OpenKM

Installation guide

Contents

Articles

OpenKM 5.x and older

References

Installation Guide

OpenKM allows for centralizing all the company's information in a single access point, guarantying the security of the data. In this way, only authorized users can have access to specific data. At the same time, it provides a complete audit service. OpenKM is a Web 2.0 application that works with Internet Explorer, Firefox, Safari and Opera. In addition, periodic backups avoid information losses.

This new version entails the following improvements: workflow (jBPM), a dashboard with information on the repository activities, push services (queries programmed by the user), support for WebDAV, download documents converted to PDF, information on the repository space used by the user, preview of videos and images, web administration, new languages, and the insertion of any document format (configurable), as well as the possibility of a default language.

However, one of the most relevant functions to mention is the indexing of the most common types of files: text, Office, Office 2007, OpenOffice, PDF, HTML, XML, MP3, JPEG, etc. Its powerful search engine indexes all documents making it easy to find any information.

- Software and hardware requirements
- OpenKM installation
  - Java installation
  - Download OpenKM
  - OpenKM configuration
    - Tomcat mail configuration
    - jBPM configuration
    - Application configuration
  - Configure Tomcat service 🔒
    - Tomcat native libraries 🔒
    - Several Tomcats in the same server 🔒
  - Changing OpenKM timeout session
  - Test OpenKM installation
  - Change default okmAdmin password
  - Administring users
  - Create password validator 🔒
- Previsualization
- Notification and subscription messages
- OpenKM authentication
  - Active Directory 🔒
    - OpenKM 6.2 🔒
    - OpenKM 5.1 🔒
    - OpenKM 5.0 🔒
    - OpenKM 4.1
  - Open Directory 🔒
  - LDAP and Active Directory user examples
- Repository configuration
- Indexing configuration 🔒
- Third-party software integration
  - Apache
    - Apache SSL and more 🔒

- OCR
  - Tesseract
  - Cuneiform
- OpenOffice.org
- SWFTools
- Antivirus
- Acme CAD Converter
- Repository backup
  - Backup scripts 🔒
  - Backup restoring 🔒
  - Disaster recovering 🔒
- Repository mirroring 🔒
- WebDAV access
- Property Groups
- Property Groups definition
- Creating templates
  - PDF 🔒
  - OpenOffice 🔒
  - Text 🔒
- Troubleshooting
- Error codes
- Using OpenKM with other databases
  - MySQL
    - OpenKM 6.2
    - OpenKM 5.0
    - OpenKM 4.1
  - PostgreSQL 🔒
    - OpenKM 6.2 🔒
    - OpenKM 5.0 🔒
    - OpenKM 4.1 🔒
  - Other DBMS
- Thesaurus
  - Thesaurus full example
- Automatic key extraction
  - Automatic key extraction full example
  - Creating automatic key extraction training files
- Experimental features
- Community extensions

OpenKM 5.x and older

- Basic_application_knowledge_with_jboss
- JBoss mail configuration
- Configure JBoss service
  - Several JBoss in the same server
  - Several JBoss instances in the same server
  - Securing JBoss
  - Adding APR to JBoss
  - Debugging_OpenKM_with_Jboss
- Test OpenKM installation with jboss
- OpenKM jboss Authentication
- Central Authentication Service

Software and hardware requirements

OpenKM can be installed in any operating system (Linux, Windows, Mac OS X, ...) since it is a multi-platform system. In order to install OpenKM you will need to install Java Development Kit 1.6. The Java Development Kit (JDK) 1.6 is available at Oracle Java Downloads page [1]. If you install the JRE, OpenKM will not run properly.

OpenKM runs quite well in any computer with a common hardware configuration. It is recommended 2 GB RAM and a fast hard disk like SATA or better. A dual-core Intel based CPU with 3.20 GHz should be fine for a reduced community of users (30-50 concurrent users). Be sure to have enough disk space for document repository and its versions.

A Linux host is a good choice because this OS handle quite well heavy I/O applications like this, and it is very cheap :)

For more information take a look in our harware requirements [2] OpenKM website section.

