table>
<thead>
<tr>
<th>Database</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>PostgreSQL (version 8.1 only)</td>
<td>When Confluence 3.5 releases, due in the first half of 2011</td>
</tr>
</tbody>
</table>

**PostgreSQL (version 8.1 only) End of Support Notes:**

- Atlassian intends to end support for PostgreSQL 8.1 in Confluence 3.5 (due to release in the first half of 2011), with the final support for these platforms in Confluence 3.4. PostgreSQL 8.2 and PostgreSQL 8.4 will still be supported.
- 'Support End Date' means that Confluence 3.4 and previous released versions will continue to work with the PostgreSQL 8.1. However, we will not fix bugs affecting PostgreSQL 8.1 past the support end date.
- Confluence 3.5 (due to release in the first half of 2011) will not be tested with PostgreSQL 8.1.

#### Deprecated Web Browsers for Confluence (12 October 2010)

This section announces the end of Atlassian support for certain web browser versions for Confluence. End of support means that Atlassian will not fix bugs related to certain web browser versions past the support end date.

We will **stop supporting the following web browser versions**:

- From Confluence 3.5, due in the first half of 2011, Confluence will no longer support Firefox 3.0. *Note, Firefox 3.5 and Firefox 3.6 will still be supported.*

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. 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

<table>
<thead>
<tr>
<th>Web Browser</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firefox (version 3.0 only)</td>
<td>When Confluence 3.5 releases, due in the first half of 2011</td>
</tr>
</tbody>
</table>

**Firefox (version 3.0 only) End of Support Notes:**

- Atlassian intends to end support for Firefox 3.0 in Confluence 3.5 (due to release in the first half of 2011), with the final support for these platforms in Confluence 3.4. Firefox 3.5 and Firefox 3.6 will still be supported.
- 'Support End Date' means that Confluence 3.4 and previous released versions will continue to work with Firefox 3.0. However, we will not fix bugs affecting Firefox 3.0 past the support end date.
- Confluence 3.5 (due to release in the first half of 2011) will not be tested with Firefox 3.0.

#### Deprecated Databases for Confluence (6 July 2010)

This section announces the end of Atlassian support for certain database versions for Confluence. End of support means that Atlassian will not fix bugs related to certain database versions past the support end date.

We will **stop supporting the following database versions**:

- From Confluence 3.4, due in the second half of 2010, Confluence will no longer support Oracle 10g (i.e. Oracle 10.1 and Oracle 10.2). *Note, Oracle 11g (i.e. Oracle 11.1 and Oracle 11.2) will still be supported.*

We have made these decisions in line with Oracle's decision to stop support for Oracle 10g, as per the "Oracle Database (RDBMS) Releases Support Status Summary [ID 161818.1]" article on the Oracle Support site (note, you will need an Oracle Support account to find and view the article). This also will reduce the testing time required for each release 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 upgrading to Oracle 11g if needed.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. If you
End of Life Announcement for Database Support

<table>
<thead>
<tr>
<th>Database</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle (version 10.1 and 10.2 only)</td>
<td>When Confluence 3.4 releases, due in the second half of 2010</td>
</tr>
</tbody>
</table>

- **Oracle (version 10.1 and 10.2 only) End of Support Notes:**
  - Atlassian intends to end support for Oracle 10.1 and Oracle 10.2 in Confluence 3.4 (due to release in the second half of 2010), with the final support for these platforms in Confluence 3.3. Oracle 11.1 and Oracle 11.2 will still be supported.
  - 'Support End Date' means that Confluence 3.3 and previous released versions will continue to work with the Oracle 10.1 and Oracle 10.2. However, we will not fix bugs affecting Oracle 10.1 or Oracle 10.2 past the support end date.
  - Confluence 3.4 (due to release in the second half of 2010) will not be tested with Oracle 10.1 and Oracle 10.2.

Deprecated Web Browsers for Confluence (6 July 2010)

This section announces the end of Atlassian support for certain web browser versions for Confluence. End of support means that Atlassian will not fix bugs related to certain web browser versions past the support end date.

We will stop supporting the following web browser versions:

- From Confluence 3.4, due in the second half of 2010, Confluence will no longer support Safari 3 or Safari 3.1. 
  
  Note, Safari 4 will still be supported.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. 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

<table>
<thead>
<tr>
<th>Web Browser</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safari (version 3 and 3.1 only)</td>
<td>When Confluence 3.4 releases, due in the second half of 2010</td>
</tr>
</tbody>
</table>

- **Safari (version 3 and 3.1 only) End of Support Notes:**
  - Atlassian intends to end support for Safari 3 and Safari 3.1 in Confluence 3.4 (due to release in the second half of 2010), with the final support for these platforms in Confluence 3.3. Safari 4 will still be supported.
  - 'Support End Date' means that Confluence 3.3 and previous released versions will continue to work with the Safari 3 and Safari 3.1. However, we will not fix bugs affecting Safari 3 and Safari 3.1 past the support end date.
  - Confluence 3.4 (due to release in the second half of 2010) will not be tested with Safari 3 and Safari 3.1.

Deprecated Databases for Confluence (24 March 2010)

This section announces the end of Atlassian support for certain database versions for Confluence. End of support means that Atlassian will not fix bugs related to certain database versions past the support end date.

We will stop supporting the following database versions:

- From Confluence 3.3, due in Q3 2010, Confluence will no longer support DB2 8.2.
  
  Note, DB2 9.7 will still be supported.

We are reducing our database 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 assist them in upgrading to DB2 9.7 if needed.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. If you have questions or concerns regarding this announcement, please email eol-announcement at atlassian dot com.

End of Life Announcement for Database Support

<table>
<thead>
<tr>
<th>Database</th>
<th>Support End Date</th>
</tr>
</thead>
</table>

If you have questions or concerns regarding this announcement, please email eol-announcement at atlassian dot com.
DB2 (version 8.2 only)  When Confluence 3.3 releases, due Q3 2010

- DB2 (version 8.2 only) End of Support Notes:
  - Atlassian intends to end support for DB2 8.2 in Q3 2010, with the final support for these platforms in Confluence 3.2. DB2 9.7 will still be supported.
  - 'Support End Date' means that Confluence 3.2 and previous released versions will continue to work with the DB2 8.2. However, we will not fix bugs affecting DB2 8.2 past the support end date.
  - Confluence 3.3 (due to release in Q3 2010) will not be tested with DB2 8.2.

Deprecated Application Servers for Confluence (27 January 2010)

This section announces the end of Atlassian support for certain application servers for Confluence. End of support means that Atlassian will not fix bugs related to certain application servers past the support end date.

We will stop supporting the following application servers:

- From Confluence 3.2, due late Q1 2010, Confluence will no longer support JBoss application servers.
- From Confluence 3.3, due in Q3 2010, Confluence will no longer support Oracle WebLogic, IBM WebSphere or Caucho Resin.

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 assist them in migrating to Tomcat, our supported application server.

The details are below. Please refer to the Supported Platforms for more details regarding platform support for Confluence. 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

<table>
<thead>
<tr>
<th>Application Servers</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>JBoss 4.2.2</td>
<td>When Confluence 3.2 releases, due late Q1 2010</td>
</tr>
<tr>
<td>Oracle WebLogic 9.2</td>
<td>When Confluence 3.3 releases, due Q3 2010</td>
</tr>
<tr>
<td>IBM WebSphere 6.1</td>
<td>When Confluence 3.3 releases, due Q3 2010</td>
</tr>
<tr>
<td>Caucho Resin 3.0, 3.1.6, 3.1.7</td>
<td>When Confluence 3.3 releases, due Q3 2010</td>
</tr>
</tbody>
</table>

- JBoss End of Support Notes:
  - 'Support End Date' means that Confluence 3.1 and previous released versions will continue to work with stated application servers. However, we will not fix bugs affecting JBoss application servers.
  - Confluence 3.2 will not support JBoss application servers.
- WebLogic, WebSphere and Resin End of Support Notes:
  - Atlassian intends to end support for Oracle WebLogic, IBM WebSphere, and Caucho Resin in Q3 2010, with the final support for these platforms in Confluence 3.2.
  - 'Support End Date' means that Confluence 3.2 and previous released versions will continue to work with the stated application servers. However, we will not fix bugs affecting Oracle WebLogic, IBM WebSphere, and Caucho Resin application servers past the support end date.
  - Confluence 3.3 (due to release in Q3 2010) will only be tested with and support Tomcat 5.5.20+ 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?

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 Confluence (27 January 2010)
This section announces the end of Atlassian support for certain Java Platforms for Confluence.

We will **stop supporting the following Java Platforms**:

- From Confluence 3.3, 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 the [Java SE Support Roadmap](#) (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 assist 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 Confluence. 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

<table>
<thead>
<tr>
<th>Java Platform</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Java Platform 5 (JDK/JRE 1.5)</td>
<td>When Confluence 3.3 releases, due Q3 2010</td>
</tr>
</tbody>
</table>

- **Java Platform 5 End of Support Notes**:
  - Atlassian intends to end support for Java Platform 5 in Q3 2010.
  - 'Support End Date' means that Confluence 3.2.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.
  - Confluence 3.3 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 Confluence (14 December 2009)

This section announces the end of Atlassian support for certain web browsers for Confluence.

We will **stop supporting older versions of web browsers** as follows:

- From Confluence 3.2, due late Q1 2010, support for Firefox 2 and Safari 2 will end.
- From 13 July 2010, in line with Microsoft's Support Lifecycle policy, support for IE6 will end.

The details are below. Please refer to the [Supported Platforms](#) for more details regarding platform support for Confluence. 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

<table>
<thead>
<tr>
<th>Web Browsers</th>
<th>Support End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firefox 2</td>
<td>When Confluence 3.2 releases, late Q1 2010</td>
</tr>
<tr>
<td>Safari 2</td>
<td>When Confluence 3.2 releases, late Q1 2010</td>
</tr>
<tr>
<td>Internet Explorer 6</td>
<td>When Confluence 3.3 releases (target Q3 2010) or 13 July 2010, whichever is sooner</td>
</tr>
</tbody>
</table>

- **Firefox 2 and Safari 2 Notes**:
  - Confluence 3.1 is the last version to officially support Firefox 2 and Safari 2.
  - You may be able to use these older browser for the most common use cases like viewing and editing content, but official support for these browsers will end once you upgrade to Confluence 3.2.
  - Confluence 3.2 is currently targeted to release late Q1 2010 and will not be tested with Firefox 2 and Safari 2. After the Confluence 3.2 release, Atlassian will not provide fixes in older versions of Confluence for bugs affecting Firefox 2 and Safari 2.

- **Internet Explorer 6 Notes**:
  - Confluence 3.2 (due late Q1 2010) will be the last version to officially support Internet Explorer 6.
  - Confluence 3.3 is currently targeted to release Q3 2010 and will not support IE6.
  - Atlassian will support IEB in Confluence until the 13th of July 2010, in line with Microsoft's Support Lifecycle policy. Beyond that date, released versions of Confluence 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, but official support for this browser will end once you upgrade to Confluence 3.3.

### Java 1.4 Support Timeline
What is happening?

As part of the ongoing development of Confluence, we have raised our minimum supported version of the Java platform.

- Confluence version 2.8 was the last major version to support Java 1.4.
- Confluence 2.9 and later require at least Java 5.

What does this mean to me?

I use Confluence

Users of Confluence websites should see absolutely no change.

I administer a Confluence Server

If you are running Confluence 2.8 or one of the 2.8.x patch releases, your current version of Confluence will continue to run in your current environment without change.

If you choose to upgrade to Confluence 2.9, you will need to ensure your environment is running at least Java 5.

You can check your current Java version in Confluence:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'System Information' from the 'Administration' section in the left-hand panel.
3. Refer to 'Java Version'.
   - If the version is 1.5 or higher, you do not need to do anything.
   - If the version is 1.4, you need to upgrade your JDK before you can upgrade to Confluence 2.9.

If you are running the Confluence EAR-WAR edition against your own application server, you will need to check with your application server vendor about which JDK versions are supported.

I am a Confluence Plugin/Extension Developer

Plugin developers who want their plugins to work on Confluence 2.8 and earlier should continue to compile their plugins with the Java 1.4 compiler. Plugin developers specifically targeting Confluence 2.9 and later should use the Java 5 compiler and Java 5 language features.

Why Now?

Our normal policy for JDK support is to follow Sun’s Java Technology End-of-Life policy, where only the most recent three major versions of Java are supported. On Sun’s original timeline for the release of Java 7, Java 1.4 would have been scheduled for EOL in (Northern Hemisphere) Spring 2008. Sun’s release roadmap for Java 7 has since been pushed back to 2009, but we feel that it is in the best interests of Confluence to stick to the original schedule.

Given Java 1.4’s near-obsolescence, saved only by the slipping schedule of Java 7, IT departments should already be planning to transition away from Java 1.4. Our surveys of customers suggest that most are already running Java 5, and those that don’t are running application servers that can easily support the new version. As such, the cost of continuing to support the old version, both in developer and support resources, cannot really be justified.

Progress on this issue can be tracked here: CONF-10365

Java 5 Support Timeline

This notice was first published on 6 July 2010 with the release of Confluence 3.3. As from Confluence 3.3, Java 5 is no longer supported. You will need Java 6 or later.

- What is happening?
- What does this mean to me?
  - I use Confluence
  - I administer a Confluence Server
  - I am a Confluence Plugin/Extension Developer
- Why Now?
What is happening?

As part of the ongoing development of Confluence, we have raised our minimum supported version of the Java platform.

- Confluence 3.2 was the last major version to support Java 5.
- Confluence 3.3 and later require at least Java 6.

What does this mean to me?

I use Confluence

Users of Confluence websites should see absolutely no change.

I administer a Confluence Server

If you are running Confluence 3.2 or one of the 3.2.x patch releases, your current version of Confluence will continue to run in your current environment without change.

If you choose to upgrade to Confluence 3.3, you will need to ensure your environment is running at least Java 6.

You can check your current Java version in Confluence:

1. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the 'Administration Console'.
2. Select 'System Information' from the 'Administration' section in the left-hand panel.
3. Refer to 'Java Version':
   - If the version is 1.6 or higher, you do not need to do anything.
   - If the version is 1.5, you need to upgrade your JDK before you can upgrade to Confluence 3.3.

If you are running the Confluence EAR-WAR edition against your own application server, you will need to check with your application server vendor about which JDK versions are supported.

I am a Confluence Plugin/Extension Developer

Plugin developers who want their plugins to work on Confluence 3.2 and earlier should continue to compile their plugins with the Java 5 compiler. Plugin developers specifically targeting Confluence 3.3 and later should use the Java 6 compiler and Java 6 language features.

Why Now?

Our policy for JDK support is to follow Sun's (now Oracle's) Java Technology End-of-Life policy. Java 5 reached its end of service life (EOSL) on October 2009. The cost of supporting an old Java version, particularly one that is no longer supported by Oracle, is not trivial. By ending support for Java 5, we will be able to significantly increase Confluence development speed.

Release Notes

Latest Release: Confluence 4.0

With great pleasure, Atlassian presents Confluence 4.0. This is one of the most significant updates to Confluence since its initial release in 2004. With a brand new WYSIWYG editor and wide-ranging user interface improvements, we're confident that Confluence 4.0 is the most productive and user-friendly version to date.

Read the full release notes.

All Release Notes

Confluence 4.0
- Confluence 4.0 Release Notes
Confluence 3.5
- Confluence 3.5.13 Release Notes
- (Confluence 3.5.12 was an internal release)
- Confluence 3.5.11 Release Notes
- (Confluence 3.5.10 was an internal release)
- Confluence 3.5.9 Release Notes
- (Confluence 3.5.8 was an internal release)
- Confluence 3.5.7 Release Notes
- Confluence 3.5.6 Release Notes
- Confluence 3.5.5 Release Notes
- Confluence 3.5.4 Release Notes
- Confluence 3.5.3 Release Notes
- Confluence 3.5.2 Release Notes
- Confluence 3.5.1 Release Notes
- Confluence 3.5 Release Notes

Confluence 3.4
- Confluence 3.4.9 Release Notes
- Confluence 3.4.8 Release Notes
- Confluence 3.4.7 Release Notes
- Confluence 3.4.6 Release Notes
- Confluence 3.4.5 Release Notes
- (Confluence 3.4.4 was an internal release)
- Confluence 3.4.3 Release Notes
- Confluence 3.4.2 Release Notes
- Confluence 3.4.1 Release Notes
- Confluence 3.4 Release Notes

Confluence 3.3
- Confluence 3.3.3 Release Notes
- (Confluence 3.3.2 was an internal release)
- Confluence 3.3.1 Release Notes
- Confluence 3.3 Release Notes

Confluence 3.2
- Confluence 3.2.1 Release Notes
- Confluence 3.2 Release Notes

Confluence 3.1
- Confluence 3.1.2 Release Notes
- Confluence 3.1.1 Release Notes
- Confluence 3.1 Release Notes

Confluence 3.0
- Confluence 3.0.2 Release Notes
- Confluence 3.0.1 Release Notes
- Confluence 3.0 Release Notes

Confluence 2.10
- Confluence 2.10.4 Release Notes
- Confluence 2.10.3 Release Notes
- Confluence 2.10.2 Release Notes
- Confluence 2.10.1 Release Notes
- Confluence 2.10 Release Notes

Confluence 2.9
- Confluence 2.9.3 Release Notes
- Confluence 2.9.2 Release Notes
- Confluence 2.9.1 Release Notes
- Confluence 2.9 Release Notes

Confluence 2.8
- Confluence 2.8.3 Release Notes
- Confluence 2.8.2 Release Notes
- Confluence 2.8.1 Release Notes
- Confluence 2.8 Release Notes
- Confluence 2.8 Beta Release Notes

Confluence 2.7
- Confluence 2.7.4 Release Notes
- Confluence 2.7.3 Release Notes
- Confluence 2.7.2 Release Notes
- Confluence 2.7.1 Release Notes
- Confluence 2.7 Release Notes

Confluence 2.6
- Confluence 2.6.3 Release Notes
- Confluence 2.6.2 Release Notes
- Confluence 2.6.1 Release Notes
- Confluence 2.6 Release Notes

Confluence 2.5
- Release Notes 2.5.9
- Release Notes 2.5.7
- Release Notes 2.5.6
- Release Notes 2.5.5
- Release Notes 2.5.4
- Release Notes 2.5.3
- Release Notes 2.5.2
- Release Notes 2.5.1
- Release Notes 2.5

Confluence 2.4
- Release Notes 2.4.5
- Release Notes 2.4.4
- Release Notes 2.4.3
- Release Notes 2.4.2

Confluence 2.3
- Release Notes 2.3.3
- Release Notes 2.3.2
- Release Notes 2.3.1
- Release Notes 2.3

Confluence 2.2
- Release Notes 2.2.10
- Release Notes 2.2.9
- Release Notes 2.2.8
- Release Notes 2.2.7
- Release Notes 2.2.6a
- Release Notes 2.2.5
- Release Notes 2.2.4
- Release Notes 2.2.3
- Release Notes 2.2.2
- Release Notes 2.2.1
- Release Notes 2.2

Confluence 2.1
- Release Notes 2.1.5
- Release Notes 2.1.4
- Release Notes 2.1.3
- Release Notes 2.1.2
- Release Notes 2.1.1
- Release Notes 2.1

Confluence 2.0
- Release Notes 2.0.3
- Release Notes 2.0.2
- Release Notes 2.0.1
- Release Notes 2.0

Confluence 1.4
- Release Notes 1.4.4
- Release Notes 1.4.3
- Release Notes 1.4.2
- Release Notes 1.4.1
- Release Notes 1.4

Confluence 1.3
Confluence Release Cycle

New versions of Confluence are released frequently. Our goals are to:

- Make bug-fixes available to customers sooner
- Give interested customers early access to new features and API changes
- Make Confluence major releases predictable

Feature Releases

We aim to release new versions of Confluence every three to four months. These releases will contain the bulk of new functionality.

Feature releases are numbered by incrementing Confluence's minor version number, so the move from Confluence 2.0 to 2.1 and 2.1 to 2.2 both introduced significant new features to the product. Occasionally we may change to a whole new major version number (Confluence 2.0 was originally slated to be released as 1.5), but that is mostly done for marketing purposes, and shouldn't be considered to have any practical meaning. 😊

Feature releases may not be API-compatible with the previous release. This means that you should test RPC clients, macros and plugins before running them on a newer version of Confluence.

You can find the time line history of our major releases at the downloads archive.

Bug-Fix Releases

Confluence bug-fix releases are scheduled every three to four weeks, depending on the number and urgency of the bugs that have been fixed during that particular development cycle. We aim to minimise the time between a bug being reported and a fix being available, without either us or our customers having to manage clumsy sets of manual patches.

Bug-fix releases will contain mostly bug-fixes, plus the occasional minor new feature or enhancement. Enhancements will be limited, however, as the main aim of these point releases is to improve stability, and make no significant API changes.

Bug-fix releases are numbered by incrementing the patch-level. So the first bug-fix release after Confluence 2.2 is 2.2.1, followed by 2.2.2. Occasionally, we will re-issue a bug-fix release because something was faulty with the original download. In that case we will create a "re-issue" release number, for example 2.1.5a or 2.2.1a.

Obviously, we don’t expect anyone to upgrade Confluence every two weeks, administrators should keep their own schedule, based
on how much of an inconvenience is being caused by any bugs that may have been fixed since. Sometimes, however, a security issue or serious application bug will arise that we feel it is in everyone's best interests to fix as soon as possible. In such cases, we will recommend in the Release Notes that all customers upgrade to the latest version.

### Milestone Releases

Occasionally, when possible, we will release preview "milestone releases" of the next major Confluence version. How often and when we do so depends on the particulars of the current development cycle. In situations where we are working on a number of disparate features we may be able to do a number of progressive development releases, whereas in iterations where we are making significant changes to the Confluence internals, we may not have anything suitable for public consumption until quite late in the release cycle.

Milestone releases will be announced on the mailing lists. Milestone releases are published for testing plugins and early feedback about our work, please don't use them on production systems.

The version number of a Milestone Release will be the version number of the next major release, suffixed with -m. So Confluence 2.3-m1 will be followed by 2.3-m2, and so on until the ultimate release of the finished Confluence 2.3.

### Upgrade Notes Overview

Typically, each major release of Confluence comes with upgrade notes, which are specific recommendations for upgrading from the previous major version. If you plan to upgrade and skip a few Confluence versions, you must read the upgrade notes for all major versions between your current version and the version to which you are upgrading, to make sure you do not miss something important.

Please read our general information about upgrading Confluence.

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**For example:**

When upgrading from Confluence 3.4 to Confluence 4.0, read the upgrade notes for Confluence 3.5, as well as those for Confluence 4.0.

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Also, we strongly recommend that you read the upgrade notes for any minor releases in-between, since they contain important information that will affect your Confluence upgrade.

Below is a list of upgrade notes for previous major releases of Confluence, as well as the upgrade notes for important minor releases:

- Confluence 4.0 Upgrade Notes
- Confluence 3.5 Upgrade Notes
- Confluence 3.4 Upgrade Notes
- Confluence 3.3 Upgrade Notes
- Confluence 3.2 Upgrade Notes
- Confluence 3.1 Upgrade Notes
- Confluence 3.0.1 Upgrade Notes
- Confluence 3.0 Upgrade Notes
- Confluence 2.10 Upgrade Notes
- Confluence 2.9 Upgrade Notes
- Confluence 2.8 Upgrade Notes
- Confluence 2.7 Upgrade Notes
- Confluence 2.6 Upgrade Notes

You will find the upgrade notes attached to the release notes for the relevant version.

### Useful Plugins

Before installing a plugin into your Confluence site, please check the plugin's information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

### RELATED TOPICS

- Confluence Release Summary
- Release Notes

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**Coherence license changes SEPT 2009 - new Standard and Clustered Confluence Editions**

### Summary

Oracle Coherence (formerly known as Tangosol Coherence) is the technology that provides clustering and distributed caching in Confluence. It has also been used for caching purposes in non-clustered Confluence deployments.
The Oracle Coherence technology was first incorporated into Confluence version 2.3. Since then, Atlassian has been able to distribute the Coherence technology library files via the following means:

- Included with all versions and distributions of Confluence downloadable from our web site since version 2.3, regardless of whether these were intended for clustered or single-server installations.
- From the Atlassian Maven repositories.

However, Atlassian is about to enter a new license agreement with Oracle over the Coherence technology. This means that from late September 2009, Atlassian will only be permitted to distribute the Coherence library files to customers who have purchased a license for it (that is, a Confluence clustered license).

As a result, the following changes will occur:

- The next version of Confluence (3.0.1) will be released in two editions:
  - **Standard** — Editions of Confluence without the Coherence library files. Ehcache will replace the local caching functionality previously provided by the Coherence technology.
  - **Clustered** — Editions of Confluence containing the Coherence library files.
- Customers who have purchased a non-clustered Confluence license will only be able to download standard editions of Confluence from the Atlassian web site, whereas customers who have purchased a Confluence clustered license will be able to download clustered editions of Confluence.
- From late September 2009:
  - Standard editions of Confluence will be made available for each previous major releases of Confluence back to version 2.6. These will be available as Confluence versions 2.10.4, 2.9.3, 2.8.3, 2.7.4 and 2.6.3 and will be available to customers with non-clustered licenses.
  - All other previous versions of Confluence currently available from our download page (from 2.6 to 3.0 inclusively), will be re-released as clustered editions and will only be available to customers with Confluence clustered licenses.
  - The Coherence library files will no longer be available in any form from the Atlassian Maven repositories.
  - The installation files for all versions of Confluence prior to 2.6 (which are no longer supported) will be removed from the Atlassian web site and will no longer be available for download and installation.

If you are currently running a clustered installation of Confluence, please do not upgrade it with a standard edition of Confluence.

**What are the implications?**

**I am a Confluence customer with a non-clustered Confluence license, running Confluence 2.3 or later.**

The Confluence distribution you are running will continue to function and if it is Confluence version 2.6 or later, be supported by Atlassian in accordance with our standard support policy.

However, if you upgrade to Confluence version 3.0.1 or later or obtain any Confluence version released after late September 2009, you will only be able to download and upgrade to standard editions of Confluence.

**I run a customised installation of Confluence 2.3 or later and must build Confluence from source.**

Confluence source code downloaded before late September 2009 requires that the Coherence library files are present in either your local or the Atlassian Maven repositories for automated Maven builds to complete successfully.

If you have Confluence source code downloaded before late September 2009 (excluding version 3.0.1) but conduct an automated Maven build of Confluence using this source code after this date, your build will fail if the Coherence library files are not available in your local Maven repository. This is because the Coherence library files will also not be available in the Atlassian Maven repository.

Hence, to build a customised installation of Confluence using this source code, we recommend that you locate the tangosol-3.3.jar and coherence-3.3.jar from the WEB-INF/lib directory of your own existing Confluence installation and install them into your local Maven repository using the following commands:

```
mvn install:install-file -Dfile=tangosol-3.3.jar -DgroupId=tangosol-coherence -DartifactId=tangosol -Dversion=3.3 -Dpackaging=jar
mvn install:install-file -Dfile=coherence-3.3.jar -DgroupId=tangosol-coherence -DartifactId=coherence -Dversion=3.3 -Dpackaging=jar
```

These commands will install the Coherence library files into your local Maven repository, which should be available to you only. Please do not upload these files to any public Maven repository nor make them publicly available by any other means. Atlassian's End User License Agreement does not grant permission to redistribute any part of Confluence, which includes these Coherence library files.

Alternatively, you can download the sources for one of the new standard or clustered editions of Confluence and reapply your customisations. These will compile without any additional problems.
I am a plugin developer and wish to compile plugins against old or existing versions of Confluence

This will affect plugin developers in two ways:

1. When building a plugin, Maven will complain about the absence of the Coherence library files in the Atlassian Maven repository.
2. When using the Atlassian Plugin Toolkit to test a plugin, Maven will be unable to download the appropriate Confluence EAR-WAR distribution file (from the Atlassian Maven repository), against which to perform integration tests.

Therefore, we recommend that as soon as possible, plugin developers start compiling their plugins based on the new standard editions of Confluence (without the Coherence library files). Standard editions of Confluence will be binary-compatible with clustered editions and existing clustered instances of Confluence. Hence, plugins developed against standard editions of Confluence will also run on any clustered editions and existing clustered instances of Confluence.

I am a plugin developer concerned about API changes and multiple Confluence editions resulting from these changes

As long as you are using only Confluence APIs to develop plugins, your plugins will be binary compatible with both standard and clustered editions of Confluence. The interfaces of the Confluence CacheManager, Cache and ClusterManager will be the same in both editions of Confluence, although there will be only one important change from previous versions of Confluence.

In existing versions of Confluence, the ClusterManager exposes the Coherence InvocationService to allow clients to execute code or perform queries across all nodes of the cluster. This API will be unavailable in all standard edition versions of Confluence from version 3.0.1 back to 2.6. If your plugin uses this service (and Atlassian is not aware of any that do) you should instead use Confluence's RemoteEvent API to send messages to other cluster nodes and direct them to perform the work.

Also, if for some reason your plugin references some other Coherence classes directly (or imports the Coherence-specific implementations of the CacheManager, Cache or ClusterManager), you will need to rewrite your plugin to use the generic interfaces only.

I am a plugin developer and want to test my plugin against Confluence in a cluster

For testing purposes, you must own a Confluence clustered license and have access to a clustered Confluence installation (either an existing one or one based on the new Confluence clustered edition).

Confluence Release Summary

This page shows the highlights of the major Confluence releases.

Current Release

For information about the latest release, please go to the Release Notes.

Confluence 4.0

- Brand New Editor
- Simplified Editing Experience
- New Macros
- Faster Editing Experience
- Introducing @mentions
- Improved Page Comparison Functionality
- Email Notification Improvements
- New Confluence Installer and Guided Upgrades
- New Editor Plugin Points for Developers
- Other Improvements
- More in the release notes

Confluence 3.5 — 16 March 2011

- Easy, Powerful Connections to Active Directory, LDAP and Crowd
- Improved JIRA Integration
- Drag-and-Drop for HTML5 Browsers
- Autowatch and Improved Notification Settings
- Sharing Pages and Blog Posts
- Enhanced Code Macro
- More Administrative Improvements
- "What's New" Feature Tour
- Categories, a New Way of Organising Spaces
- Embedding Audio and Video with the Multimedia Macro
- Other Improvements
- Infrastructure Changes
- More in the release notes

Confluence 3.4 — 12 October 2010

- New Keyboard Shortcuts, Mac-Friendly Too
Confluence 4.0 Documentation

- Keyboard Shortcut Dialog
- User Macros in Macro Browser and Autocomplete
- New Plugin Manager
- Improved Performance
- Other Improvements
- Infrastructure Changes
- More in the release notes

Confluence 3.3 — 7 July 2010

- Confluence Page Gadget
- Autocomplete for Inserting Macros
- Property Panels for Links
- Property Panels for Images
- Manage Watchers
- Email Notifications for Network Activity and Blogs
- Blog Improvements
- Context-Sensitive Help Links
- Security Features
- Infrastructure Changes
- Even More Improvements
- More in the release notes

Confluence 3.2 — 24 March 2010

- Autocomplete for Inserting Links
- Autocomplete for Embedding Images and Documents
- A Link Browser that's Smarter, Smoother, Faster
- New Documentation Theme
- New Easy Reader Theme
- Template Bundles
- Reordering while Moving a Page
- New Keyboard Shortcuts and Editor Hints
- User Interface Enhancements
- And Even More Improvements
- More in the release notes

Confluence 3.1 — 8 December 2009

- Introducing Gadgets
- Drag-and-Drop
- Office 2007 Support
- New 'Move Page' Feature
- Enhanced Image Browser
- Draft Comparisons
- Page Restrictions Dialog Box
- Other Editor Enhancements
- New Web Browser Versions Supported
- Other Improvements
- More in the release notes

Confluence 3.0 — 1 June 2009

- Introducing the Macro Browser
- Enhanced User Profiles
- Introducing Your Network
- New User Status
- New Hover Profile Feature
- Customisable Enhanced PDF Exports
- Improved Rich Text Editor
- Performance Improvements
- Engine Room and Developer Community
- Administration Improvements
- More in the release notes

Confluence 2.10 — 3 December 2008

- Introducing the Widget Connector
- Improved Office Connector Now Bundled
- Introducing Quick Navigation
- 'Did You Mean', OpenSearch and More
- Custom Stylesheets for Confluence Spaces
- Updated JIRA Issues Macro with Custom Fields and Dynamic Display
- Enhanced User and Group Management
- Upgraded Rich Text Editor
- Universal Wiki Converter now with SharePoint Import and More
- Improved Activity Macros
- Plugin Framework 2
- More in the release notes
Confluence 2.9 — 7 August 2008
- Streamlined Search
- Auto Save
- Charts
- Page Tree
- Gallery
- New Tutorial
- More in the Menus
- Alphabetical Page Ordering
- Better Spam Prevention
- Plugin Repository
- Engine Room and Developers’ Community
- More in the release notes

Confluence 2.8 — 10 April 2008
- Dynamic menus and simplified screen design
- Page ordering
- Collapsible comments
- Multiple-label filter
- Confluence installer
- Task list
- Performance enhancements
- Administration, management and monitoring
- More in the release notes

Confluence 2.7 — 12 December 2007
- JIRA Issues and Portlet macros use new trusted authentication
- Two-tier administrator permissions
- Inserting images and attaching files during page creation
- Sorting of images in Gallery macro
- Simplified and improved logging
- Performance, maintainability and administration
- More in the release notes

Confluence 2.6 — 27 September 2007
- Fresh look for the Default theme
- Personalised comments and Dashboard
- Space description on Dashboard
- Labels on templates
- Default content for space home pages
- Social Bookmarking plugin now bundled with Confluence
- Back-dating and renaming news items
- More in the release notes

Confluence 2.5 — 29 April 2007
- Introducing flexible page restrictions
- Dynamic task list JRE incompatibilities
- contentbylabel macro supports AND condition
- More in the release notes

Confluence 2.4 — 14 March 2007
- Editable comments
- Page mailing
- More in the release notes

Confluence 2.3 — 5 January 2007
- Confluence Massive — cluster support
- People directory
- Activity plugin — usage statistics
- Blogging RPC plugin — manage news in Confluence using blogger-compatible desktop clients
- WebDAV client support via WebDAV plugin — create, edit, move pages, attachments, etc via WebDAV
- More in the release notes

Confluence 2.2 — 27 April 2006
- Personal spaces
- Localisation/internationalisation — drop-in language packs (similar to JIRA)
- CAPTCHA support — spam protection
- Improved searching
- Improved LDAP performance
- Confluence Standalone ships with Tomcat 5.5
- More in the release notes

Confluence 2.1 — 20 December 2005
• Autosave
• Concurrent edit warnings
• LDAP integration with Atlassian User/POLIS
• More in the release notes

Confluence 2.0 — 17 November 2005
• Rich Text Editing — WYSIWYG editor
• Labels
• Dashboard tabs — All, My, Team, New
• RSS builder
• Export pages as Word documents
• Copy pages
• More in the release notes

Confluence 1.4 — 23 May 2005
• New user interface
• Enhanced editing — doing more in the edit interface
• Page permissions
• New plugin types
• Configurable themes
• Completely rewritten Wiki to HTML conversion engine
• More in the release notes

Confluence 1.3 — 30 November 2004
• Mail archiving
• Themes
• Trash can
• More granular space permissions
• More in the release notes

Confluence 1.2 — 23 August 2004
• Page list views — alphabetical, directory view and search view of all pages in a space
• Image thumbnails and thumbnail galleries
• Threaded comments
• Enhanced Search - indexing attachment comments and file names and contextual searching
• New permissions interface
• More in the release notes

Confluence 4.0 Release Notes

19 September 2011
With great pleasure, Atlassian presents Confluence 4.0. This is one of the most significant updates to Confluence since its initial release in 2004. With a brand new WYSIWYG editor and wide-ranging user interface improvements, we're confident that Confluence 4.0 is the most productive and user-friendly version to date.

Highlights of Confluence 4.0:
• Brand New Editor
• Simplified Editing Experience
• New Macros
• Faster Editing Experience
• Introducing @mentions
• Improved Page Comparison Functionality
• Email Notification Improvements
• New Confluence Installer and Guided Upgrades
• New Editor Plugin Points for Developers
• Other Improvements
• Helping You Transition to Confluence 4.0
• Release Notices

More:
• Read the Upgrade Notes for important information about this release.
• See the full list of issues resolved in this release.

Learn more about Confluence 4.0
Highlights of Confluence 4.0

Brand New Editor

We've rebuilt the Confluence editor from the ground up, bringing you an editing experience that's simpler, faster and richer.

The new Confluence editor delivers many advantages:

- Just one editor!
- New, streamlined user interface.
- Redesigned toolbar with enhanced text formatting (indent paragraphs) and alignment controls.

Simplified Editing Experience

Editing in Confluence 4.0 is more visual and more contextual, putting more power at your fingertips.

Table Editing

We've made table operations better in Confluence 4.0 with the following features:

- Drag to Insert Tables
  Inserting tables is now easier and truly "WYSIWYG" with this new feature. Just click on the new Table dropdown and drag
your mouse to choose the number of rows and columns you’d like in your new table. Oh, and don’t worry if you like inserting tables with your keyboard, you can still use autoformatting or CTRL+SHIFT+I to insert a table.

