System Requirements
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System Requirements

This guide specifies the required and supported system elements for the application.

Jive includes most of what you need to get the application running and configured, including a built-in application server and JDK. Although the installation package includes a Postgres database that could be used for a demo or another extremely lightweight install, you'll definitely need your own database for a production install.

Supported Operating Systems and Databases

Installing and running Jive requires a Linux or Solaris server operating system and a dedicated database.

<table>
<thead>
<tr>
<th>OS - Including the latest 3 service packs and a bash shell</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>RedHat Enterprise Linux (RHEL) version 4 or 5 for x86 and x86_64</td>
<td>Oracle 10 and 11</td>
</tr>
<tr>
<td>CentOS version 5 or 6 for x86 and x86_64</td>
<td>Postgres 8.3 and higher and Postgres 9</td>
</tr>
<tr>
<td>SuSE Enterprise Linux Server (SLES) 10 for x86 and x86_64</td>
<td>MySQL 5 and 5.5</td>
</tr>
<tr>
<td>SunOS for SPARC and x86_64 with Solaris 10 versions 5/09 (&quot;U7&quot;), 10/09 (&quot;U8&quot;), 9/10 (&quot;U9&quot;)</td>
<td>MS SQL Server 2005</td>
</tr>
</tbody>
</table>

Important Notes and Restrictions

- DO NOT deploy Jive and all of its services (application database, analytics database, cache server, and if you have it, document conversion) from one server. This is not supported. Your web app nodes, cache server, and document conversion must all be stored on separate servers. You can store the analytics database and application database on one server.
- A bash shell is required on Linux when installing, upgrading, and interacting with the application.
- Systems using a "hugemem" or "bigmem" kernel can exhibit a severe decrease in performance. For this reason, these systems are not supported for Jive. To achieve the desired effect -- addressing more RAM from the kernel -- consider using a 64-bit kernel instead.
- The analytics database is supported only on the PostgreSQL and Oracle DBMSes.
- The application includes a PostgreSQL DBMS. This pre-packaged DBMS is for evaluation purposes and should not be used for production instances.
- At this time Jive supports virtualization running on RHEL or SLES as guest operating systems in a VMware environment. For information on the recommended configuration, see Deploying to a Virtual Environment.
- For performance reasons, if you're using the document conversion feature, you must put the conversion software on a machine that is separate from the application server. For more information, see Setting Up a Document Conversion Machine.

Features with Additional Software Requirements

Certain features, such as document conversion, require additional software.
<table>
<thead>
<tr>
<th>Dependency</th>
<th>Features Requiring</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>libX11.so and libXext.so</td>
<td>Document Conversion</td>
<td>The document conversion technology that creates previews of PDF files and Office documents uses OpenOffice and PDF2SWF to generate previews. Many of the dependencies required by these binaries are packaged with the application. However, these two could not be included. As of version 4.0.7, application package installers will require the presence of these libraries.</td>
</tr>
<tr>
<td>en_US.UTF-8 locale</td>
<td>Document Conversion</td>
<td>The newest build of PostgreSQL included in our Linux and Solaris installs now requires the en_US.UTF-8 locale to be installed. While supported Linux distributions include this locale by default, Solaris 10 does not (the default locale is C). As of version 4.0.7, the application's Solaris package installer checks for the presence of this locale before installation begins. <strong>(IMPORTANT:</strong> The included PostgreSQL DBMS is for evaluation purposes only and should not be used in production.)</td>
</tr>
</tbody>
</table>
Hardware Requirements

Your application server and cache server machines have different suggested hardware configurations.

Jive is compatible with a number of hardware configurations as well as network topologies. The following tables provide suggested deployment configurations.

Network Technology and Topology

- Required: One box for each application, database, and cache server.
- Recommended: At least two app nodes with a cache server for redundancy and load balancing. If you have Document Conversion enabled, you need to store that on a separate server.
- Gigabit Ethernet hardware gear (NICs, switches).
- One local network for any multi-box deployments.