References

[1] http://java.sun.com/javase/downloads/index.jsp

[2] http://www.openkm.com/en/overview/hardware-requirements.html

OpenKM installation

This task is divided in the flowing steps:

- Java installation
- Download OpenKM
- OpenKM configuration
- Configure JBoss service
- Test OpenKM installation
- Change default okmAdmin password
- Administring users

Java installation

You should check if there is a previous java version installed in your system. You can check it running this command:

```
$ java -version
```

It will tell you the installed version, if any. Keep in mind that OpenKM needs JDK 1.6 (or higher) to run. If you use a Debian based Linux distribution, you can install the Java JDK this way:

```
$ sudo aptitude install sun-java6-jdk
```

In case you have another JDK installed (like GCJ), you can select the right one this way:

```
$ sudo update-alternatives --config java
$ sudo update-alternatives --config javac
```

If you use a Windows based OS, download and install Java JDK from http:/ / http:/ / www. oracle. com/ technetwork/ java/ javase/ downloads/ index. html. In other cases visit http:/ / http:/ / www. oracle. com/ technetwork/java/index.html for more information.

Download OpenKM

The files and further information about OpenKM can be found at http://www.openkm.com. The application files are hosted on SourceForge and OpenKM downloads are located at http:/ / www. openkm. com/ en/ download-english.html.

Always download the latest release of OpenKM. Beta and release candidate (RC) are only recommended for testing and are not considered stable enough for production.

> There is no migration support for beta or release candidates of the application. The migration procedure is only designed to work with stable product versions.

OpenKM configuration

Before running OpenKM for the first time, you have to configure it properly. There are some modules that require your attention:

- Tomcat mail configuration
- jBPM configuration
- Application configuration

Tomcat mail configuration

OpenKM is a J2EE application deployed in a Tomcat. Some parameters have a default configuration that fit common user requirements but others depend on specific user configuration.

> INFORMATION NOT COMPLETE, UNDER CONSTRUCTION

OpenKM sometimes sends emails to users (because they have subscribed a document or folder, for example) and you have to check that this email configuration is correct. If you edit the file *$TOMCAT_HOME/conf/server.xml*:

```
$ vim $$TOMCAT_HOME/conf/server.xml
```

You will see something like this:

```
<Resource name="mail/OpenKM" type="javax.mail.Session"
    mail.transport.protocol="smtp"
    mail.smtp.auth="true"
    mail.smtp.host="your smtp server"
    mail.smtp.user="<username>"
    password="<password>"
    mail.port="25"
    mail.debug="true"
/>
```

> Optional can be used **mail.user="<username>"** and **mail.password="<password>"** parameters

Gmail example

```xml
<Resource name="mail/OpenKM" auth="Container" type="javax.mail.Session"
    mail.transport.protocol="smtp"
    mail.smtp.auth="true"
    mail.smtp.host="smtp.gmail.com"
    mail.smtp.port="465"
    mail.smtp.user="<username>"
    password="<password>"
    mail.smtp.from="<sender email>"
    mail.smtp.quitwait="false"
    mail.smtp.starttls.enable="true"
    mail.smtp.socketFactory.class="javax.net.ssl.SSLSocketFactory"
    mail.debug="true"
/>
```

> Use parameter **mail.smtp.quitwait="false"** if you got some stuck problems during tomcat startup

JBPM configuration

jBPM configuration file is located at $TOMCAT_HOME/jbpm.cfg.xml. If you edit this file, you will see something like this:

```xml
<jbpm-configuration>

  <string name="jbpm.mail.smtp.host" value="smtp.your-domain.com " />

  <string name="jbpm.mail.from.address" value="noreply@your-domain.com" />

  <string name="resource.mail.templates" value="jbpm.mail.templates.xml"/>

  <bean name="jbpm.mail.address.resolver" class="com.openkm.workflow.AddressResolver" singleton="true"/>

</jbpm-configuration>
```

> Starting with OpenKM 5.1.8 you can also configure jBPM creating a file $JBOSS_HOME/jbpm.xml.