• **New In-Context Table Toolbar**
  The new table toolbar removes the need for a context menu and only appears when you add a table to the page.

• **Merge and Split Table Cells.**

• **Highlight cells, rows or columns.**

• **Cut, copy and paste table rows.**

**Improved Image Handling**

• **Paste Images From Clipboard (Firefox and Chrome only)**
  Just copy any image to your clipboard and hit CTRL+V in the editor. The image will get attached and embedded directly into your page. There’s nothing to install on your desktop, it just works!

• **Turn Images Into Links**
  Now you can turn images into links. This is especially handy for turning images into a button.

• **Custom Image Sizes**
  If you don’t like the preset image sizes, you can now specify an exact image width.

• **Search Images**
  You can now embed images from other pages using the new Search tab in the image browser.
Simplified Macro Editing

Confluence 4.0 introduces macro placeholders, a visual representation of your macros while editing. Create rich content with new and existing macros, without the tools getting in the way. Makes macros easier to manage while editing.

- **A More Visual Experience**
  - Making it easier to visualise what the page will look like when you save it.
- **Macro Properties Panel**
  - Every macro has a properties panel. The property panels for particular macros, such as the Status and View PowerPoint macros have additional functionality, as shown in the screenshot below.
- **Quick Access to Macro Editing**
  - Double-click the macro to open the Macro Browser for parameter editing. The contents of some macros can be modified directly from the editor.
New Macros

We've bundled more macros with Confluence, and made some of the existing macros better, to help you easily include and present relevant content:

- **Status Macro**
The Status macro is an easy way to show your status in reports (i.e. red, yellow or green) as a coloured lozenge. You can use the properties panel to quickly change the status.

- **Expand Macro**
The Expand macro allows you to add a dynamically expandable section of text to your page.

- **Profile Picture Macro**
The Profile Picture macro displays a users profile picture on a page. Useful for creating Team Pages.
Faster Editing Experience

Write Wiki Markup ... Fast!

Many of Confluence’s biggest fans are avid wiki markup users. For you aficionados, we wanted to give you the fastest editing experience possible, while preserving the speed and efficiency of your existing wiki markup skills. So, we present you with Autoformatting!

Video of Autoformatting in Action:

What is Autoformatting?

Autoformatting lets you type wiki markup into the editor. This new feature will “auto-format” your text on the fly. To learn more, click on the help button in the editor and select the Editor Autoformatting tab.

Try these and see what you think:

- **Font Formatting**
  Bold, underline, strikethrough, italic, superscript, subscript – just type the markup, such as “Bold”, and watch it convert to Bold on the fly!

- **Basic Tables**
  Try typing ||||, or || Heading 1 || Heading 2 ||, then hit enter to to instantly see this:

```
Heading 1 | Heading 2
---------|---------
```

- **Emoticons**
  All of our emoticons convert on the fly. Try typing :-) into the editor to instantly see this: 😊. It even works for (/), showing this: 😍.

- **Lists**
  For numbered lists, type # and a space at the start of each line.
  For bulleted lists, type * and a space at the start of each line.

- **Headings**
  Type h4. then some heading text to see a level 4 heading.

New Page Links

Quickly insert a link to create a page with Autocomplete for links. Simply type ' in the editor and as you type, Confluence will display a Create Page link if a page with that title does not already exist in your current space.

Introduced in a previous release of Confluence (see details in this blog post), adding links, media and macros can still be quickly added by typing [, ! or { in the editor to add various kinds of content to your page.
Introducing @mentions

Confluence 4.0 includes the new @mentions feature. This allows you to easily bring collaborators into a conversation: if you are mentioned in any Confluence content (a page, blog, comment or status update), you will be notified by email.

To mention someone, type @ and their name, when editing. Mentions will instantly suggest people you are following in your network so you can quickly find and involve your friends.

Improved Page Comparison Functionality

We’ve got a better way to view changed content in Confluence.

Improved Page Diffs

We’ve simplified page diffs to make them easier to read. Now, page differences appear exactly as they do in Confluence. Images, text and tables are displayed as rendered. Additionally, page diffs now show changes to both formatting and macros.
In Confluence, content is organised into spaces. Each space has its own access control settings. There are two types of space:

- **Global** spaces are areas on your site into which you can group content items (pages, attachments, news, etc.) based on any subject or topic of your choice. For example, you may want separate areas on your site for each team or project within your organisation. In Confluence, you can set up a different space for each team or project. You can build content for each of these spaces individually, decide who its users are, and even archive mail separately within each. For example, you may want separate areas on your site for each team or project within your organization.

- **Personal** spaces belong to specific users. These spaces are listed in the People Directory. They are not listed on the 'All' tab on the dashboard. Personal spaces can contain pages and blog posts. People can search or browse them. They can be kept private, or opened up so the whole world can view and edit them, just like global spaces.

**Diffs in Email**

Where possible, email notifications are now rendered in your email view with the correct diff colour coding.

**Email Notification Improvements**

**New Email Design**

All email notifications in Confluence now have a new design. This works in major email clients as well as on the iPhone.
Follow Notifications

Confluence now sends email when someone follows you.

New Confluence Installer and Guided Upgrades

Much to the delight of any sysadmins that are looking after Confluence, the Windows and Linux guided installers are now available.

Guided Upgrades

The new Linux and Windows Installers include an option that allows you to upgrade an existing Confluence 3.5.x (or later) installation. This upgrade automates the following tasks for you:

1. Backs up the Installation and Home Directories of the existing Confluence installation.
2. Installs Confluence 4.0.x whilst migrating the following from your existing Confluence installation:
   - TCP port values in your existing Confluence installation's server.xml file.
   - The upgrade feature detects and notifies you of any other files in the Confluence subdirectory of your existing
Confluence Installation Directory, which have been deleted, added or modified from the default. This informs you of any customisations you will need to manually migrate across to your upgraded Confluence installation directory.

Simplified Installation Process

- **Guided installer**: The guided install wizard has been implemented for Confluence 4.0 on both Windows and Linux operating systems. Installing a new instance is a breeze.
- **Easy JIRA Integration**: Hook Confluence up with JIRA, right within the Confluence setup wizard.

New Editor Plugin Points for Developers

We've added more editor plugin points for developers. Notable improvements include:

**Editor Plugin Points**

- **Extend the Macro Property Panel**
  Plugin developers can add buttons to the Macro Property Panel in the editor. For example, insert a Gliffy diagram or see the tutorial on how to do this.

- **Render an Image in the Macro Placeholder**
  A plugin developer can now render an image instead of a placeholder for bodyless macros. For more information, check out the tutorial on how to do this.

- **Custom Parameter Rendering in Placeholders**
  You can choose to display any parameter in the macro placeholder in the editor, instead of having the placeholder automatically show the first few parameters.

- **New Pluggable More Menu**
  Plugin developers can add items to the editor's More menu. See this tutorial for details.

**Developer Resources**

- **View Storage Format**
  To assist with plugin developers and help with developer issues, developers running in Dev mode and Confluence administrators can view the page storage format from the Tools menu in Confluence.

- **New API Changes**
  We have disabled the getPage() and getBlogEntry() read methods in the XML-RPC/SOAP API. If you have a script that primarily reads or appends to existing pages, it will break. Creating pages and overwriting existing pages will still work.

- **Plugin Developer Documentation**
  We have created a landing page for Confluence 4.0 planning. This includes resources for plugin developers to help you create new plugins, and make use of the new plugin points, as well as upgrade your existing plugins.

**Infrastructure Changes**
This release includes a number of improvements in the APIs and under the covers as well.

- **Anti-XSS Mode**
  This is now enabled by default for plugins.

- **Alignment and Border Parameters**
  The `alignment` and `border` properties in the macro definition template have been removed.

- **Thumbnail Settings**
  The `Thumbnail maximum height` and `Thumbnail maximum width` settings have been removed from the General Configuration page.

- **Link Browser**
  The Link browser is no longer built in GWT and is now built in core JavaScript.

- **Integration Platform 2.12.0**

- **Upgrade to AUI 3.5.0**

### Other Improvements

As always, we have made various small improvements to Confluence screens, functionality and supported platforms.

- **Chrome and Internet Explorer 9 Support**
  See the [upgrade notes](#) for more information about browser support.

- **Administrator's task list in the Admin Console**
  This new task list in the Admin Console helps administrators get started after a new install.

- **New keyboard shortcut:**
  `CTRL+SHIFT+E` to preview when you are in the editor; hit 'E' to get back to the editor.

- **Administration UI**
  Help tips have been added to the field descriptions.

- **Quicknav Improvements**
  Quicknav now indicates the space the page is coming from. This helps you find a page that might have the same title across multiple spaces, as well as selecting the first search result by default, making it quicker to open the link.

- **Advanced Linking**
  We've updated the Link dialog to cater for these link types: shortcut links, anchor Links, and undefined links (which you can do using Autocomplete).

### Helping You Transition to Confluence 4.0

We've created a set of resources to help you manage the transition away from wiki markup. We know your people have become experts with using wiki markup in Confluence, but we think you'll really appreciate the new editor, and we want to make it as easy as possible for you to make the change. The change management resources are listed under the current documentation.

**Learn more about Confluence 4.0**

**Live Webinar**

September 27th 8 AM Pacific

### Release Notices

**Upgrading from a previous version of Confluence**

⚠️ You can only upgrade to Confluence 4.0 from Confluence 3.5. From version 3.5, you'll be able to use our now automated upgrader to move to 4.0. See the [Confluence 4.0 Upgrade Notes](#).

Follow the normal upgrade instructions to upgrade your test instance to this release. We strongly recommend that you back up your Confluence Home directory and your database before upgrading.

When upgrading from a previous version of Confluence, if you have customised your cache settings (as documented in [Cache Performance Tuning](#)) then you may run into memory problems during the wiki to XHTML migration. We are working to fix this in a
later release, but in the meantime you can revert your `ehcache.xml` to the default version.

- If you still experience problems, try reducing the 'maxElementsInMemory' attribute on each cache to a very small value such as 50.
- Note that any cache changes you make to work around migration problems should only be considered temporary. You should restore caching to its original settings again after migration has been successful.

### Removed Functionality

**Features removed from Confluence**

- **The Edit Page in Word functionality**
  This is being removed in Confluence 4.0. **Note:** This is a different feature to "Edit attachment in Word".

- **Mail Page Plugin**
  The Mail Page plugin is no longer bundled in Confluence. With the introduction of the "Share Page" feature in 3.5 this is no longer needed.

- **Social Bookmarking Plugin**
  The Social Bookmarking plugin is no longer bundled in Confluence but is still supported.
  
  - The SnipSnap importer has been removed from the admin console.
  - Please be aware that Confluence Clustered is not available for version 4.0 yet. It will be forthcoming in a minor release, following the launch of version 4.0.

### Settings removed from Confluence

These settings were removed due to low recorded usage and the ongoing goal of simplifying Confluence.

- The CamelCase Links setting, from general configuration.
- The Number of Ancestors to Show in Breadcrumbs setting.

A big thank you to everyone who helps us ensure that Confluence keeps getting better and better!

### The Confluence 4.0 Team

**Development**

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Niraj "Max Connections" Bhawnani  
Joseph "C# forever!" Clark  
Paul "Caravan of Courage" Curren  
Lachlan "Dilly" Dally  
Chris "Daz" Darroch  
Anna "A1&Z" Dominguez  
Matthew "Sony" Erickson  
Steven "Lefty" Haffenden  
Sam "@Mentions" Haldane  
Chris "Killer" Kiehl  
Daniel "Threads" Kjellin  
Steve "CMD+V" Lancashire  
David "Long" Loeng  
Brian "The Intern" Nguyen  
Craig "Patient Zero" Petchell  
Agnes "GWT-free" Ro  
Matt "Kermi" Ryall  
Stefan "Git FTW" Saasen  
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Wesley "Weasles" Walser  
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Kai Fung "KFC" Chong
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Matthew "Hollywood" Hodges

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Janet Albion
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Kah Loun Foong
Sim Foo Guan
Heng Hwa Loi
Joachim Ooi
Hanis Suhailah

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Robert Chang
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Brad Mallow
Wayne Tombo
Timothy Wong

Integration Management
Melanie Carasso
Ted Tencza
Issues Resolved in Confluence 4.0

Below are the issues resolved in Confluence 4.0, ordered by number of votes. For the full details of the fixes, improvements and new features, please take a look at our issue tracker. Please also take a look at the Confluence 4.0 Release Notes for the new features in this release.

Features and Improvements

<table>
<thead>
<tr>
<th>JIRA Issues (42 issues)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td><strong>Key</strong></td>
<td><strong>Summary</strong></td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-3808</td>
<td>Add colspan functionality to simple table markup</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-5587</td>
<td>Allow users to paste image in WYSIWYG editor</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-12952</td>
<td>Support Chrome</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-19666</td>
<td>Office connector should support MS Office 2010</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-22057</td>
<td>Add support for Firefox 4 in Confluence and in the Firefox Add-On for the Office Connector</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-2803</td>
<td>Macro to allow for expand/collapse of a section or region of the page</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-4902</td>
<td>Wiki markup should support easily indenting a line</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-5311</td>
<td>Move to WYSIWYG editor based on HTML instead of wiki markup. Replace wiki markup mode with HTML editor mode.</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-8268</td>
<td>Support inline unformatted text</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-5308</td>
<td>Add text alignment capabilities to align text left, centre or right to WYSIWYG</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-4997</td>
<td>Support nested macros by allowing an open / close tag syntax</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-6007</td>
<td>No space required before sub/superscript</td>
<td>Resolved</td>
</tr>
<tr>
<td>![Issue Icon]</td>
<td>CONF-22757</td>
<td>Add support for Firefox 5 in Confluence and in the Firefox Add-On for the Office Connector</td>
<td>Resolved</td>
</tr>
<tr>
<td>CONF</td>
<td>Title</td>
<td>Resolution</td>
<td>Status</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>CONF-503</td>
<td>Add a generic HTML cleaning service</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21173</td>
<td>keyboard shortcut: &quot;Ctrl+Alt+q&quot; makes it impossible to type a &quot;@&quot; in the</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td>Rich Text editor on a german keyboard</td>
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</tr>
<tr>
<td>CONF-4803</td>
<td>Add button for monospaced formatting</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-9052</td>
<td>Save button on full screen edit mode.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-7819</td>
<td>WYSIWYG should keep new lines</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-9227</td>
<td>Moving an attachment does not update embedded images</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-7542</td>
<td>Embed macro parameters form in Rich Text Editor instead of markup syntax</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-23097</td>
<td>Add support for Firefox 6 in the Firefox Add-On for the Office Connector</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16187</td>
<td>Notification when a confluence user is following you</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20503</td>
<td>Make images from another page selectable in image browser</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-11804</td>
<td>Detect MySQL MyISAM Storage Type and report as Error</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-9491</td>
<td>Version Comments and Minor Change buttons are overlooked by most users on</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td>the default page layout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONF-23039</td>
<td>Text Editor - configurable editing area</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21616</td>
<td>Allow autocomplete for links to allow linking to an undefined page</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20310</td>
<td>Create Table with First Column As Heading</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19765</td>
<td>Make &quot;large&quot; in the image editor propety panel a thumbnail to the full-sized</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td>image</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONF-15735</td>
<td>Drop-down menus should allow choosing top/default option</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-13619</td>
<td>In QuickNav visually differentiate between documents with the same name in</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td>different spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONF-23145</td>
<td>Horizontal scroll option for tables</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22538</td>
<td>Improve performance of DefaultSpacePermissionManager.hasPermissionViaGroups</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21787</td>
<td>Using &quot;Web Link&quot; to add a link to a new page confusing and counterintuitive</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20174</td>
<td>During database setup, &quot;Next&quot; button should be disabled if the page is still</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td>loading</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONF-18696</td>
<td>Usability: Even more keyboard shortcuts</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17518</td>
<td>Insert Table link should be included in the Insert menu</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16568</td>
<td>Allow users to specify image width and height in the RTE</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-10280</td>
<td>download center remarks + file naming</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>JIRA Issues (178 issues)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
<td></td>
<td></td>
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<td><strong>Type</strong></td>
<td><strong>Key</strong></td>
<td><strong>Summary</strong></td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td>CONF-23173</td>
<td>Error rendering JIRA issues macro on release notes page: &quot;Unable to determine if sort should be enabled&quot;</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-23090</td>
<td>Wysiwyg editor messup links in content</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-23066</td>
<td>Internal page links (with custom link aliases) on a page moved to a new space, get the space key of the originating space prefixed to their actual alias text.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-23045</td>
<td>Use of hash characters within Code Block Macro creates hyperlinks: using a slash to escape works but slash remains visible</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22938</td>
<td>Can't insert a link with an associate image</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22871</td>
<td>Include mp4 in the multimedia macro description in the dialog</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22866</td>
<td>Plugin manager is initialised inconsistently during setup process</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22793</td>
<td>Fix german translation for &quot;custom&quot;</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22737</td>
<td>Lost position on copy/paste in newcode plugin</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22698</td>
<td>Missing group and world execute permissions in bin/ scripts in tarball</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22485</td>
<td>Markup of &quot;&quot; is being corrupted when Edited in Rich Text</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22424</td>
<td>Plugin fails to start with &quot;NoSuchBeanDefinitionException: no unique bean of type&quot; error due to duplicate interfaces in host component exports</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22386</td>
<td>Problem Creating Link to a Page when the Page Title contains &quot;.-&quot;</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22346</td>
<td>Typos in the default language resource</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22292</td>
<td>Image lightbox popup fails to render on some IE8 systems</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22261</td>
<td>&quot;What's new in Confluence 3.5&quot; banner fails</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22185</td>
<td>Insert image in rich text editor doesn't follow up formatting</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22180</td>
<td>Thumbnail zooms behind embedded powerpoint</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22151</td>
<td>Missing german translation on labels page</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22125</td>
<td>java.util.logging (jul) is blocking ehcache gets</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22084</td>
<td>Unresponsive script error when editing a page with XML code</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22029</td>
<td>The What’s New popup doesn’t appear by default</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22024</td>
<td>Changing color of links in Rich Text breaks table layouts</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21983</td>
<td>Escaping of strikethrough and italics lost when editing previously escaped text in Rich Text editor</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21969</td>
<td>Move page notifications have incorrect user in the from address</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21898</td>
<td>Corrupt Anchor Link After Copying a Page if RTE is Marked as Default</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21877</td>
<td>Strange question mark parsing anomaly</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21799</td>
<td>Strikethrough text does not save in Rich Text editor in Chrome and Safari</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21780</td>
<td>Updated: Cannot produce special characters using AltGr due to RTE keyboard shortcuts</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21684</td>
<td>Switching from Wiki Markup to Rich Text Editor causes the first line of text in the page to be replicated many times</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21581</td>
<td>Labelled spaces aren’t shown in the list of content when browsing by label</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21576</td>
<td>Selecting some text effects consecutively from the drop-down is broken</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21483</td>
<td>The structure of list in editor is broken when using with shortcut links.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21479</td>
<td>Hitting Enter in the Macro Browser cancels instead of inserting</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21445</td>
<td>Misspelling at &quot;Insert 'Table of Contents' Macro&quot;</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21410</td>
<td>Copy and paste of emoticons shows broken image icon in IE7 and IE8</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21375</td>
<td>Pasting blocks of text in to the Rich Text editor</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21371</td>
<td>Page move fails with deep page hierarchy</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21307</td>
<td>Escaping of rich edit component is not consistent with wiki escaping.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21123</td>
<td>Network notifications for move page use the last editor, not the mover</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21042</td>
<td>Image file attached to Confluence page is not displayed, if its filename contains some specific characters</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21031</td>
<td>Move Page dialog: Text is cut off when language is set to german</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21030</td>
<td>Changing the colour of a link in the Rich Text Editor can break the link</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21026</td>
<td>link to attachment with @ in filename is broken</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21020</td>
<td>Round-tripping between RTE and Wiki Markup causes Wiki Markup that contains bullets and BlockQuote macro to mangle</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21011</td>
<td>Seeing null wiki markup link when linking to an old version of a page</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21005</td>
<td>Improper size of image in Rich Text Editor mode during editing as to compare with in Wiki Markup or Preview mode</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20915</td>
<td>Copying and pasting links that use the color macro doesn't work</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20908</td>
<td>Rich Text Editor Inserts Extra Lines using FireFox</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20893</td>
<td>Copy/Paste problem of {code} in Rich Text Editor</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20849</td>
<td>Underline button can get out of synch in Safari</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20817</td>
<td>Autocomplete for links doesn't work with apostrophes</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20692</td>
<td>google-caja warnings clurtering atlassian-confluence.log file upon Confluence startup</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20596</td>
<td>Rich Text mode inconsistently escapes emoticons</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20382</td>
<td>Round-tripping between RTE and Wiki Markup will break bullets formatting inside some macros such as {panel}, {quote}, {note}, etc if heading is preceeding the macros</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20381</td>
<td>Round-tripping between RTE and Wiki Markup causes sub-item bullet to mangle if the preceding bullet has emoticon at the end of the line</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20344</td>
<td>Rich text editor strips characters from code blocks.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20331</td>
<td>&quot;\v\n&quot; added when switching from wiki-markup to rich-text mode</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20198</td>
<td>Space character behind a macro can be swallowed when switching editors in Internet Explorer</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20197</td>
<td>Make Wiki Markup editor's Full notation guide keyboard navigable</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20177</td>
<td>Bold markup gets reliably corrupted to/from WYSIWYG editor with certain sequences of escaped literal &quot;</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20151</td>
<td>Formatting in the RTE should be rendered at the back end</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-20128</td>
<td>Switching between Editor and Wiki Markup containing at least two links will cause second link to add new line space</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19990</td>
<td>Problems when creating link in wiki markup with a trailing space</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19917</td>
<td>Round-trips after entering image markup with width parameter (with quoted value) along with a page rename causes INVALID_CHARACTER_ERR error</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19915</td>
<td>Round-trips causing Form Field Markup to be rendered incorrectly</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19712</td>
<td>Unable to copy a double indented bullet point in RTE</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19711</td>
<td>&quot;Edit in Word&quot; resizes former thumbnail to normal size</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19697</td>
<td>Linefeed is not rendered properly when using Doc Import or Edit in Word</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19584</td>
<td>RTE instead of completely removing all formatting associated with heading only removes line feed leaves tags for color &amp; bold</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19534</td>
<td>Image dialog double-escapes html characters in invalid file names</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19267</td>
<td>Copy from Gmail and Paste to Confluence RTE with &gt; 1 paragraph chops off paragraphs</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19158</td>
<td>Frequent logins by one user across a cluster lead to errors</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19134</td>
<td>Page title with exclamation mark cannot be linked in Rich Text Editor</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-19091</td>
<td>German translation of Link Location causes a UI problem in the Link Browser</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18945</td>
<td>There is no way for new users to know about having to enable the context menu.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18943</td>
<td>Can't add a link to a page that doesn't exist (even by typing the page name into the Add Link dialog).</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18928</td>
<td>Autocomplete doesn't create links for special character pages correctly</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18919</td>
<td>Autocomplete in Full Screen not working for IE browsers</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18694</td>
<td>Autocomplete: A link inserted onto coloured text will not display the colour</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18441</td>
<td>Search Results Image Previews: Preview is not shown when there is a double quote in the filename</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18200</td>
<td>editor appends new line after heading</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-18010</td>
<td>Adititional escape character added when bold and strikethrough surround a macro</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17972</td>
<td>PageManager getByld can return a Page.class for a blogpost or other non-page</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17923</td>
<td>Unable to add content beneath a table when in RTE mode</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17792</td>
<td>RTE discards leading spaces when copying and pasting</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17582</td>
<td>Missing attachments causes Confluence page move to other space to fail</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17477</td>
<td>Linked image does not work on IE when align=left or align=right is used</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17447</td>
<td>Incorrect path displaying</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17428</td>
<td>Switching between rich text editor to wiki markup removes bulleted list</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17385</td>
<td>Anchor Name must be unique following the HTML 4 standard</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17125</td>
<td>Custom Character String of #_# causes character loss of _ (bad escaping)</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-17021</td>
<td>RTE changes automatically [<a href="mailto:somebody@somewhere.com">mailto:somebody@somewhere.com</a>] into [<a href="mailto:somebody@somewhere.com">mailto:somebody@somewhere.com</a>] after saving page.</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16693</td>
<td>When editing a page, embeded images do not display according to the align parameter</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16566</td>
<td>Rich Text Editor allows table resizing but changes are not saved</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16526</td>
<td>RTE incorrectly escapes code syntax within macros</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16493</td>
<td>Increasing backslashes in table cells</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16434</td>
<td>RTE: Links containing a hyphen save with an alias, even if not necessary breaking renames</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-16352</td>
<td>Cursor should remain in place when applying formatting in the RTE</td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF</td>
<td>Description</td>
<td>Resolution</td>
<td>Fixed</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>-------</td>
</tr>
<tr>
<td>CONF-16300</td>
<td>Text that looks like a hyperlink in a color tag in a link alias is broken by the Rich Text Editor</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-16035</td>
<td>Image macro: Markup is corrupted by round-tripping when there are square brackets in the filename</td>
<td>Fixed</td>
<td>1</td>
</tr>
<tr>
<td>CONF-15990</td>
<td>Cannot edit panel macro in RTE using the macro browser</td>
<td>Resolved</td>
<td>6</td>
</tr>
<tr>
<td>CONF-15878</td>
<td>RTE inserts unwanted new lines into metadata tables</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15874</td>
<td>RTE - Paste into a code block lose the line orientation</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15855</td>
<td>Wiki Markup around inline macros is not rendered in wysiwyg mode and therefore lost</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15853</td>
<td>Links containing inline macros round-trip badly using RTE</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15847</td>
<td>Editing an image in the RTE with IE causes a default height and width to be added</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15715</td>
<td>Links are broken by roundtripping if the user does not have permission to view the linked space</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15708</td>
<td>Link text with blackslashes followed by some characters render incorrectly</td>
<td>Fixed</td>
<td>3</td>
</tr>
<tr>
<td>CONF-15698</td>
<td>New lines in heading tags inside tables are lost when round tripping</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15572</td>
<td>Emoticons cannot be used as link alias in the RTE</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-15460</td>
<td>Rich Text editor removes bold and italics from nolink macro</td>
<td>Resolved</td>
<td>1</td>
</tr>
<tr>
<td>CONF-15225</td>
<td>Formatting lost after typing in RTE around macro start/end tags</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14842</td>
<td>Switching editor causes curly bracket being deleted in (*)</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14788</td>
<td>Bulleted lists in the WYSIWYG Editor can no longer have blank lines between items</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14750</td>
<td>in IE, a table following immediately after a heading, is lost when switching to wiki-markup mode</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14665</td>
<td>Strikethrough around monospace can produce very odd results</td>
<td>Resolved</td>
<td>1</td>
</tr>
<tr>
<td>CONF-14506</td>
<td>The combo of a bulleted list (and numbered list) w/ a heading inside a table creates the error condition whenever you edit, switch between rich text/wiki markup.</td>
<td>Resolved</td>
<td>2</td>
</tr>
<tr>
<td>CONF-14374</td>
<td>RTE is showing extra line breaks and space characters on IE</td>
<td>Resolved</td>
<td>31</td>
</tr>
<tr>
<td>CONF-14278</td>
<td>Asterix and quote characters mangled with output when using bold, quote and text color in RTE</td>
<td>Resolved</td>
<td>3</td>
</tr>
<tr>
<td>CONF-14241</td>
<td>html macro loses following space on IE after roundtripping</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14232</td>
<td>Pasted entities get converted to text that can bypass escaping</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14204</td>
<td>Roundtrip through wysiwyg breaks whitespace within noformat macro within color macro in IE</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14169</td>
<td>Monospace bullets lose newline when edited with Rich Text Editor</td>
<td>Resolved</td>
<td>0</td>
</tr>
<tr>
<td>CONF-14036</td>
<td>Problem with strikethrough of an eMail address in Rich Text editor</td>
<td>Resolved</td>
<td>1</td>
</tr>
<tr>
<td>Ticket</td>
<td>Description</td>
<td>Status</td>
<td>Resolution</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>CONF-13827</td>
<td>RTE adds unrequested alias to attachment links that contain apostrophes, breaking the links</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-13511</td>
<td>When resizing images with scaled width and height parameters in the RTE, they do not correctly get updated</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-13464</td>
<td>Links containing images with center alignment break when converted from the rich text editor</td>
<td>Fixed</td>
<td>1</td>
</tr>
<tr>
<td>CONF-13434</td>
<td>Image size settings are corrupted on round tripping</td>
<td>Fixed</td>
<td>10</td>
</tr>
<tr>
<td>CONF-13432</td>
<td>Rich Text editor breaks badly on &quot;file:&quot; text in page</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-13377</td>
<td>Pressing enter several times when editing a table in the RTE results in a new row after saving</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-13239</td>
<td>Formatting text in lists is inconsistent with formatting paragraph text</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-12963</td>
<td>Aligned images in pages lose their alignment when exported as PDF</td>
<td>Closed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-12935</td>
<td>Combination of markup can confuse Rich Text Editor resulting in more mangled markup with each save</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-12604</td>
<td>Content of panels with broken styles is deleted by editing in the Rich Text Editor</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-12566</td>
<td>In wiki markup-mode completely erased content reappears in rich text-mode</td>
<td>Fixed</td>
<td>6</td>
</tr>
<tr>
<td>CONF-12542</td>
<td>Links containing macros with empty body are broken when edited in Rich Text Editor (RTE)</td>
<td>Fixed</td>
<td>1</td>
</tr>
<tr>
<td>CONF-12075</td>
<td>Writing the plus signal on WYSIWYG editor</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-11830</td>
<td>WYSIWYG corrupts consecutive escaped characters</td>
<td>Fixed</td>
<td>6</td>
</tr>
<tr>
<td>CONF-11599</td>
<td>Link from comment or page to blog attachment doesn't work</td>
<td>Fixed</td>
<td>17</td>
</tr>
<tr>
<td>CONF-11558</td>
<td>Italic text cannot be applied in the text with backslash (For path usage)</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-11547</td>
<td>Links with strikethru are duplicated by the rich text editor in IE and Safari</td>
<td>Fixed</td>
<td>3</td>
</tr>
<tr>
<td>CONF-11032</td>
<td>Switching between editor modes breaks the (include) macro wrapped in a link markup</td>
<td>Fixed</td>
<td>4</td>
</tr>
<tr>
<td>CONF-10846</td>
<td>list inside table is rendered outside when table immediately follows list item</td>
<td>Fixed</td>
<td>3</td>
</tr>
<tr>
<td>CONF-10622</td>
<td>Text is not spaced when image/thumbnail is aligned to the left</td>
<td>Fixed</td>
<td>2</td>
</tr>
<tr>
<td>CONF-10451</td>
<td>Merge of concurrent page edits seems broken</td>
<td>Fixed</td>
<td>3</td>
</tr>
<tr>
<td>CONF-10058</td>
<td>Links in macro bodies not updated on rename page</td>
<td>Fixed</td>
<td>51</td>
</tr>
<tr>
<td>CONF-9929</td>
<td>Rich Text Editor handling of macros with body markup is buggy and/or incomplete</td>
<td>Fixed</td>
<td>10</td>
</tr>
<tr>
<td>CONF-9648</td>
<td>Inserting a link in WYSIWYG mode fails if within [html] plugin and user is using Internet Explorer 6 or 7</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-9399</td>
<td>The Rich-Text editor fails to insert inserting images in a column macro</td>
<td>Fixed</td>
<td>0</td>
</tr>
<tr>
<td>CONF-9029</td>
<td>Superscripts, eg for floating point notation, are lost by round trip through wysiwyg editor</td>
<td>Fixed</td>
<td>5</td>
</tr>
<tr>
<td>#</td>
<td>CONF-XXXX</td>
<td>Description</td>
<td>Status</td>
</tr>
<tr>
<td>---</td>
<td>-----------</td>
<td>-------------</td>
<td>--------</td>
</tr>
<tr>
<td>537</td>
<td>CONF-8901</td>
<td>WYSIWYG editor turns <code>&lt;BR/&gt;</code> into <code>&lt;BR&gt;</code> inside HTML macro</td>
<td>Resolved</td>
</tr>
<tr>
<td>538</td>
<td>CONF-8677</td>
<td>Changes to panel macro's title does not take effect when editing using Rich Text mode</td>
<td>Resolved</td>
</tr>
<tr>
<td>539</td>
<td>CONF-8207</td>
<td>Extra <code>\</code> line breaks added by rich text editor near macros and images</td>
<td>Resolved</td>
</tr>
<tr>
<td>540</td>
<td>CONF-8000</td>
<td>Markup to wysiwyg error on link tag with surrounding wiki markup</td>
<td>Resolved</td>
</tr>
<tr>
<td>541</td>
<td>CONF-7907</td>
<td>Multiple underscores entered into Rich Text Editor should be individually escaped</td>
<td>Resolved</td>
</tr>
<tr>
<td>542</td>
<td>CONF-7811</td>
<td>Border around image does not appear when generating a PDF</td>
<td>Resolved</td>
</tr>
<tr>
<td>543</td>
<td>CONF-7767</td>
<td>When using a line break (<code>\</code>) followed by a table, the table heading does not render properly due to additional characters</td>
<td>Resolved</td>
</tr>
<tr>
<td>544</td>
<td>CONF-7595</td>
<td>WYSIWYG editor adds unnecessary double backslashes</td>
<td>Resolved</td>
</tr>
<tr>
<td>545</td>
<td>CONF-7262</td>
<td>Can't escape double-backslash (<code>\</code>) in wiki markup editor</td>
<td>Resolved</td>
</tr>
<tr>
<td>546</td>
<td>CONF-7244</td>
<td>Hyphen is not escaped when switching between RT and Wiki, causes strikethrough</td>
<td>Resolved</td>
</tr>
<tr>
<td>547</td>
<td>CONF-6992</td>
<td>Markup umbrella issue - errors switching between modes or rendering escaped content</td>
<td>Resolved</td>
</tr>
<tr>
<td>548</td>
<td>CONF-6405</td>
<td>Unexpected behaviour with multiple escape characters in editors</td>
<td>Resolved</td>
</tr>
<tr>
<td>549</td>
<td>CONF-6041</td>
<td>Headings declared in list items break the list</td>
<td>Resolved</td>
</tr>
<tr>
<td>550</td>
<td>CONF-5950</td>
<td>Rich Text Editing destroys layout when using User Macros</td>
<td>Resolved</td>
</tr>
<tr>
<td>551</td>
<td>CONF-5895</td>
<td>Switching between editing modes doesn't preserve backslash escapes</td>
<td>Resolved</td>
</tr>
<tr>
<td>552</td>
<td>CONF-5771</td>
<td>Confluence loses wiki source formatting since the WYSIWYG-Editor was introduced.</td>
<td>Resolved</td>
</tr>
<tr>
<td>553</td>
<td>CONF-5685</td>
<td>Escaping of character style modifiers is too conservative</td>
<td>Resolved</td>
</tr>
<tr>
<td>554</td>
<td>CONF-5655</td>
<td>Adding macros with attributes using separators (`</td>
<td>`) in rich text (WYSIWYG) breaks</td>
</tr>
<tr>
<td>555</td>
<td>CONF-5590</td>
<td>Pasting the contents of a MS Word Doc with pictures causes NullPointerException</td>
<td>Resolved</td>
</tr>
<tr>
<td>556</td>
<td>CONF-5569</td>
<td>First image inserted with Rich Text Editor actually inserts wiki tag as text</td>
<td>Resolved</td>
</tr>
<tr>
<td>557</td>
<td>CONF-5426</td>
<td>Switching between editors changes markup with <code>+</code> characters</td>
<td>Resolved</td>
</tr>
<tr>
<td>558</td>
<td>CONF-5269</td>
<td>WYSIWYG breaks excerpt-include macro when used as link tip</td>
<td>Resolved</td>
</tr>
<tr>
<td>559</td>
<td>CONF-5258</td>
<td>Escaped backslash is lost in WYSIWYG -&gt; wiki markup roundtrip</td>
<td>Resolved</td>
</tr>
<tr>
<td>560</td>
<td>CONF-5228</td>
<td>Table editing bugs</td>
<td>Resolved</td>
</tr>
<tr>
<td>561</td>
<td>CONF-4920</td>
<td>Color tags surrounding a link are not rendered correctly by WYSIWYG</td>
<td>Resolved</td>
</tr>
<tr>
<td>562</td>
<td>CONF-4907</td>
<td>Rich text editor indenting feature does not seem to work</td>
<td>Resolved</td>
</tr>
</tbody>
</table>
Confluence 4.0 Upgrade Notes

Below are some important notes on upgrading to Confluence 4.0. For details of the new features and improvements in this release, please read the Confluence 4.0 Release Notes.

On this page:
- Upgrade Notes
  - Content updates after upgrade
  - User macros migration
  - Email notifications
  - Plugins may not be compatible with Confluence 4.0
  - Functionality removed: converting a Global Space to a Personal Space
  - Functionality removed: editing a Confluence page in an Office application
  - Functionality removed: linking to comments using commentid
  - Functionality removed: Mail Page plugin
  - Functionality removed: Social Bookmarking plugin
  - Drag-and-drop in Internet Explorer 9
  - Various admin settings removed
  - Confluence Clustered delayed
- Upgrade Procedure
- Checking for Other Known Issues and Troubleshooting the Confluence Upgrade

Upgrade Notes

Content updates after upgrade

You will notice once you upgrade to Confluence 4.0, every page will have been edited during the migration process. This manifests itself in the appearance of changes to every page's content by various different users. When migrating pages, Confluence will show the same username that last contributed to your content as the author of the change. This is the upgrade task of migrating your wiki page storage format to XHTML from Wiki Markup. Do not be alarmed by this. This will only happen once for all current versions of content. This will not trigger email notifications, but will update your RSS feeds. Where possible, a change comment of "Upgraded to Confluence 4" will be added to pages and blog posts.