Application and Database Machines

<table>
<thead>
<tr>
<th>Component</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| CPUs               | • Multicore - 2 chips with multicore optimal  
                        • 2 Ghz Minimum                          
                        • x86 architecture                        |
| Memory             | • 3-4 GB physical RAM                       
                        • 2 GB memory heap (configured by default) |
| Storage            | • Use a RAID configuration for best performance and reliability.  
                        • For the database server machine, be sure you have enough available disk space to allow for your community's growth. For example, a new community might start out with 10 GB of free space, which you should monitor and increase as the community grows. |

Cache Server Machine

<table>
<thead>
<tr>
<th>Component</th>
<th>Recommendations</th>
</tr>
</thead>
</table>
| CPUs               | • Multicore - 2 chips with multicore optimal  
                        • 2 Ghz Minimum                          
                        • x86 architecture                        |
| Memory             | • 2 GB physical RAM; 4 recommended          
                        • 1 GB memory heap (configured by default). 2+ GB recommended for sites with large amounts of content. |
| Topology           | • Cache server on a single machine separate from clustered application servers.  
                        If you're setting up more than one cache server machine, you should use three or more. Using only two cache servers can be less efficient than using one. |

Binary Storage Considerations

If your community will include a large amount of binary data, you should consider configuring a binary storage provider that is outside the application database (the default).

For example, consider the load you need to account for if you have document conversion enabled. The stored footprint for each version of each converted document is about 130 percent of the size of the uploaded document. So, for example, a 5MB document uploaded by the user will mean about 6.5MB
of storage needed for each version of the document in your binary storage provider. That's because for each document for which the application generates a preview -- for each version of that document -- the application generates a preview, thumbnail images, and PDFs.

**Additional System Recommendations**

When you run a server-side application, you should also have a daily backup solution. At a minimum you should back up your database on a regular basis as well as the configuration files for Jive (note that those are stored in one directory).

**Database Prerequisites**

Make sure your database is ready before you install or upgrade.

You'll find that both installation and upgrade go more smoothly if most database-related tasks are performed before you begin. This is especially true if the database the application will be using is administered separately by a DBA. This section describes the database tasks that are required for a successful installation.

**Note:** If you're upgrading to a version whose database schema is different from the previous version, the application will automatically detect the difference after you've upgraded. When you next start the application and navigate to the admin console, you'll be prompted to start the database upgrade. This is a necessary step before you can start using the application after upgrade. You don't need to run any database-related upgrade scripts.

1. Make a backup of your existing database.
2. Ensure that the target database allows access through which the application's setup tool can create tables. After you install the application, you'll finish installation (or upgrade) by using the application's admin tools to connect to the target database. The tool will create or upgrade the tables needed by this version of the application. You'll want to be sure that permission to create tables is granted at least until that process is completed.

For example, if you'll be using an Oracle database for a new installation, you'll be creating a user representing a schema. That schema will be empty until the application setup tool creates tables in it. Here's an example script for creating such a user:

```sql
create user jiveuser identified by changeme default tablespace jivedata;
grant create session, create table, create view, create sequence, create procedure, create synonym to jiveuser;
alter user jiveuser quota unlimited on jivedata;
```

The username can be any legal Oracle identifier -- "jiveuser" is just an example. The application does not require a dedicated tablespace, but many DBAs have that practice. The tablespace must be created separately. For more on the `create user` statement, see the Oracle documentation.

When creating the database user, the user must **not** be granted view access to any schema other than the one it owns. During upgrades, the application will read metadata about its tables defined in the database. Since the application does not know what the default schema is, it may inadvertently retrieve information about its tables defined in other schemas. If you have set up application instances using other schemas in the same database, this can result in erroneous information being passed to the application.

If you absolutely must use a database user with access to other schemas, ensure that there is only one set of application tables defined across all schemas to prevent this object name conflict.

3. Create or migrate your application database. How you do this will vary depending on whether you're installing a new instance or upgrading.
   - If you're installing a new instance:
     - If you're using the included PostgreSQL DBMS, installation handles database setup for you. You don't need to create a database.
     > **Important:** The pre-packaged PostgreSQL DBMS is for evaluation purposes and should not be used for production instances.
- If you're using an external DBMS, create the empty target database before you begin installing the application. Ensure that the new database allows the application setup tool to create tables. After you install, and during setup, the application will connect to your existing database and create the necessary tables.