> In older OpenKM installation with jboss the path is
> $JBOSS_HOME/server/default/deploy/OpenKM.war/WEB-INF/classes/jbpm.cfg.xml

As in JBoss mail configuration, you have to edit a couple of properties:

- **jbpm.mail.smtp.host**: this is the host where is located your mail server. Can be localhost if you have a local mail server installed (like Postfix) Typically the same value of mail.smtp.host.
- **jbpm.mail.from.address**: all the mails send by OpenKM will be from this email address. Can be in the form of noreply@your-domain.com. Typically the same value of mail.from.

jBPM will notify you when a task has been assigned to you or when it wants to send you a reminder. These mail templates are defined in the file jbpm.mail.templates.xml which is located in the same place as the previous one. Here you can define a more elegant mail message. Also you have to configure a parameter here:

- **BaseTaskListURL**: a value in the form of http://your-domain.com:8080/OpenKM.

For more info, read jBPM User Guide: Email Support [1].

References

[1] http://docs.jboss.com/jbpm/v3.2/userguide/html/ch15.html

Application configuration

OpenKM configuration file

OpenKM.cfg file is the main OpenKM configuration file. You can find this file in your server in *$JBOSS_HOME/OpenKM.cfg*.

A full listing of available configuration options can be found when logged into OpenKM as administrator role. You only will see the **Administration** tab if the logged user has the AdminRole or ROLE_ADMIN role, depending on the OpenKM version installed.

> Each time you make some change in the OpenKM.cfg file JBoss server must be restarted to take effect.

> Starting with OpenKM 5.1 these configuration properties are located in the database to ease their management. To change the configuration properties, go to **Administration > Configuration**.

Changing uploading max file size

The default limit is 64MB. If you want to increase to 100MB:

```
max.file.size=100.
```

Since OpenKM relies on InputStream.available() method which returns an Integer, and according to Java Primitive Data Types [1], you should not upload files bigger than 2GB.

Since OpenKM 5.1.10 you can disable file size checking by setting **max.file.size** to 0.

Since OpenKM 6.0 by default this option is set to 0, so file size check is disabled by default.

Changing repository.xml configuration filename and path

```
repository.config=repository.xml
```

Changing default repository home

OpenKM 6.2

By default, the OpenKM document repository is located at $TOMCAT_HOME/repository. To change the repository folder to another location, use the configuration property:

```
repository.home
```

If you want to fine tunning the contents of the document repository you can also use these configuration properties:

```
hibernate.search.index.home
repository.datastore.home
repository.cache.home
```

OpenKM 6.1 and before

By default repository is stored in *$JBOSS_HOME/repository* folder but you can change it with:

```
repository.home=repotest
```

Changing default connection role

By default, the role required to connect to OpenKM is called UserRole. You can change this to another role name. This change also needs some changes in the web.xml file located in *$JBOSS_HOME/server/default/deploy/OpenKM.war/WEB-INF*

```
default.user.role=OtherRole
```

```xml
<security-constraint>
    <web-resource-collection>
      <web-resource-name>OpenKM Protected Area</web-resource-name>
      <!-- GWT -->
      <url-pattern>/es.git.openkm.frontend.Main/*</url-pattern>
      <url-pattern>/es.git.openkm.backend.Main/*</url-pattern>
      <!-- JSPs -->
      <url-pattern>/admin/*</url-pattern>
      <url-pattern>/mobi/*</url-pattern>
      <!-- Servlets -->
      <url-pattern>/RepositoryStartupServlet</url-pattern>
      <url-pattern>/Test</url-pattern>
      <url-pattern>/OKM*</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>AdminRole</role-name>
      <role-name>OtherRole</role-name>
    </auth-constraint>
    <user-data-constraint>
      <transport-guarantee>NONE</transport-guarantee>
    </user-data-constraint>
  </security-constraint>
  <login-config>
    <auth-method>FORM</auth-method>
    <realm-name>OpenKM</realm-name>
    <form-login-config>
      <form-login-page>/login.jsp</form-login-page>
      <form-error-page>/login.jsp?error=1</form-error-page>
    </form-login-config>
  </login-config>
  <security-role>
    <description>Admin user access</description>
    <role-name>AdminRole</role-name>
  </security-role>
  <security-role>
    <description>General user access</description>
```

```
    <role-name>OtherRole</role-name>
  </security-role>
```