User macros migration

After upgrading, user macros will not be able to be inserted until they have defined macro parameters. See Guide to User Macro Templates. Defining macro parameters will mean that they can once again insert these user macros.

Email notifications

With the update of the email templates, the textual content of the notifications has also changed. These wording changes may invalidate any email filters set up to label or organise your email notifications.

Plugins may not be compatible with Confluence 4.0

If your custom plugins are not working following the upgrade to Confluence 4.0, see the Plugin Development Upgrade FAQ for 4.0 for guidance on how to solve this issue.

Functionality removed: converting a Global Space to a Personal Space

Confluence 4.0 does not offer the ability to convert a global space to a personal space. Our research has shown that this feature is not used much. We have decided to remove it as part of our ongoing mission to simplify Confluence where possible. We deprecated this functionality in the Confluence 3.5 Upgrade Notes.

Functionality removed: editing a Confluence page in an Office application

After extensive usability testing, we are confident the new Confluence 4.0 editor will be easier to learn and more reliable to use than the previous editor. Therefore this feature is no longer required. Other functions of the Office Connector (e.g. "Edit Attachments in Office") remain.

Functionality removed: linking to comments using commentid

Confluence 4.0 does not allow linking to comments by comment ID. Users will now have to use the permalink URL to link to comments. This will primarily affect plugin developers.

Functionality removed: Mail Page plugin
The Mail Page plugin is no longer bundled in Confluence. With the introduction of the "Share Page" feature, this is no longer needed.

**Functionality removed: Social Bookmarking plugin**

The Social Bookmarking plugin is no longer bundled with Confluence as of the 4.0 release. Our research has shown that this feature is not used much. If you are currently using this plugin, you will need to reinstall it from plugins.atlassian.com. Atlassian continues to fully support this plugin.

**Drag-and-drop in Internet Explorer 9**

Internet Explorer 9 does not support the drag-and-drop functionality of HTML5. This means that when using IE9, you will not be able to use the attachments drag-and-drop feature in Confluence 4.0.

**Various admin settings removed**

In Confluence 4.0, rarely used admin settings have been taken out. These are as follows:

- The **Set Site Support Address** setting,
- The **CamelCase Links** general configuration setting,
- The **Number of Ancestors to Show in Breadcrumbs** setting,
- The **SnipSnap Importer** settings.

**Confluence Clustered delayed**

Please be aware that Confluence Clustered is not available for version 4.0 yet. It will be forthcoming in a minor release, following the launch of version 4.0.

**Upgrade Procedure**

⚠️ **Upgrade a test environment first**

As always, please test your upgrades in your test environment before rolling into production.

If you are already running a version of Confluence, please follow these instructions to upgrade to the latest version:

1. Before you upgrade, we strongly recommend that you back up your Confluence Home Directory and database. See the documentation on **backing up your Confluence site**. If you are using an external database, perform a database backup.
2. If your version of Confluence is earlier than 3.5.x, then you should upgrade to Confluence 3.5.x before upgrading to Confluence 4.0. There are several reasons for this:
   - There were major changes to user management and LDAP in Confluence 3.5.
   - From version 3.5, you'll be able to use our new automated Installer / Upgrader to move to 4.0. The Confluence 4.0 installer does not support upgrading from earlier versions of Confluence than 3.5.x.
   - We recommend that any issues arising from the upgrade to version 3.5.x be fixed separately to those that may arise from upgrading to version 4.0. Please contact Atlassian Support for assistance.
   - Please read the Upgrade Notes Overview and the Upgrade Notes for each version of Confluence listed on that page. (There are hyperlinks to each one.)
3. Download the latest version of Confluence.
4. Follow the instructions in the Upgrade Guide.

**Checking for Other Known Issues and Troubleshooting the Confluence Upgrade**

After you have completed the steps required to upgrade your Confluence installation, check all the items on the Confluence post-upgrade checklist to ensure that everything works as expected. If something is not working correctly, please check for known Confluence issues and try troubleshooting your upgrade as described below:

- **Check for known issues.** Sometimes we find out about a problem with the latest version of Confluence after we have released the software. In such cases we publish information about the known issues in the Confluence Knowledge Base. Please check the known issues for the relevant release on this page of the Knowledge Base and follow the instructions to solve the problem.
- **Did you encounter a problem during the Confluence upgrade?** Please refer to the guide to troubleshooting upgrades in the Confluence Knowledge Base.
- **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.**
Confluence 3.5.13 Release Notes

6 September 2011

The Atlassian Confluence team is pleased to announce the release of Confluence 3.5.13, which is a bug-fix release.

Internal directories with LDAP authentication (“delegated LDAP authentication”) can now update a user’s membership information when they log in, in addition to the user’s information. This is now our recommended configuration for connecting Confluence to LDAP servers with very large numbers of users, groups or memberships.

Note that Confluence 3.5.12 was not publicly released. Issues marked in JIRA as fixed in 3.5.12 are available for the first time in this release.

The complete list of fixes is at the bottom of this page.

Don’t have Confluence 3.5 yet?

Take a look at the new features and other highlights in the Confluence 3.5 Release Notes.

Release Notices

If you are upgrading from Confluence 3.5.2 and using Microsoft SQL server, please refer to this workaround to prevent errors in the upgrade progress.

Upgrading from a previous version of Confluence should be fairly straightforward. Please read the Confluence 3.5.13 Upgrade Notes. We strongly recommend that you back up your confluence.home directory and database before upgrading.

Updates and Fixes in this Release

<table>
<thead>
<tr>
<th>JIRA Issues (13 issues)</th>
<th>Type</th>
<th>Key</th>
<th>Summary</th>
<th>Priority</th>
<th>Status</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CONF-22779</td>
<td>Allow configuration of Lucene search weighting.</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-22709</td>
<td>Add on the fly group sync for delegated LDAP authentication.</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-19124</td>
<td>Encountered NullPointerException due to dangling permission left after an LDAP group or user is deleted from the LDAP server</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23115</td>
<td>Adding pages with a lot of sibling pages performs poorly</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23058</td>
<td>Constraint violation failure when importing on SQL Server due to content permission nulls</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23040</td>
<td>XML import failed with ConstraintViolationException in SQL Server or Oracle</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-22884</td>
<td>Empty atlassian-gzipfilter HTTP response headers - does not conform to RFC2616</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-22242</td>
<td>Impossible to empty Additional User DN or Additional Group DN once filled in</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23102</td>
<td>Null pointer when recording failures due to duplicate memberships while synchronising</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23093</td>
<td>SOAP notification service throws NPE, IllegalStateException when querying for non-existent pages</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONF-23007</td>
<td>Export to PDF mangles [jira] macro images</td>
<td></td>
<td></td>
<td>Fixed</td>
</tr>
</tbody>
</table>
Confluence 3.5.13 Upgrade Notes

Below are some important notes on upgrading to Confluence 3.5.13. For details of the fixes in this release, please read the release notes.

Upgrade Procedure

If you are already running a version of Confluence, please follow these instructions to upgrade to the latest version:

1. Before you upgrade, we strongly recommend that you back up your Confluence Home directory and database. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.
   Tip: Another term for ‘Home directory’ would be ‘data directory’. Read more about finding your Home directory.
2. If your version of Confluence is earlier than 3.5, read the release notes and upgrade guides for all releases between your version and the latest version. In particular:
   • Please read the Confluence 3.5 Upgrade Notes.
   • If you are upgrading from 2.1 or earlier, please also read the 2.2 release notes.
3. Download the latest version of Confluence.
4. Follow the instructions in the Upgrade Guide.

Confluence 3.5.11 Release Notes

25 August 2011

The Atlassian Confluence team is pleased to announce the release of Confluence 3.5.11, which is a bug-fix release.

The complete list of fixes is at the bottom of this page.

Note that Confluence 3.5.10 was not publicly released. Issues marked in JIRA as fixed in 3.5.10 are available for the first time in this release.

Don’t have Confluence 3.5 yet?

Take a look at the new features and other highlights in the Confluence 3.5 Release Notes.

Download Latest Version

Release Notices

Upgrading from a previous version of Confluence should be fairly straightforward. Please read the Confluence 3.5.11 Upgrade Notes. We strongly recommend that you back up your confluence.home directory and database before upgrading.

Updates and Fixes in this Release

<table>
<thead>
<tr>
<th>JIRA Issues (8 issues)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>![ ]</td>
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<tr>
<td>![ ]</td>
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<tr>
<td>![ ]</td>
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<tr>
<td>![ ]</td>
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<tr>
<td>![ ]</td>
</tr>
</tbody>
</table>
Confluence 3.5.11 Upgrade Notes

Below are some important notes on upgrading to Confluence 3.5.11. For details of the fixes in this release, please read the release notes.

Upgrade Procedure

If you are already running a version of Confluence, please follow these instructions to upgrade to the latest version:

1. Before you upgrade, we strongly recommend that you back up your Confluence Home directory and database. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.

   Tip: Another term for ‘Home directory’ would be ‘data directory’. Read more about finding your Home directory.

2. If your version of Confluence is earlier than 3.5, read the release notes and upgrade guides for all releases between your version and the latest version. In particular:
   - Please read the Confluence 3.5 Upgrade Notes.
   - If you are upgrading from 2.1 or earlier, please also read the 2.2 release notes.

3. Download the latest version of Confluence.

4. Follow the instructions in the Upgrade Guide.

Confluence 3.5.9 Release Notes

27 July 2011

The Atlassian Confluence team is pleased to announce the release of Confluence 3.5.9, which is a bug-fix release.

The complete list of fixes is at the bottom of this page.

Note that Confluence 3.5.8 was not a public release, as problems were discovered with it during final testing. Issues marked as fixed in 3.5.8 are available for the first time in this release.

Don't have Confluence 3.5 yet?

Take a look at the new features and other highlights in the Confluence 3.5 Release Notes.

Release Notices

Upgrading from a previous version of Confluence should be fairly straightforward. Please read the Confluence 3.5.9 Upgrade Notes. We strongly recommend that you back up your confluence.home directory and database before upgrading.

Updates and Fixes in this Release

<table>
<thead>
<tr>
<th>JIRA Issues (21 issues)</th>
<th>Priority</th>
<th>Status</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF-22899 Decrease re-indexing time</td>
<td>Resolved</td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22800 MySQL isolation level check does not work for JNDI datasource</td>
<td>Resolved</td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-22469 Editing &quot;User Directories&quot; configuration is not possible for ORACLE DB user due to DataIntegrityViolationException</td>
<td>Resolved</td>
<td></td>
<td>Fixed</td>
</tr>
<tr>
<td>CONF-21986 Database deadlock during initialisation of plugins</td>
<td>Resolved</td>
<td></td>
<td>Fixed</td>
</tr>
</tbody>
</table>
### Confluence 3.5.9 Upgrade Notes

Below are some important notes on upgrading to Confluence 3.5.9. For details of the fixes in this release, please read the release notes.

As of Confluence 3.5.9, the queue that backs the re-indexing workers has been improved to remove contention. This means two important changes.

1. Re-indexing is now more CPU-bound. This means that if you had previously adjusted the indexing thread count you may want to revisit that number as it can put significant load on your server if this number is too high.
2. Each thread will make use of a connection to the database. If the number of threads are configured to a high number this means that there will be a significantly bigger load on the database.

### Upgrade Procedure

If you are already running a version of Confluence, please follow these instructions to upgrade to the latest version:

1. Before you upgrade, we strongly recommend that you **back up your Confluence Home directory and database**. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.
   
   **Tip:** Another term for 'Home directory' would be 'data directory'. Read more about **finding your Home directory**.

2. If your version of Confluence is earlier than 3.5, read the release notes and upgrade guides for all releases between your version and the latest version. In particular:
   
   - Please read the **Confluence 3.5 Upgrade Notes**.
   - If you are upgrading from 2.1 or earlier, please also read the **2.2 release notes**.
3. Download the latest version of Confluence.
4. Follow the instructions in the Upgrade Guide.

**Confluence 3.5.7 Release Notes**

**30 June 2011**

The Atlassian Confluence team is pleased to announce the release of **Confluence 3.5.7**. This release contains fixes for Atlassian JIRA Studio and hosted Confluence customers. It is a recommended upgrade for all Confluence customers.

**Don’t have Confluence 3.5 yet?**

Take a look at the new features and other highlights in the **Confluence 3.5 Release Notes**.

[Download Latest Version]

**Release Notices**

Upgrading from a previous version of Confluence should be fairly straightforward. Please read the **Confluence 3.5.7 Upgrade Notes**. We **strongly recommend** that you back up your `confluence.home` directory and database before upgrading.

**Updates and Fixes in this Release**

<table>
<thead>
<tr>
<th>JIRA Issues (1 issues)</th>
<th>Priority</th>
<th>Status</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONF-15553</strong> IE prompts for download instead of opening thumbnail images containing non-ASCII characters</td>
<td><img src="https://example.com" alt="Resolved" /></td>
<td>Resolved</td>
<td>Fixed</td>
</tr>
</tbody>
</table>

**Confluence 3.5.7 Upgrade Notes**

Below are some important notes on upgrading to **Confluence 3.5.7**. For details of the fixes in this release, please read the release notes.

**Upgrade Procedure**

If you are already running a version of Confluence, please follow these instructions to upgrade to the latest version:

1. Before you upgrade, we strongly recommend that you **back up your Confluence Home directory and database**. The Confluence Home directory is the folder where Confluence stores its configuration information, search indexes and page attachments. If you are using the embedded HSQLDB database supplied for evaluation purposes, the database files are also stored in this directory.
   
   - **Tip**: Another term for ‘Home directory’ would be ‘data directory’. Read more about [finding your Home directory](https://example.com).

2. If your version of Confluence is earlier than 3.5, read the release notes and upgrade guides for all releases between your version and the latest version. In particular:
   - Please read the **Confluence 3.5 Upgrade Notes**.
   - If you are upgrading from 2.1 or earlier, please also read the **2.2 release notes**.

3. [Download](https://example.com) the latest version of Confluence.

4. Follow the instructions in the **Upgrade Guide**.

**Confluence FAQ**

---

<table>
<thead>
<tr>
<th>Confluence FAQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solutions to frequently asked questions and queries about Confluence and commonly encountered issues with the product:</td>
</tr>
</tbody>
</table>

**Administration FAQ**
Add Spell Checking To Confluence
Can I run multiple instances of Confluence & connect them to a central database?
Capturing HTTP traffic using Wireshark or Fiddler
Changing Server ID for Test Installations
Configuring a Confluence Email Server for Email Notifications
Copy Or Rename A Space
Customising Confluence Icons
Disabling Drag-and-Drop
Disabling Password management from User
Disabling Profile Edit from User
Disabling Theme Selection
Editing your database password
Enable public anonymous access
Find out what is generating files in the Confluence temporary directory.
Fix Out of Memory Errors by Increasing Available Memory
Getting a License for a Staging Environment
How can I retrieve a recently deleted space or page?
How do I adjust the session timeout
How do I change the space key?
How do I check which spaces have email accounts
How do I configure the Plugin Repository to update its plugins information offline?
How do I disable indexing of attachments
How Do I Find My License from the File System?
How Do I Get More Statistics From Confluence?
How Do I Identify Inactive Users in Confluence
How do I know what Confluence version I am running?
How do I prevent personal spaces from being shown on the dashboard
How do I Remove a User who has Content Created
How do I Remove the Last Updated and Created By Text?
How do I suppress cluster warning message in confluence?
How to Disable Emoticons
How to display a banner like the Confluence Documentation space
How to Force Links to Open in a New Window
How to get a Java Heap Dump
How to Hide the Referrer
How to run a SQL script on your database
How to Search Confluence for Uses of a Macro
How to turn on Debugging for indexing
List page- and space-related details for an attachment using the attachment's name
Migrate Confluence from one database to another
Migrating from JIRA Issues and JIRA Portlets to Gadgets
Page Restrictions Performance Considerations
Preventing and Cleaning Up Spam
Rebuild the Content Indices from scratch
Redirect users to a page on login
Redirect users to a site-wide home page after a successful login
Restrict Attachments Based On File Type
Search for User Properties in the Database
Using Firebug Lite in Internet Explorer when browsing a Confluence page
What are the IP Address Ranges for Atlassian’s Servers?
Where are the files that used to be in my Confluence installation directory?
Where are user macros stored?

Backup FAQ
Are there any scripts for backup creation and restore?
Backup will not import
Can Confluence be restored from a backup minus attachments?
Can XML backups be deleted automatically?
Does running a regular XML backup slow performance?
How can I reduce the space taken up by automatic backups?
How to Change the Version of a Space Backup
How to Find Attachments in Attachments Folder
Is it Possible to Store the Confluence Home Directory on a Network Share?
Providing Database Dump with Content Anonymised

Configuration FAQ
• Remove Version from Footer
• How do I configure Confluence to use GMail as the mail server
• How do I Configure an Automatic Refresh of the Recently Updated List
• How do I completely remove the “Space Details” page from Confluence exports?
• Disabling Profile Pictures on the Recently Updated Dashboard
• How to dump Active Directory data to a file
• How to Revert from Clustering to Single Node
• Adding a Site-Wide Banner
• Editing the Footer
• Where does Confluence store all its data?
• Running Confluence Behind a Caching Proxy Server
• How do I pull down RSS Feeds or use the Repository plugin through a web proxy
• How do I Modify the Frequency of Content Indexing
• Customise Confluence Page Exports
• I am trying to install Confluence but the demo-site.zip file is missing
• How do I Disable Automatic Mail Polling?
• How do I change the default polling time for email in Confluence?
• Change default font, color, or spacing in Confluence
• Share users and groups between Confluence and JIRA
• Disabling Attachment Downloads
• Disabling the ‘Remember Me’ feature
• How do I disable RSS Feeds?
• How to audit Confluence - enabling user access logging
• Editing Files within JAR Archives
• Changing Layouts in Other Themes
• How to Convert a datasource to a direct JDBC connection in oracle
• Bulk Fix Spaces with Deprecated Themes using SQL Query
• Changing Editor’s Keyboard Shortcuts

Installation FAQ
• Separate the Home and Install directories in Confluence 3.2
• I receive a BUILD FAILED message when trying to create an EAR file in Confluence 2.6 or 2.7
• The Confluence window closes immediately when started
• How do I re-trigger the setup wizard
• Confluence starts but a problem prevents me from accessing the dashboard
• How much disk space does Confluence need?
• How Do I Make Confluence Accessible from the Root Context with a Tomcat EAR WAR configuration
• How To Bind Confluence to a Particular Network Interface
• Deploying Multiple Atlassian Applications in a Single Tomcat Container

Mail Archiving FAQ
• Can Confluence replace my regular mail client?
• How do I get mail into Confluence?
• How do I use the mail archive?
• Okay, I've imported the mail, but where is it?

New User FAQ
• Can I use CamelCaseLinks like they do on WardsWiki?
• Can Users Edit Individual Sections Within a Page?
• How does Confluence differ from a wiki?

RSS Feeds FAQ
• Create an RSS feed for mail from only specified mail accounts
• How do I fix a “Could not download (Feed URL) - Connection timed out (errno238)” error?
• How do I fix a “Could not retrieve (Feed URL) - Not Permitted” error?
• How do I fix an “Error formatting ‘macro rss java.lang.NullPointerException” error?
• How do I fix an “Unable to retrieve (Feed URL) - Connection refused - connect” error?
• How do I force authentication for public feeds?
• Is it possible to delete a feed?
• I want to remove RSS Feeds completely

Upgrade FAQ
• I cannot find the “Rich Text” editor. Is the editor part of Confluence 1.4.3?
• Server ID FAQ
• Upgrade My Trial To A Commercial Version

Usage FAQ
• Add many files to a page at once
• Create a page by passing parameters to a template
• Editing or Deleting a Page That Won’t Render
• How do I obtain content that hasn’t been modified in a certain period of time
• How to Add a Quick Search for Firefox
• How to Make Confluence Open a New Tab when Clicking on the Attachments Link
• How to Reset a Custom Layout
• Printing Confluence Pages
• Redirect to a specific page (home page) within the site after logging in

Information relating to Unsupported Platforms
• Setting up Confluence with IIS
• Using the IBM 64bit J9 JDK

Support Policies
• 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

RELATED TOPICS

Plugin Development
Fix 'Not supported by BasicDataSource' Setup or Startup Error
Troubleshooting HTTPS or SSL-related problems

Administration FAQ

This section contains solutions for common issues or queries associated with administering Confluence.

This section focuses on providing instructions to either perform administration-level tasks or customise Confluence’s functionality via its Administration Console.

View one of the following issues or queries for more information:

• Add Spell Checking To Confluence
• Can I run multiple instances of Confluence & connect them to a central database?
• Capturing HTTP traffic using Wireshark or Fiddler
• Changing Server ID for Test Installations
• Configuring a Confluence Email Server for Email Notifications
• Copy Or Rename A Space
• Customising Confluence Icons
• Disabling Drag-and-Drop
• Disabling Password management from User
• Disabling Profile Edit from User
• Disabling Theme Selection
• Editing your database password
• Enable public anonymous access
• Find out what is generating files in the Confluence temporary directory.
• Fix Out of Memory Errors by Increasing Available Memory
• Getting a License for a Staging Environment
• How can I retrieve a recently deleted space or page?
• How do I adjust the session timeout
• How do I change the space key?
• How do I check which spaces have email accounts
• How do I configure the Plugin Repository to update its plugins information offline?
• How do I disable indexing of attachments
• How Do I Find My License from the File System?
• How Do I Get More Statistics From Confluence?
• How Do I Identify Inactive Users in Confluence
• How do I know what Confluence version I am running?
• How do I prevent personal spaces from being shown on the dashboard
• How do I Remove a User who has Content Created
• How do I Remove the Last Updated and Created By Text?
• How do I suppress cluster warning message in confluence?
• How to Disable Emoticons
• How to display a banner like the Confluence Documentation space
• How to Force Links to Open in a New Window
• How to get a Java Heap Dump
• How to Hide the Referrer
• How to run a SQL script on your database
• How to Search Confluence for Uses of a Macro
Add Spell Checking To Confluence

Confluence has no inbuilt support for spell checking. You may wish to vote for Confluence to add it's own spell checking or add spell checking to your browser instead:

- Add spell checking to Internet Explorer
- Install the Firefox browser with inbuilt spell checking

Can I run multiple instances of Confluence & connect them to a central database?

Confluence can be clustered.

If running as a single node, you may only have one instance of Confluence connecting to a single database.

There are a couple of reasons for this, but it all comes down to the fact that the Confluence application maintains a lot of state (caches, search indexes) separate to the database, and multiple front-ends will quickly see that state get out of sync, with disastrous effect.

Because of this, Confluence periodically checks to make sure it's the only application accessing the database, and if it finds a conflict it will shut down rather than risk corrupting your data.

Capturing HTTP traffic using Wireshark or Fiddler

This is a quick guide to help you start capturing HTTP traffic when requested by support. This can be helpful either for network traffic issues or for understanding issues with page content loading.

When submitting the captured result to support...

Don't forget to mention the IP Address of the servers involved so Support can go through the TCP dump. Also please mention the time when you performed the operation requested by support.

Wireshark

Wireshark is a network protocol analyzer that can be installed on Windows, Linux and Mac. It provides a comprehensive capture and is more informative than Fiddler. This is the preferred tool to use when troubleshooting Sharepoint connectivity issues.

To use:

1. Install Wireshark. (Mirror here)
2. Open your Internet browser.
3. Clear your browser cache.
4. Open Wireshark
5. Click on "Capture > Interfaces". A pop up window will show up.
6. You probably want to capture traffic that goes through your Ethernet Driver. Click on the Start button to start capturing traffic via this interface.
7. Visit the URL that you wanted to capture the traffic from.
8. Go back to your Wireshark screen and press Ctrl + E to stop capturing.
9. After the traffic capture is stopped, please save the captured traffic into a *.pcap format file and attach it to your support ticket.

Wireshark limitation

- If you are using HTTPS, please disable it in your test environment so Wireshark can be used.
- Wireshark cannot sniff traffic within the same machine (localhost) on Windows. If you need to sniff local traffic on Windows, try Fiddler.

Fiddler
Fiddler is a web debugging proxy tool that can capture HTTP(S) traffic. It can only run on Windows.

To use:

1. Download Fiddler.
2. Open it.
3. Clear your browser cache.
4. Browse to your site. Visit the pages that are problematic and a contrasting non-problematic page if appropriate, for contrast.

![Fiddler can capture local traffic by using the machine's name as the host name rather than 'localhost'.]

5. Click File > Save > All Sessions....
6. Attach the resulting file in .saz format for Support.

### Using HTTPS?

Fiddler has a functionality to capture traffic using its decrypt HTTPS function. Make sure you enable this before you start capturing.

### Changing Server ID for Test Installations

This page tells you how to obtain a new server ID to use in a test installation of Confluence. Please note this is not essential. If your test server has the same server ID as production it will not affect your production installation. The separate server ID is however useful for the support team, to help us distinguish between your servers.

If you would like to change the server ID on your test installation, you will need to acquire a new server ID for your test environment:

1. Install a new, temporary instance of Confluence. See [Installing Confluence](#).
   - Choose the the zip file. Do not use the automatic installer.
   - Make sure the installation points to a new empty home directory.
2. Start the new, temporary Confluence instance. This will create a confluence.cfg.xml in the home directory you specified. Look in this file for the line:

   ```xml
   <property name="confluence.setup.server.id">BIBE-YA0Z-8EK6-SS9C</property>
   ```

   The above line in your own file will contain a server ID that you can use.
3. On your test server, go to the **<<Confluence-Home>>/confluence.cfg.xml** file and replace the existing server ID with the one you have just obtained in the new temporary installation of Confluence.
4. Start up the test server, go to **Administration --> License Details** and update the license to your developer license that you generate from [https://my.atlassian.com](https://my.atlassian.com).

### Configuring a Confluence Email Server for Email Notifications

To enable Confluence to send email notifications, an email server must be configured, and the user must set up email notifications.

A Confluence administrator must configure an email server in the Administration Console, as follows:

1. Set up a mail server at 'Confluence Admin' > 'Mail Servers'. See [Configuring a Server for Outgoing Mail](#).
2. Click 'Send Test Email' to check that the server is working. Check that you get the test email in your inbox.

A user can test that notifications are working, as follows:

1. Go to your user profile (using the 'Settings' link) and edit your email preferences.
2. Enable 'Notify On My Actions'. (By default, Confluence does not send you notifications for your own changes. See [Subscribing to Email Notifications of Updates to Confluence Content](#).)
3. Go to a page you wish to get notifications about.
4. Open the 'Tools' menu and click 'Watch'. See [Watching a Page or Blog Post](#).
5. Edit the page.
6. Wait a while for the email to arrive, or flush the email queue to send it immediately. (Go to 'Confluence Admin' > 'Mail Queue' and click 'Flush Mail Queue'.) See [The Mail Queue](#).
7. Check your email.

For instructions on configuring user-level email notifications, see [Watching Changes](#).

### Related Topics

[Watching Changes](#)

### Copy Or Rename A Space

Currently Confluence does not support renaming or copying spaces through the user interface. You may wish to vote towards these feature requests:
- Feature request to clone an entire space - this will enable duplication of every page, news item and comment plus space themes and colour schemes.
- Feature request to copy a page hierarchy between existing spaces.

Use The Copy Space Plugin

The best option is to install the Copy Space Plugin.

⚠️ Note that this plugin is still in beta release, and is not officially supported by Atlassian.

⚠️ Note that copying a space can take a long time and may appear to time out when using this plugin (even when the copied space is created correctly). If this occurs, please ensure that your space has not been created before attempting to copy the space again.

Read the developer's notes in the Atlassian blogs.

Manually Clone Or Rename A Space

Alternatively, it is possible to manually clone or rename a space by modifying an XML backup of the target space.

Notes

- May require manually updating external links to that space.
- The instructions have been confirmed for Confluence 2.2 onwards. Users running older versions are recommended to upgrade Confluence before continuing.
- Where examples are given, they involve changing oldkey:Old Space Name into newkey:New Space Name. You need to substitute your own keys for oldkey and newkey, and your own space names for Old Space Name and New Space Name.
- When importing a space export for a space that already exists, the previous space content will be overwritten.
- Read the process in full before beginning.

Stage 1: Rename Space

1. Select a new, unique space key and name for the second space. Space keys may only consist of ASCII letters or numbers (A-Z, a-z, 0-9) and no empty spaces are allowed in the key.

2. Clone your production Confluence instance to a test server on another computer now. (For instructions, see Migrating Confluence Between Servers.) You should now have a production server and test server both containing the same data and can avoid the risk of corrupting your production Confluence instance.

3. On the test server, login as an administrator.

4. Go to Browse Space -> Advanced -> Export Space and export the target space as XML including attachments.

5. Save the space backup.

6. Open the space backup file with a zip file editor and find the file entities.xml.

7. Edit entities.xml in a text editor.

8. Do a 'Search & Replace' on the old space name as shown below. Swap out Old Space Name and New Space Name for the actual names.
9. Do a ‘Search’ for any occurrences of the old space name that occur in user content. You may wish to replace some or all of these references with the new space name. Replace Old Space Name and New Space Name with the actual names.

<table>
<thead>
<tr>
<th>Search For</th>
<th>Replace With</th>
</tr>
</thead>
<tbody>
<tr>
<td>[CDATA[Old Space Name]]</td>
<td>[CDATA[New Space Name]]</td>
</tr>
</tbody>
</table>

10. Do four ‘Search & Replaces’ on each of the references to the old space key as shown below. Swap out oldkey and newkey for your actual keys.

<table>
<thead>
<tr>
<th>Search For</th>
<th>Replace With</th>
</tr>
</thead>
<tbody>
<tr>
<td>[oldkey]</td>
<td>[newkey]</td>
</tr>
<tr>
<td>spaceKey=oldkey</td>
<td>spaceKey=newkey</td>
</tr>
<tr>
<td>[oldkey: key=oldkey]</td>
<td>[newkey: key=newkey]</td>
</tr>
</tbody>
</table>

For example:

Space name: Test Space
Space key: test
New space name: Test Space 2
New space key: test2

```
<property name="name"><![CDATA[Test Space]]></property>
<property name="key"><![CDATA[test]]></property>
```

The above search and replace ensures that you will change the test oldkey to test2, and change the "Test Space" Old Space Name to Test Space 2.

11. Save the modified entities.xml.

12. Overwrite the original entities.xml in the space backup with the modified version.

13. Login to the test instance as a Confluence administrator.

14. Go to Administration -> Backup & Restore. Under 'Upload a zipped backup to Confluence', browse to select to the modified space backup. Check the 'Build index' option and select 'Upload & Restore'.

15. Once the restore process has completed, access the new space and test that you can access pages, embedded links and attachments. Any error in this step indicates that your search and replace was performed incorrectly and you should to retry from step 2.

Stage 2: Restore On Production

1. Backup your production instance now.

2. Login to the production instance as a Confluence administrator.

3. Go to Administration -> Backup & Restore. Under 'Upload a zipped backup to Confluence', browse to select to the modified space backup. Check the 'Build index' option and select 'Upload & Restore' If any data loss occurs as a result of using this workaround, immediately revert to the backup.

4. Once the restore process has completed, access the new space and test that you can access pages, embedded links and attachments. If any error occurs during this step, revert to the site backup.
5. If renaming a space, you can delete the old space by going to Browse Space -> Space Admin -> Remove Space. Click OK to remove the old space.

Stage 3: Rename Space References

Links in other spaces to the old space will remain unchanged. If you are renaming a space, you will need to change these links to point to the new space. Users who are copying a space can leave the links pointing to the original space by skipping this stage.

Changing these links depends on if you want to change every link, or only some. If not all links must be changed or you are unwilling to stop your production instance, this must be done by editing each page individually. If all links must be changed, follow the instructions below.

1. Create a site XML backup including attachments from Administration -> Backup & Restore.
2. Save the site XML backup file.
3. Stop the production instance.
4. Create two copies of the site backup. Keep one copy as the original, unmodified backup, the other will be modified. Rename the backups so that it is clear which is being modified.
5. Open the copy for modification and edit entities.xml.
6. Do four ‘Search & Replaces’ on each of the references to the old space key as shown below. Swap out oldkey and newkey for the actual keys

<table>
<thead>
<tr>
<th>Search For</th>
<th>Replace With</th>
</tr>
</thead>
<tbody>
<tr>
<td>[oldkey]</td>
<td>[newkey]</td>
</tr>
<tr>
<td>spaceKey=oldkey</td>
<td>spaceKey=newkey</td>
</tr>
<tr>
<td>[oldkey:</td>
<td>[newkey:</td>
</tr>
<tr>
<td>key=oldkey]</td>
<td>key=newkey]</td>
</tr>
</tbody>
</table>

7. Save the updated entities.xml back into the modified site XML backup file
8. Start the production instance
9. Import the modified site XML backup from Administration -> Backup & Restore. If you have any problems, revert to the original unmodified backup and redo the links manually instead

Done.

Related

Copy Space Template: There is a feature request being tracked at CONF-4538.

Customising Confluence Icons

Icons are intended to be added/customised from time to time by users to adopt a new look. The file locations are hard to locate.

These steps are under the presumption that users have access to the source code:

- Search for the atlassian-renderer library.
- Extract the library and search for the file /com/atlassian/renderer/DefaultIconManager.java where the icons are being mapped.
- Check out how the referencing are being done there and add your own icons within

The Confluence 2.10 version of CONFKB:DefaultIconManager is attached to this article.

Disabling Drag-and-Drop

Your Confluence system administrator may wish to disable the drag-and-drop feature for various reasons.

If you are a Confluence system administrator and wish to disable the drag-and-drop feature, you need to access the Plugin Manager in your Confluence installation's 'Administration' section and disable the entire ‘Confluence Drag and Drop Plugin’. Refer to Installing a Plugin for details on accessing the Plugin Manager and disabling entire plugins or plugin modules.

You can also disable the ‘drop zone’ that appears on the 'Attachments' view or the image dialog box by disabling the respective 'View Attachments Drop Zone' or 'Image Dialog Drop Zone' modules of this plugin. Doing this removes these drop zones while
Disabling Password management from User

This page describes a way of preventing your user from changing their passwords. In this way, you can ensure that all passwords are only set from Confluence Admin.

Customisations are not supported

Note that Atlassian support does not cover customisations to Velocity files, such as those described on this page.

LDAP Passwords are not set by Confluence

Note that Confluence does not manage LDAP Users.

All files should be located under `<confluence-home>/<confluence/users`.

Removing the User Password Option.

To remove the option that allows people to select a new password, you will need to edit the Velocity template (.vm file) as described below.

1. Locate your `changemypassword.vm` file under

   `<confluence-home>/<confluence/users/changemypassword.vm`

2. Edit this file with your favorite editor, such as Wordpad, Notepad or Notepad++ (recommended). The file looks something like this:

   ```html
   <html>
   <head>
   <title>$generalUtil.htmlEncode($pageTitle)</title>
   #requireResource("confluence.web.resources:aui-forms")
   </head>
   #applyDecorator("root")
   #decoratorParam("context" "profile")
   #decoratorParam("mode" "edit-profile")
   #decoratorParam("helper" $action.helper)
   <body>
   <div class="padded">
   #if ($settingsManager.getGlobalSettings().isExternalUserManagement())
   $action.getText("cannot.change.password.users.outside")
   #elseif(!$userAccessor.isReadOnly($remoteUser))
   #applyDecorator("form-aui")
   #decoratorParam("formName" "changepassword")
   #decoratorParam("submitAction" "dochangemypassword.action")
   #decoratorParam("editAction" "changemypassword.action")
   #decoratorParam("editMode" "$editMode")
   #decoratorParam("saveValue" "Save")
   #form_xsrfToken()
   <fieldset>
   #tag( "Password" "label='cur.pass.name'" "name='currentPassword'" "theme='aui'")
   #tag( "Password" "label='new.pass.name'" "name='newPassword'" "theme='aui'")
   #tag( "Password" "label='new.pass.confirm.name'" "name='newPasswordConfirmation'" "theme='aui'")
   #tag( "Submit" "theme='aui'" "name='Test'")
   </fieldset>
   #end
   #end
   </div>
   </body>
   #end
   </html>
```
1. Add a comment, as shown below, replacing the block that starts with "<fieldset..." and ends with "/fieldset>". After the edit, you should have something like this:

```html
<html>
<head>
<title>$generalUtil.htmlEncode($pageTitle)</title>
#requireResource("confluence.web.resources:aui-forms")
</head>

#applyDecorator("root")
#decoratorParam("context" "profile")
#decoratorParam("mode" "edit-profile")
#decoratorParam("helper" $action.helper)

<body>
<div class="padded">
#if ($settingsManager.getGlobalSettings().isExternalUserManagement())
$action.getText("cannot.change.password.users.outside")
#elseif(!$userAccessor.isReadOnly($remoteUser))
#applyDecorator("form-aui")
#decoratorParam("formName" "changepassword")
#decoratorParam("submitAction" "dochangemypassword.action")
#decoratorParam("editAction" "changemypassword.action")
#decoratorParam("editMode" "$editMode")
#decoratorParam("saveValue" "Save")
#form_xsrfToken()

<h1>Dear User,</h1><br>
<p><font size="3" color="red">You cannot change your password, this is disabled.<br>
Please continue to use your actual password<br>
If you have any complains contact the Admin.<br>
Regards your Admin.<br></font></p>
</div>
</body>
</html>
```

Save the file. You can reload your page and see the changes. There is no need to restart Confluence.