- If you're upgrading an existing instance:
  - If you're upgrading from an instance that uses a DBMS supported for this version:
    - If you're upgrading "in place" to continue to use the existing database, then the application handles the change after installation when you use the upgrade console. After you install, and during setup, the application will connect to your existing database and upgrade it.
  - If you're changing DBMSes as part of your upgrade, you must migrate your data to the new DBMS before upgrading. Ensure that the new database allows the application setup tool to create tables. After you install, and during setup, the application will connect to your existing database and upgrade it.

4. Confirm that the drivers required for the DBMS you'll be using are installed. Due to licensing restrictions, Jive is unable to ship and install all of the drivers for supported DBMSes. Use the following table to determine whether the driver you need is included, and install the driver if it's not.

To install the driver, add its JAR file path to the CLASSPATH and LD_LIBRARY_PATH variables used in the application's environment. Do this by modifying /usr/local/jive/applications/<appname>/bin/instance. Your path may vary depending on which database you're using. Here is an example:

```
export LD_LIBRARY_PATH=/usr/lib/database_vendor/version/client#/lib:$LD_LIBRARY_PATH
```

```
export CLASSPATH=/usr/lib/database_vendor/version/client#/lib/thejarfile.jar:$CLASSPATH
```

<table>
<thead>
<tr>
<th>DBMS</th>
<th>Driver Included</th>
<th>Action Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle</td>
<td>Required driver not included. For the web application database(s), use OCI driver version 11.1. <strong>Note:</strong> If you are upgrading from the Oracle thin driver, which was supported for evaluation in previous releases, you need to upgrade the OCI driver before installing version 4.5.6 or higher. See Upgrading from the Oracle Thin Driver for more information.</td>
<td>For more information on installing the OCI driver, see the Oracle Instant Client page. Please consult the Oracle documentation to choose the version of the JDBC driver best for you.</td>
</tr>
<tr>
<td>PostgreSQL</td>
<td>Required driver included.</td>
<td>None.</td>
</tr>
<tr>
<td>MySQL</td>
<td>Required driver not included.</td>
<td>You'll need to install the correct driver.</td>
</tr>
<tr>
<td>SQL Server</td>
<td>Required driver not included.</td>
<td>Use the JTDS database driver, available at <a href="http://jtds.sourceforge.net">http://jtds.sourceforge.net</a></td>
</tr>
</tbody>
</table>

**DBMS Issues and Best Practices**

**MySQL Character Encoding Issues**
MySQL does not have proper Unicode support, which makes supporting postings in non-Western languages difficult. However, the MySQL JDBC driver has a workaround which you can enable by adding `<mysql><useUnicode>true</useUnicode></mysql>` to the `<database>` section of your jive_startup.xml file. When using this setting, you must also set the Jive character encoding to **UTF-8** in the admin console under **System** --> **Settings** --> **Locale**.

MySQL 4.1 introduced better support for character encodings than previous versions. This functionality assigns a default character encoding to the database and its tables and columns. It's best to set the default character encoding for your database before installing the Jive schema so that you can be sure that you will not have encoding problems in the future. After creating your database, execute the following line in the MySQL console:

```
ALTER DATABASE <database name> DEFAULT CHARACTER SET <character set>;
```

For example, if you plan on using UTF-8, you should enable the JDBC driver workaround mentioned above and then execute this line in the MySQL console:

```
ALTER DATABASE <database name> DEFAULT CHARACTER SET utf8;
```

### MySQL Max Attachment Size Issues

You can fix the max attachment size problem on a MySQL server by following the directions here: [http://dev.mysql.com/doc/refman/5.0/en/packet-too-large.html](http://dev.mysql.com/doc/refman/5.0/en/packet-too-large.html)

The easiest way to change the MySQL server setting on Windows is to add a line to your my.ini file (you'll find this file in a location such as C:\database\mysql\5.0.19); on Linux, look for the my.cnf file instead. Add the following line after the `[mysqld]` section heading:

```
max_allowed_packet = 500M
```

After you add the line, restart MySQL.

### MySQL Adjust the InnoDB Buffer Pool Size

When you have the database running on a dedicated server, you should increase the InnoDB buffer pool size from the default (8 MB) to up to 80 percent of the computer's available memory. If the computer has 2 GB of RAM or less, you should think about setting the buffer to something less than 80 percent to ensure that the operating system has enough memory to avoid swapping.

See the [MySQL documentation](http://dev.mysql.com/doc/refman/5.0/en/) for more on configuration.