Changing default admin role

By default, connection role to OpenKM is called AdminRole. You can change this to another role name. This change also needs some changes in the web.xml file located in *$JBOSS_HOME/server/default/deploy/OpenKM.war/WEB-INF*

```
default.admin.role=OtherAdminRole
```

```xml
<security-constraint>
    <web-resource-collection>
      <web-resource-name>OpenKM Protected Area</web-resource-name>
      <!-- GWT -->
      <url-pattern>/es.git.openkm.frontend.Main/*</url-pattern>
      <url-pattern>/es.git.openkm.backend.Main/*</url-pattern>
      <!-- JSPs -->
      <url-pattern>/admin/*</url-pattern>
      <url-pattern>/mobi/*</url-pattern>
      <!-- Servlets -->
      <url-pattern>/RepositoryStartupServlet</url-pattern>
      <url-pattern>/Test</url-pattern>
      <url-pattern>/OKM*</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>OtherAdminRole</role-name>
      <role-name>UserRole</role-name>
    </auth-constraint>
    <user-data-constraint>
      <transport-guarantee>NONE</transport-guarantee>
    </user-data-constraint>
  </security-constraint>
  <login-config>
    <auth-method>FORM</auth-method>
    <realm-name>OpenKM</realm-name>
    <form-login-config>
      <form-login-page>/login.jsp</form-login-page>
      <form-error-page>/login.jsp?error=1</form-error-page>
    </form-login-config>
  </login-config>
  <security-role>
    <description>Admin user access</description>
    <role-name>OtherAdminRole</role-name>
  </security-role>
  <security-role>
    <description>General user access</description>
    <role-name>UserRole</role-name>
  </security-role>
```

Change max results in UI

This option limits the search results in the UI.

```
max.search.results=25
```

Since: OpenKM 4.0

Change access URL

By default OpenKM sets the access URL to http://localhost:8080/OpenKM/index.jsp''', **but obviously you don't want to access your OpenKM installation only from localhost. This URL is used in mail notifications and the** copy-to-clipboard **feature. To change this default URL use this property:**

```
application.url=http://your-server.com/OpenKM/index.jsp
```

Since: OpenKM 4.0

Change principal adapter

OpenKM can handle user access using the JBoss DatabasePrincipalAdapter login module by default. OpenKM needs an available method for reading users and roles. The class DatabasePrincipalAdapter does this job. For more information take a look at OpenKM authentication and Active Directory

```
principal.adapter=com.openkm.core.DatabasePrincipalAdapter
```

Since: OpenKM 4.0

Switch OpenKM to demo mode

In demo mode some options are disabled by default.

```
system.demo=on
```

Since: OpenKM 4.0

Enabling OCR

To enable OCR you must set the path of your OCR engine

```
system.ocr=/usr/local/bin/tesseract
```

Starting with OpenKM 5.1 you can select between 3 OCR engines:

- Tesseract 2.x
- Tesseract 3.x
- Cuneiform 0.7.x

See Third-party software integration: OCR for more info.

Setting default language of OpenKM UI

OpenKM by default guesses the language depending on the browser user language configuration, but you can set a language for all OpenKM users to use by default:

```
default.lang=es-ES
```

Force username to lowercase

You can force all usernames to be written in lower case. It's useful for example when you integrate with microsoft active directory where the username is not case sensitive

```
system.login.username.lowercase=on
```

Since: OpenKM 4.0

System read only

You can force the whole repository to be read only. This is useful when you're doing maintenance tasks, while doing migration and you want to continue to have the system running but you want to be sure any user will not be able to upload or change documents, etc...

```
system.readonly=true
```

Since: OpenKM 5.0

Enable document preview

Several applications are used by OpenKM to generate the document preview: OpenOffice.org, pdf2swf and convert. Read Enable PDF to SWF conversion, Enable image preview and Enable OpenOffice.org service. Also take a look at Random errors in preview in case of problems.

Enable PDF to SWF conversion

To enable the preview UI tab, OpenKM needs to convert PDF files to SWF. You also must have OpenOffice installed as a service.

```
system.pdf2swf=/usr/bin/pdf2swf
```

	Starting from OpenKM 5.1 this configuration property has changed to **system.swftools.pdf2swf**.