After following the above steps, you will have something like this:

![Profile page](image)

1. Congratulations, that's it

Have a candy!
Disabling Profile Edit from User

This page describes a way of preventing your user from changing their Profile. In this way, you can ensure that all Profiles are only set from Confluence Admin.

Customisations are not supported

Note that Atlassian support does not cover customisations to Velocity files, such as those described on this page.

All files should be located under `<confluence-home>\confluence\users`.

Removing the User Password Option.

To remove the option that allows people to select a new password, you will need to edit the Velocity template (`editmyprofile.vm`) as described below.

1. Locate your `editmyprofile.vm` file under
   
   `<confluence_home>\confluence\users\editmyprofile.vm`

2. Edit this file with your favorite editor, such as Wordpad, Notepad or Notepad++ (recommended). The file looks something like this:

   ```html
   #macro (renderIfEdit $markup)
   #trim()
   #if ($editMode == true)
   $!generalUtil.htmlEncode($markup)
   #else
   $!statusTextRenderer.render($markup)
   #end
   #end
   #end
   #set($viewingMyProfile = $personalInformationEntity.belongsTo($remoteUser))
   <html>
   <head>
   <title>$generalUtil.htmlEncode($pageTitle)</title>
   #requireResource("confluence.web.resources:aui-forms")
   #requireResource("confluence.userstatus:userstatus-resources")
   </head>
   
   #if ($editMode)
   #set($mode = "edit-profile-single")
   #else
   #set($mode = "edit-profile-three")
   #end
   #applyDecorator("root")
   #decoratorParam("context" "profile")
   #decoratorParam("mode" $mode)
   #decoratorParam("helper" $action.helper)
   #decoratorParam("infopanel-width" "200px")
   
   <body>
   
   <div class="profile-info #if(!$editMode)section-3#end">
   #applyDecorator("form-aui")
   #decoratorParam("formName" "editmyprofileform")
   #decoratorParam("submitAction" "$req.contextPath/users/doeditmyprofile.action")
   #decoratorParam("editAction" "$req.contextPath/users/editmyprofile.action")
   #decoratorParam("editMode" "$editMode")
   
   #if ($editMode && $viewingMyProfile)<a href="$req.contextPath/users/editmyprofile.action" class="edit-link">$action.getText("edit.name")</a>#end
   
   <h2 class="subheading first">$action.getText("profile.group.personal")</h2>
   
   #form_xsrfToken()
   ```
<fieldset>
#if (!$settingsManager.getGlobalSettings().isExternalUserManagement() && !$userAccessor.isReadOnly($user))
	#tag("TextField" "label='fullname.name'" "name='fullName'" "size='50'" "theme='aui'")
#else
	#tag("TextField" "label='fullname.name'" "name='fullName'" "size='50'" "theme='aui'" "readonly=true")
#end
#foreach ($key in $action.getUserDetailsKeys("personal"))
	#bodytag("TextField" "label='confluence.user.profile.$key'" "name='userparam-$key'" "value=getUserProperty('$key')" "size='50'" "theme='aui'")
#param("renderWiki" $statusTextRenderer)
#end
#end
#endif
#if($editMode)
	#bodytag("Component" "name='personalInformation'" "template='textarea.vm'" "theme='aui'")
#param("label" "$action.getText('personal.info')")
#param("rows" 8)
#param("cols" 70)
#param("renderWiki" $blockWikiStyleRenderer)
#end
#end
</fieldset>
<h2 class="subheading">$action.getText("profile.group.business")</h2>

<fieldset>
#foreach ($key in $action.getUserDetailsKeys("business"))
	#bodytag("TextField" "label='confluence.user.profile.$key'" "name='userparam-$key'" "value=getUserProperty('$key')" "size='50'" "theme='aui'")
#param("renderWiki" $statusTextRenderer)
#end
#end
#endif
#if($viewingMyProfile == true && $editMode==true)
	<bodytag("Submit" "theme='aui'")
#param("submitValue" "$action.getText('save.name')")
#end
#end
</fieldset>
</div>
#end
</div>
</div>
</div>
</div>
</div>
</div>
No recent updates found.

This Red line above is just the Save and Cancel Button, you cannot remove other tags, or it will disappear from Profile Details.

1. Let’s comment what is shown in Green with <!-- and -->. And let’s add a comment saying that the user cannot edit his profile. After the edit, you should have something like this:
<fieldset>
  #if (!$settingsManager.getGlobalSettings().isExternalUserManagement() && !$userAccessor.isReadOnly($user))
  #tag( "TextField" "label='fullname.name'" "name='fullName'" "size='50'" "theme='aui'" )
  #tag( "TextField" "label='email.name'" "name='email'" "size='50'" "theme='aui'" )
  #else
  #if($editMode)
  <strong class="extra-info">$action.getText('user.fields.readonly')</strong>
  #end
  #tag( "TextField" "label='fullname.name'" "name='fullName'" "size='50'" "theme='aui'" "readonly=true" )
  #tag( "TextField" "label='email.name'" "name='email'" "size='50'" "theme='aui'" "readonly=true" )
  #end
  #foreach ($key in $action.getUserDetailsKeys("personal"))
    #bodytag( "TextField" "label='confluence.user.profile.$key'" "name='userparam-$key'" "value=getUserProperty('$key')" "size='50'" "theme='aui'" )
    #param ("renderWiki" $statusTextRenderer)
  #end
  #end
  #if($editMode)
  #bodytag ("Component" "name='personalInformation'" "template='textarea.vm'" "theme='aui'")
  #param ("label" "$action.getText('personal.info')")
  #param ("rows" 8)
  #param ("cols" 70)
  #param ("renderWiki" $blockWikiStyleRenderer)
  #end
  #end
  #if($editMode == true)
  #parse ("/pages/includes/captcha-form-elements.vm")
  #end
  #end
  #if($viewingMyProfile == true && $editMode==true)
  <br/>
  #bodytag( "Submit" "theme='aui'" )
  #param ("submitValue" "$action.getText('save.name')")
  #end
  #end
  <!--
  #if($viewingMyProfile == true && $editMode==true)
  <br/>
  #bodytag( "Submit" "theme='aui'" )
  #param ("submitValue" "$action.getText('save.name')")
  #end
  #end
  -->
  <p><font size="3" color="red">You cannot change your Profile, this is disabled.<br>
  If you need to change anything contact the Admin.<br></font></p>
</fieldset>

<h2 class="subheading">$action.getText("profile.group.business")</h2>

<fieldset>
  #foreach ($key in $action.getUserDetailsKeys("business"))
    #bodytag( "TextField" "label='confluence.user.profile.$key'" "name='userparam-$key'" "value=getUserProperty('$key')" "size='50'" "theme='aui'" )
    #param ("renderWiki" $statusTextRenderer)
  #end
  #end
  #if($editMode == true)
  #parse ("/pages/includes/captcha-form-elements.vm")
  #end
  #if($viewingMyProfile == true && $editMode==true)
  <br/>
  #bodytag( "Submit" "theme='aui'" )
  #param ("submitValue" "$action.getText('save.name')")
  #end
  #end
  <!--
  #if($viewingMyProfile == true && $editMode==true)
  <br/>
  #bodytag( "Submit" "theme='aui'" )
  #param ("submitValue" "$action.getText('save.name')")
  #end
  #end
  -->
  <p><font size="3" color="red">You cannot change your Profile, this is disabled.<br>
  If you need to change anything contact the Admin.<br></font></p>
</fieldset>
1. Save the file. You can reload your page and see the changes. There is no need to restart Confluence.

After following the above steps, you will have something like this:

![Profile page](image)

And Something like this too:
Disabling Theme Selection

This page describes a way of preventing your space administrators from changing the theme in a space. In this way, you can ensure that all spaces follow the global look and feel.

Customisations are not supported

Note that Atlassian support does not cover customisations to Velocity files, such as those described on this page.

All files should be located under `<confluence-home>\confluence\spaces`.

Removing the Theme Selection Option

To remove the option that allows people to select a theme for a space, you will need to edit the Velocity template (.vm file) as described below.

1. Locate your `choosetheme.vm` file under

   `<confluence_home>\confluence\spaces\choosetheme.vm`
2. Edit this file with your favorite editor, such as Wordpad, Notepad or Notepad++ (recommended). The file looks something like this:

```html
<html>
<head>
<title>$action.getActionName($action.getClass().getName())</title>
</head>

#applyDecorator("root")
#decoratorParam("helper" $action.helper)
#decoratorParam("context" "space-administration")
#decoratorParam("mode" "view-space-administration")
#decoratorParam("help-path" "/spaces/help/choosetheme.vm")

<body>
#applyDecorator("root")
#decoratorParam("context" "spaceadminpanel")
#decoratorParam("selection" "choosetheme")
#decoratorParam("title" $action.getActionName($action.getClass().getName()))
#decoratorParam("selectedTab" "admin")
#decoratorParam("helper" $action.helper)

<form method="POST" action="dochoosetheme.action"
name="choosethemeform">
    #form_xsrfToken()
    #parse ("/includes/common-choosetheme.vm")
    <input type="hidden" name="changesSaved" value="true">
    #tag ("Submit" value='confirm.name'
    "align='center'" "theme='notable'" template='submit.vm'
    )
</form>
#end

</body>

#end
</html>
```
3. Add a comment, as shown below, replacing the block that starts with "<form method..." and ends with "</form>". After the edit, you should have something like this:

```
<html>
<head>
<title>$action.getActionName($action.getClass().getName())</title>
</head>

#applyDecorator("root")
#decoratorParam("helper" $action.helper)
#decoratorParam("context" "space-administration")
#decoratorParam("mode" "view-space-administration")
#decoratorParam("help-path" "/spaces/help/choosetheme.vm")

<body>
#applyDecorator ("root")
#decoratorParam ("context" "spaceadminpanel")
#decoratorParam ("selection" "choosetheme")
$action.getActionName($action.getClass().getName())
#decoratorParam ("title")
#end
</body>

</html>
```

Save the file. You can reload your page and see the changes. There is no need to restart Confluence.

4. Save the file. You can reload your page and see the changes. There is no need to restart Confluence.

---

**Congratulations, that’s it**

Have a chocolate!
Editing your database password

To reset the password for the database user that Confluence uses to connect to the database, follow the guide below.

If your Confluence instance connects directly via JDBC, then your password will be in your `<CONFLUENCE_HOME>/confluence.cfg.xml` file. E.g.

```xml
<property name="hibernate.connection.driver_class">com.mysql.jdbc.Driver</property>
<property name="hibernate.connection.password">confluencepass</property>
<property name="hibernate.connection.url">jdbc:mysql://localhost/confluence?autoReconnect=true</property>
<property name="hibernate.connection.username">confluencedbuser</property>
<property name="hibernate.database.lower_non_ascii_supported">true</property>
<property name="hibernate.dialect">com.atlassian.hibernate.dialect.MySQLDialect</property>
```

Change the "hibernate.connection.password" property to the correct value (in the above the example replace "confluencepass" with the new password).

If you're connecting via datasource then you will see in the confluence.cfg.xml file something like:

```xml
<property name="hibernate.setup">true</property>
<property name="hibernate.dialect">com.atlassian.hibernate.dialect.MySQLDialect</property>
<property name="hibernate.connection.datasource">java:comp/env/jdbc/confluence</property>
```

I.e. the property "hibernate.connection.datasource" is defined. If so your password is defined within your datasource. Each application server stores its information differently, but if you are using Tomcat, then check your `server.xml` file.

Enable public anonymous access

How do I configure Confluence for public-anonymous access?

There are two different permissions that need to be set to allow anonymous access to a Confluence site. First, the 'Anonymous' user needs the global "Use Confluence" permission, secondly you need to give 'Anonymous' permissions in each space you want to make public. Full instructions can be found [here](#).

RELATED TOPICS

Permissions Overview
Users and Groups
Confluence FAQ

Find out what is generating files in the Confluence temporary directory.

The Confluence applications store temporary files in the Confluence temporary directory. The location of the directory is located in: `<confluence_home>/temp`.

There are a few methods that can help you determine which component of Confluence generated the file:

- **Open the file**: allows you to view the contents of the file
- **Examine the file name and extension**: Usually, the file name has a string prefix
  - eg backupxxxxx.zip - generated from the attachments plugin where users choose to 'download all attachments'
  - chartxxxxxxx.png - generated from the [Charts macro plugin](#) which generates the chart images to be displayed on the page.
  - jiraissuesxxxxx.html - generated from the [JIRA Issues Macro](#) when the plugin gets issues content from JIRA.
- **Examine the creation time (timestamp) of similarly named files**: This allows you to determine if the file is generated periodically, in which case this infers the file was created by a scheduled task. If the timestamps for the files are random, then the files are most likely generated at runtime (that is, during page rendering or by user actions).

Hint:

Please refer to this [article](#) for the procedure change the schedule of the cleanup of the temporary directory.

To remove files manually from the command line one could issue a command (applicable to "nix) similar to:
Fix Out of Memory Errors by Increasing Available 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.

On this page:

- **Step 1: Diagnosis**
  - Determine type of error message
  - Determine Confluence's 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

**Determine type of error message**

Look in the `atlassian-confluence.log` to see which type of OutOfMemory Error you’re receiving. There are three common messages:

1. Heap Space
2. Perm Gen Space
3. GC Overhead

This document discusses increasing memory to address PermGen and Heap space errors. Follow the links above to assess root causes for each issue. For GC Overhead, refer to [Confluence Crashes Due to 'java.lang.OutOfMemoryError GC overhead limit exceeded'].

**Determine Confluence's 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.

**Determine available system memory**

```bash
find <confluence_home>/temp -name 'download*' -mmin +60 -print0 | xargs -0 rm -rf
```
as well as place the command in a cron job.
On Windows

From the Close Programs Dialogue (Press ctrl-alt-delete), select the Performance tab:

![Windows Task Manager](image)

The amount marked **Available** is the amount in kilobytes you have free to allocate to Confluence. 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**

The default values supplied with Confluence stand-alone are sufficient for most installations. Please refer to Managing Application Server Memory Settings and Server Hardware Requirements Guide for a discussion.

**Step 2: Increase Available Memory**

**Linux**

Expand to see Linux instructions

To increase heap or perm gen space memory in Linux installations,

1. From `<confluence-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open `setenv.sh` (you can create this file in the EAR/WAR version).
2. Find the section `JAVA_OPTS=-Xms256m -Xmx512m -XX:MaxPermSize=256m ...

   See above and enter the appropriate values. Xmx is maximum, Xms is minimum, and MaxPermSize is PermGen.

**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 `<confluence-install>/bin` (Stand-alone) or `<Tomcat-home>/bin` (EAR-WAR installation), open `setenv.bat`.
2. Find the section `set JAVA_OPTS=%JAVA_OPTS% -Xms256m -Xmx512m -XX:MaxPermSize=256m ...

   See above and enter the appropriate values. Xmx is maximum, Xms is minimum, and MaxPermSize is PermGen.

**Windows Service**

Expand to see Windows Service instructions

There are two ways to configure system properties if you Start Confluence Automatically on Windows 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 Confluence is installed as in Windows (Control Panel > Administrative Tools > Services):

   ![Control Panel Services Window]

   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 Confluence Standalone instance, or the bin directory of your Tomcat installation if you are running Confluence EAR/WAR.
4. Run:

   ```
tomcat6w //ES/%SERVICENAME%
   ``

   ![Command Window Screenshot]

   In the above example, it would be `tomcat6w //ES//JIRA030908110721` (this is a JIRA screenshot, but the same applies to Confluence)

5. Click on the **Java** tab to see the list of current start-up options:

   ![Java Startup Options]

6. Set the maximum memory allocation here
7. Also add `-XX:MaxPermSize=256m` to the java options section.

---

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 >> Confluence
   - 64-bit: HKEY_LOCAL_MACHINE >> SOFTWARE >> Wow6432Node >> Apache Software Foundation >> Procrun 2.0 >> Confluence

3. To change existing properties, especially increasing Xmx memory, double-click the appropriate value.

4. To change additional properties, double-click options. **Note:** Make sure to add only one argument per line.

5. Modify the memory allocations here (i.e. -XX:MaxPermSize=256m).

**Step 3: Verify Your Settings**

- Expand to see verification instructions
- To verify what settings are in place, check Viewing System Information. You should see a section called "Java Runtime Arguments".
- Look for Xmx (maximum) and Xms (minimum) settings.
- Alternately, on Linux, run `ps -aux | grep java` to see the environment parameters.

**Getting a License for a Staging Environment**

If you already have a developer license, you can add it under the Administration > License Details page. You can also create a new key as described below.

**Getting a Developer License**

Only a technical contact for your commercial/academic license is able to create a Developer license.

Atlassian supplies 'developer' licenses which can be used by existing commercial license holders who wish to deploy non-production installations of our software to use in QA/staging environments. Developer licenses are free of charge to commercial license holders and, like our commercial offerings, they include 12 months of updates starting from the date of purchase of the commercial license.

If you hold a commercial license, you can obtain a free developer license by following these steps:
1. Log in to your Atlassian account.
2. Under the "Licenses" heading, all of your licenses will be displayed. Click the plus sign next to a license to view its details.
3. Click the 'View Developer License' link in the bottom right corner of the license detail panel, below your commercial license key.

Your new developer license will be generated and displayed in a popup window. Repeat this process as many times as necessary for multiple developer licenses. If you are unable to create the license, contact our sales department for help.

Note about Version Compatibility

Earlier versions of our products do not support developer licenses. The table below indicates which versions of each product support developer licenses.

<table>
<thead>
<tr>
<th>JIRA</th>
<th>Confluence</th>
<th>Bamboo</th>
<th>Clover for Ant</th>
<th>Clover for Eclipse 3</th>
<th>Clover for IDEA 6</th>
<th>Crowd</th>
<th>Crucible</th>
<th>FishEye</th>
<th>JIRA Perforce Plugin</th>
<th>JIRA VSS Plugin</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.7+</td>
<td>2.3+</td>
<td>All</td>
<td>1.3.14+</td>
<td>1.2.12+</td>
<td>1.0.2+</td>
<td>All</td>
<td>1.0.3+</td>
<td>1.3.3+</td>
<td>JIRA 3.11+ (Disabled)</td>
<td>JIRA 3.11+</td>
</tr>
</tbody>
</table>

If you are working with an older version that does not recognise developer licenses, you can use your existing commercial license in your test environment.

**How can I retrieve a recently deleted space or page?**

To restore a page, you may find the wanted information in the Restoring a Deleted Page documentation.

Unfortunately there is no easy way to restore a space - tell your Confluence Administrator to restore the site's daily backup and retrieve the deleted space from there.

To set up Confluence in a staging environment you may need to use a Developer License.

**How do I adjust the session timeout**

To change the default session timeout (which is 60 minutes) you must edit the file `web.xml`. For EAR/WAR installation, this file can be found in `<YOUR DEPLOYMENT>/confluence/WEB-INF/web.xml` and for a standalone instance, the file is located in `<YOUR CONFLUENCE INSTALLATION DIRECTORY>/conf/web.xml`.

The element you want to edit in the `web.xml` file is:

```xml
<session-config>
  <session-timeout>60</session-timeout>
</session-config>
```

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 Confluence for your change to take effect.

On a related note, to configure Confluence's internal connection pool timeout period, please tweak the `c3p0.timeout` property in your `<Confluence-Home>/confluence.cfg.xml` file:

```xml
<property name="hibernate.c3p0.timeout">30</property>
```

This value is an indication of the number of seconds a connection can remain pooled but unused before being discarded. Zero means idle connections never expire. More details can be found here.

**How do I change the space key?**

See Copy Or Rename A Space.

**How do I check which spaces have email accounts**

If you have numerous spaces in Confluence and would like to check for spaces which have a mail setting, you can run a database query like the one below:
```sql
select spaces.spacename, spaces.spacekey, bandana.bandanakey
from spaces, bandana
where spaces.spacekey = bandana.bandanacontext AND
bandana.bandanakey="atlassian.confluence.space.mailaccounts";
```

**RELATED TOPICS**

- How do I Disable Automatic Mail Polling?
- How do I configure the Plugin Repository to update its plugins information offline?
- Download the latest plugins.atlassian.com XML for your version of Confluence

**How do I configure the Plugin Repository to update its plugins information offline?**

With the launch of plugins.atlassian.com, the Confluence Plugin Repository SVN metadata has been deactivated. For existing clients, requests to confluence.atlassian.com for repository metadata are now transparently redirected to plugins.atlassian.com, which provides up-to-date plugin information in the same XML format as that served from the old repository proxy.

While Confluence installations with access to confluence.atlassian.com see no impact from this change, those installations which cannot access confluence.atlassian.com need special instructions.

**Download the latest plugins.atlassian.com XML for your version of Confluence**

PAC makes the plugin repository client data available at the URL

https://plugins.atlassian.com/server/legacy/confluence/xml/<bn>

where `<bn>` is the build number of the Confluence installation. The build number is visible at Admin -> System Information (near the bottom of the page). Build numbers for all released Confluence builds are also available here.

Save the resulting file and place it on a Web server accessible from Confluence. This can be the same server as Confluence itself; for example, if you’re running the standalone version of Confluence at http://localhost:8090, place the saved XML in the confluence directory inside your standalone installation.

**Keeping the XML up to date**

When a change is made on plugins.atlassian.com to a plugin’s data, the generated XML will update at most one day after the change is made. Consider writing a `cron` job or similar to fetch the XML on a weekly basis and store it in your chosen location to ensure you are always up to date on plugin information.

**Configure the Plugin Repository Client**

Now go to Admin -> Plugins -> Confluence Atlassian Plugin Repository and click on the Configure link.

There are four plugin repository data source options:

1. **HTTP Data Source Generator** - Plain text XML file served over HTTP. Never used, except for debugging.
2. **Subversion Generator (Deprecated)** - Check out the metadata from SVN and generate the XML internally. As this uses the deprecated SVN metadata, it can be ignored.
3. **Local Generator (Deprecated)** - Read the metadata off your local filesystem and generate the XML internally. As this uses the deprecated SVN metadata, it can be ignored.
4. **Proxy Client** - pull XML data from another Confluence Plugin Repository Client that has been configured to act as a server.

In this case you would need to choose the **Proxy Client** option, as it is able to fetch XML from any server, not just plugins.atlassian.com.

Paste the URL to the XML data in the Data Source field and uncheck the Data Source Proxying option if it is checked. Then click Save and select Admin -> Plugin Repository, and the client should load the repository info as before.

**RELATED TOPICS**

- Confluence Repository Client
- How do I disable indexing of attachments

**How do I disable indexing of attachments**

Sometimes a user can experience problems indexing large MSExcel or MSPowerPoint documents and the reindexing may cause potential Unknown Ptg warning messages that are harmless. There is already a request to Suppress these warnings from the re-indexing of unreadable documents by the POI library.
The error is usually not serious yet can sometimes cause problems when large attachments are used. So you may like to disable indexing of a particular type of document.

To do this, you can use one of the methods described below.

**Method 1: Using the Administration Console**

You can disable the relevant modules from the Attachment Extractors or Office Connector plugins, by going to Browse -> Confluence Admin -> Plugins -> Manage Existing and disabling the relevant plugin modules:

- To disable the indexing of PDF attachments, go to the Attachment Extractors -> Manage plugin modules and disable the following module:
  - PDF Content Extractor — For PDF attachments

- To disable the indexing of Office attachments, go to the Office Connector plugin -> Manage plugin modules and disable the following modules as required:
  - Word Content Extractor — For Word 97/2007 (.doc and .docx) attachments
  - PowerPoint 97 Content Extractor — For PowerPoint 97 (.ppt) attachments
  - PowerPoint 2007 Content Extractor — For PowerPoint 2007 (.pptx) attachments
  - Excel 97 Content Extractor — For Excel 97 (.xls) attachments
  - Excel 2007 Content Extractor — For Excel 2007 (.xlsx) attachments

The search query will ignore all attachments of the type corresponding to the disabled module.

**Method 2: Editing the atlassian-plugin.xml files of plugins**

You need to modify the content of the atlassian-plugin.xml file in the following JAR files and comment out the relevant file type extractor:

- confluence-attachment-extractors-x.x.jar (for PDF)
- OfficeConnector-x.x.jar (for Office files)

Both of these JAR files are located in the confluence\WEB-INF\classes\classes\com\atlassian\confluence\setup\atlassian-bundled-plugins.zip file.

If you are unfamiliar with modifying JAR files, please refer to the Editing Files within JAR Archives document for further information.

You can identify file type extractors in atlassian-plugin.xml files by the occurrence of ContentExtractor in their key attribute.

Once the ContentExtractor for a file type is disabled, all files of that type become unsearchable.

The example below shows a pdfContentExtractor disabled which would prevent PDF attachments from being indexed.
The following table shows the file type extractors in the `atlassian-plugin.xml` of the `OfficeConnector-x.x.jar` file, which require commenting out to prevent indexing:

<table>
<thead>
<tr>
<th>Type of attachment</th>
<th>File Type Extractor</th>
</tr>
</thead>
</table>
| Word 97/2007 (.doc and .docx) | `<extractor name="Word Content Extractor" key="wordContentExtractor" class="com.atlassian.confluence.extra.officeconnector.index.word.WordTextExtractor" priority="1099">  
  <description>Indexes contents of Word 97/2007 files</description>  
</extractor>` |
| PowerPoint 97 (.ppt) | `<extractor name="PowerPoint 97 Content Extractor" key="ppt97ContentExtractor" class="com.atlassian.confluence.extra.officeconnector.index.powerpoint.PowerPointTextExtractor" priority="1099">  
  <description>Indexes contents of PowerPoint 97 files</description>  
</extractor>` |
| PowerPoint 2007 (.pptx) | `<extractor name="PowerPoint 2007 Content Extractor" key="ppt2k7ContentExtractor" class="com.atlassian.confluence.extra.officeconnector.index.powerpoint.PowerPointXMLTextExtractor" priority="1099">  
  <description>Indexes contents of PowerPoint 2007 files</description>  
</extractor>` |
| Excel 97 (.xls) | `<extractor name="Excel 97 Content Extractor" key="excel97ContentExtractor" class="com.atlassian.confluence.extra.officeconnector.index.excel.ExcelTextExtractor" priority="1099">  
  <description>Indexes contents of Excel 97 files</description>  
</extractor>` |
| Excel 2007 (.xlsx) | `<extractor name="Excel 2007 Content Extractor" key="excel2k7ContentExtractor" class="com.atlassian.confluence.extra.officeconnector.index.excel.ExcelXMLTextExtractor" priority="1099">  
  <description>Indexes contents of Excel 2007 files</description>  
</extractor>` |

How Do I Find My License from the File System?

If you're not sure where your license is in `my.atlassian.com`, you can look in `<confluence-home>/confluence.cfg.xml`.

How Do I Get More Statistics From Confluence?

Confluence has several plugins that you can use for generating statistics, such as:

- Use the SQL and Chart plugins together. Read the Confluence Reporting HOWTO for information about the reporting capabilities of Confluence, including the `{sql}` macro, charting and security.
- Refer to Obtaining Confluence Instance Metrics for some useful SQL queries.
- Our user community have contributed some great SQL queries.
- The Reporting Plugin contains macros which allow powerful and flexible reporting on Confluence content and content from other locations.
- Customware's Tracking Plugin contains macros for anonymously tracking content access. Otherwise known as hit counting, this macro provides the ability to count the number of times a given piece of content has been viewed. It does not count views by the most recent editor of the page.
- Make user macros like `tracking-info` to track the number of times an attachment is downloaded.
- Try using the `countpages` macro to get more details regarding the contributors for required pages.
- Paste the `Contributors Summary` macro to get more details regarding the contributors for required pages.
- Statistical Analysis Plugin from Adaptavist, is another cluster-ready, enterprise scalable third-party plugin.
The Google Analytics plugin offers trends from Google Analytics. For more information on using Google Analytics and Confluence you may wish to refer to this blog post by David Simpson. Use the simple viewtracker Plugin to track page or blog views and viewers.

In addition, Confluence has a built-in access logging mechanism, which shows who has logged in and the URL invoked. To enable it, you need to modify a couple of configuration files and restart Confluence. The traditionally generated access log can then be analysed by one of the available access log analyser tools such as Webalizer, Google Analytics or AwStats which can generate useful statistics.

See our documentation on Obtaining Confluence Instance Metrics

If none of the above tools satisfy your requirements, you can create a feature request in jira. Please note that there are already several feature requests and improvements created by our customers all being collated under one umbrella issue.

Please cast your vote, add your comments to the discussion and don't forget to add yourself as a watcher to be notified on progress. All our improvements and new features are implemented according to this guide.

RELATED TOPICS
Viewing Site Statistics
Viewing Space Activity
Obtaining Confluence Instance Metrics
Live Monitoring Using the JMX Interface
Live log viewer plugin.
Tomcat's access logs.

How Do I Identify Inactive Users in Confluence

If you want to disable inactive users and prevent them from being counted by Confluence license count it is possible to find out by running queries against your database.

This is particularly useful if you have numerous users.

Note: the queries are the same regardless of which user management system you're using in Confluence 3.5 or later. See the old version of this document for the various queries needed with legacy user management systems.

List users who are inactive

```
select * from cwd_user
where active = 'F';
```

List users by last login date

```
select entity_name, date_val from OS_PROPERTYENTRY
where entity_key = 'confluence.user.last.login.date'
and entity_name like 'CWD_%'
order by date_val;
```

List users by previous login date

The "previous" login date is the one before the user's last login.

```
select entity_name, date_val from OS_PROPERTYENTRY
where entity_key = 'confluence.user.previous.login.date'
and entity_name like 'CWD_%'
order by date_val;
```

Active users who have not created any content since 2007
How do I know what Confluence version I am running?

At the bottom of a Confluence page you will see a line like this:

```
Powered by Atlassian Confluence 2.10.1, the Enterprise Wiki. Bug/feature request - Atlassian news - Contact administrators
```

In the above it means that you are running Confluence version 2.10.1.

If you do not see that line, you can visit http://<Your Confluence URL>/admin/systeminfo.action and find out the version from there.

How do I prevent personal spaces from being shown on the dashboard

To disable personal pages from being shown in the dashboard one will need to customise the `recently updated content macro` by giving it a different parameter.

Here's how:

1. Login as an admin and go to your Confluence administration console
2. Under the "Look and Feel" menu, click on "Layouts" (or type this in your browser: http://yourConfluenceURL.com/admin/listdecorators.action)
3. Under "Site Layouts" look for "Global Layouts" and choose "Create Custom"
4. In the layout editor, look for this line:

   ```
   $helper.renderConfluenceMacro('{recently-updated:dashboard|showProfilePic=true}')
   ```

5. Enter the list of space that is allowed to shows up by inserting the SpaceKey in the line:

   ```
   $helper.renderConfluenceMacro('{recently-updated:spaces=SpaceKey1,SpaceKey2|showProfilePic=true}')
   ```

   If you have numerous global spaces, it would be more convenient to use `@global` instead of listing each space separately. See RecentlyUpdatedMacro-Parameters for the list of parameters available for the function.

6. Save

   Personal spaces will still show up in daily email update. If you don't want this to show in the email update, you need to make the space accessible only to selected groups or people.

How do I Remove a User who has Content Created

Confluence doesn't allow the removal of user who has created any content. The standard method for removal is described in Removing a User. If you want to delete the content as well, the SQL is described below. Locate the content created by the user using the queries:

```
SELECT * FROM CONTENT WHERE contenttype = 'COMMENT' and creator = '<Username that you wish to remove>'
```

and
SELECT * FROM CONTENT WHERE contentid IN ({
    SELECT DISTINCT pageid FROM CONTENT WHERE contenttype = 'COMMENT' and creator = '<Username that you wish to remove>'}
)

Run the same DELETE commands after verifying the content is indeed content you wish to delete.

### How do I Remove the Last Updated and Created By Text?

Open the file `<confluence-install>/confluence/decorators/includes/page-metadata.vm` in a text editor and remove the following text:

```java
#if ($page.isLatestVersion() == true)
$action.getText('added.by.user.last.edited.on.date', 
[$"usernameLink $page.creatorName","$usernameLink $page.lastModifierName","$action.dateFormatter.format( $page.lastModificationDate )"])
#if (!$previousPage)
    <$action.getText('added.by.user.edited.on.date', 
[$"usernameLink $page.creatorName","usernameLink $page.lastModifierName","$action.dateFormatter.format( $page.lastModificationDate )"])
#end
#else
    <$action.getText('added.by.user.last.edited.on.date', 
[$"usernameLink $page.creatorName","usernameLink $page.lastModifierName","$action.dateFormatter.format( $page.lastModificationDate )"])
#end
```

### How do I suppress cluster warning message in Confluence?

You might find that under Logging and Profiling in Confluence Admin, either (or both)

```java
com.atlassian.confluence.cluster.safety
com.atlassian.confluence.cluster
```

are set to DEBUG.

Please change them to INFO and the warning messages in logs should disappear.

### How to Disable Emoticons

The text markup (i) is rendered as ı, a principle which applies to many more Inserting Emoticons and Icons. There is a feature request at CONF-4884 for enabling or disabling emoticon rendering in this manner via Confluence’s Administrative features.

However, to disable emoticon rendering in Confluence:

**For Confluence 2.8.x and earlier:**

1. Open up the `wikiFiltersSubsystemContext.xml`:
   - For Confluence 2.5.x and earlier, this file is located in WEB-INF/classes directory
   - For Confluence 2.6.x to Confluence 2.8.x, this file is located in WEB-INF/lib/confluence-2.x.y.jar/plugins. Please follow the steps as suggested here to edit files in a .jar file.
2. Determine the following line and remove/comment out the content:

   ```xml
   <ref local="emoticonRendererComponent"/>
   ```

**For Confluence 2.9.x and later:**

1. Open up the `wiki-renderer-components.xml`, located in WEB-INF/lib/confluence-2.x.y.jar/plugins. Please follow the steps as suggested here to edit files in a .jar file.
2. Determine the following line and remove/comment out the content:
Alternatively, manually escape the character with a "backslash", \\". For example:

```
(i)
```

**Code Macro and Noformat** Macro is also an option as any emoticons wrapped within the macro will be disabled automatically.

## How to display a banner like the Confluence Documentation space

The documentation for spaces prior to the current documentation contain a banner:

Edit the main layout for the space. After the Content div header:

```html
## CONTENT DIV BEGINS
<div id="header">
  #quickSearch()
  <ul id="header-menu-bar" class="ajs-menu-bar">
    #if($sitemeshPage.getProperty("page.browse-menu"))
      $sitemeshPage.getProperty("page.browse-menu")
    #else
      #menuMacros_renderGlobalBrowseMenu()
    #end
    #menuMacros_renderUserMenu()
  </ul>
  $!sitemeshPage.getProperty("page.breadcrumbs")
</div>
```

Add the following:

```html
<div class="noteMessage">
  <strong>This documentation relates to an early version of Confluence.</strong><br>
  View <a href="http://confluence.atlassian.com/display/DOC/$title">this page in the current documentation</a> or visit the <a href="http://confluence.atlassian.com/display/DOC/Confluence+Documentation+Home">current documentation home</a>.
</div>
```

To invoke a macro, use text like:

```
$helper.renderConfluenceMacro("{recently-updated-dashboard:dashboard|showProfilePic=true}")
```

## How to Force Links to Open in a New Window

By default, links are opened in the same window. To force them to be opened in a new window, follow these steps:

1. Visit Administration >> Custom HTML
2. Click Edit
3. In the At end of the HEAD field, insert this code:
   - For external links only, like [http://www.google.com]:

```
```
4. Hit Save

This customisation will only work for Confluence 3.0.1 and above

How to get a Java Heap Dump

Getting the heap dump

If you hit `java.lang.OutOfMemoryError: Java Heap Space` and you have eliminated the usual causes you may need to get a Java heap dump, to determine the cause.

To get a heap dump add the `-XX:+HeapDumpOnOutOfMemoryError` parameter to your `JAVA_OPTS`

For example:

```
JAVA_OPTS=-Xms128m -Xmx1024m -XX:MaxPermSize=192m -XX:+HeapDumpOnOutOfMemoryError
$JAVA_OPTS -Djava.awt.headless=true 
```

Next reproduce the out of memory error.

The next time you have an out of memory error, a *.hprof file will be created that is approximately the size of your java heap, i.e. 1024m (according to the above example).

Please wait till its completely written out (before restarting confluence) and attach a zip of this dump to your support case.

Please note that your `-Xmx` should not be bigger than 1536m otherwise it is near impossible to open the heap dump.

Setting the Memory Settings

How to set the heap or permanent generation memory depends on your distribution, platform, and how you start Confluence. Refer to Configuring System Properties.

If you're starting Confluence from a Windows Service, make sure you add the properties through the registry settings.

To verify if your settings have been picked up, check Displaying System Properties.

How to Hide the Referrer

Run Confluence over SSL. Major browsers do not send the HTTP_REFERER when you are linking from an https:// site to an http:// site.

To run confluence on SSL please refer to Adding SSL for Secure Logins and Page Security.
**How to run a SQL script on your database**

This document contains some basic instructions on how to run a SQL script on your database. This document is not intended to be exhaustive of the databases we support. We still recommend that you ask your DBA to perform this task if possible.

The following examples assume a database name of `yourdb` and a script file called `myscript.sql`. Of course, the extension of the SQL script file does not have to be `.sql`. Any file can be used so long as it contains SQL statements.

**MySQL**