### MySQL Case Sensitivity Issues

To avoid upgrade problems, use lower-case table names in MySQL and set the `lower_case_table_names` system variable to 1 in the MySQL configuration.

### Set up UTF-8 Collation if Supported

If supported, you must use UTF-8 as the database and application encoding, and it must be configured for the Jive Core and the Analytics databases. See your database administrator for more information.

### SQL Server Case Sensitivity Issues

SQL Server is case insensitive by default, creating special case sensitivity issues for Jive, which requires a DBMS that matches strings with case sensitivity. The SQL Server issues differ between versions 2005 and 2008.
**SQL Server 2005:** Set collation to SQL_Latin1_General_CP1_CI_AI, which specifies that table names and indexes are case **insensitive.** Note that this creates a limitation in which the application does not support multiple usernames in which the only difference is case, such as “Gladys” and “gladys”. Therefore, your username values must differ in other ways.

**SQL Server 2008:** Set collation to Latin1_General_CP1_CI_AS, which specifies case-insensitivity, not distinguishing between upper and lower case. If database collation is not specified, server collation will be used.

**SQL Server 2008 R2:** Set collation to Latin1_General_CP1_CI_AS, which specifies case-insensitivity, not distinguishing between upper and lower case. If database collation is not specified, server collation will be used.

You’ll find more information on adjusting SQL Server settings in the SQL Server documentation:

*Setting and Changing the Server Collation*

*Setting and Changing the Database Collation*

**Configuration Requirements**

Internal and external deployments require different hardware configurations because internal sites generate more database activity compared to the number of page views.

**Internal Deployments**

For internal deployments, expect a higher ratio of actions that write to the database. This includes creating new content, adding comments and replies, updating content, and so on. Here, writes are estimated as 15 percent of the number of page views.

<table>
<thead>
<tr>
<th>Page Views per Month</th>
<th>Database Writes per Month</th>
<th>CPUs (at least 2 GHz)</th>
<th>RAM</th>
<th>Location of App Server and Database</th>
<th>Clustered?</th>
</tr>
</thead>
<tbody>
<tr>
<td>500,000</td>
<td>75,000</td>
<td>1 dual core CPU</td>
<td>3 GB, 2 GB Java heap</td>
<td>Separate boxes</td>
<td>No</td>
</tr>
<tr>
<td>1,000,000</td>
<td>150,000</td>
<td>1 dual core CPU</td>
<td>3 GB, 2 GB Java heap</td>
<td>Separate boxes</td>
<td>No</td>
</tr>
<tr>
<td>5,000,000</td>
<td>750,000</td>
<td>1 dual core CPU</td>
<td>4 GB, 2 GB Java heap</td>
<td>Separate boxes</td>
<td>Yes</td>
</tr>
<tr>
<td>10,000,000</td>
<td>1,500,000</td>
<td>1 dual core CPUs</td>
<td>4 GB, 2 GB Java heap</td>
<td>Separate boxes</td>
<td>Yes</td>
</tr>
<tr>
<td>25,000,000</td>
<td>3,750,000</td>
<td>2 dual core CPUs</td>
<td>4 GB, 2 GB Java heap</td>
<td>Separate boxes. Database box is a quad core.</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**External Deployments**

In general, an external deployment is going to have a very high ratio of page views relative to database writes. That's because external deployments tend to support communities with a large number of people who rarely contribute but often check back to read what others are posting.
### Supported Browsers

Jive works with most current web browsers. Note that if you need to use Content Editor features such as cut and paste, script access to the Clipboard should not be disabled.

Minimum screen resolution: 1024 x 768

- Microsoft Internet Explorer 6, 7, 8, and 9
- Apple Safari 4 and 5
- Mozilla Firefox*
- Google Chrome*
- Mobile Safari (for iPad with Jive v4.5.4 and higher)

* The Google Chrome and Mozilla Firefox browsers are released frequently. Jive Software makes every effort to test and support the latest version.

Beta versions of web browsers are not supported, but they are quickly added to the supported list after they're formally released. 64-bit browsers are not currently supported.

**Note:** Using Jive on Mobile Safari with iPad has the following limitations:

- No content editing.
- No rich text formatting.
- No video upload or viewing.
- Hover functionality is not available.