	Since OpenKM 5.1.9 the pdf2swf command line parameters should be added in the configuration property, for example:
	```system.swftools.pdf2swf=/usr/bin/pdf2swf -T 9 -f ${fileIn} -o ${fileOut}```

Note: Read Third-party software integration: SWFTools for more complete documentation.

Since: OpenKM 4.1

Enable PS to SWF conversion

To enable postscript document preview, OpenKM needs to convert PS files to SWF using the **ps2pdf** utility from Ghostscript:

```
system.ghostscript.ps2pdf=/usr/bin/ps2pdf
```

Since: OpenKM 5.1.2

Enable image preview

To enable image preview, you need to install the ImageMagick *convert* utility and configure it:

```
system.convert=/usr/bin/convert
```

> Starting from OpenKM 5.1 this configuration property has changed to **system.imagemagick.convert**.

Since: OpenKM 4.1

Enable OpenOffice.org integration

OpenOffice.org is used by OpenKM to convert files to PDF and generate the preview.

```
system.openoffice=on
```

Starting with OpenKM 5.0 this properties was changed to:

```
system.openoffice.path=/usr/lib/openoffice
system.openoffice.tasks=5
system.openoffice.port=2222
```

Where you should specify an OpenOffice.org installation path, the maximum number of conversion tasks before restarting the service and a port where the OpenOffice.org conversion service will be attached. Only the first property is mandatory.

> If you have problems with OpenOffice / LibreOffice integration, take a look at OpenOffice configuration issues.

Note 1: Read Third-party software integration: OpenOffice.org for more up-to-date documentation.

Note 2: You can enhance OCR results by configuring an OpenOffice.org dictionary. See OpenKM 5.1 OCR configuration for more info.

Since: OpenKM 4.0

Configuring email

To configure email service you must enable subscription and notification properties. View a complete example in Notification and subscription messages.

```
subscription.message.subject=OpenKM – {0} – {1};
subscription.message.body=Document: <a href=\"{0}\">{1}</a>
notify.message.subject=OpenKM – NOTIFICATION – {0}
notify.message.body=Document: <a href=\"{0}\">{1}</a>
```

Since: OpenKM 4.1

Configuring password validation

To configure password validation you have several properties. CompletePasswordValidator is the default password validator class that comes by default with OpenKM. By default, this validator is not enabled. You can also create your own Create password validator 🔒 .

You can select which validation rules you want to enable, for example if you only enable validator.password.min.length property, the validator will only validate minimum length.

```
validator.password=com.openkm.validator.password.CompletePasswordValidator
validator.password.min.length=numeric value greater than 0
validator.password.max.length=numeric value greater than 0
validator.password.min.lowercase=numeric value greater than 0
validator.password.min.uppercase=numeric value greater than 0
validator.password.min.digits=numeric value greater than 0
validator.password.mini.special=numeric value greater than 0
validator.password.error.min.length=Your message error
validator.password.error.max.length=Your message error
validator.password.error.min.lowercase=Your message error
validator.password.error.max.uppercase=Your message error
validator.password.error.min.digits=Your message error
validator.password.error.min.special=Your message error
```

Since: OpenKM 4.1

Configuring chat service

By default chat and chat autologin are enabled. In order to enable or disable them, values can be "on" or "off".

```
chat.enabled=off
chat.autologin=off
```

Since: OpenKM 5.0

Configuring schedulers

There are some schedulers that OpenKM uses. Some internally, like mail importer and getting repository news, and others used by the user interface like dashboard refresh time and keepalive.

Values are in minutes.
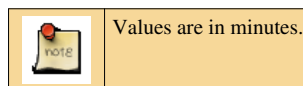
OpenKM enquires for repository news (by default every 24 hours i.e. 1440 minutes)

```
schedule.repository.info=1440
```

OpenKM imports emails from an imap server (by default set to 0, that is disabled)

```
schedule.mail.importer=0
```

In OpenKM 4.1 and before, the default value was 60 and cannot be disabled.
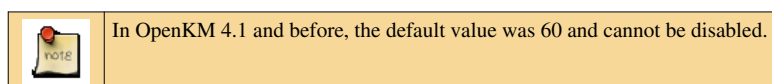
KeepAlive is used by the user interface to mantain the browser connected to OpenKM even when a user stays for some time without performing any operation. For this reason, it should never be lower than server session timeout (by default set to 15 minutes).