```
mysql yourdb < myscript.sql
```

**PostgreSQL**

```
psql yourdb < myscript.sql
```

**How to Search Confluence for Uses of a Macro**

**Illegal Search Terms**

Several terms are illegal to use when searching Confluence, like `:` or `{`. If you search for just the macro term, you're likely not to get the right search results. For example, searching for 'usage', which is the name of a macro but also a common English word, will not yield an accurate count.

**Query the Database**

If, for example you want to search for the uses of the `usage` macro, you can search the database:

```
SELECT * FROM BODYCONTENT WHERE BODY LIKE '%{usage}%'
```

If you want to get the last users or the creators of the pages where the `noformat` macro is used, you might run:
SELECT CREATOR FROM CONTENT WHERE CONTENTID IN (SELECT CONTENTID FROM BODYCONTENT WHERE BODY LIKE '%{noformat}%') GROUP BY CREATOR
SELECT LASTMODIFIER FROM CONTENT WHERE CONTENTID IN (SELECT CONTENTID FROM BODYCONTENT WHERE BODY LIKE '%{noformat}%') GROUP BY LASTMODIFIER

Listing the occurrences of the excerpt include macro (MYSQL only)

```sql
select c.contentid, c.title, c.lastmoddate, c.lastmodifier, s.spacename from bodycontent bc join content c on bc.contentid=c.contentid join spaces s on s.spaceid = c.spaceid where c.contenttype='PAGE' and prevver is null and bc.body regexp '.*\{(excerpt-)?include\}.*';
```

Logging Uses of a Macro

This information won't tell you how often a macro is invoked - rather how often it appears on pages. For counting how often it's invoked (and measuring the time it takes to invoke it), check Identifying Slow Performing Macros.

Counting the Incidents of Invoked Logs

You can then grep the logs like:

```
grep -c *{usage* atlassian-confluence.log
```

How to turn on Debugging for indexing

There may be circumstances where you need to turn on debug logging for indexing (e.g. when automatic indexing is not occurring or you are getting errors related to indexing).

**Enabling debugging for indexing temporarily**

From Administration >> Logging and Profiling, add the following package, and set to DEBUG:

```text
com.atlassian.confluence.search.lucene
```

**Enabling debugging for indexing permanently**

1. Edit `<CONFLUENCE_INSTALL>/confluence/WEB-INF/classes/log4j.properties` file and add

```text
log4j.logger.com.atlassian.confluence.search.lucene=DEBUG
```

2. Restart Confluence

Logging should appear in the `<CONFLUENCE_HOME>/logs/atlassian-confluence.log` file, like the following:
List page- and space-related details for an attachment using the attachment's name

Occasionally, the indexing task will report some attachments that failed to be indexed correctly. If you wish to list the page- and space-related information for these problematic attachments (of which you only know their title from the logs) please query your database with the following SQL statement:

```sql
select s.spacekey, s.spacename, a.title, a.pageid, a.attachmentid, '('/ + a.pageid + '/\'+ a.attversion + '/') + a.attachmentid + '/\'+ a.attversion as filepath
from attachments a
join content c
on a.pageid = c.contentid
join spaces s
on c.spaceid = s.spaceid
where a.title like '<Name of Attachment>'
```

Please substitute the attachment name in the above query depending upon your requirement. The `filepath` column will list all attachments in the directory structure format similar to the way that they are stored in Confluence, such as `<Confluence-Home>/attachments/pageid/attachmentid/attachmentversion`

Related Linux Commands

**file `<Filename>`**

If you wish to check the filetype for attachments in your `<Confluence-Home>/attachments/` folder, run the above Linux command. For example:

```bash
file ..data/attachments/32775/98305/1
```

The result is:

```bash
../data/attachments/32775/98305/1: PNG image data, 1200 x 1000, 8-bit/color RGB, non-interlaced
```

**open `<Filename>`**

This command will open files from a shell. By default, opens each file using the default application for that file. Eg:
open ../data/attachments/32775/98305/1 -a /Applications/Preview.app/

The result is:
The file is opened in Preview.

Migrate Confluence from one database to another

How do I migrate Confluence from one database to another?

First perform an XML backup of your Confluence site. You can do this from the Administration > Backup and Restore page.

Once you've made the backup file, you can set up a new Confluence instance from scratch against your new database and restore the backup that you just created. Detailed instructions can be found here.

RELATED TOPICS

No content found for label(s) database-configuration.

FAQ Home

Migrating from JIRA Issues and JIRA Portlets to Gadgets

If JIRA Portlets are a significant component to your Confluence installation, it's a good idea to consider upgrading both JIRA and Confluence together.

With Confluence 3.1 and JIRA 4.0, Atlassian has introduced gadgets to replace portlets and the jiraissues and jiraportlets macros. Particularly with portlets, it's a good idea to migrate to gadgets. This page includes instructions on how to migrate.

Adding the JIRA Gadgets to Confluence

1. Add the JIRA Saved Filter and JIRA Portlet Gadgets as External Gadgets. See All Atlassian Gadgets for a list of available integration points.
2. Add either trusted communication or OAuth between your instances of JIRA and Confluence.

Migrating the Macros to Gadgets

Because of the wide variety of differences in invocations, this is currently a manual process. Vote for Migration for JIRA Issues and JIRA Portlets to Gadget URLs for a feature to do this automatically.

Workarounds

Several workarounds may help:

1. The Global Search and Replace plugin
2. An update statement to the BODYCONTENT table on the Confluence database. Here's some research contributed by one of our users:
   a. Find the pages that have a jiraportlet macro in it:

   ```sql
   SELECT s.spacekey, s.spacename, c.title, c.lastmoddate, 'https://intranet.company.com/wiki/display/'||s.spacekey||'/'||c.title as url, 'https://intranet.company.com/wiki/pages/editpage.action?pageId='||c.contentid as editurl FROM content c, spaces s WHERE c.contentId IN (SELECT contentId FROM bodycontent WHERE body LIKE '%{jiraportlet%') AND c.spaceid = s.spaceid ORDER BY c.lastmoddate desc, s.spacename, c.title;
   ```
   b. Replace the jiraportlet macro:
Page Restrictions Performance Considerations

 desta has been markedly improved in Confluence 3.3. See CONF-16866.

Page Permissions and the Confluence Search Index

Modifying the page permissions requires reindexing all child pages, as well as comments and attachments on all those pages.

The reasons for this:

- Page permissions are stored on every item in the index
- When you search, a filter is applied to all items in the index which prevents you seeing content you don't have permission to see
- If the permission information on attachments wasn't updated when a page permission was changed, users who didn't have permission to view the attachment in Confluence would still see that attachment in the search results as well as some of its content
- To update any record in the index, you need to delete it from the index and re-add it (this is a limitation of Lucene)

Therefore, to update an attachment record in the index, even just to change the permissions, the attachment's content must be reindexed.

Performance Considerations

In the large majority of situations, this design should not be a problem. In large spaces with deep page hierarchies, it might be. Use performance logging for the index flush operation to assess the impact of changing a page restriction - try it on the space's home page, or a page with a lot of children, to see the performance impact of changing a page restriction.

Space Design Considerations

For some space designs, deep page hierarchies may be desirable. If possible, it's recommended to split spaces where it makes sense to do so, according to how your information is organized. One workaround – CONF-7089 – involves opening up access to just a few pages in a mostly-restricted space so as to "open" the space where space permissions close it. This may be a performance concern if the space, and attachments in the space, are large.

Workarounds

There are a few workarounds to consider:

1. Avoid page restrictions on large page hierarchies. If you have a large hierarchy you have to protect differently to other content in the space, consider moving the hierarchy to a new space. (Space permissions are applied in a manner that doesn't have this problem, but having a large number of spaces also causes scaling issues.)
2. Disable page permissions completely. You can do this on a space-by-space basis by not granting the "Restrict" permission in the space permissions screen.
3. Turn off attachment content indexing. See How do I disable indexing of attachments or Configuring Attachment Size for information on how to do attachment types or size limits.

Which Pages Have Restrictions?

A database query to show which pages in your instance have page restrictions:
For page permissions:

```sql
SELECT DISTINCT content.contentid, content.TITLE as page_title, CONTENT_PERM.USERNAME as page_restriction_username, CONTENT_PERM.CP_TYPE as page_restriction_type FROM CONTENT_PERM, content WHERE CONTENTID IN (SELECT CONTENT_ID FROM CONTENT_PERM_SET WHERE ID IN (SELECT CPS_ID FROM CONTENT_PERM))
```

For space permissions:

```sql
select distinct S.SPACEID, S.SPACENAME,PERMGROUPNAME from SPACEPERMISSIONS SP inner join SPACES S on S.SPACEID = SP.SPACEID where PERMGROUPNAME is not null and PERMGROUPNAME <> 'confluence-users';
```

### Preventing and Cleaning Up Spam

If you have a public-facing Confluence site, your site may be affected by spammers.

#### Stopping Spammers

To prevent spammers:

2. Run Confluence behind an Apache webserver and create rules to block the spammer's IP address.

#### Blocking Spam at Apache or System Level

If a spam bot is attacking your Confluence site, they are probably coming from one IP address or a small range of IP addresses. To find the attacker's IP address, follow the Apache access logs in real time and filter for a page that they are attacking.

For example, if the spammers are creating users, you can look for `signup.action`:

```
$ tail -f confluence.atlassian.com.log | grep signup.action
1.2.3.4 - - [13/Jan/2010:00:14:51 -0600] "GET /signup.action HTTP/1.1" 200 9956 "-" "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1)" 37750
```

Compare the actual spam users being created with the log entries to make sure you do not block legitimate users. By default, Apache logs the client's IP address in the first field of the log line.

Once you have the offender's IP address or IP range, you can add it to your firewall's blacklist. For example, using the popular Shorewall firewall for Linux you can simply do this:

```bash
# echo "1.2.3.4" >> /etc/shorewall/blacklist
# /etc/init.d/shorewall reload
```

To block an IP address at the Apache level, add this line to your Apache vhost config:

```apache
Deny from 1.2.3.4
```

You can restart Apache with a "graceful" command which will apply the changes without dropping any current sessions.

If this still does not stop the spam, then consider turning off public signup.

#### Deleting Spam

**Profile Spam**
By 'profile spam', we mean spammers who create accounts on Confluence and post links to their profile page.

If you have had many such spam profiles created, it is easier to delete them via SQL, as described below.

**To delete a spam profile:**

1. Shut down Confluence and back up your database. **Note:** This step is essential before you run any SQL commands on your Confluence database.
2. Find the last real profile:
   
   ```sql
   SELECT bodycontentid, body FROM bodycontent WHERE contentid IN (SELECT contentid FROM content WHERE contenttype='USERINFO') ORDER BY bodycontentid DESC;
   ```

3. Look through the bodies of the profile pages until you find where the spammer starts. You may have to identify an number of ranges.
4. Find the killset:
   
   ```sql
   CREATE TEMP TABLE killset AS SELECT bc.bodycontentid, c.contentid, c.username FROM bodycontent bc JOIN content c ON bc.contentid=c.contentid WHERE bodycontentid >= BOTTOM_OF_SPAM_RANGE AND bodycontentID <= TOP_OF_SPAM_RANGE AND c.contenttype='USERINFO';
   
   DELETE FROM bodycontent WHERE bodycontentid IN (SELECT bodycontentid FROM killset);
   
   DELETE FROM links WHERE contentid IN (SELECT contentid FROM killset);
   
   DELETE FROM content WHERE prevver IN (SELECT contentid FROM killset);
   
   DELETE FROM attachments WHERE pageid IN (SELECT contentid FROM killset);
   
   DELETE FROM content WHERE contentid IN (SELECT contentid FROM killset);
   
   DELETE FROM os_user_group WHERE user_id IN (SELECT id FROM killset k JOIN os_user o ON o.username=k.username);
   
   DELETE FROM os_user WHERE username IN (SELECT username FROM killset);
   ```

5. Once the spam has been deleted, restart Confluence and **rebuild the index**. This will remove any references to the spam from the search index.

**Notes**

- See CONF-1469. Your comments that issue are very much appreciated.

**Rebuild the Content Indices from scratch**

**Why are the Content Indices failing?**

See Searching and Indexing Troubleshooting.

**Flushing the Index Queue**

You may be able to address the issue without a complete rebuild of the index. When you experience search problems within your Confluence instance, or cannot find things after performing an upgrade, one simple solution that can help you locate your content is to manually rebuild the index, as described in Content Index Administration. You can try either a complete rebuild, or flush the queue contents.

**Rebuilding the Failed Content Indices**

If you are still experiencing problems after performing the above rebuild, the next step may be to remove the index and rebuild it from scratch, as described below. For example, the rebuild procedure described above may not restore a corrupted index file. You may want to ensure that all index files are re-created.

> The Space Activity feature uses the index to store data. To preserve the activity data, keep the Plugins directory and delete the rest of the index.

To remove the index and rebuild it from scratch:
1. Shut down your Confluence server.
2. Make a backup of your `<confluence-home>/index/plugin` directory if it exists. This is where the Usage Tracking plugin stores its index for the usage statistics and it cannot be rebuilt.
3. Remove the `<confluence-home>/index` directory.
4. If in step 2, you have the `<confluence-home>/index/plugin` directory, create the `<confluence-home>/index` directory and copy in the backup of `<confluence-home>/index/plugin` directory made in step 2.
5. Restart server.
6. A new `index` directory will be created upon restart of your application.
7. Now perform the manual re-indexing of your site to build a brand new index from scratch.

If you still cannot find your content, please contact Confluence Support.

Redirect users to a page on login

Can I set Confluence to redirect users to a space homepage immediately after login?

Yes. You can direct users to any of the space homepages when they login to the site This is configured by a site administrator from the Administration Console. Instructions on how to do this can be found here.

You can also modify the login page's content or establish single sign-on integration.

RELATED TOPICS

Administration Guide
Customising Space Homepage

Redirect users to a site-wide home page after a successful login

As an administrator, you can set a site-wide home page within any space, to which users are sent after logging in.

To set the site-wide home page as an administrator:

1. Go to Administration > General Configuration
2. Click Edit
3. Set Site Homepage to your desired home page

Setting home pages within spaces depends on the access permissions to both the space and your site.

- If your site allows anonymous access, the site homepage must also be accessible anonymously.
- If your site does not allow anonymous access, the site homepage must be accessible to the “confluence-users” group.

In Confluence 1.2 and earlier, the site homepage must be accessible anonymously, regardless of site permissions.

**Note:** please ensure that the View Space Goes to Space Summary setting is set to OFF if you want users to be sent to space homepage instead of the summary page

For instructions on configuring this feature at the user level, see Redirect to a specific page (home page) within the site after logging in.

RELATED TOPICS

Redirect to a specific page (home page) within the site after logging in

Restrict Attachments Based On File Type

If a user has permission to upload attachments, you can restrict them to certain filetypes only by installing the Attachment Filter. Note that this is an unsupported plugin and has only been tested to work on Confluence 2.2 - 2.3.x. There is an open new feature request to have this updated and supported here.

You can also restrict the maximum size of any one attachment that a user can upload, or disable the indexing of attachments, which may help performance.

Search for User Properties in the Database

So long as you have not changed the user authentication from the default (i.e. you are NOT using external user management such as LDAP or JIRA) the users of confluence are stored in `OS_USER` table.

The user's properties such as fullname, email and when they previously logged in, are stored in the `OS_PROPERTYENTRY` table.

If you know the user's username (which can be found in `OS_USER` table), you can find their details using the following query:
select * from os_propertyentry p, os_user u where p.entity_id = u.id and u.username='user_name_goes_here';

Using Firebug Lite in Internet Explorer when browsing a Confluence page

1. Open a Confluence page in IE.
2. Copy and paste the following into your IE browser URL bar and press enter:

   ```javascript
   javascript:var firebug=document.createElement('script');firebug.setAttribute('src','http://getfirebug.com/releases/lite/...ild(firebug);(function(){if(window.firebug.version){firebug.init();}else{setTimeout(arguments.callee);}})();void(firebug);
   ```

3. You should see a Firebug console at the bottom of the browser now.

   For more information, please refer to Firebug Lite's documentation

What are the IP Address Ranges for Atlassian's Servers?

Various functions like the automatic support request and plugin repository require access to Atlassian Servers. The IP address range to configure for your firewall are as follows:

63.246.22.32/27
63.246.22.192/27
67.221.237.0/27

Where are the files that used to be in my Confluence installation directory?

With the release of Confluence 2.6.0, many files have been moved inside WEB-INF/lib/confluence-x.x.x.jar file, which means they can no longer be edited by simply opening and saving a file.

For example, you may find that some files previously were in `<confluence install directory>/confluence/WEB-INF/classes` are no longer there.

If you want to edit them for customisation, you will need to extract the relevant files from the confluence-x.x.x.jar, and place them in the directory where they are used to reside.

You can either use a zip application or use the `jar` tool from your JDK installation to extract the file.

### Example

You want to modify `xwork.xml` in Confluence 2.10.2. The steps to follow are:

1. Shutdown Confluence
2. Locate WEB-INF/lib/confluence-2.10.2.jar.
3. Open the jar file using your favourite zip application and search for WEB-INF/lib/confluence-2.10.2.jar/xwork.xml. You can also use JAVA's `jar` tool if you like.
4. Extract `xwork.xml` and place it in WEB-INF/classes/, and modify as necessary. Any files placed in this folder will take precedence over their jarred version and you do not need to re-jar them in confluence-21.0.2.jar.
5. Restart Confluence

The problem with customization is that they might break in the new version of Confluence. Some codes in your customized file might have changed in the new version. Hence, it is best that you do not copy your customized file directly to the new installation directory. Instead, you need to apply the same customization in the new version of the file.

### Relevant Topics

- Editing Files within JAR Archives
- Installing Patched Class Files

Where are user macros stored?

User macros are stored in the bandana table:
Backup FAQ

This section contains solutions for common issues or queries associated with backing up the content within your Confluence site or installation.

The XML backup is known to be inefficient and prone to errors with larger instances. You can switch to an external backup process for a reliable and efficient solution.

View one of the following issues or queries for more information:

- Are there any scripts for backup creation and restore?
- Backup will not import
- Can Confluence be restored from a backup minus attachments?
- Can XML backups be deleted automatically?
- Does running a regular XML backup slow performance?
- How can I reduce the space taken up by automatic backups?
- How to Change the Version of a Space Backup
- How to Find Attachments in Attachments Folder
- Is it Possible to Store the Confluence Home Directory on a Network Share?
- Providing Database Dump with Content Anonymised

RELATED TOPICS

Site Backup and Restore

Are there any scripts for backup creation and restore?

Check out User Submitted Backup & Restore Scripts.

Backup will not import

See Troubleshooting failed XML site backups.

Can Confluence be restored from a backup minus attachments?

Yes. First, ensure you have created a site backup that includes the attachments. Then, restore this site backup. Refer to Site Backup and Restore for more information.

Can XML backups be deleted automatically?

Windows users must manually delete any backup files. Linux users can insert a nightly or weekly automation script or cron similar to the following:

```
ls -t <path to your backup dir>/* | tail +6 | xargs -i rm {}
```

Does running a regular XML backup slow performance?

The XML backup is known to be inefficient and prone to errors with larger instances. You can switch to an external backup process for large instances.

How can I reduce the space taken up by automatic backups?

Switch to a manual backup process according to the 'Backups For Large Instances' section of Site Backup and Restore, which will give you more control over disk usage.

How to Change the Version of a Space Backup

Confluence prevents the import of space backups which aren't from the same major version. The reason for this is that any schema change between the export and imported version of Confluence will cause the import to fail, leaving you with an incomplete import. Even worse, the failure can be database-dependent, so it may work fine on one particular database but your backup will fail to import later.
To change the version of a space backup, do the following:

- extract the space backup ZIP file
- edit exportDescriptor.properties in a text editor
- change the buildNumber to the buildNumber of the Confluence version you wish to import into
- zip up the modified contents of the backup into a ZIP file again.

This will allow you to import a backup into a test instance of Confluence. After checking the imported space for errors, export it cleanly from the test server and import the fresh backup into your production server.

If your import fails on the test server due to Hibernate errors, this indicates a schema incompatibility and cannot be worked around. You will need to restore your entire site on an old version of Confluence, and export the space from there. See the last section of Restoring a space for details.

**How to Find Attachments in Attachments Folder**

**Symptoms**

Attachments are stored on filesystem but there isn't any attachment in the attachments folder.

**Diagnosis**

You can determine the missing attachments by using the Missing Attachments Report.

**Cause**

The attachment naming scheme is numerical so as to avoid encoding problems with operating systems.

**Resolution**

You can look for the attachment detail (e.g file type, attachment name) from ATTACHMENTS table.

```
Select * from ATTACHMENTS where pageID='<PageID>'
```

As attachment is stored as this structure:

**Confluence 2.x:**

<attachments>/pageID/attachment/attachmentVersion, you may want to run the following query to retrieve attachments of a page:

**Confluence 3.x:**

See Hierarchical File System Attachment Storage.

**Is it Possible to Store the Confluence Home Directory on a Network Share?**

**Is it possible to house Confluence Home/Confluence on a NAS device instead of local drives?**

It is possible to set up this configuration. To do so, specify the network location from <confluence-install>/confluence/WEB-INF/classes/confluence-init.properties. Atlassian does not suggest installing Confluence or hosting Confluence Home directory on NAS device because when a NAS or connection to NAS is down, Confluence cannot function correctly and you risk potential data corruption.

**Providing Database Dump with Content Anonymised**

Particularly for indexing issues, it is useful to provide a database backup to Support so that they can reproduce the issue.

However, some of your content may be private, so to anonymise it you can use the guide below:
Postgres

1) Take the Postgres dump of your Confluence database:

```
pg_dump -U username confluenceDB > outfile.dump
```

2) Create a test database:

```
createdb -U username tempDB
```

3) Load it into a test database:

```
psql -U username tempDB < outfile.dump
```

4) Run the following query against your test database:

```
update BODYCONTENT set BODY='a';
update CWD_USER set CREDENTIAL='{PKCS5S2}ymGp6ZB7V+CS6xORA4DEDNDnv+RHyLlZl43Rc25gJ+Vw7ZTUCpxuDhJv7hAgruT';
```

MySQL

1) Take the mysql dump of your confluence database:

```
mysqldump -u username -ppassword database_name > FILE.sql
```

2) Load it into a test database

```
mysql -u username -ppassword test_database < FILE.sql
```

3) Run the following query against your test database:

```
update BODYCONTENT set BODY='a';
update CWD_USER set CREDENTIAL='{PKCS5S2}ymGp6ZB7V+CS6xORA4DEDNDnv+RHyLlZl43Rc25gJ+Vw7ZTUCpxuDhJv7hAgruT';
```

The queries will update all content on pages to "a" and reset the password to 'admin'.
This only anonymizes the data on pages, comments and blog posts and user passwords. It does not
anonymise the titles of pages, usernames or labels.

Other Databases

Please consult your database documentation on how to take database dump and restore. Once a copy database has been created,
you can execute the update queries above.

Configuration FAQ

This section contains solutions for common issues or questions associated with configuring Confluence.

You may find useful instructions on how to customise Confluence's functionality and appearance by modifying its installation.

- Remove Version from Footer
- How do I configure Confluence to use GMail as the mail server
- How do I Configure an Automatic Refresh of the Recently Updated List
How do I completely remove the "Space Details" page from Confluence exports?
Disabling Profile Pictures on the Recently Updated Dashboard
How to dump Active Directory data to a file
How to Revert from Clustering to Single Node
Adding a Site-Wide Banner
Editing the Footer
  - Adding HTML to Allow for the Extra Height of a Custom Footer
Where does Confluence store all its data?
Running Confluence Behind a Caching Proxy Server
How do I pull down RSS Feeds or use the Repository plugin through a web proxy
How do I Modify the Frequency of Content Indexing
Customise Confluence Page Exports
  - Available Velocity Context Objects in Exporters
  - Customise MS Word Exports
  - Customise PDF Exports
I am trying to install Confluence but the demo-site.zip file is missing
How do I Disable Automatic Mail Polling?
How do I change the default polling time for email in Confluence?
Change default font, color, or spacing in Confluence
Share users and groups between Confluence and JIRA
Disabling Attachment Downloads
Disabling the 'Remember Me' feature
How do I disable RSS Feeds?
How to audit Confluence - enabling user access logging
  - How to Audit Confluence Using Tomcat Valve Component
Editing Files within JAR Archives
Changing Layouts in Other Themes
How to Convert a datasource to a direct JDBC connection in oracle
Bulk Fix Spaces with Deprecated Themes using SQL Query
Changing Editor's Keyboard Shortcuts

RELATED TOPICS

Tracking Customisations Made to your Confluence Installation

Remove Version from Footer

See Editing the Footer.

How do I configure Confluence to use GMail as the mail server

To configure Confluence to use Gmail to send emails, you will need to create a JNDI mail session and then have Confluence use it, as described below.

To do this in Confluence Standalone, please see Setting Up a Mail Session in Confluence Standalone.

1. Stop Confluence.
2. Move (don’t copy) activation-1.0.2.jar and mail-1.4.1.jar from /confluence/WEB-INF/lib to
   <Confluence Standalone install>/lib. Or if you are using Confluence WAR release, move to <Tomcat 5 install>/common/lib or <Tomcat 6 install>/lib.
3. Paste the following code in confluence.xml or server.xml located at <confluence-install>/conf, inside the <Context> node (substitute username and password):

   ```xml
   <Resource name="mail/Session" auth="Container" type="javax.mail.Session">
     <MailSessionProperties>
       <mail.smtp.host>smtp.gmail.com</mail.smtp.host>
       <mail.smtp.port>465</mail.smtp.port>
       <mail.smtp.user>nobody@gmail.com</mail.smtp.user>
       <mail.smtp.password>foobar</mail.smtp.password>
       <mail.smtp.properties>
         <mail.smtp.socketFactory.class>javax.net.ssl.SSLSocketFactory</mail.smtp.socketFactory.class>
         <mail.smtp.starttls.enable>true</mail.smtp.starttls.enable>
       </mail.smtp.properties>
     </MailSessionProperties>
   </Resource>
   ```

4. Restart your Confluence instance.
5. Add java:comp/env/mail/Session to your JNDI mail configuration from Administration > Mail Servers.

Note: You may optionally add mail.debug="true" into the <Resource> to see logs generated by JavaMail.

How do I Configure an Automatic Refresh of the Recently Updated List
To have the dashboard refresh automatically:

1. Modify the Main Layout at Administration->Layouts->Main Layout.
2. Add in the `<META HTTP-EQUIV="REFRESH" CONTENT="5">` tag in the html header tag
3. This example will refresh the browser in every 5 seconds

```
<html>
<head>
  <META HTTP-EQUIV="REFRESH" CONTENT="5">
  ........................................................
</head>
```

How do I completely remove the "Space Details" page from Confluence exports?

1. Export to html file extension, and customize the layout from Administration->Layouts->Export Layouts->Space Export Layout
2. Export to PDF file extension, take a look at WEB-INF\classes\com\atlassian\confluence\spaces\Space.pdfexport.vm

Disabling Profile Pictures on the Recently Updated Dashboard

To prevent Profile Pictures from being displayed in the Recently Updated Dashboard:

1. Open your confluence/decorators/global.vmd file.
2. Edit the following line (change true to false)

```
$helper.renderConfluenceMacro("{recently-updated-dashboard:dashboard|showProfilePic=true}
```

There is no need to stop or restart confluence. The change should work on the next refresh of the page.

How to dump Active Directory data to a file

You can extract all the data present in your Active Directory onto a file using the following command (please ensure you are logged in with sufficient rights to do this)

```
csvde -f test.csv
```

This command will perform a CSV dump of every entry in your Active Directory server. You should be able to see the full DN's of users and groups.

How to Revert from Clustering to Single Node

Disabling a Cluster

If reverting from a Clustered configuration, one solution is to back up the data, install a new stand-alone, and restore the data. This is the recommended approach. An alternative is:

1. Download the standard (non-clustered) distribution from the Confluence Downloads
2. Point confluence-init.properties to the existing confluence-home directory.
3. Set in confluence.cfg.xml:

```
<property name="confluence.cluster">false</property>
```

To check to see if clustering has been disabled, look in the logs after the xml during startup. In your catalina.out, you have:

```
INFO [KB:main] [KB:confluence.cluster.tangosol.TangosolClusterManager] startCluster
Bringing up cluster service
```

This line won't exist if you start it up with the config we gave above. That's how to test it.

Adding a Site-Wide Banner

Confluence administrators can add a site-wide banner, i.e. a message or alert that will appear at the top of every page on your Confluence site.
To add a site-wide banner,

1. Go to the Confluence ‘Administration Console’:
   - Choose **Browse > Confluence Admin**. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click **Confirm**. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘Custom HTML’ in the ‘Look and Feel’ section of the left-hand panel.
3. Click ‘Edit’.
4. Add the following code to the ‘At beginning of the BODY’ textbox.

   ```html
   <!-- Message Banner -->
   <div style="background-color: yellow; border: 2px solid red; margin: 4px; padding: 2px; font-weight: bold; text-align: center;">
   Your important message...
   </div>
   ```
5. Click ‘Save’.

If you want the banner across the bottom of the page, you should add the code to the ‘At end of the BODY’ textbox instead.

![Screenshot: Example of a Site-Wide Banner](image)

If your banner significantly increases the height of your Confluence site footer, you may need to add HTML to allow for the extra height of a custom footer.

**RELATED TOPICS**

Customising Look and Feel Overview

**Editing the Footer**

`'Powered by Atlassian Confluence'`  
Atlassian requires that the text ‘Powered by Atlassian’ be displayed in the footer on every page, as specified in the [license agreement](#). Other than that, you can customise the footer text.

To change the footer text, follow the instructions in [Modify Confluence Interface Text](#). You can specify additional configurations in `/confluence/decorators/includes/footer.vmd`.

If the height of your footer is significantly greater than the default, you may need to add HTML to allow for the extra height of a custom footer.

If you need to revert to a former version, for example to restore the ‘Powered By Atlassian Confluence’ text, you can refer to the attached footer file.

**Editing the version information in the footer**

Please note that editing the version information displayed by Confluence is not recommended. If you alter the information it is harder for our support team to help you with any enquiries. Also note that there are other ways to determine the version of Confluence based on the files it exposes publicly and the URLs it generates, so removing the displayed version number is at best security by obscurity. If you still wish to edit this information, open the file `/confluence/decorators/includes/footer-content.vmd`. In the file there are several ‘if’ statements, because Confluence displays different footers for different license types. Find the one appropriate for your license and replace `$generalUtil.versionNumber` with the desired text. Please ensure that your changes do not break the EULA (end-user license agreement) you agreed to when Confluence was installed.

**RELATED TOPICS**

[Modify Confluence Interface Text](#)
[Customising Look and Feel Overview](#)
Adding HTML to Allow for the Extra Height of a Custom Footer

When the height of your Confluence site footer is significantly greater than the default, you may find that the footer overlaps site content. If this is the case, you will need to add some custom HTML to your Confluence site.

To add custom HTML to allow for the extra height of a custom footer,

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘Custom HTML’ in the ‘Look and Feel’ section of the left-hand panel.
3. Click ‘Edit’.
4. Add the following code to the ‘At end of the HEAD’ textbox.

```html
<style type="text/css">
#com-atlassian-confluence #main {
  padding-bottom: 200px;
}
</style>
```
5. Click ‘Save’.

You may need to adjust the code supplied in these instructions depending on the height of your custom footer

If your footer still overlaps site content, increase the ‘padding-bottom’ amount by the height of the overlap in pixels. Conversely, if there is an excessive gap between your footer and site content, decrease the ‘padding-bottom’ amount.

Where does Confluence store all its data?

Attachments, extensions and configuration files are stored in the Confluence Home Directory that is configured when Confluence is first installed. All remaining data resides in the configured database.

See Important directories and files for more information.

RELATED TOPICS

No content found for label(s) data-storage.

FAQ Home

Running Confluence Behind a Caching Proxy Server

One major concern is Confluence’s ability to withstand a Slashdot, and someone told us that Atlassian had basically said that Confluence could not handle the load of such an event/attack.

Ideally I would want to put a Squid cache directly infront of Confluence, set the default policy to cache content of normal pages for ~5 minutes (at least) and then pass-through more of the dynamic pages (like the editor & such).

This is, in fact, the case. We don't have any deployed Confluence sites that have the requirement of being Slashdot-proof, but this is probably one of those chicken-and-egg things.

The problem is not one of simple scalability. We’re currently working on “Confluence Massive”, a clusterable Confluence that will scale to handle whatever load you feel like throwing at it. But if your aim is to protect the server against sudden, transient loads, throwing a cluster at the problem that will then spend 99% of its time not being utilised is probably a waste. Thus, the best solution is to have some kind of caching reverse-proxy that will divert load away from Confluence itself.

The main problem with the reverse-proxy solution is that every Confluence page is built dynamically for whichever user is currently accessing it. This affects obvious stuff like the “You are logged in as 'username'” notice, less obvious stuff like the “edit” and “attachments” links that appear or disappear based on whether the user has permission to perform the action on the other end of the link, and even less obvious stuff like wiki-links to spaces the user can’t see, or in-page macros that output their content based on the user's identity.

To run Confluence behind a caching reverse-proxy, you’d need one of:

1. A proxy that understood the user’s identity, or
2. A Confluence site that removed all the personalised content for cacheable pages.
If you had (1), you could tell the proxy to cache content only for anonymous users (since all anon content is the same, and to survive a slashdotting you only really have to worry about the sudden influx of non-logged-in users). That said, (1) is quite tricky, as it relies on the existence of some SSO mechanism that both Confluence and Squid can be hooked into. If such a mechanism existed, though, it’d be a really neat solution.

In the absence of SSO, you’ve got (2), which involves.

- Theme Confluence so that the ‘view page’ ‘view blog post’ and ‘view mail’ pages contain no personalised content: no profile link or user identity, and all links to other functions available whether the user has permission to access them or not.
- Ensure that all wiki pages on the server are meant to be visible to anonymous users.
- Disable (or avoid the use of) macros that deliver different content based on user identity.
- Introduce an interceptor into Confluence that would provide If-Modified-Since/Last-Modified conditional get support for wiki pages.
- Configure Confluence so the site root URL points to a page, rather than the dashboard.
- Configure Squid to cache the ‘view page’ URLs (/display/* /pages/viewpage.action /pages/viewblogpost.action)

This is assuming that only the site root or a regular wiki page would ever be the victim of a direct slashdotting, but I figure this is a reasonable enough assumption to make.

With conditional get supported, you could have Squid configured to query the server to see if a page has changed, and just put in some kind of sensible defaults for the maximum time to cache any page (5 minutes or so would be fine, since pages could contain dynamic content), and the minimum gap between if-modified queries (15 seconds would easily prevent the server from being overloaded, while making sure that in regular use you wouldn’t get many situations where you edited a page, but couldn’t see your own changes).

How do I pull down RSS Feeds or use the Repository plugin through a web proxy

You will need to make Confluence aware of your proxy.

How do I Modify the Frequency of Content Indexing

Confluence Content Indexing frequency is handled using a cron job set in schedulingSubsystemContext.xml.

- **Time is derived from the Confluence server**
  - The time zone is taken from the server on which Confluence is running. To check the time according to the server, do the following:
    1. Go to the Confluence ‘Administration Console’:
      - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
      - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
    2. Click ‘System Information’ in the left-hand panel and look at the ‘System Time’.

Confluence uses Quartz for scheduling periodic jobs. To change the time of your content indexing, you will need to edit the Quartz configuration.

To change the time of your content indexing
Confluence 4.0 Documentation

1. Open the Quartz configuration file schedulingSubsystemContext.xml located under confluence/WEB-INF/lib/confluence-x.x.x.jar. Where x.x.x is your Confluence version number.

   For Confluence earlier than 2.6, the index cron job is located in <install dir>\confluence\WEB-INF\classes\schedulingSubsystemContext.xml.

2. Find the following section of the file:

   ```xml
   <bean id="indexQueueFlushTrigger" class="org.springframework.scheduling.quartz.CronTriggerBean">
     <property name="jobDetail">
       <ref bean="indexQueueFlushJob"/>
     </property>
     <property name="cronExpression">
       <value>0 0/5 * * * ?</value>
     </property>
   </bean>
   ```

   The string '0 0/5 * * * ?' sets up a Cron Trigger for the job to run every 5 minutes.

3. Place the modified file as <install dir>\confluence\WEB-INF\classes\schedulingSubsystemContext.xml. It will take precedence over the jarred version.

4. You can set a new time by editing this string. Note that the date and time format in this configuration file is in this order: Second minute hour day

5. Restart Confluence.

   For example, to set the new time to twenty past ten PM, change the string to '0 20 22 * * ?'.

   For complete details on the formatting of the cron string, please see http://www.opensymphony.com/quartz/api/org/quartz/CronTrigger.html.

Customise Confluence Page Exports

Modify the style or content of the following page exports:

- Available Velocity Context Objects in Exporters
- Customise MS Word Exports
- Customise PDF Exports

Available Velocity Context Objects in Exporters

Since the export functionality is not implemented as a WebWork action, it does not inherit the default Velocity context used by Confluence actions. It creates its own context and populates it with a separate list of components.

All exporters have at least the items listed below. Some exporters may extend this with other objects.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Class Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>$generalUtil</td>
<td>A GeneralUtil object with several useful methods, including URL encoding.</td>
<td>GeneralUtil</td>
</tr>
<tr>
<td>$textUtil</td>
<td>Common utilities for string manipulation.</td>
<td>TextUtils</td>
</tr>
<tr>
<td>$rendererBean</td>
<td>Mostly for internal use, but can also be used for manipulating page or space exports.</td>
<td>WikiExporter</td>
</tr>
<tr>
<td>$exportDate</td>
<td>A java.util.Date created when the export is actually performed.</td>
<td>Date</td>
</tr>
<tr>
<td>$exportContent</td>
<td>An ExportContext object which holds the context in which the export is performed, such as the user performing the export.</td>
<td>ExportContext</td>
</tr>
<tr>
<td>$dateFormatter</td>
<td>Provides a date and time formatter suitable for the exporting user's locale and environment.</td>
<td>DateFormatter</td>
</tr>
</tbody>
</table>
$baseUrl

The base URL of the Confluence installation (http://<server>:<port>/contextPath).

String

See also

- Confluence Objects Accessible From Velocity

Customise MS Word Exports

Overview

Confluence exports a Confluence page as a Microsoft Word document by:

1. Generating the HTML rendering of a page from Confluence wiki markup
2. Overriding some Confluence page styles with MS Word styles using a CSS wrapper

The wrapper is generated using a Velocity macro to provide CSS style information specific to MS Word exports.

Modifying Content

Please do not attempt to modify the output without some experience in CSS and HTML markup. You may also need to review Velocity template language.

- W3Schools CSS Tutorial
- W3Schools HTML Tutorial
- Velocity Template Overview

Before modifying any styles, you should always take a backup of both any files you are modifying and your entire Confluence install directory. If you require assistance with your customisation attempt, you should post your modified files along with a technical description to Atlassian Answers.

Important Files

The formatting is defined using the CSS styles in main Confluence stylesheet and overridden by any styles in the Word export wrapper.

Main Stylesheet

This file formats the default appearance of all Confluence content. Changes to this document will be shown when viewing a page from within Confluence, as well as in HTML or MS Word exports. You should avoid changing this document unless you wish a style to be changed throughout Confluence. The file is located under the Confluence install directory:

```...\confluence\WEB-INF\classes\styles\site-css.vm```

Export Wrapper

This file overrides the main Confluence stylesheet, so styles outlined in this file will be specific to MS Word exports. It set the font and style for body text, some macro and grids, and a default background colour. The file is located under the Confluence install directory:

```...\confluence\pages\exportword.vm```

How To Modify Styles

If the CSS tag already exists in the Word export wrapper, you can modify it directly. If the CSS tag is defined by the main stylesheet, copy it into the export wrapper as a new entry in the `<style>` element and update it there:

1. Identify its CSS tag in the main stylesheet. You may need to use trial and error to identify which cascading property is relevant
2. Transfer the tag into the Word export wrapper so that it overrides the main stylesheet
3. Modify the tag style in the wrapper

Common Modifications

You can easily set the body font or background colour in the export wrapper.

Modify Body Font

The wrapper sets the body font:
Modify Background Colour

The wrapper sets the background colour:

```html
<body style="background-color: white; padding: 10px;">
<h1>$page.title</h1>
$renderedPageContent
</body>
```

Customise PDF Exports

To customise Confluence's PDF output, you can edit the CSS stylesheets used by the PDF exporter. See Editing the PDF Stylesheet.

I am trying to install Confluence but the demo-site.zip file is missing

The demo-site.zip is normally located in the WEB-INF/classes/com/atlassian/confluence/setup directory.

There are some cases where the extraction utility used to extract the Confluence installation file will recursively extract the contents of all zip files contained within the installation file. If the demo-site.zip file has been extracted, you will see an entities.xml file in this directory instead.

RELATED TOPICS

Confluence Setup Guide
Confluence FAQ

How do I Disable Automatic Mail Polling?

Disabling mail polling in Confluence will prevent Confluence from checking for new mail automatically, but mail retrieval will still work if a user triggers "Check for new mail" manually.

To disable automatic mail polling you would need to restart Confluence with the following parameter in your JVM's JAVA_OPTS:

```
-Dconfluence.disable.mailpolling=true
```

RELATED TOPICS

How do I check which spaces have email accounts
Recognised System Properties

How do I change the default polling time for email in Confluence?

Modify the cronExpression property of the mailPollTrigger bean in schedulingSubsystemContext.xml file.

In Confluence installation directory, this file is jarred in <confluence installation directory>/confluence/WEB-INF/lib/confluence-x.x.jar.
Unzipping the file and placing it WEB-INF/classes folder will over ride the configuration from the jarred version.

For example, the expression below will fire at 12pm (noon) every day:

```
<property name="cronExpression">
   <value>0 0 12 * * ?</value>
</property>
```
Cron expression

You may also like to view an information on how to create Cron expressions to provide the ability to specify complex time combination.
http://quartz.sourceforge.net/javadoc/org/quartz/CronTrigger.html

Change default font, color, or spacing in Confluence

Beginning in Confluence 2.10, you can customise your space or instance using CSS from the User Interface. See Styling Confluence with CSS for details. For earlier versions, check the instructions here.

Share users and groups between Confluence and JIRA

How do I share users and groups between Confluence and JIRA?

To save your having to enter users into both JIRA and Confluence, you can configure Confluence to use JIRA’s user database.

Instructions on how to do this can be found here.

RELATED TOPICS

No content found for label(s) jira-usermanagement.

Disabling Attachment Downloads

Code Changes Required

This configuration requires changing the Confluence code in your installation. You will need to reapply these changes whenever you upgrade Confluence. Proceed with caution.

At the moment, permissions for downloading attachments can’t be set. To disable attachment downloading you need to edit your velocity files. Attachments can currently be downloaded in two separate ways: by viewing the attachments for a page, and by viewing all the attachments for a Space (Browse > Attachments).

These customisations will disable attachment downloads for all users, including administrators.

Attachments for a whole Space

To disable downloading attachments from a Space, you need to edit the listattachmentsforspace.vm file. Delete or comment out the following line

```
<td><a name="${!generalUtil.urlEncode($!attachment.content.displayTitle)-attachment-$!generalUtil.urlEncode($!attachment.fileName)}">#parse("/pages/includes/attachment_icon.vm")</a> <a href="$req.contextPath$!attachment.downloadPathWithoutVersion">$generalUtil.shortenString($attachment.fileName, 50)</a></td>
```

and replace it with either of the following two code blocks:

**Disabling downloading for all attachments**

```
<td><a name="${!generalUtil.urlEncode($!attachment.content.displayTitle)-attachment-$!generalUtil.urlEncode($!attachment.fileName)}">#parse("/pages/includes/attachment_icon.vm")</a> $generalUtil.shortenString($attachment.fileName, 50)</td>
```

**Disabling downloading for specific file types**

```
<td><a name="${!generalUtil.urlEncode($!attachment.content.displayTitle)-attachment-$!generalUtil.urlEncode($!attachment.fileName)}">#parse("/pages/includes/attachment_icon.vm")</a> $generalUtil.shortenString($attachment.fileName, 50)</td>
```
To specify which files you want disabled, change the

'ext1', 'ext2'

in the first line to the extensions for which you want to disable downloading. You can specify as many extensions as you want, as long as they are in quotes, are comma separated and do not include the '.' at the start. For example, if I did not want users to download .jpg and .doc and .png files, the line would read

#set($disabledDownloads = ['jpg', 'doc', 'png'])

Attachments for a specific page

If you take the steps in this section but not in the section above, the files you disable can still be downloaded by browsing all attachments for a Space.

To disable downloading attachments from a specific page, you need to edit the attachments-table.vm file. Delete or comment the line

<a class="filename" href="${req.contextPath}${attachment.downloadPathWithoutVersion}" title="${generalUtil.htmlEncodeAndReplaceSpaces($attachment.fileName)}">$generalUtil.htmlEncode($generalUtil.shortenString($attachment.fileName, 35))</a>

and replace it with either of the following two code blocks:

Disabling downloading for all attachments

$generalUtil.htmlEncode($generalUtil.shortenString($attachment.fileName, 35))

Disabling downloading for specific file types
Again, to specify which files you want disabled, change the

'ext1', 'ext2'

in the first line to the extensions for which you want to disable downloading. You can specify as many extensions as you want, as long as they are in quotes, are comma separated and do not include the '.' at the start. For example, if I did not want users to download .jpg and .doc and .png files, the line would read

#set($disabledDownloads = ['jpg', 'doc', 'png'])

Removing the 'Download All' button

If you do not take the steps in this section, users will still be able to download all attachments for a page regardless of whether they have been disabled or not.

Delete or comment the following lines in viewattachments.vm

Disabling the 'Remember Me' feature

Code Changes Required

This configuration requires changing the Confluence code in your installation. You will need to reapply these changes whenever you upgrade Confluence. Proceed with caution.

The Confluence Administration Console does not provide an option for disabling the 'Remember Me' feature. If you like, you can vote for and comment on the request to provide this ability: CONF-10383.

As a workaround, you can modify the Velocity file login.vm as described below. This modification simply removes the 'Remember Me' checkbox from the web page.

The steps required are as follows:

1. Stop Confluence.
2. Go to your Confluence installation directory.
3. Locate the `<CONFLUENCE-INSTALLATION>/confluence/login.vm` file and make a backup copy.
4. Edit the file.
Confluence 4.0 Documentation

5. Locate the following line of code:

```html
#bodytag( "Component" "label='remember.accesskey'" "name='os_cookie'" "value='false'" "theme='aui'" "template='onofflist.vm'" "tabindex='4'") #end
```

Comment out the line so that it looks like this (note the extra '#' character in front):

```html
##bodytag( "Component" "label='remember.accesskey'" "name='os_cookie'" "value='false'" "theme='aui'" "template='onofflist.vm'" "tabindex='4'") #end
```

6. Locate another, similar line of code:

```html
#bodytag( "Component" "label='remember.accesskey'" "name='os_cookie'" "value='false'" "theme='aui'" "template='onofflist.vm'") #end
```

Comment out the line so that it looks like this:

```html
##bodytag( "Component" "label='remember.accesskey'" "name='os_cookie'" "value='false'" "theme='aui'" "template='onofflist.vm'") #end
```

7. Save the file and restart Confluence.

8. Repeat the above steps each time you install a new version of Confluence.

**How do I disable RSS Feeds?**

**Code Changes Required**

This configuration requires changing the Confluence code in your installation. You will need to reapply these changes whenever you upgrade Confluence. Proceed with caution.

Confluence does not have an option to disable RSS feeds from the Administration Console and there is a discussion regarding this in CONF-10755. However there is a workaround on how to disable RSS via some simple modifications that this guide will show.

To disable RSS feeds in Confluence, you would need to disable `creatorsfeed.action` and `configurersfeed.action` properties. They are defined in `xwork.xml`, a configuration file that is zipped in one of the Confluence dependencies library files.

In this guide, we will be modifying `global.vmd` and `configurersfeed.vm` and place a modified `xwork.xml` within your Confluence installation directory. A modified version of each of the file is accessible from the links below. As ruled at the steps below, you can place them in the corresponding directories where they belong. However, before applying the patch remember to backup your original files.

- CONFDEV:configurersfeed.vm
- CONFDEV:global.vmd
- CONFDEV:xwork.xml

And then follow these steps:

- Place CONFDEV:global.vmd in `<confluence-install>/confluence/decorators/global.vmd`. This newer velocity file will remove the RSS functionalities from Confluence dashboard.
- Place the customized CONFDEV:xwork.xml in `<confluence-install>/confluence/WEB-INF/classes/xwork.xml`. This file has removed the xwork action so an rss feed can't connect (you'll notice it's commented out):
  ```xml
  <!-
  <action name="creatorsfeed" class="com.atlassian.confluence.spaces.actions.CreateRssFeedAction">
  <interceptor-ref name="defaultStack"/>
  </action>
  -->
  ```
  The attached CONFDEV:configurersfeed.vm file contains an explanation why RSS is disabled. Place it in `<confluence-install>/confluence/dashboard/configurersfeed.vm`. You can modify the message to suit your need.

In this patch, the changes in xwork.xml above will cause entering creatorsfeed.action or configurersfeed.action into URL leading to the error page defined in configurersfeed.vm.

To disable the RSS Feeds link in the Advanced section of spaces, you have to unjar the confluence-x.y.z.jar (where x.y.z is the version of Confluence that you are using) which is located in confluence-install/confluence/WEB-INF/lib/confluence-x.y.z.jar. If none of this makes any sense to you, please refer to this page: Editing Files within JAR Archives

The file you are looking for is plugins/space-advanced-sections.xml. Remove the following block from this file:

```xml
```
Re Jar this file and replace the current confluence-x.y.z.jar file. You will have to restart confluence to see the effects.

**How to audit Confluence - enabling user access logging**

Often, for auditing purposes, administrators need to know who did what on their Confluence site. Notifications are not ideally suited for this purpose. Application servers are able to log the requested URL, but they cannot determine the currently logged in user. This log is not currently formatted to be accessible to web log analysis tools such as AwStats as it lacks a host and get method, so must be viewed manually.

Instead, you can generate a basic log indicating which users are accessing which pages in Confluence. Confluence has a built-in access logging mechanism that shows the user and URL invoked. To enable it, you need to modify a couple of configuration files and restart Confluence.

**Configuring the AccessLogFilter**

There is a simple AccessLogFilter in Confluence that can be enabled via

```
<filter-mapping>
    <filter-name>AccessLogFilter</filter-name>
    <url-pattern>/display/*</url-pattern>
    <url-pattern>*.action</url-pattern>
</filter-mapping>
```

Note: Please do not modify the application-wide web descriptor, 5server/conf/web.xml. This will be ineffective and potentially may break Confluence.

To enable user access logging:

1. Uncomment these line in confluence/WEB-INF/classes/log4j.properties:

```
log4j.category.com.atlassian.confluence.util.AccessLogFilter=INFO
```

2. Enable the filter in confluence/WEB-INF/web.xml by removing the comments around these lines:

```
<filter-mapping>
    <filter-name>AccessLogFilter</filter-name>
    <url-pattern>/display/**</url-pattern>
    <url-pattern>*.action</url-pattern>
</filter-mapping>
```

Notice that the *.action pattern is added optionally to log the actions of Confluence in addition to the page views, such as user logins by specifying login.action. This combination of URL patterns will work for all URLs. You can further modify the pattern by adjusting the url-pattern field.

An alternative filter: For troubleshooting purposes, often it is useful to capture all accesses to Confluence. To do this use the following filter mapping in confluence/WEB-INF/web.xml instead of the above:

```
<filter-mapping>
    <filter-name>AccessLogFilter</filter-name>
    <url-pattern>/*</url-pattern>
</filter-mapping>
```

3. Restart Confluence.

Logging information being stored in the atlassian-confluence.log file in the Confluence Home directory.

**Advanced configuration**
You can choose to redirect the access log to a different file by adding a new RollingFileAppender at the top of `log4j.properties`:

```
log4j.appender.accesslog=org.apache.log4j.RollingFileAppender
log4j.appender.accesslog Threshold=DEBUG
log4j.appender.accesslog.File=%\catalina.home%/logs/atlassian-confluence-access.log
log4j.appender.accesslog.MaxFileSize=20480KB
log4j.appender.accesslog.MaxBackupIndex=5
log4j.appender.accesslog.layout=com.atlassian.confluence.util.PatternLayoutWithStackTrace
log4j.appender.accesslog.layout.ConversionPattern=%d %p [%t] [%c{4}] %M %m%n
```

Find this line:

```
#log4j.category.com.atlassian.confluence.util.AccessLogFilter=INFO
```

Change it to this:

```
log4j.category.com.atlassian.confluence.util.AccessLogFilter=INFO, accesslog
log4j.additivity.com.atlassian.confluence.util.AccessLogFilter=false
```

The web.xml url-pattern given above only matches page views (/display/*). You could change the url-pattern, or duplicate the entire filter-mapping to log access for different kinds of access (/admin/* for admin functions, /pages/* for edits and creates, etc. Note that /pages/editpage.action* doesn't work).

### What is Logged

The log file will contain the following values separated by spaces:

- Username or '-' if no user
- URL
- VM free memory at start of request (in KB)
- Change in free memory after request is finished (in KB)
- Time taken for request (in ms).
- Remote address
- Thread name

**Example:**

```
AccessLogFilter initialized. Format is: <user> <url> <starting memory free (kb)> +- <diference in free mem (kb)> <query time (ms)> <remote address>
http://localhost:8080/display/ds 42025-154 15 127.0.0.1
http://localhost:8080/display/ds/Confluence+Overview 41805+982 172 127.0.0.1
http://localhost:8080/display/ds/test+firelite 34362-1616 188 127.0.0.1
http://localhost:8080/display/sand 59711-148 0 127.0.0.1
http://localhost:8080/display/ds/Testlist 57124+155 1266 127.0.0.1
```

The above may be preceded by additional log4j-generated text, depending on the log4j pattern which is configured.

### Other Options

**Google Analytics**

Google Analytics can be easily integrated with Confluence for access tracking.

After signing up, copy the Javascript and paste it into the 'Before end of <body>' section of Administration, Custom HTML. This will...
put the JavaScript on every page generated by Confluence.
This might not work correctly if your users are behind a firewall or authenticated proxy.

For more information on using Google Analytics with Confluence you may wish to refer to this blog post by David Simpson.

**Tomcat Valve Component access log**

Refer to How to Audit Confluence Using Tomcat Valve Component.

**Notes**

- **Path must contain forward slashes "/", not backward slashes.** This note is particularly relevant for Windows Users. When configuring the log4j logging options, each backslash in your path must be written as a forward slash. For example, this path:

  ```
  c:\confluence\data
  ```

  must be written as:

  ```
  c:/confluence/data
  ```

**RELATED TOPICS**

- Working with Confluence Logs
- How to Audit Confluence Using Tomcat Valve Component

**How to Audit Confluence Using Tomcat Valve Component**

Apart from using user access logging built in Confluence to audit accesses, an admin can use **Tomcat’s Valve Component** to do similar things.

Below are the steps on how to do this in a Confluence Standalone instance:

1. Edit `<confluence install>/conf/server.xml`
2. Add the following line within the `<Context>` tags declaration:

   ```
   <Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs" prefix="localhost_access_log." suffix=".log" pattern="%t %{Authorization}i %{User-Agent}i %h %m %r %b %s" />
   ```

This will log the time, user account and password in base 64 encoding, client used, IP Address, Request method, First line of the request (method and request URI), Bytes sent, excluding HTTP headers, or '-' if zero, HTTP status code of the response. The log file will be saved in `<confluence install>/logs/localhost_access_log.log`.

Below is the sample output:

```
[28/Apr/2010:13:06:23 +1000] null Microsoft Data Access Internet Publishing Provider Protocol Discovery 127.0.0.1 OPTIONS OPTIONS /plugins/servlet/confluence/default HTTP/1.1 - 401
[28/Apr/2010:13:06:25 +1000] Basic YWRtaW46YWRtaW4= Microsoft Data Access Internet Publishing Provider DAV 127.0.0.1 PROPFIND PROPFIND /plugins/servlet/confluence/default HTTP/1.1 2252 207
[28/Apr/2010:13:06:27 +1000] null Microsoft Data Access Internet Publishing Provider Protocol Discovery 127.0.0.1 OPTIONS OPTIONS / HTTP/1.1 - 200
```
Editing Files within JAR Archives

In Confluence, many files are contained inside a JAR file. This page tells you how to customise such a file:

- Extract the contents of the JAR file into a working directory.
- Edit one of the files extracted from the JAR.
- Place the updated file in a location which Confluence will recognise. Files in this location will override the version of the file in the JAR.

Note that, using the instructions below, you do not need to bundle the updated file back into the JAR.

### About JAR Files

A JAR file is a Java ARchive file. It is similar to a UNIX tar file (or a Windows zip file). To manage a JAR file, you can use the `jar` command-line tool which is included with the JDK. The `jar` tool takes several files, or an entire directory structure, and compresses them together into a single file. This saves a little space, and makes it much easier to manage that group of files as a single unit. The terms 'file' and 'archive' can be used interchangeably in this context, as they refer to the same collection of bytes.

### Customising a File Contained within a Confluence JAR File

These instructions assume that you already know which JAR file contains the file you need to edit.

To customise a file contained with a JAR:

1. Shut down Confluence.
2. Create a new working directory, for example `/tmp/confluence-working`.
3. Change directory (`cd`) to your working directory.
4. Extract the contents of the JAR:
   
   ```
   jar xf </path/to/file.jar>
   ```

   For example, to edit the main Confluence JAR file for Confluence 3.5:

   ```
   jar xf $CONFLUENCE/confluence/WEB-INF/lib/confluence-3.5.jar
   ```

   You now have a directory structure, or at least a set of files, which is the contents of the JAR archive.

5. You now have a directory structure, or at least a set of files, which is the contents of the JAR archive.

6. Find the file that you need to update, edit the file and save it.

7. Examine the structure of files and folders in your working directory, created when you extracted the content of the JAR.
   - Files in the root level of your structure can be recognised by Confluence if you put them in the `/WEB-INF/classes/` folder. For example, if you modify the `schedulingSubsystemContext.xml` file, you can place it in `<confluence install>/confluence/WEB-INF/classes/schedulingSubsystemContext.xml`.
   - Files in a subdirectory of your structure need to be placed in a similar subdirectory under `<confluence install>/confluence/WEB-INF/classes/`. For example, if you modify the `fonts/verdanaz.xml` file, you must put it in `<confluence install>/confluence/WEB-INF/classes/fonts/verdanaz.xml`.

8. Restart Confluence.

### Notes

As an alternative to the `jar` utility, you can extract the JAR file using an unzipping utility like Winzip, 7-zip, Stuffit or the OS X Archive Extractor.

**RELATED TOPICS**

- **Installing Patched Class Files**
- **Where are the files that used to be in my Confluence installation directory?**

### Changing Layouts in Other Themes

Many custom themes do not support custom layout configuration via user interface.

The guide below is an example to change the layout in the Documentation Theme. The aim is to remove the children displayed at the bottom of the page:

1. Unzip the
   
   ```
   <confluence-install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup/atlassian-bur
   ```
2. Unjar the doctheme-X.X.X.X.jar in the unzipped atlassian-bundled-plugins.zip.
3. Once unjarred, edit the /doctheme/decorators/page.vmd.
4. Comment the following line in the file:

```vmd
##renderChildren()
```
5. Save the file.
6. Jar the file back to doctheme-X.X.X.X.jar.
7. Zip the atlassian-bundled-plugins.zip back.
8. Restart your Confluence. Your changes would be reflected after this.

If you need a guide to help with the editing files within JAR archives, you can refer to this documentation. However, please keep in mind that the Documentation Theme plugin is part of bundled plugins. Hence, it is stored in a special place, which is located at `<confluence-install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup/atlassian-bundled-plugins.zip`. Therefore, if you are following the guide, please make sure the paths are correct.

### How to Convert a datasource to a direct JDBC connection in oracle

1) Shutdown confluence
2) Edit CONFLUENCE_HOME/confluence.cfg.xml file
3) Delete

```xml
<property name="hibernate.connection.datasource">java:comp/env/jdbc/confluence</property>
<property name="hibernate.dialect">net.sf.hibernate.dialect.Oracle9Dialect</property>
<property name="hibernate.setup">true</property>
```
and replace with

```xml
<property name="hibernate.c3p0.acquire_increment">1</property>
<property name="hibernate.c3p0.idle_test_period">100</property>
<property name="hibernate.c3p0.max_size">250</property>
<property name="hibernate.c3p0.max_statements">0</property>
<property name="hibernate.c3p0.min_size">5</property>
<property name="hibernate.c3p0.numHelperThreads">9</property>
<property name="hibernate.c3p0.timeout">30</property>
<property name="hibernate.connection.default_schema">true</property>
<property name="hibernate.connection.driver_class">oracle.jdbc.driver.OracleDriver</property>
<property name="hibernate.connection.password">PASSWORD</property>
<property name="hibernate.connection.url">jdbc:oracle:thin:@HOST:1522:DATABASENAME</property>
<property name="hibernate.database.lower_non_ascii_supported">true</property>
<property name="hibernate.dialect">org.hibernate.dialect.Oracle10gDialect</property>
```
4) restart confluence

### Bulk Fix Spaces with Deprecated Themes using SQL Query

Later versions of Confluence may deprecate older themes. Spaces that are configured with this theme will be migrated automatically to a new theme, during the upgrade process. In some scenarios, this may not happen, hence you can fix this by following this guide.

In this guide, we are using Left Navigation Theme as an example of deprecated theme (if you are trying to find another theme, please replace the LIKE section to the respective theme). The following SQL query will list all spaces with the : 

```sql
SELECT s.spacename, s.spacekey FROM spaces s
WHERE s.spacekey in (SELECT bandanacontext FROM BANDANA
WHERE bandanavalue LIKE '%<string>com.atlassian.confluence.themes.leftnavigation:leftnavigation</string>%' AND bandanakey = 'atlassian.confluence.theme.settings')
```

In order to change all spaces that uses Left Navigation Theme to the Default Theme, use the following query:

```sql
SELECT s.spacename, s.spacekey FROM spaces s
WHERE s.spacekey in (SELECT bandanacontext FROM BANDANA
WHERE bandanavalue LIKE '%<string>com.atlassian.confluence.themes.default.default</string>%' AND bandanakey = 'atlassian.confluence.theme.settings')
```
UPDATE BANDANA SET bandanavalue = '<map>
  <entry>
    <string>theme.key</string>
    <string></string>
  </entry>
</map>' WHERE bandanavalue LIKE '%<string>com.atlassian.confluence.themes.leftnavigation:leftnavigation</string>%' AND bandanakey = 'atlassian.confluence.theme.settings';

Flush Confluence/browser cache after executing the query.

**Changing Editor's Keyboard Shortcuts**

Some users may experience some problem with keyboard shortcuts which might be clashing with other operating system/application's keyboard shortcuts.

The guide below is a workaroud to change the keyboard shortcut for a particular function. The aim here is to change the *quote* shortcut in the editor from `ctrl+alt+q` to `ctrl+alt+y`:

1. Unzip the `<confluence-install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup/atlassian-bundled-plugins.zip`

2. Unjar the `confluence-tinymce-plugin-X.X.X.X.jar` in the unzipped `atlassian-bundled-plugins.zip`

3. Once unjarred, edit the `/tinymce3/plugins/keyboardshortcuts/editor_plugins_src.js`

4. Change the following line in the file:

   ed.addShortcut('ctrl+alt+q', '', ['FormatBlock', false, 'macro_quote']);

   to for example:

   ed.addShortcut('ctrl+alt+y', '', ['FormatBlock', false, 'macro_quote']);

5. Save the file.

6. Jar the file back to `confluence-tinymce-plugin-X.X.X.X.jar`

7. Zip the `atlassian-bundled-plugins.zip` back.

8. Restart your Confluence instance. Your changes would be reflected after this. You may need to force refresh your browser.

If you need a guide to help with the editing files within JAR archives, you can refer to this [Editing Files within JAR Archives](#).

However, please keep in mind that the TinyMce plugin is part of bundled plugins. Hence, it is stored in a special place, which is located at `<confluence-install>/confluence/WEB-INF/classes/com/atlassian/confluence/setup/atlassian-bundled-plugins.zip`. Therefore, if you are following the guide, please make sure the paths are correct.

**Installation FAQ**

This section contains solutions for common issues encountered when installing and starting Confluence, including solutions to common queries about this process.

If necessary, review your logs by opening the Confluence install directory and checking the `/logs/catalina.out` and `/logs/catalina.out` files for errors you may encounter.

View one of the following issues or queries for more information:

- Separate the Home and Install directories in Confluence 3.2
- I receive a BUILD FAILED message when trying to create an EAR file in Confluence 2.6 or 2.7
- The Confluence window closes immediately when started
- How do I re-trigger the setup wizard
- Confluence starts but a problem prevents me from accessing the dashboard
- How much disk space does Confluence need?
- How Do I Make Confluence Accessible from the Root Context with a Tomcat EAR WAR configuration
- How To Bind Confluence to a Particular Network Interface
- Deploying Multiple Atlassian Applications in a Single Tomcat Container

**Separate the Home and Install directories in Confluence 3.2**

It's recommended to create the 'Home' directory separately from the 'Install' directory, however if you've already combined the two directories this will help you untangle them...

1. *Stop Confluence*
2. **Backup your current home/installation directory**

3. **Create a new blank home directory (parent only, no sub-directories)**

4. **Move the following files/directories to the new home directory**
   - attachments
   - backups
   - bundled-plugins
   - bundled-plugins_language
   - config
   - confluence.cfg.xml
   - index
   - plugin-cache
   - plugins-osgi-cache
   - plugins-temp
   - viewfile

5. **There are two sub-directories which will need to be created in the home directory:**
   - logs
     It's fine to leave this empty, however if you want to keep your existing Confluence log move the `atlassian-confluence.log` file from the existing 'logs' directory to the newly created one
   - temp
     This is also fine to leave empty

6. **Edit the `confluence/WEB-INF/classes/confluence-init.properties` file to reflect the new home directory path (the one created in Step 3)**

7. **Start Confluence**

   Did it work?

   If you've followed the steps correctly, your new installation and home directories should look like this:
You should have no problems starting Confluence, and the log files should be updated as normal.

If Confluence tries to load a new site (such as in a new installation) you’ll need to confirm that the home directory path is specified correctly in `confluence-init.properties`.

If you find you’re unable to search or the recently updated menu isn’t showing any content try rebuilding your search index via Confluence Admin > Content Indexing.

I receive a BUILD FAILED message when trying to create an EAR file in Confluence 2.6 or 2.7

When trying to create a EAR file, you may encounter with the following error:

```
BUILD FAILED
```

This is due to the build.xml file being incorrect for Confluence 2.6.x and 2.7.0. This problem will be fixed for future releases. However for these releases, please open the build.xml file and change the following two lines:

From:

```
<copy preservelastmodified="true" file="${ant.confluence.etc}/ear-application.xml" tofile="${ant.confluence.build.ear}/META-INF/application.xml" overwrite="yes"/>
<copy preservelastmodified="true" file="${ant.confluence.dist}/${ant.confluence.name}-${ant.confluence.version}.war" tofile="${ant.confluence.build.ear}/Confluence War Distribution.war" overwrite="yes"/>
```

To:

```
<copy preservelastmodified="true" file="ear-application.xml" tofile="${ant.confluence.build.ear}/META-INF/application.xml" overwrite="yes"/>
<copy preservelastmodified="true" file="${ant.confluence.dist}/${ant.confluence.name}-${ant.confluence.version}.war" tofile="${ant.confluence.build.ear}/Confluence War Distribution.war" overwrite="yes"/>
```

The Confluence window closes immediately when started.
An error is preventing Confluence from starting.

1. Open a command prompt. On Windows, do this by clicking on your Start menu, then click Run. In the Run box, type `cmd` and press OK.
2. From the command prompt, go to your Confluence install directory.
3. Go into the `bin` subdirectory.
4. Run `startup.bat` and read the error message.
5. Find a solution to the error below:
   - `java.lang.NoClassDefFoundError IntraHibernateAttachmentCopier`
   - Exception in thread "main" `java.lang.NoClassDefFoundError: ...
   - Error creating Confluence Home directory
   - `JAVA_HOME` environment variable is not defined correctly
   - Port 8090 is in use
   - Error creating bean with name 'scheduler'
   - Error registering bean with name 'FileSystemAttachmentDataDao'

### java.lang.NoClassDefFoundError IntraHibernateAttachmentCopier

If you are seeing "java.lang.NoClassDefFoundError: com/atlassian/confluence/pages/persistence/dao/hibernate/AbstractHibernateAttachmentDao$IntraHibernateAttachmentCopier", you have unzipped Confluence using a program that cannot handle long filenames. You must delete your install directory and go back to the point in the instructions that covers unzipping Confluence using a third-party unzip program.

### Exception in thread "main" java.lang.NoClassDefFoundError: ...

If `http://localhost:8090` goes to an error page when you run Confluence, go to the install directory and find the `/logs/catalina.out`. If this file contains a single line error starting with "Exception in thread "main" java.lang.NoClassDefFoundError", your install path may contain spaces. The solution is to rename your install directory path so that there are no spaces, then restart Confluence.

### Error creating Confluence Home directory

The `confluence.home` variable specified in `confluence-init.properties` cannot be created. To fix this, edit `/confluence/WEB-INF/classes/confluence-init.properties` and check the path specified exists. Make sure all the directory slashes use `/` and that the # has been removed. If you're stuck, try using `confluence.home=c:/confluence/data`.

### JAVA_HOME environment variable is not defined correctly

You have not installed the Java Development Kit, or not set the `%JAVA_HOME%` to the directory of the JDK. You should re-check your steps in Stage 2.

### Port 8090 is in use

If you have another Confluence instance running on the same machine, you must edit `<INSTALL>/conf/server.xml` and change both 8090 and 8000 to ports that do not conflict with your other Confluence instances according to these instructions.

### Error creating bean with name 'scheduler'

You will need to adjust your system time.

### Error registering bean with name 'FileSystemAttachmentDataDao'

If you did not use one of the recommended unzipping tools, and happened to use for instance the default Windows XP extractor, one of the classes required for starting up Confluence may not be located due to the lengthy file-path. This is due to the reason that the default Windows tool silently fails to extract files with long names. We suggest you to use other tools such as WinZIP and 7zip and redo the deployment process.

**Cause:**

```
org.springframework.beans.factory.BeanDefinitionStoreException: Error registering bean with name 'FileSystemAttachmentDataDao' defined in class path resource [applicationContext.xml]: Class that bean class
[com.atlassian.confluence.pages.persistence.dao.FileSystemAttachmentDataDao] depends on not found; nested exception is
```

```
at org.springframework.beans.factory.xml.DefaultBeanDefinitionParser.parseBeanDefinition(DefaultBeanDefinitionParser.java:337)
at java.lang.Class.forName0(Native Method)
```

### How do I re-trigger the setup wizard

To re-trigger the setup wizard:

1. Ensure the application server (for example, Apache Tomcat) running Confluence has been stopped.
2. Delete `<confluence-home>/confluence.cfg.xml`.
3. Re-start Confluence's application server and then Confluence.

Confluence starts but a problem prevents me from accessing the dashboard

Find a solution to one of these problems below:

- localhost:8090 times out
- localhost:8090 goes to the Tomcat start homepage
- Logins fail at the login screen

**localhost:8090 times out**

Check the server logs for errors. If you are running Confluence Standalone on Windows, error messages will be printed to the console window that opened when you ran `startup.bat`. On Linux/Solaris systems, Confluence will log messages to `logs/catalina.out`.

**localhost:8090 goes to the Tomcat start homepage**

The `CATALINA_HOME` environment variable is set to another instance of Tomcat. You should run `shutdown.sh`, remove the `CATALINA_HOME` reference to the other Tomcat version, and run `startup.sh` again.

**Logins fail at the login screen**

If you try to login with the correct username and password but are always returned to the login screen without any error messages, and you are running a software firewall, please check that it is not blocking the Confluence server.

**How much disk space does Confluence need?**

For the recommended minimum amount of disk space, please see the 'Requirements' section in the Installation Guide.

Note that the actual disk space needed will depend significantly on the number of attachments (i.e. files which users attach to Confluence pages), and on the sizes of the attachments. You can calculate the hard drive requirements as you would with any standard file server.

**RELATED TOPICS**

No content found for label(s) `data-storage`.

**FAQ Home**

**How Do I Make Confluence Accessible from the Root Context with a Tomcat EAR WAR configuration**

Tomcat uses the `ROOT.xml` file to describe the root context. To make Confluence run at the Root, name the file that contains the context descriptor for Confluence `ROOT.xml` in the `conf/Catalina/localhost/` directory. This is described in Installing the Confluence EAR-WAR Edition.

**How To Bind Confluence to a Particular Network Interface**

In situations where a computer has more than one network interface, you can use the same port number on each of these network interfaces. For example, if you are running a JIRA instance on port 8080, you might also want to run Confluence on port 8080. In this case, you have to specify the IP address of the network interface.

Change the `server.xml` file by adding the element:

```xml
<Connector className="org.apache.coyote.tomcat4.CoyoteConnector"
    address="192.168.1.1"
    port="8080" minProcessors="5" maxProcessors="75"
    enableLookups="true" redirectPort="8443"
    acceptCount="100" debug="0" connectionTimeout="20000"
    useURIValidationHack="false" disableUploadTimeout="true" />
```

Also change the hostname from localhost to the relevant host name, in the file above, on the same IP.

**Deploying 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:

- 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 do not support deploying multiple Atlassian applications to a single Tomcat container for a number of practical reasons. Firstly, you must shut down Tomcat to upgrade any application and secondly, if one application crashes, the other applications running in that Tomcat container will be inaccessible.

Finally, we recommend not deploying any other applications to the same Tomcat container that runs the Atlassian application, especially if these other applications have large memory requirements or require additional libraries in Tomcat's `lib` subdirectory.

### Mail Archiving FAQ

This section contains solutions for common issues or queries associated with Confluence's Mail Archiving feature that was introduced in **Confluence 1.3**.

View one of the following issues or queries for more information:

- Can Confluence replace my regular mail client?
- How do I get mail into Confluence?
- How do I use the mail archive?
- Okay, I've imported the mail, but where is it?

The emphasis on the DR3 release was to:

- Import email into Confluence.
- Have Confluence monitor POP mailboxes.
- View email.
- Search email.

However, any further suggestions for this feature are welcome. Please let us know about them by filing an issue in JIRA, or just dropping us an email.

### Can Confluence replace my regular mail client?

No.

Confluence's mail archive is designed to supplement the way you currently handle email, not to replace it. This is why Confluence deliberately does not come with features common in email clients. For example, you can not mark emails as read or unread, you can not reply to emails from within Confluence, and so on.

### How do I get mail into Confluence?

All mail messages belong to a particular space.

From the space administration screen, space administrators can:

- Configure Confluence to poll a POP mailbox for incoming mail
  1. Go to Space Admin
  2. Choose "Mail Accounts"
  3. Add Pop Account

- Import mail from an mbox-format mail file

> **Tip**: Confluence will delete mail from a POP box as it reads it. Do not point Confluence to an account unless you are happy with it removing all the mail you have stored there.

### How do I use the mail archive?

Some suggested scenarios include:

#### Project-related conversations

Say you are using a Confluence space to organise a project. The project lead and the customer have a long conversation (via email) clarifying the project's goals and requirements. Rather than have that conversation lost in their individual mailboxes, if they CC'ed their mail to a POP box being monitored by Confluence, all that information will be archived alongside the rest of the project's documentation.

#### Customer Support Tracking

All incoming and outgoing sales and support email is diverted (at the mail-server) to be read by Confluence. Staff can then use
Confluence's features to find all previous communications with particular customers.

And?

Of course, the real fun will come from seeing how this feature can be put to other uses.

**Okay, I've imported the mail, but where is it?**

Because of the typically overwhelming volume of email, especially compared to the more sedate pace of wiki updates, we do not notify you of recently arrived mail in the same places we notify you of changed Confluence content.

Mail will not appear in the recent changes list on the dashboard or space summary pages. Similarly, mail will not appear by default in search results.

You can view mail...

1. In order of arrival from the Mail Archive section, found under the Content tab of the Space Summary screen.
   - "Browse" Dropdown menu > Mail
2. You can also explicitly select Mail (or All Content) in the search page to include mail in your search results.

**New User FAQ**

This section contains solutions for common issues or queries encountered by new Confluence users.

View one of the following issues or queries for more information:

- Can I use CamelCaseLinks like they do on WardsWiki?
- Can Users Edit Individual Sections Within a Page?
- How does Confluence differ from a wiki?

**Can I use CamelCaseLinks like they do on WardsWiki?**

Yes you can. Camelcasing is not enabled by default but a site administrator can easily enable it from the administration screens. See [Enabling CamelCase linking](#).

**RELATED TOPICS**

No content found for label(s) camelcasing.

**FAQ Home**

**Can Users Edit Individual Sections Within a Page?**

Some wiki software allows the editing of sections within a page (sectional editing). This functionality is currently not available in Confluence, but we are looking to include it in a future release. This issue is being tracked on the Confluence JIRA project: CONF-5913.

In the meantime, for pages that are getting long enough to be hard to edit in a single block, you can get an approximation of sectional editing by using the (include) macro. For example:

```plaintext
h3. [Section One] ([edit://pages/editpage.action?spaceKey=SPACE&pageTitle=Section One])
   {include:Section One}

h3. [Section Two] ([edit://pages/editpage.action?spaceKey=SPACE&pageTitle=Section Two])
   {include:Section Two}
```

The links to the edit pages can be simplified by using the [link-to:page edit] macro available in David Peterson's [Linking Plugin](#).

**Technical Stuff**

The problem lies in the complexity of Confluence's wiki markup. We made a couple of proof-of-concept implementations of sectional editing as part of our "Fedex Day" program, and while it's quite easy to come up with a solution that works with 90% of pages, there are a lot of edge-cases where it's actually quite hard to determine precisely where a given section starts and finishes.

Next time we perform a significant overhaul of our wiki markup processing engine, we'll be looking specifically to add functionality that will make sectional editing work properly.

**How does Confluence differ from a wiki?**

Essentially, Confluence is a wiki. Our aim was to build an application that was built to the requirements of an enterprise knowledge
management system, without losing the essential, powerful simplicity of the wiki in the process.

From the wiki, we took the following lessons:

- It should be easy for anyone to create and edit pages
- It should be easy for anyone to link pages together
- It should be easy to see what has changed recently
- The site should be searchable
- Users should have the tools to organise and group pages without having any particular structure imposed upon them

On top of that, we added professional features, such as the partitioning of content into separately managed spaces, user- and group-based access control, automated refactoring, PDF exporting, searchable attachments, a comprehensive remote API, easy installation and a professional and easy-to-use presentation; all wrapped up in Atlassian's "Legendary Service".

RELATED TOPICS

More about Confluence on Atlassian's website
More about wikis

FAQ Home

RSS Feeds FAQ

This section contains solutions for common issues or queries associated with RSS Feeds and the RSS Feed Macro.

View one of the following issues or queries for more information:

- Create an RSS feed for mail from only specified mail accounts
- How do I fix a "Could not download (Feed URL) - Connection timed out (errno238)" error?
- How do I fix a "Could not retrieve (Feed URL) - Not Permitted" error?
- How do I fix an "Error formatting 'macro rss java.lang.NullPointerException" error?
- How do I fix an "Unable to retrieve (Feed URL) - Connection refused - connect" error?
- How do I force authentication for public feeds?
- Is it possible to delete a feed?
- I want to remove RSS Feeds completely

Create an RSS feed for mail from only specified mail accounts

This is not possible, but you can vote towards tagging incoming mail with labels on arrival. Once tagged, feeds could monitor all new mail with that label.

How do I fix a "Could not download (Feed URL) - Connection timed out (errno238)" error?

The feed source may be offline, or the firewall may be blocking access either between the Confluence server any your computer. Confirm that you can access the feed URL from your browser. If it cannot, your firewall settings may be blocking access to Confluence. For example, your server may be configured to block outgoing requests.

How do I fix a "Could not retrieve (Feed URL) - Not Permitted" error?

You must append a valid login to Private Feeds as described in the Usage section of the RSS Feed Macro.

How do I fix an "Error formatting 'macro rss java.lang.NullPointerException" error?

The link is not a valid feed, so check your URL. If stuck, you can recreate internal Confluence feeds Using the RSS Feed Builder.

How do I fix an "Unable to retrieve (Feed URL) - Connection refused - connect" error?

The URL is invalid. If the link appears correct, confirm that you can access Confluence. Paste the feed into a third-party RSS feed reader and confirm that it can access it. If it cannot, your firewall settings may be blocking access to Confluence. For example, your server may be configured to block outgoing requests.

How do I force authentication for public feeds?

With anonymous access enabled, you can force user authentication when creating the feed by checking 'Authorised'. If anonymous access is disabled, all feeds will require user authentication.

Is it possible to delete a feed?
No, because RSS feeds are based on the view permissions for pages and spaces. RSS is an extension of normal page viewing functionality, so if you can view a page, you can receive an RSS feed for it. The only way to remove an RSS feed is to prevent all access to a page for that user, so that no content will be delivered.

I want to remove RSS Feeds completely

While Confluence does not have this functionality, there is a work around to remove RSS feeds completely. Refer to How do I Disable RSS Feeds?

Upgrade FAQ

This section contains solutions for common issues and queries encountered when upgrading Confluence. View one of the following pages for more information.

FAQ

- I cannot find the "Rich Text" editor. Is the editor part of Confluence 1.4.3?
- Server ID FAQ
- Upgrade My Trial To A Commercial Version

Useful Plugins

Before installing a plugin into your Confluence site, please check the plugin’s information page to see whether it is supported by Atlassian, by another vendor, or not at all. See our guidelines on plugin support.

- Appfire's Upgrade Assistant for Confluence (UAC) is a commercial plugin that simplifies the upgrade process into an easy-to-use wizard.

I cannot find the "Rich Text" editor. Is the editor part of Confluence 1.4.3?

The Rich Text Editor (aka WYSIWYG editor) is available in Confluence 2.0 and upwards. Rich Text editing is enabled by default.

If you wish to upgrade your Confluence installation, instructions can be found here.

RELATED TOPICS

No content found for label(s) richtext.

FAQ Home

Server ID FAQ

What causes this Server ID to be generated? Is it tied to the hardware, OS, or Confluence instance?

The Server ID:

- is generated when you install Confluence for the first time
- exists for the life of the Confluence instance
- survives an upgrade
- is held in the database
- is not bound to a specific licence
- is the same for all servers in a cluster.

What’s the policy on re-associating licenses with server IDs?

There’s no need to do this. Once you have a Server ID associated to a license, you can leave it as is.

What happens when I need to reinstall (quickly) on a different system?

Because the server ID is held in the database, it travels with the instance when the database or XML backup is restored on the new system. You need not generate a new Server ID for your new system.

What do I do when the license screen from my.atlassian.com is asking for my Server ID?

The Server ID is located on the license screen. If you have only a License ID, you may bypass the requirement to enter a Server ID - just look for the link from my.atlassian.com on my.atlassian.com after choosing "associate server ID." Check Unable to Find Server ID for Confluence 2.5.4 or Before for further info.

Additional Information

| Severity | Low |
Upgrade My Trial To A Commercial Version

First, you will need to purchase Confluence to receive your commercial license key. If you already have a free 30 day evaluation then you can easily convert this to the commercial version, or setup your commercial instance on another system and transfer your trial data across.

Upgrade A Trial To The Commercial Version

If you wish to change your trial into a commercial version while keeping the same hardware, login in as a Confluence administrator and paste in your commercial license key under the Administrator > License Details screen. The conversion to a commercial version is instantaneous and can be done regardless of whether your evaluation period has expired or is still ongoing.

Migrate Your Trial Data To A Server

If you installed your Confluence trial on a PC but wish to host your commercial version on another system, such as a server managed by your IT department, you can transfer the trial data across. Begin by creating an XML backup on the trial PC, then install Confluence on the commercial server. During installation, you will be presented with the Confluence Setup Wizard. The wizard gives you the opportunity to insert your commercial license key and also to import an XML backup. If you import the XML backup from your trial, your commercial instance will be setup already containing all your trial wiki content and any internal users.

Usage FAQ

This section contains solutions for common issues or queries about the everyday use of Confluence.

View one of the following issues or queries for more information:

- Add many files to a page at once
- Create a page by passing parameters to a template
- Editing or Deleting a Page That Won't Render
- How do I obtain content that hasn't been modified in a certain period of time
- How to Add a Quick Search for Firefox
- How to Make Confluence Open a New Tab when Clicking on the Attachments Link
- How to Reset a Custom Layout
- Printing Confluence Pages
- Redirect to a specific page (home page) within the site after logging in

Add many files to a page at once

Confluence offers several ways to add many files to a page at once:

- Confluence pages and attachments can also be mounted as a network drive, and files can be dragged and dropped into Confluence using the WebDAV Plugin.
- Alternatively, users who do not wish to use WebDAV can write a custom script to attach all PDF files in a directory to a Confluence page using the addAttachment function in the Remote API. This script can be adapted from one of the Remote API script examples.

Create a page by passing parameters to a template

Confluence supports populating wiki content through templates. Check out Page Templates if you would like to create a new page by filling in a graphical, form-based template. If you have an existing page and would like to pass text as parameters to a macro that fills in the blanks in a template, create the template as a User Macro and call it from inside your Confluence page.

Editing or Deleting a Page That Won't Render

⚠️ You may be able to access the edit page URL by hitting ctrl+e

If you have a page that you can't access (for example, due to an incompatible plugin that won't render a macro), you can delete or edit the page by manually entering the appropriate URL. The URL looks like this:
Substitute your page ID for the one you wish to delete. To determine the page ID, you may be able to access it from the edit page URL by hitting ctrl+e. If not, you can obtain this information from the database using an SQL query like this:

```
SELECT CONTENTID FROM content WHERE TITLE = '<pagename>' AND VERSION = '1';
```

This may return multiple results if there are pages with the same name in different spaces, so you may have to further determine the correct one.

Alternatively, if you don’t know the page ID, you can access the page for editing using an URL like:

```
http://<baseurl>/pages/editpage.action?spaceKey=<spaceKey>&title=pageName
```

To delete an attachment manually, you can use a URL like:

```
http://<baseurl>/pages/removeattachment.action?pageId=32787&fileName=harbour.jpg&version=1
```

To view the attachments on a page:

```
http://<baseurl>/pages/viewpageattachments.action?pageId=<pageId>
```

Get the page ID similarly.

To get the wiki markup from the database directly, try:

```
SELECT BODY FROM BODYCONTENT WHERE CONTENTID IN (SELECT CONTENTID FROM content WHERE TITLE = '<insert name of page or blog post>');
```

### How do I obtain content that hasn't been modified in a certain period of time

**Via the Archiving Plugin**

The Archiving Plugin is a great tool for managing outdated content.

**Via SQL**

This can be achieved by running the following SQL query on your Confluence database.

```
select * from content as c, spaces as s where c.spaceid = s.spaceid and s.spacename='INSERT SPACE NAME HERE' and c.LASTMODDATE < 'INSERT DATE HERE';
```

### How to Add a Quick Search for Firefox

**Description**

To add a quick search term into Firefox's address bar, add the following link to your bookmarks:

```
http://confluence.atlassian.com/dosearchsite.action?quickSearch=true&searchQuery.queryString=%s
```
Make a keyword for it, and you can search a Confluence instance using the keyword, a space and then the search term. For example, if you use the keyword cac with the above link, you can search Confluence using:

```
cac searchterm
```

### How to Make Confluence Open a New Tab when Clicking on the Attachments Link

Modifying the template file in `confluence-attachments-plugin-x.x.jar` (in this case, I try on `confluence-attachments-plugin-2.10.jar`). Please edit `attachmentsmacro.vm` file. This file is located in `confluence-attachments-plugin-2.10.jar` file. Extract this file by using the [Editing files within .jar archives guide](#) guide.

If you are able to extract it successfully, you can locate to `attachmentsmacro.vm` file and find the following lines:

```xml
<td><a
name="$generalUtil.urlEncode($page.title)-attachment-$generalUtil.urlEncode($attachment.fileName)"
("/pages/includes/attachment_icon.vm")
href="$req.contextPath$attachment.downloadPathWithoutVersion">$attachment.fileName</a></td>
```

and change the above code to be:

```xml
<td><a
name="$generalUtil.urlEncode($page.title)-attachment-$generalUtil.urlEncode($attachment.fileName)"
("/pages/includes/attachment_icon.vm")
href="$req.contextPath$attachment.downloadPathWithoutVersion">$attachment.fileName</a></td>
```

After making changes, please repack the file by following the steps [here](#).

For newer Confluence versions:

- For List Attachments page under Space (via Space >> Browse >> Attachments), the file to be edited can be found at: `<confluence-install>/confluence/pages/listattachmentsforspace.vm`. Find for the following lines of code:

```xml
<a href="$req.contextPath$!attachment.downloadPathWithoutVersion">$generalUtil.shortenString($attachment.fileName, 
50)</a>
```

and change it to

```xml
<a target="_blank"
href="$req.contextPath$!attachment.downloadPathWithoutVersion">$generalUtil.shortenString($attachment.fileName, 
50)</a>
```

- For Attachments page under Page (via Page >> Tools >> Attachments), the file to be edited can be found at: `<confluence-install>/confluence/pages/includes/attachments-table.vm`. Find for the following lines of code:

```xml
<a class="filename"
href="$generalUtil.htmlEncode("$req.contextPath$\attachment.downloadPathWithoutVersion"
"title="$generalUtil.htmlEncodeAndReplaceSpaces($attachment.fileName)"

data-filename="$generalUtil.htmlEncode($attachment.fileName)"
"
$generalUtil.htmlEncode($generalUtil.shortenString($attachment.fileName, 35))

</a>
```

and change it to
Additional Information

<table>
<thead>
<tr>
<th>Severity</th>
<th>Medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Expression</td>
<td>attachments in a new tab</td>
</tr>
<tr>
<td>Article ID</td>
<td>CONFKB160792804</td>
</tr>
</tbody>
</table>

Searching Confluence Knowledge Base

**How to Reset a Custom Layout**

If the layout has changed so extensively as to not be visible, you can browse to the URL directly:

```
http://<confluence base url>/admin/resetdecorator.action?decoratorName=decorators/main.vmd
```

Substitute the base URL and the appropriate vmd file.

**Printing Confluence Pages**

You can print one or more Confluence pages:

- To print a single page, use your browser's 'Print' option.
- Confluence allows you to export a single page, a part of a space, or an entire space into a single PDF file. See Exporting Confluence Pages and Spaces to PDF.

**Redirect to a specific page (home page) within the site after logging in**

As a user, you can set the home page to which you are sent after logging in.

To set your home page as a user:

1. View your profile via the profile link on the top right
2. Click the Edit My Profile on the right
3. Set Site Homepage to your desired home page

For instructions on configuring this feature at the administrator level, see Redirect users to a site-wide home page after a successful login.

**RELATED TOPICS**

Redirect users to a site-wide home page after a successful login

**Information relating to Unsupported Platforms**

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian can not guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

For details of supported platforms for Confluence, please refer to the topic on supported platforms.
View one of the following topics for more details:

- Setting up Confluence with IIS
- Connecting Confluence with IIS 5.1 or 6
- Connecting Confluence with IIS 7
- Using the IBM 64bit J9 JDK

**Setting up Confluence with IIS**

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian can not guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

This page describes how to install Confluence Standalone with IIS using the Apache jk connector.

⚠️ If you are using JIRA as well as Confluence, please refer to this page in the JIRA documentation instead.

**On this page:**

- Step 1. Install IIS
  - IIS 6
  - IIS 7
- Step 2. Install Confluence Standalone
- Step 3. Configure Tomcat
- Step 4. Configure the Tomcat Connector
- Step 5. Connect Confluence with IIS

**Step 1. Install IIS**

If you are running Windows Server 2003, you will only be able to use IIS 5.1 or 6. If you are using Windows Server 2008, you might like to install IIS 7.

**IIS 6**

If you are using Windows Server 2003 or XP professional, follow these instructions for installing IIS 6.

After installation is complete you should be able to go to http://localhost/iishelp/iis/misc/default.asp in your browser and see the IIS Getting Started page.

**IIS 7**

Similar to the previous Windows versions, IIS is not installed by default in Windows Server 2008 so you need to install it manually.

1. Start your Server Manager.
2. Click 'Roles'.
3. In the right hand panel, click "Add Roles".
4. A new window will pop up. Select the 'Web Server (IIS)' option.
5. Click 'Next' until you see another set of checkbox options to install the required 'Roles Services' for the web server (IIS).
6. Scroll down to 'Application Development' and tick the following:
   - CGI
   - ISAPI Extensions
   - ISAPI Filters
7. Click 'Next'.
8. And lastly, click 'Install'.

To check that IIS has been installed successfully, you can direct your browser to http://localhost/ and see the IIS 7 logo.

You can learn more about IIS 7 from this website.

**Step 2. Install Confluence Standalone**

Do a normal Confluence installation, after which you should be able to use confluence as usual through the URL http://localhost:8090.

**Step 3. Configure Tomcat**

Add another connector to your server.xml file, directly after the existing `<Connector ... />` tag:

```xml
<Connector port="8009" enableLookups="false" redirectPort="8443"
  protocol="AJP/1.3" URLEncoding="UTF-8" />
```
Restart Confluence.
In the logs/catalina.YYYY-MM-DD.log file you should see the Jk is running:

```
INFO: Starting Coyote HTTP/1.1 on http-8090
INFO: Jk: ajp13 listening on /0.0.0.0:8009
7/09/2006 14:40:04 org.apache.jk.server.JkMain start
INFO: Jk running ID=0 time=0/31 config=null
```

Step 4. Configure the Tomcat Connector

These instructions are based on the Tomcat Connector, IIS Configuration documentation.

1. Download the isapi_redirect.dll from the apache tomcat download page - click 'browse download area' to search for the file.
   - For example, you will find the win32 binaries here:
     http://apache.wildit.net.au/tomcat/tomcat-connectors/jk/binaries/win32/ and if the current version is 1.2.27, you will download this file:
     http://apache.wildit.net.au/tomcat/tomcat-connectors/jk/binaries/win32/jk-1.2.27/isapi_redirect-1.2.27.dll.
   
   Make sure you rename the file to isapi_redirect.dll before using it otherwise it will not work.
2. Place the isapi_redirect.dll file in a directory c:\ajp_iis (the name of the directory isn't important, but if you use a different one make sure to take account of this in the instructions which follow)
3. Create a isapi_redirect.properties file in the same directory as you put the DLL. You can use this sample isapi_redirect.properties file if you have used ajp_iis as the directory name.
   - Note that this sample properties file assumes that the dll is named isapi_redirect.dll. If you want to name your DLL something else, you must edit this file.
4. Create workers.properties and uriworkermap.properties files. You can use the sample workers.properties file and the sample uriworkermap.properties file.
5. Create an empty file named rewrites.properties in c:\ajp_iis.

Step 5. Connect Confluence with IIS

Connect Confluence with IIS, depending on your version of IIS:

- To connect Confluence with IIS 5.1 or 6 please refer to Connecting Confluence with IIS 5.1 or 6.
- For IIS 7 please refer to Connecting Confluence with IIS 7.

RELATED TOPICS

- Connecting Confluence with IIS 5.1 or 6
- Connecting Confluence with IIS 7
- JIRA’s documentation on Configuring IIS with Tomcat, including how to integrate both Confluence and JIRA with the same IIS instance. The Troubleshooting section there is relevant to Confluence as well as JIRA.
- Supported Platforms

Connecting Confluence with IIS 5.1 or 6

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian can not guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

This documentation is part of the Setting up Confluence with IIS documentation.

On this page:

- Connecting Confluence with IIS
- Other Configuration
- IIS 6.0
- Troubleshooting

Connecting Confluence with IIS

1. Using the IIS management console (Internet Information Services in Administrative Tools), add a new Virtual Directory to your IIS web site. The name of the virtual directory must be jakarta, as it must correspond with the first part of the extension_uri setting specified in the isapi_redirect.properties file. Its physical path should be the directory where you placed isapi_redirect.dll (in the example it is c:\ajp_iis). When creating this new virtual directory, give it execute access as well.
1. Using the IIS management console, add \isapi_redirect.dll as a filter to your IIS web site. To do this, right click on the Web Sites icon from the left hand pane of the Internet Services Manager (or IIS management console), select Properties and then the ISAPI Filters tab. The name of the filter should reflect its task, for example confluence, and its executable must be the full path to the apc isapi redirector DLL, that is c:\iis_ajp\isapi_redirect.dll

2. Restart IIS (stop and start the IIS service - not just the web server -- do this by right-clicking on 'Local Computer' in the IIS Manager and choosing All Tasks, Restart IIS...). Ensure that the confluence filter is marked with a green up arrow verifying

3. Ensure that the confluence filter is marked with a green up arrow verifying
that it is loaded and initialized correctly. If the ajp redirector did not initialize properly, check the log file for errors messages (C:\ajp_iis\ajp_plugin.log).

You can now go to http://localhost and see the Confluence Dashboard.

Other Configuration

If you want to run Confluence on a named context, rather than the root context (i.e. access it via http://host/confluence/ instead of just http://host) you need to:

1. Change the path attribute of the Context tag in server.xml from "" to "/confluence".
2. Change the line */=ajp13w uriworkermap.properties to /confluence//=ajp13w.
3. Note that 'http://host/confluence' gives a 404 error, but 'http://host/confluence/' works. You need to create a virtual directory so that requests without the trailing slash still work. If you are using Confluence you would want to name the alias as conf (if you are using JIRA, name it as jira). The physical directory can be anywhere and does not need to contain anything.

IIS 6.0

1. If using IIS 6.0 you will also need to add the Jakarta Isapi Redirector to the Web Service Extension's .
2. Right-click on Web Service Extensions and choose Add a new Web Service Extension...
3. Enter tomcat for the Extension Name and then add the isapi_redirect.dll file to the required files.
4. Check the Set extension status to Allowed and then click on OK.
5. Also add the Jakarta Isapi Redirector to the ISAPI Filters for the website

Troubleshooting

If you have problems, look in the System Event Log, the c:\iis_ajp\ajp_plugin.log and your confluence logs.

When requesting support for IIS configuration problems, please include:

1. A zip of your logs directory
2. A zip of your c:\iis_ajp directory
3. Your conf/server.xml file
5. A screen shot of the ISAPI Filters tab of the Properties window of your 'Web Sites' icon.

RELATED TOPICS

- JIRA's documentation on Configuring IIS with Tomcat, including how to integrate both Confluence and JIRA with the same IIS instance. The Troubleshooting section there is relevant to Confluence as well as JIRA.
- Connecting Confluence with IIS 7
- Supported Platforms

Take me back to Setting up Confluence with IIS.

Connecting Confluence with IIS 7

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian can not guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

This documentation is part of the Setting up Confluence with IIS documentation.

On this page:

- Setting up Confluence with IIS 7
- Known Issues
Setting up Confluence with IIS 7

After you have installed IIS 7, you need to configure the Tomcat Connector. Then follow these steps:

1. Open IIS 7 Manager
2. Navigate to your host. In the picture below, your host would be the one highlighted in blue just below "Start Page".
3. Double click on the ISAPI and CGI Restrictions icon
4. On the right hand panel, click on Add... Click here for picture
5. Point the path to your isapi_redirect.dll file and give it a description eg. tomcat. Give it an execute permission by clicking on the Allow extension path to execute tick box.
6. Now, click on the Default Website and double click ISAPI Filter.
7. On the right hand panel, click on Add... and point to your isapi_redirect.dll file, give the filter a name (eg. tomcat)
8. Navigate to your Default Website again.
9. Right click on Default Website to create a virtual directory and name it jakarta, point this to your c:\ajp_iis directory.
10. Click on the newly created virtual directory jakarta and double click Handler Mappings.
11. Click on Edit Feature Permissions and tick the execute permission.
12. Add another virtual directory and name it confluence. Point the physical path to c:\confluence.
13. Set a context path in Confluence’s xml configuration. For example, if you are using Confluence Standalone distribution you need to edit <confluence install directory>/conf/server.xml and edit your context path to this:

   `<Context path="/confluence" docBase="../confluence" debug="0" reloadable="false">
   
   The reason for creating this virtual directory is so that requests without the trailing slash still work. For example, if you are deploying Confluence under http://www.example.com/confluence/ without the virtual directory, then requests to http://www.example.com/confluence will fail.

14. Finally, navigate to your host context again and do a restart. Confluence should now be accessible via
http://localhost/confluence

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.

Double Escaped Character

IIS 7 blocks double escaped character sequences by default. This will cause problems with Confluence pages with spaces. To fix this, please see http://support.microsoft.com/kb/942076.

Troubleshooting

The information in the Windows System Event Log can be useful for troubleshooting, followed by the c:\ajp_iis\ajp_plugin.log and your confluence logs.

When requesting support for IIS configuration problems, please include:

1. A zip of your logs directory
2. A zip of your c:\ajp_iis directory
3. Your conf/server.xml file

RELATED TOPICS

- JIRA's documentation on Configuring IIS with Tomcat, including how to integrate both Confluence and JIRA in the same IIS server. The Troubleshooting section there is relevant to Confluence as well as JIRA.
- Connecting Confluence with IIS 5.1 or 6
- Supported Platforms

Take me back to Setting up Confluence with IIS

Using the IBM 64bit J9 JDK

The content on this page relates to platforms which are not supported for Confluence. Consequently, Atlassian cannot guarantee providing any support for the steps described on this page. Please be aware that this material is provided for your information only and that you use it at your own risk.

This JVM must be started with the argument: -Dsun.reflect.inflationThreshold=0

Otherwise you will see an error message like:

bucket.core.InfrastructureException: java.lang.NoClassDefFoundError:
com.atlassian.confluence.spaces.Space$$EnhancerByCGLIB$$58d74b80
  at com.atlassian.confluence.util.XWorkTransactionInterceptor.intercept(XWorkTransactionInterceptor.java:151)
caused by: java.lang.NoClassDefFoundError:
com.atlassian.confluence.spaces.Space$$EnhancerByCGLIB$$58d74b80
  at sun.reflect.GeneratedMethodAccessor311.invoke(Unknown Source)

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, visit support.atlassian.com, log in (creating an account if need be) and create an issue under Confluence. 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 our 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 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 4.2.4) 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
- Medium
- Low

An approximate mapping guideline is as follows:

<table>
<thead>
<tr>
<th>CVSS score range</th>
<th>Severity in advisory</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 2.9</td>
<td>Low</td>
</tr>
<tr>
<td>3 – 5.9</td>
<td>Medium</td>
</tr>
<tr>
<td>6.0 – 7.9</td>
<td>High</td>
</tr>
<tr>
<td>8.0 – 10.0</td>
<td>Critical</td>
</tr>
</tbody>
</table>

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: Medium

Vulnerabilities that score in the Medium 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.

Troubleshooting Problems and Requesting Technical Support

This document tells you how to troubleshoot problems in Confluence and how to obtain technical support from Atlassian.

Troubleshooting a Problem

If you have a problem with Confluence, please follow the steps below.

To diagnose a problem and search for a solution:

1. If you are not a Confluence administrator, report your problem to the person in charge of your Confluence site and ask them to follow up on the issue.
2. Use the inbuilt log scanner (see below) to check your Confluence logs for errors and attempt to match them against known issues in our knowledge base and bug tracker.
3. Check our knowledge base for solutions to known issues.
4. Check our issue tracker for known bugs.
5. If your problem may be related to a plugin, you can enter plugin safe mode by temporarily disabling any third party plugins.
6. If you are having problems configuring a feature, please take a look at the appropriate guides:
   - Confluence Installation Guide
   - Confluence Setup Guide
   - Confluence Administrator's Guide
   - Confluence Configuration Guide
   - Database Configuration
7. Check the following guides for troubleshooting specific problems:
   - Issues related to your database server: Known Issues For Supported Databases.
   - Issues related to user management: Requesting Support for External User Management.
8. If the above tools and documentation do not solve your problem, please create a support request and attach your support zip file. If you believe you have found a bug, you may wish to create a bug report instead. Instructions for both are given below.

On this page:

- Troubleshooting a Problem
- Scanning your Confluence Logs to Match Known Issues
- Raising a Support Request with a Plugin Author
- Raising a Support Request with Atlassian
  - Method 1: Using the Support Request Form via the Confluence Administration Console
  - Method 2: Raising a Support Request via the Internet
- Creating a Support Zip File via the Confluence Administration Console
- Logging a Bug Report

Scanning your Confluence Logs to Match Known Issues

Confluence provides an inbuilt log scanner that will check your Confluence logs for errors and attempt to match them against known issues in our knowledge base and bug tracker.

The log scanner is known as Hercules, or the Atlassian support bot. It uses a set of patterns that we have discovered in our knowledge base and issue tracker.
To use the Confluence log scanner:

1. Log in as a user with Confluence Administrator or System Administrator permissions.
2. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the Administration Console.
3. Click 'Atlassian Support Tools' under 'Administration' in the left-hand panel.
4. Click the 'Log Scanner' tab.
5. Click 'Scan' to scan the Confluence log file in its default location, or change the location if necessary then click 'Scan'.
6. The log scanner will return a list of links, pointing to articles in our knowledge base and/or bug reports in our issue tracker.
   - The latest-reported problems are displayed first. By default only the most recent 10 matches are displayed. If you have more than 10 matches and want to display all results, click the 'Show All' link that appears on the top of the results page.
   - Click a link to read the reported problem and possible solutions or workarounds.

Screenshot above: The log scanner

Raising a Support Request with a Plugin Author

If you have a plugin-related issue, please check whether the plugin is supported by Atlassian or by the plugin developer.

- Visit the plugin's home page in the Atlassian Plugin Exchange.
- Check the 'Supported By' entry under 'Plugin Details' on the right-hand side.
- If the plugin is not supported by Atlassian, you will need to contact the plugin author directly.

You can read more about Atlassian support for plugins.

Raising a Support Request with Atlassian

There are two ways to raise a support request with Atlassian:

- **Method 1:** (Recommended) Complete the support request form via your Confluence Administration Console, as described below. A possible problem with this method is that your mail may not be forwarded correctly, due to restrictions imposed by your mail server. For example, the zip of your log files might be too large for your mail server to forward.
- **Method 2:** Raise a support request via our support site on the Internet, as described below. Create a support zip file via your Confluence Administration Console, as described below, and attach the zip file to the support request.

**Method 1: Using the Support Request Form via the Confluence Administration Console**

The advantage of this method is that it is convenient. The disadvantage is that your mail may not be forwarded correctly due to a problem (for example, the zip file is too large) or due to a security restriction on your mail server.

You can also use this method to append system information to an existing support request.

**To submit a support request via the Confluence Administration Console:**

1. Log in as a user with Confluence Administrator or System Administrator permissions.
2. Go to the Confluence 'Administration Console':
   - Choose Browse > Confluence Admin. The 'Administrator Access' login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the Administration Console.
3. Make sure that SMTP email is set up on your Confluence site and your mail server allows zip files.
4. Click 'Atlassian Support Tools' under 'Administration' in the left-hand panel.
5. Click the 'Support Request' tab.
6. Provide as much information as possible, following these guidelines:
   - 'Contact Email' – This will default to the email address of the logged-in user.
     Note: This email address will be used to find your support account on the Atlassian Support System. If no matching account is found, a new account will be created. Confluence will also send all further notifications and updates to this address.
   - 'Summary' – Enter a short and meaningful description of the problem.
   - 'Description' – Enter as much information as possible, including any error messages that are appearing and any steps the support team can take to reproduce the problem.
7. In the section titled 'Support Data to Attach', select the types of additional information you would like to be included in a zip file that will be attached to your support request.
8. Click the 'Send' button.
9. Confluence will submit your request via email to the Atlassian support site. If you do not already have a support account, Confluence will automatically request one for you. The submitted request will include all the system and environment information which you see on the support request form. It will also include a zipped copy of your Confluence log file. Refer to Working with Confluence Logs for information about the log files.
10. Once you have submitted your support request, you will receive email updates about its progress. These emails will give you the support request number.

You can view the status of your support request and add any additional information required by visiting the Atlassian Support System at any time.

---

**Method 2 Raising a Support Request via the Internet**

If your Confluence instance is not configured with SMTP mail or your Confluence instance is not running, you can raise a support request via the Atlassian Support System on the Internet.

To raise a support request via the Internet:

1. If you do not already have a free Atlassian support account, create one here.
2. Log in to https://support.atlassian.com and select 'Create New Issue'.
3. Lodge a detailed description of your problem in the new support request.
4. Fill in all applicable information about your system, such as application server, database, etc.
5. If Confluence is running, go to the 'System Information' screen in your Administration Console and copy the text of your system information into the request.
6. Create a support zip file, as described below to attach to the request. If your instance does not start up, refer to Working with Confluence Logs for information about the log files.
7. If your problem concerns user management or performance, please take a look at the additional requirements in Requesting Support for External User Management or Requesting Performance Support.
8. Once your request is lodged, wait to be notified by email of updates.

Creating a Support Zip File via the Confluence Administration Console

We recommend that you attach a support zip file to every interaction with the Atlassian support team. You can use this method to append system information to an existing support request. The tool described below will also dump your system information to the logs before zipping them.

To create a support zip file via the Confluence Administration Console:

1. Log in as a user with System Administrator or Confluence Administrator permissions.
2. Go to the Administration Console and click 'Atlassian Support Tools' under 'Administration' in the left-hand panel.
   Ensure that everything is checked, then click the 'Create' button.
3. Confluence will create the support zip file and display its location on the screen. Log in to the Confluence server to retrieve the file.
4. Attach the zip file to the support case you raised on our support system, as described above.

Logging a Bug Report

If you have found a bug, the easiest way to report it is to:

- Create numbered instructions on how to reproduce the bug.
- Log it as a support request, as described above.
- The Atlassian support team will confirm your bug and lodge a bug report.

Alternatively, you can check to see if anyone else has reported the bug, then log a bug report yourself.

To log a bug report:

1. Go to the Confluence issue tracker.
2. Type keywords for your problem into the search box on the left under 'Query'.
3. Click 'Search' to find any existing bug reports that match your problem.
4. Read through the summaries of the bugs shown. If any summary describes your problem, you may wish to set a watch to be notified of updates.
5. If there are no existing bug reports that match your problem, log the new bug in the issue tracker. Include information on how to duplicate the problem.
6. Sometimes it may be useful to include the result of the 500 error page, which you will find at this location:

   https://<domain><host>:<port>/500page.jsp
7. Once your issue is lodged, wait to be notified by email of updates.

RELATED TOPICS
- Requesting Support for External User Management
- Requesting Performance Support
- Confluence Knowledge Base
- Content Anonymiser for Data Backups
- Enabling Detailed SQL Logging
- Generating a Heap Dump
- Generating a Thread Dump
- Getting Java Crash Log File
- Profiling using the YourKit Plugin

Content Anonymiser for Data Backups

Atlassian may request a copy of the entities.xml file from a customer's exported zip file (backup file), in order to diagnose database corruption or to find a bug in Confluence.

If your data is confidential, you can run an anonymiser program over your entities.xml file to remove all your data and leaving only the structure of the export.

Usage

To run the Content Anonymiser on your backup file:

1. Download the anonymiser JAR (attached to this page).
2. Extract the entities.xml file from your zipped backup file to the same directory as the JAR.
3. Use the command prompt to go to the directory where all three files are located.
4. To create cleaned.xml, run the command:

```java
java -jar confluence-export-cleaner-1.1-jar-with-dependencies.jar entities.xml cleaned.xml
```

How it works

The Content Anonymiser program replaces all the text content in file entities.xml with ‘x’ characters. For example, the word “Atlassian” will be transformed to “xxxxxxxxx”. The resulting cleaned.xml file is expected to have the same size as the original file.

This release of the Content Anonymiser uses STX, a fast and efficient XML transformation technology. It should not require a lot of memory to run, even for a large backup.

Development

For Atlassian developers:

- Source code.
- Maven repository.

Enabling Detailed SQL Logging

Confluence uses the open source persistence framework Hibernate. This page tells you how to configure Confluence's logging to report individual SQL requests that are sent to the database by Hibernate. It is useful for troubleshooting the following events:

- XML site backups that fail to import.
- Exceptions caused by an illegal database operation.

Enable SQL logging via the Administration Console

Since the 2.7 release, you can also enable SQL logging at runtime via the Administration Console — read the instructions. This runtime option does not allow you to enable logging of SQL parameter values.

To enable detailed SQL logging in Confluence, you need to modify log4j.properties, located in confluence/WEB-INF/classes.
After you have enabled hibernate logging, please replicate the action that is causing the error in the first place. This is the best way to ensure that the Confluence log file contains relevant SQL logging.

If you require support assistance with a database related problem, it is advisable to enable detailed SQL logging before sending us the log files. This will assist us in determining what SQL queries were running during the reported problem.

If the entries mentioned below are not defined in the log4j.properties file, you can manually add the entries to the file in the 'Hibernate Logging' section.

**To Log SQL Queries**

Stop Confluence, then uncomment the following lines in log4j.properties:

```java
## log hibernate prepared statements/SQL queries (equivalent to setting 'hibernate.show_sql' to 'true')
log4j.logger.net.sf.hibernate.SQL=DEBUG
```

**To Log SQL Queries with Parameters**

Stop Confluence, then uncomment the following lines in log4j.properties:

```java
## log hibernate prepared statement parameter values
log4j.logger.net.sf.hibernate.type=TRACE
```

This needs to be done along with the changes to log SQL queries above (whether by the UI or by modifying the properties file).

**To Disable Batched Updates for Simpler Debugging**

Stop Confluence, then edit databaseSubsystemContext.xml:

- In Confluence 2.5.x and earlier, the databaseSubsystemContext.xml file is at confluence/WEB-INF/classes/databaseSubsystemContext.xml
- From Confluence 2.6.x, the databaseSubsystemContext.xml file is available in the confluence-2.6.0.jar file located in the <confluence-install>/WEB-INF/lib directory.

Uncomment the `<prop>` line in the following location:

```xml
<!-- it can be useful to disable batching during debugging, as HSQLDB doesn't report the exact statement which fails in batch mode -->
<prop key="hibernate.jdbc.batch_size">0</prop>
```

**RELATED TOPICS**

Troubleshooting SQL exceptions
Working with Confluence Logs

**Generating a Heap Dump**

Sometimes you may see that Confluence is holding onto a chunk of memory over a period of time (for example, tenured space is increasing close to Xmx). In such a situation, it is useful to find out what is stacking up in the memory by analysing the heap dump.

**On this page:**

- Automatically Generating a Heap Dump when Confluence Hits OutOfMemory Error
- Manually Generating a Heap Dump when Confluence Stops Responding
- Submitting a Heap Dump to Atlassian Support
Tips when getting a heap dump

If you have a large Xmx size, please limit your Xmx size to 1024m. This will help to keep Confluence heap dump smaller while still containing sufficient information to analyze it.

Automatically Generating a Heap Dump when Confluence Hits OutOfMemory Error

Typically, we would like to analyze the heap dump produced when Confluence died from an OutOfMemory Error. For this, you can add additional JVM parameters like below:

```
-XX:+HeapDumpOnOutOfMemoryError -XX:HeapDumpPath=<path to this heap dump file>
```

If you do not set the HeapDumpPath parameter, by default the heap dump will be saved in the folder where Tomcat is run from.

Manually Generating a Heap Dump when Confluence Stops Responding

It is also possible to get a heap dump manually using a JDK bundled tool called jmap, although we recommend that you use the automatic method above for best result.

For Linux/Solaris-based Operating Systems:
Please execute the following command on Linux OS:

```
$JAVA_HOME/bin/jmap -dump:format=b,file=heap.bin <pid>
```

For Windows:
Please find your Confluence process ID (see below) and then execute the command below on a Windows command line:

```
%JAVA_HOME%\bin\jmap -dump:format=b,file=heap.bin <pid>
```

To find out the process ID for your Java process in Windows, you can use Process Explorer from Microsoft. This is what it looks like:

Using Process Explorer to find your Tomcat process ID

Submitting a Heap Dump to Atlassian Support

Please zip the file and then send it to Atlassian Support.

RELATED TOPICS

Getting Java Crash Log File
Memory usage and requirements
Garbage Collector Performance Issues
Generating a Thread Dump
Fix Out Of Memory Errors by Increasing Available Memory

Generating a Thread Dump
If Confluence is performing poorly, behaving unexpectedly or stops responding and you can generate a thread dump to help diagnose the cause of the problem. Furthermore, if you wish to contact Atlassian Support for assistance about it, you should include a thread dump in your support enquiry to help the Support team determine the cause of the problem.

A thread dump will show the state of each thread in the JVM, including a stack trace. Thread dumps are only useful if they are taken at the appropriate time. They normally need to be taken at or close to the time when the application is experiencing problems. Information about what locks are being held and waited upon by a thread are not produced by Confluence's Thread Dump tool. If you require this information, then generate a thread dump externally.

**Stack Traces and Security**

To help debug support cases and provide legendary support, Confluence provides stack traces through the web interface when an error occurs. These stack traces include information about what Confluence was doing at the time, and some information about your deployment server.

Only non-personal information is supplied such as operating system and version and Java version. With proper network security, this is not enough information to be considered dangerous. No usernames or passwords are included.

**Method 1: Generating a Thread Dump Externally**

If Confluence stops responding or you require information on locks being held and waited upon by threads, then use one of methods described in Generating a Thread Dump Externally.

Atlassian support may ask you to use this method if a thread dump generated using method 2 does not include enough information to diagnose the problem.

**Method 2: Generating a Thread Dump via the Administration Console**

For Confluence 2.10.3 or below

This feature was introduced in Confluence 3.0. if you are using a prior version then please consult this documentation on Generating a Thread Dump Externally.

To generate a Thread Dump from the Administration Console,

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Select ‘Thread Dump' in the left-hand panel.
3. Click the ‘Generate Now' button in the centre of the page. The output is displayed in a new text box that appears just below the button.
4. Copy the contents of the thread dump in the text box and save it to a text file.

Screenshot: Example of a generated thread dump from the Confluence administration console
Scheduling Thread Dumps via the Administration Console

If you were asked by Atlassian Technical Support to generate regular thread dumps, please set the Thread Dump Scheduler to take 2 to 3 thread dumps with a 30 seconds time interval in between so the Support team can observe any important patterns that may assist with the diagnosis of the problem. Attach the log file to the support ticket.

Example: Scheduling thread dumps from the Confluence administration console

Generating a Thread Dump Externally

If Confluence stops responding and you cannot access its integrated Generate Thread Dump feature, it is possible to create thread dumps outside the application. External thread dumps are also useful if you require information on locks being held or waited upon by threads.

Generating a Thread Dump on Linux, including Solaris and other Unixes

1. Identify the java process that Confluence is running in.: This can be achieved by running a command similar to:

```
ps -ef | grep java.
```
2. Find the process ID of the JVM and use the `ps` command to get a list of all processes:

```
kill -3 <pid>
```

⚠️ This will not kill your server (so long as you included the "-3" option, no space in between).

The thread dump will be printed to Confluence’s standard output (catalina.out).

**Generating Thread Dumps on Windows**

**From the console**

If you are running Confluence through a console, rather than as a service, you can click on the console and press `<CTRL>+BREAK`

**Using jstack**

The JDK ships with a tool named `jstack` for generating thread dumps.

1. Identify the process. Launch the task manager by, pressing Ctrl + Shift + Esc and find the Process ID of the Java (Confluence) process. You may need to add the PID column using View -> Select Columns ...
2. 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:

```
adam@track:~$ jstack -l 22668 > threaddump.txt
```

This will output a file called threaddump.txt to your current directory.

⚠️ Common issues with jstack:

- You must run jstack as the same user that is running Confluence
- If the jstack executable is not in your $PATH, then please look for it in your `<JDK_HOME>/bin` directory
- If you receive `java.lang.NoClassDefFoundError: sun/tools/jstack/JStack` check that `tools.jar` is present in your JDK's lib directory. If it is not, download a full version of the JDK.

**Output**

Standard logging for Confluence Stand-alone is sent to the `atlassian-confluence.log`, in the confluence-home directory, not in the confluence-install directory. Thread dumps are an exception since they dump the threads of the entire application server - they’ll appear in the catalina.out file in the application directory’s logs folder. You can search for the term “thread dump” in the log file for the beginning of the dump. Submit this along with the atlassian-confluence.log in your support ticket.

**Thread Dump Analysis Tools**

- **Samurai**
- **Thread Dump Analyzer TDA**

TDA 1.0 Final can be obtained from the [java.net](http://java.net)

**Getting Java Crash Log File**

If you discovered that Confluence died without manual intervention, there may be something going wrong during a local Java session. Java will produce a log file that looks like the following: `hs_err_pid20929.log`

The location of this log file is usually in the directory where Tomcat is run eg. `/bin` folder. For Windows Services, it should be located in where Windows Services are run, eg. `C:\Windows\System32` if you are on 32 bit.

**Useful VM Option**

If using Java 6, it’s possible to define the path to the `hs_err_pid` file.

Add the following JVM Parameter to your existing ones:

```
-XX:ErrorFile=./hs_err_pid<pid>.log
```

**RELEVANT TOPICS**
Generating a Heap Dump
Java Crashes

**Profiling using the YourKit Plugin**

There is a plugin for Confluence 2.2 and later which allows easy profiling using the YourKit profiler. No license is required to generate a memory or CPU snapshot, but you will need at least an evaluation license to analyse the results.

On this page:
- Configuring YourKit in your JVM
- Windows Configuration
- Linux/Mac OS X Configuration
- Performance Impact
- Installing the YourKit Plugin
- Why would I do this?
- Plugin Source Code

**Configuring YourKit in your JVM**

Download YourKit 6.0 for your platform and follow the installation instructions to install it.

⚠️ Note: YourKit version 7 is not compatible with the Confluence yourkit plugin.

The following instructions apply to Confluence Standalone and Tomcat installations with the Oracle (previously Sun) JDK. They should be easily applicable to other application servers and JVMs, however. The YourKit documentation covers this in more detail.

**Windows Configuration**

On Windows, add to your PATH environment variable the directory underneath the YourKit installation directory. For example, you might add "C:\Program Files\YourKit Java Profiler 6.0.12\bin\win32" to your PATH, via Control Panel, System, Advanced, Environment Variables.

To configure Confluence's JVM to use the YourKit agent, you need to add a parameter to JAVA_OPTS in the `bin/setenv.bat` file in your Confluence application directory. This file controls the startup parameters for Tomcat, so you'll need to restart it after making the changes.

Add the 'agentlib' parameter to the end like this:

```
set JAVA_OPTS=%JAVA_OPTS% -Xms128m -Xmx256m -agentlib:yjpagent
```

**Linux/Mac OS X Configuration**

On Unix-based systems, include the installation directory in the library path environment variable, as shown below:

- For the Mac:
  ```
  export DYLD_LIBRARY_PATH=$DYLD_LIBRARY_PATH:/path/to/yourKitAgent
  ```
- For other Unix-based systems:
  ```
  export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/path/to/yourKitAgent
  ```

In general, to configure the JDK, you add the `agentlib` parameter:

```
java -agentlib:yjpagent ...
```

You can add this to Tomcat's `bin/setenv.sh` like this:

```
JAVA_OPTS="-Xms128m -Xmx256m $JAVA_OPTS -Djava.awt.headless=true -agentlib:yjpagent "
```

**Performance Impact**

Running YourKit can have detrimental effects on performance.

To minimize performance problems use the following modifications to the `agentlib` parameter:

```
-agentlib:yjpagent=disablecounts,disablealloc,disablej2ee
```

See also Profiling overhead: how to reduce or avoid in the YourKit documentation.
Installing the YourKit Plugin

Download the plugin and upload it into Confluence through the Administration, Plugins page.

A new menu option will appear under the 'Administration' heading. Click it and you should see the options to take a memory or CPU snapshot.

Why would I do this?

Analysing a profiler dump enables Atlassian Support (or you, if you are interested) to see exactly what is happening in your application: what classes are using the memory, what is using CPU and so on. This can help us debug tricky performance problems which would otherwise be impossible to analyse remotely.

Take a CPU snapshot if:

- Confluence is sometimes unresponsive
- Pages take a long time to load
- Confluence's CPU usage is peaking.

Take a memory snapshot if:

- Confluence's memory usage is higher than you expect
- You are getting OutOfMemoryError's in your logs.

If you run into situations where Confluence is unresponsive and you are not able to trigger a memory snapshot, please ensure that you start Confluence with the `onexit=memory` parameter in the JVM options (as in the example below) and simply shut down Confluence. Before shutting down a memory snapshot will be created.

```
-agentlib:yjpagent=onexit=memory
```

Plugin Source Code

The source code for this Confluence plugin is available from Subversion and browseable in Fisheye. The JAR produced by `mvn package` includes a copy of the YJP redistributable bundled in META-INF/lib/.
Confluence Resources

Resources for Evaluators
- Trying Confluence in a Demonstration Site or Demo Space
- Free Trial
- Feature Tour
- Evaluator resources, guides and tutorials

Resources for Administrators
- Confluence Knowledge Base
- Confluence FAQ
- Guide to Installing an Atlassian Integrated Suite
- The big list of Atlassian gadgets

Resources for Developers
- Confluence developer documentation
- API documentation
- Developer topics on Atlassian Answers

Downloadable Documentation
- Confluence documentation in PDF, HTML or XML formats
- Setting Up Local Online Confluence Documentation

Plugins
- Documentation for the Confluence SharePoint Connector
- Atlassian Plugin Exchange
- Library of Confluence Plugins and Extensions

Support
- Atlassian Support
- Support Policies

Training
- Atlassian Training

Answers
- Confluence at Atlassian Answers

Mailing Lists
- Visit http://my.atlassian.com to sign up for mailing lists relating to Atlassian products, such as technical alerts, product announcements and developer updates.

Feature Requests
- Issue Tracker and Feature Requests for JIRA

More
- Trying Confluence in a Demonstration Site or Demo Space
- Confluence Tutorial Videos
- Local Confluence Documentation
- Confluence SharePoint Connector

Trying Confluence in a Demonstration Site or Demo Space

Atlassian have set up a demonstration Confluence site called the Confluence Sandbox so that you can try out Confluence for yourself.

The Confluence Sandbox has been configured so that anyone can create or edit pages within it. When using it, you should keep the following in mind:

- This server may not be running exactly the same version of Confluence as is available for purchase. While we try to keep the two in sync, there may be differences between the Confluence Sandbox and the downloadable version of Confluence. The version that the Confluence Sandbox is running can be found at the bottom of each page.
- Because the Confluence Sandbox is open for anyone to edit, Atlassian cannot be responsible for the content on it. Do not rely on anything you read in the sandbox.
- The contents of the Confluence Sandbox may be edited or deleted at any time. Atlassian will restore the Confluence Sandbox from backup periodically (usually every night), deleting everything that visitors have been added to it.
The Confluence Sandbox contains a demonstration space with a tutorial and some sample content.

For a full demonstration of Confluence, including its administrative features, you should download and install an evaluation version of Confluence instead.

- Get an evaluation version from our download site.
- Once you have set up your evaluation installation, you will see a demonstration space (with a space key of 'DS') in your Confluence site. This is your own version of the demo space, including a tutorial and some sample content.
- If you have any questions, contact us and we will be happy to answer them.

Screenshot above: The demonstration space. (Click the image to expand it.)

**RELATED TOPICS**

Confluence Resources
Confluence User's Guide

**Confluence Tutorial Videos**

This page contains videos giving tutorials on some of the Confluence functionality. The videos are intended to supplement, not replace, the online Confluence documentation.

⚠️ Videos and Confluence version number

The Confluence tutorial videos are not always updated when a new version of Confluence is released. Please check the version of Confluence demonstrated in the tutorial video. While there are commonalities between different versions of Confluence, you may find that the example scenarios in the tutorials differ from your Confluence site.

On this page:

- Installing Confluence on Windows
- Welcome to Confluence
- Global Permissions
- Space Permissions
- Page Restrictions
- Creating Content
- Embedding Images and Documents
- Creating Links
- Building a kick-ass page in 10 mins
- Adding Blog Posts Filtered by Labels to your Welcome Message
- Confluence Overview
- Macro Browser

**Installing Confluence on Windows**

Watch the video.

**Welcome to Confluence**

Confluence version: 3.2
To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/pehi5oiz02l2}

**Global Permissions**

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/ppuei42u8b3t}

**Space Permissions**

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/ppuath81nevv}

**Page Restrictions**

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/ppub5jaufmzx}

**Creating Content**

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/ppeprhm8uq7f}

**Embedding Images and Documents**

Confluence version: 3.2
To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/powe0n0yl13py}

Creating Links

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/pp0rnv19qqzb}

Building a kick-ass page in 10 mins

Confluence version: 3.2

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/qxxefentgirm/episodes/qhflryzufphf}

Adding Blog Posts Filtered by Labels to your Welcome Message

Confluence version: 3.1

This video shows you how to display a list of blog posts on your dashboard and how to choose the blog posts by labelling them.

Video title: ‘Bring “Must Read” Content to the Dashboard’

Summary of the procedure shown in the video:

1. Create a page containing the {blog-posts} macro. Choose to display only the blog posts that are labelled with ‘dashboard-blog’. (This is just an example of a label. You can choose any label text you like.) See the guide to the Blog Posts macro.
2. Add the label to a blog post. (In the video, we just add the label to one blog post. You will probably want to add it to a number of posts.)
3. Edit your site welcome message to include the above page, using the include macro.

To embed this video in your own Confluence pages use the following wiki markup (Requires Confluence 2.10 +):

{widget:url=http://app.episodic.com/shows/13/episodes/ntyt4xk0msy8}

Confluence Overview

Confluence version: 3.0

By: Matt Hodges, on the Atlassian website
About:

- Confluence Overview
- Create and edit
- Tracking updates and blogs
- Security and permissions
- Attachments and the Office Connector
Local Confluence Documentation

This page tells you how to set up a copy of the Confluence documentation on your own local Confluence site.

On this page:

- Reasons for Setting up your own Local Documentation
- Setting up your Local Online Documentation
  - Additional Documentation Spaces Required
- Redirecting Confluence’s Help Links to your Local Documentation
  - Changing the Base URL for your Help Links
  - Changing the Links for Individual Help Pages
  - Example of the Help Property File
  - Example of a Help Link
  - More Notes about Help Links

Reasons for Setting up your own Local Documentation

You may wish to run the documentation locally. In addition, you may want to point Confluence’s links at your local documentation.

- If you are working in an environment without an internet connection, you will need a local copy of the documentation.
- If you have customised Confluence, you may wish to update the documentation to reflect your changes.
- You may want to change the look and feel of the documentation to integrate into your company’s intranet.
- Confluence’s interface contains links to help pages in the online documentation on confluence.atlassian.com. You may wish to point these help links to a different destination. Possible reasons include:
  - You want to point the help links to a destination behind your firewall.
  - You may want to link to a translated version of the documentation.

Setting up your Local Online Documentation

To set up your own Confluence site with a copy of our Confluence documentation:

1. Install Atlassian Confluence, if you have not already installed it. (If you do not already have Confluence, ask for a free evaluation license or a starter license. You can use 'Anonymous' access to allow your users to view the documentation.)
2. Download the XML source code for the Confluence documentation. Note that the Confluence version of the XML source needs to be the same major Confluence version as your local Confluence site. For example, if the Confluence version in the XML is 3.0, you can import it into a Confluence site running version 3.0, 3.0.1 or 3.0.2. But you cannot import it into Confluence 2.9 nor into Confluence 3.1.
3. Import the XML file into your Confluence site. This will create a new space with key 'DOC'. Note: If there is already a 'DOC' space in your Confluence site, it will be overwritten. For detailed instructions, see the Confluence documentation on Restoring a Space.
4. 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:
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) Follow the steps in the next section if you want to redirect Confluence's help links to point to your local documentation.

**Additional Documentation Spaces Required**

**Why You Need the Additional Documentation Spaces**

The Confluence documentation shares some content with other Atlassian products, such as JIRA. 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 Confluence 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 Confluence 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

**Redirecting Confluence's Help Links to your Local Documentation**

In some parts of the Confluence user interface, you will see hyperlinks that point to the documentation for detailed information. These hyperlinks are Confluence's help links. You can redirect Confluence's help links to point to your local documentation.

There are two types of configuration changes you can make to the help property file:

- Change the base URL that determines the destination website of all your help links.
• Change the page name for each individual help link.

**Changing the Base URL for your Help Links**

You can set the base URL via the Confluence Administration Console.

To change the base URL for your help links:

1. Go to the Confluence ‘Administration Console’:
   - Choose Browse > Confluence Admin. The ‘Administrator Access’ login screen will be displayed.
   - Enter your password and click Confirm. You will be temporarily logged into a secure session to access the ‘Administration Console’.
2. Click ‘General Configuration’ in the left-hand navigation bar.
3. Click ‘Edit’.
4. Change the ‘Documentation Uri Pattern’ to determine the destination website for all your help links. This value forms the first part of the destination URL. For example, if you want to point your help links the ‘DOC’ space in your local Confluence site, your URL prefix will look like this:

   help.prefix=http://confluence.mycompany.com/display/DOC/

   In addition, you can use the following special characters in the URL:
   - {0} – Optional. This value will be replaced with the version of Confluence running on your site.
   - {1} – Optional. This value will be replaced with the page name from the configuration file.

**Changing the Links for Individual Help Pages**

If necessary, you can also change the individual page names to point to specific pages in your local documentation. You may want to do this if you are using a translated version of the documentation, for example, or your own custom guide rather than a copy of the Atlassian documentation.

The help links are contained in a property file. In summary, you will need to do the following:

- Make a copy of the property file that Confluence uses to control the help links.
- Place the copy in a given directory where it will override the default property file.
- Update the copy with your own values.

To change the destination of your Confluence help links:

1. Copy the confluence-x.x.x.jar file from your {CONFLUENCE-INSTALLATION}\confluence\WEB-INF\lib directory and place it in a temporary location.
   
   Note: Do not remove the JAR, just make a copy of it.
2. Unzip the confluence-x.x.x.jar file into your temporary location and copy the help-paths.properties file.
3. Put the copy of the help-paths.properties file into your {CONFLUENCE-INSTALLATION}\confluence\WEB-INF\classes directory.
   
   Note: The property file will override the file in the JAR.
5. Change the individual page names to point to specific pages in your local documentation. In our example file below, the first key-value pair looks like this:

   help.restore.site=Restoring+a+site

   You could change it to something like this:

   help.restore.site=My+page+about+Restoring+Confluence


**Example of the Help Property File**

Below is an example of part of the Confluence help-paths.properties file.
The first line (help.prefix) shows the destination website of the help links. This value forms the first part of the destination URL.

- {0} – Optional. This value will be replaced with the version of Confluence running on your site.
- {1} – Optional. This value will be replaced with the page name from the configuration file.

Below the description ‘## Page Names’ there are a number of key-value pairs.

- The key (such as help.restore.site) is an identifier used by Confluence to find the help link for a specific screen or dialogue.
- The page name (such as Restoring+a+site) is the URL-encoded page name that forms the last part of the destination URL.

Example of a Help Link

Here is an example of a Confluence screen with two help links, one on the words ‘our online documentation’ and another on ‘More about daily backups’.

More Notes about Help Links

- The ability to configure the destination of the help links is available only in Confluence 3.3.x and later.
- Make sure that you keep all the key-value pairs for the page names in the help-paths.properties file. If you want to point them all to the same location, you should retain all the keys and replace all the page names with the same name. For example:

  ```properties
  help.prefix=http://myguide.mycompany.com
  ## Page Names
  help.restore.site=My+guide
  help.manually.backup.site=My+guide
  help.configure.server.URL=My+guide
  help.configure.time.date.format=My+guide
  help.edit.user.details=My+guide
  ```

- In the above instructions on configuring help links, we assume that you want to host your local documentation on your own Confluence site. Instead, you could choose to point the Confluence help links to an entirely different set of documentation, on a website or intranet. After reading through the instructions above, you will have an idea of how to adapt them for your own purposes.
- The help-paths.properties file is currently in the confluence-x.x.x.jar in the WEB-INF/lib directory.
Instead, it should be a standalone config file in the `WEB-INF/classes` directory. This will make it easy for people to change the values in the file and repoint their help links. It will also standardise the help design with that of JIRA and other Atlassian applications. This issue is tracked at CONF-20105.

Confluence SharePoint Connector

This version of the Confluence SharePoint Connector has now been released. See the SharePoint Connector 1.4.7 Release Notes.

With the Confluence SharePoint Connector, you can combine Confluence's free-form, easy to edit wiki with the document management and workflow strengths of SharePoint.

- Display SharePoint document libraries, calendars, links, discussions and more on your Confluence wiki pages. Edit SharePoint's Office documents directly from Confluence and save them back to SharePoint.
- Embed Confluence pages and Confluence page trees into a SharePoint page. Click through from SharePoint to Confluence.
- Enjoy automatic login (single sign-on) between Confluence and SharePoint.
- Search Confluence and SharePoint content together, retrieving a unified set of results.

Please refer to the SharePoint Connector documentation for more information.

Contributing to the Confluence Documentation

Would you like to share your Confluence hints, tips and techniques with us and with other Confluence 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
  - Our Style Guide
  - How we Manage Community Updates

Tweeting your Hints and Tips – Tips via Twitter

Do you have hints and tips about Confluence wiki 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 

#ConfluenceTips

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 Confluence 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 Confluence 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

Please submit the Atlassian Contributor License Agreement.

Our Style Guide
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, we will make the necessary changes.

- **Wiki permissions.** We use wiki permissions to determine who can edit the documentation spaces. 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](http://creativecommons.org/licenses/by/2.5/au/). 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 via Twitter  
Tips of the Trade  
Author Guidelines  
Atlassian Contributor License Agreement

Tips of the Trade

Below are some links to external blog posts, videos and articles containing technical tips and instructions on setting up and using Confluence. This page presents an opportunity for customers and community authors to share information and experiences.

The references here are specific to Confluence wiki and are technical 'how to' guides written by bloggers who use Confluence. For general information on wiki comparisons, wiki adoption, best practices and business cases, 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 Confluence. 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 Confluence. **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:

- DGC IV: Confluence Upgrades
- Tracking Atlassian Confluence usage with Google Analytics
- Moving Confluence from Windows to (Ubuntu) Linux
- Plugging Memory Leaks in Confluence
- Using a wiki for technical documentation
- Wiki docs --- release management
- Using a wiki for online help
- Content re-use on a wiki
- Starting out with your technical documentation on a wiki
- Universal Wiki Converter - Now with SSL Support
- Confluence wiki to Eclipse Help (and DocBook, PDF) the easy way – Scroll FTW
- Playing with DITA2Confluence part 1 and part 2
- Converting from FrameMaker to Confluence
- The Confluence Reporting HOWTO
- Drawing diagrams on a wiki page
- Organisation is Key
- Creating FAQs
- Styling Tabs in Confluence 2.10
- How to determine the context your macro is being rendered in
- Video: Confluence overview
- Video: Macro browser
Administration

DGC IV: Confluence Upgrades
- By: Igor Minar, on "Igor Minar's Blog"
- About: Upgrading Confluence, on relatively large public-facing Confluence sites
- Date: 25 July 2010
- Related documentation: Upgrading Confluence

Tracking Atlassian Confluence usage with Google Analytics
And Using the Google Analytics Javascript API to show pageviews from Atlassian Confluence
- By: David Simpson, on blog 'david simpson'
- About: Setting up Google Analytics for Confluence
- Date: 18 March 2009 and 11 September 2009
- Related documentation:
  - How Do I Get More Statistics From Confluence?
  - How to audit Confluence - enabling user access logging

Moving Confluence from Windows to (Ubuntu) Linux
- By: Ricky Sheaves, on blog 'flimflam' (calebscreek)
- About: Moving Confluence to its own dedicated environment: Ubuntu 8.04 with a MySQL backend
- Date: 19 October 2008
- Related documentation: Migrating Confluence Between Servers

Plugging Memory Leaks in Confluence
- By: Don Willis, on blog 'Atlassian developer blog'
- About: Identifying memory leaks in Confluence and fixing them
- Date: 1 October 1007
- Related documentation: Performance Tuning
Using a wiki for technical documentation
- By: Sarah Maddox, on blog 'ffeathers'
- About:
  - Overview — what a wiki is and does.
  - Workflow — draft, review, publish.
  - Tracking — page history, notification of updates, reverting to a previous version.
  - Permissions.
  - Adding structure to your documentation — table of contents, left-hand navigation bar, logical page ordering, content re-use.
  - Release management on a wiki.
  - Using spaces for version control.
  - How a wiki is useful in agile development.
- Date: 21 November 2009

Wiki docs --- release management
- By: Sarah Maddox, on blog 'ffeathers'
- Date: 17 November 2007
- About:
  - Using spaces for version control
  - Release management on a wiki
  - Archiving documentation on a wiki
- Related documentation: The Copy Space plugin

Using a wiki for online help
- By: Sarah Maddox, on the 'Atlassian Blog'
- Date: 13 December 2007
- About: Pointing online help links to version-controlled wiki documentation spaces

Content re-use on a wiki
- By: Sarah Maddox, on blog 'ffeathers'
- About: Content reuse and defining an inclusions library
- Related documentation:
  - Excerpt Macro
  - Excerpt Include Macro
  - Include Page Macro
- Date: 29 July 2008

Starting out with your technical documentation on a wiki
- By: Sarah Maddox, on blog 'ffeathers'
- About: Choosing your wiki and planning your documentation
- Date: 4 November 2007
## Content Conversion

### Universal Wiki Converter - Now with SSL Support
- **By:** Laura Kolker, on the ‘Atlassian Blog’
- **About:** Configuring the UWC for two new features:
  - A Trac Converter module
  - SSL support
- **Date:** 6 March 2009
- **Related documentation:** Importing Content from another Wiki

### Confluence wiki to Eclipse Help (and DocBook, PDF) the easy way – Scroll FTW
- **By:** Sarah Maddox, on blog ‘ffeathers’
- **About:** Using the Scroll Wiki Exporter plugin to convert Confluence content to Eclipse Help, DocBook XML and PDF
- **Date and Confluence version:** 8 May 2010; Confluence 3.2.1
- **Related documentation:** The Scroll Wiki Exporter plugin

### Playing with DITA2Confluence part 1 and part 2
- **By:** Sarah Maddox, on blog ‘ffeathers’
- **About:** Using the DITA2Confluence tool to convert documentation from DITA XML to Confluence pages
- **Date and Confluence version:** October 2008; Confluence 2.9
- **Related documentation:** The DITA2wiki project on SourceForge

### Converting from FrameMaker to Confluence
- **By:** David Stephensen, in the Confluence User Community wiki space
- **About:** Converting content from native FrameMaker format to Confluence wiki using Mif2Go, FrameScript and Far.
- **Date and Confluence version:** 3 June 2010; Confluence 3.1

## Usage Tips

### The Confluence Reporting HOWTO
- **By:** Jim Severino and John Rotenstein, Atlassian Internal Systems, on the ‘Atlassian Blog’
- **About:**
  - Using Confluence as a reporting and business intelligence tool
- **Date and Confluence version:** August 2009; Confluence 3.0
- **Related documentation:** The Confluence Reporting HOWTO

### Drawing diagrams on a wiki page
- **By:** Sarah Maddox, on blog ‘ffeathers’
- **About:**
  - Using the Gliffy plugin to draw diagrams on a Confluence page
  - Links to other tools for displaying flowcharts, graphs etc based on editable content in the wiki page
- **Date and Confluence version:** 4 July 2009; Confluence 3.0
- **Related documentation:** The Gliffy plugin

### Organisation is Key
- **By:** Matt Hodges, on the ‘Atlassian Blog’
- **About:** Designing the structure of a Confluence space using an inclusions library, macros and tabbed pages
- **Date and Confluence version:** 17 March 2009; Confluence 2.10

### Creating FAQs
- **By:** Matt Hodges, on the ‘Atlassian Blog’
- **About:** Designing the FAQ (frequently asked questions) section of your Confluence space
- **Date and Confluence version:** 2 April 2009; Confluence 2.10

## Styling and Customisation

### Styling Tabs in Confluence 2.10
- **By:** Jens Schumacher, on the ‘Atlassian Blog’
- **About:** Using CSS to change the look of the tabs in Confluence
- **Date and Confluence version:** 12 January 2009; Confluence 2.10
- **Related documentation:** Styling Confluence with CSS
How to determine the context your macro is being rendered in

- By: Cheryl Jerozal, on the 'Atlassian Blog'
- About: Discovering find out the current render context (including PDF document, feed reader, email notification, etc) from within your macro
- Date and Confluence version: 25 June 2009; Confluence 3.0
- Related documentation: Macro Module

To speed up the loading of the page and ensure correct export to PDF, HTML and XML formats, we will just link to the videos rather than including them into the wiki page.

Video: Confluence overview
- By: Matt Hodges, on the Atlassian website
- About: Confluence Overview, Create and edit, Tracking updates and blogs, Security and permissions, Attachments and the Office Connector, Search and discover, Plugins
- Date and Confluence version: July 2009; Confluence 3.0
- Related documentation: Confluence documentation

Video: Macro browser
- By: David Cook, on the 'Atlassian Blog'
- About: Using the new Confluence macro browser in Confluence 3.0
- Date and Confluence version: 18 June 2009; Confluence 3.0
- Related documentation: Working with the Macro Browser

Have you written a technical tip for Confluence?
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
Confluence Documentation
Evaluator Resources
Atlassian Website
Atlassian Answers
Atlassian Blog
Confluence Plugins

Tips via Twitter
This page displays a continuously-updated list of tweets from Atlassians and others, giving hints and tips about Confluence wiki. Anyone can write a tip and have it show on this page. The live Twitter stream shows recent tweets containing the word 'ConfluenceTips'or the tag '#ConfluenceTips'. We also include tweets from or to '@ConfluenceTips'.

Want to join in? Just tweet with the word '#ConfluenceTips' somewhere in the text. Then grab a badge for your blog. 😊
- Viewing the Tweets in Twitter
- Adding a Confluence 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 Confluence Tweets Badge to your Blog
Would you like to let other people know that you tweet your Confluence 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:

```html
```

This is what you will get:

![I tweet my Confluence tips.
Do you?](http://confluence.atlassian.com/download/attachments/222200745/Twitter-Tips-Confluence.png)

- **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:

```html
```

This is what you will get:
Adding your own Tip

Quick guide to tweeting a tip

Just tweet with the word 'ConfluenceTips' 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 Confluence 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 ConfluenceTips 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
Confluence Documentation
Evaluator Resources
Atlassian Website
Atlassian Answers
Atlassian Blog
Confluence Plugins

Confluence Documentation in Other Languages

Below are some links to Confluence 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 Confluence. 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 Confluence. The information in the linked guides has not been tested or reviewed by Atlassian.

On this page:

- Tutoriel – Travailler avec des images dans Confluence
Confluence 4.0 Documentation

- Deutsches Handbuch für Confluence
- Confluence

**French**

Tutoriel – Travailler avec des images dans Confluence
- By: Yann Debonnel on the TechSolCom blog
- Topic: Overview of using images in Confluence, a translation of a guide developed during our doc sprint
- Confluence version: Based on Confluence 3.4
- Date added: 9 December 2010
- Latest related English documentation: Inserting Images in the Rich Text Editor

**German**

Deutsches Handbuch für Confluence
- By: //SEIBERT/MEDIA
- Topic: //SEIBERT/MEDIA has created a German Handbook for Confluence 3.3 and later versions. It is publicly available for free and includes step-by-step inscriptions with screenshots and videos.
- Confluence version: Confluence 3.3 and later
- Date added: 13 December 2010

**Japanese**

Confluence
- By: Go2Group and Atlassian, on the Atlassian Japan wiki
- Topic: Confluence user's guide, administrator's guide and developer's guide
- Confluence version: Confluence 3.0
- Date added: 14 December 2010
- Latest related English documentation: Confluence 4.0

Adding Your Own Guide to this Page

Have you written a guide for Confluence 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

Confluence documentation
Atlassian website
Atlassian blog
Confluence plugins