```
schedule.session.keepalive=15
```

Dashboard data is refreshed by default every 30 minutes.

```
schedule.dashboard.refresh=30
```

Since: OpenKM 4.1

Configuring wizard

You can configure a wizard to be used each time a user uploads a document. The wizard can be a sequence of property groups, keywords (including thesaurus) and categories. By default, wizard is disabled.

Property groups can be configured as a list of property group names separated by ","

```
wizard.property.groups=okg:consulting,okg:technology
```

To enable keywords, wizard keywords value must be "on". Default value is "off".

```
wizard.keywords=on
```

To enable categories, wizard categories value must be "on". Default value is "off".

```
wizard.categories=on
```

Since: OpenKM 5.0

Customizing application logo

You can replace the default OpenKM logo in the login page and reports.

```
logo.login
logo.mobile
logo.report
```

Recommended image size:

- logo.login: 316px × 74px (background #F1F3F5)
- logo.mobile: 161px × 38px (background #F1F3F5)
- logo.report: 150px × 35px (background #FFF)

You can also set a message on the login page with:

```
logo.text
```

Since: OpenKM 5.1 (configuration stored in database)

Configuring WebDAV access

In recent OpenKM releases, WebDAV is disabled by default. If you want to enable it, set the property **system.webdav.server** to on. The *okm:root* path may cause problems with some WebDAV clients. For this reason there is another configuration parameter **system.webdav.fix** which replaces a path like *okm:root* with *okm_root*. See WebDAV access for more info.

Since: OpenKM 5.1

Disable document name mismatch check

By default OpenKM will check the document name on check-in to ensure you upload another version of the same document. You can disable this behaviour with this configuration property:

```
system.document.name.mismatch.check=false
```

Since: OpenKM 5.0.1

Force keywords lowercase conversion

By default keywords are stored as is, but you can force a lowercase conversion using this configuration property:

```
system.keyword.lowercase
```

Since: OpenKM 5.1

Disable user assign on document creation

By default when a user creates a document or folder, he is added to the node with full permissions. You can disable this behaviour this way:

```
user.assign.document.creation=off
```

Since: OpenKM 5.0.2

Improve OpenKM performance

If you experience a slowndown of OpenKM when the number documents grows, you can disable user quotas or make use of the user items size cache.

To enable user items size cache:

```
user.item.cache=on
```

Starting from 5.1 **user.item.cache** is set to **on** by default.

To disable user quotas, go to User Profiles (**Administration -> Profiles**) and set **Quota limit** to 0 (This field is in megabytes). This feature of disabling quotas is available from OpenKM 5.1.6.

Since: OpenKM 5.0.3

Change conversion cache home

In case you have little space in your JBoss partition, you can configure to store the conversion cache folder somewhere else. For this, use the **cache.home** configuration property. By default, this is set to $JBOSS_HOME/cache.

Since: OpenKM 5.1.8

Reindex the whole repository

To reindex the whole document repository (document content will be extracted again and indexed by Lucene), follow these steps:

> Keep in mind that the next time you start JBoss, a process which runs the text extraction for every document in the repository will be launched and you can't use OpenKM until this process is finished.

- Stop JBoss
- Delete the **$JBOSS_HOME/repository/repository/index** and **$JBOSS_HOME/repository/workspaces/default/index** directories
- Start JBoss again

> In OpenKM 6.0 this process will be different and you will be able to reindex the document repository without stopping OpenKM.

Batch document text extraction

In OpenKM 6.0 the text extraction can be delayed every few seconds or at a specific cron like definition. This can be configured in the *applicationContext.xml* Spring definition. Take a look at the **textExtractorWorker** bean definition. Every time the text extraction worker wakes up, a bunch of pending documents are processed. You can configure the number of documents with the **experimental.text.extraction.batch** configuration property.

Since: OpenKM 6.0

Security configuration

Starting with OpenKM 6.0 you can make use of these configuration properties:

- **security.access.manager**: You can switch between "simple" and "recursive". This is the way the security is evaluated. With "recursive", the security is evaluated starting with the selected node until the repository root. The "simple" option only evaluates the selected node. By default, this is set to "simple".

- **security.search.evaluation**: Here you can choose between several search result security evaluation strategies. The fastest one is called "lucene", because it is the Lucene search engine which restricts the search results based on the node security. The two others are "am_window" and "am_limited", which make use of the AccessManager (see previous property) to restrict the search results. By default, this is set to "lucene".

Since: OpenKM 6.0

Extended security

Starting with OpenKM 6.0 you can extend security to download files, start workflows, add, remove or modify property groups (metadata) or compact history.

The possible values are:

- DOWNLOAD = 1024;
- START_WORKFLOW = 2048;
- COMPACT_HISTORY = 4096;
- PROPERTY_GROUP = 8192;

- **security.extended.mask**: Here you can activate which kind of extended security you want in your OpenKM. For example to enable download and property groups you should put the mask 9216 (1024+8192)

Since: OpenKM 6.0.1

Available only in OpenKM Professional.
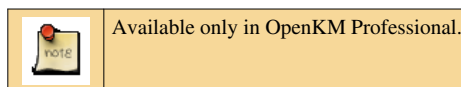
Autocad previewer

If you have problems with autocad previewer text, you should configure some url to indicate an extra fonts repository used in autocad files. Simply copy the files to some url that can be resolved by desktop users and take into consideration that font file names should be in lower case (rename if you have uppercase font file names). You can also enable Autocad previewer debug mode.

```
dxf.applet.debug.window=false
dxf.applet.default.bigfont=arial
dxf.applet.default.font=arial
dxf.applet.fontdir=http://fonts.openkm.com
```

Since: OpenKM 6.0

Available only in OpenKM Professional.
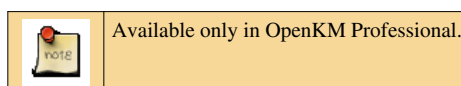
Minimum search characters

You can set the minimum characters required to execute a search. If less characters are available the search button will not be enabled. By default the minimum search characters is set to 3.

```
min.search.characters = 3
```

Since: OpenKM 6.0.0

Execution timeout

The maximum permitted time to execute a command like OCR, Antivirus, etc. After this time the child process is killed. Time given in minutes.

```
system.execution.timeout=5
```

Since: OpenKM 6.0.1

Restrict by file name

You can avoid uploading document by name or extension. For example, don't permit upload AVI multimedia videos.

```
restrict.file.name=*.avi
```

You can also configure several filename rules:

```
restrict.file.name=*~;*.bak;*.avi
```

Since: OpenKM 6.2

Managed text extraction

In previous OpenKM releases, the text extraction was a transparent process where you can't do anything with the configuration. Since OpenKM 6.0 you have several configuration options to adapt the document text extraction to your needs. Let's see these parameters:

- **managed.text.extraction.batch**: Integer. How many documents are processed every time the text extractor worker is awoken.
- **managed.text.extraction.pool.size**: Integer. How many threads are launched concurrently every time. This number should be smaller or equal to the number of CPUs in the server.
- **managed.text.extraction.pool.threads**: Integer. How many threads will be executed in every time. If *managed.text.extraction.pool.size* is 8 and *managed.text.extraction.pool.threads* is set to 16 then all these 16 threads will be launched using this pool. If every task take the same time to complete, in theory every pool thread will execute two tasks. Of course this is not true in the real world.
- **managed.text.extraction.pool.timeout**: Minutes. How many minutes should the worker wait for the text extraction pool to complete the tasks. After these minutes, the remaining pool threads are interrupted.
- **managed.text.extraction.schedule**: Minutes. How often the text extractor worker is awoken.
- **managed.text.extraction.concurrent**: Boolean. If the concurrent text extraction should be enabled. By default the text extraction is serial, but you can improve the extraction performance if you have several CPUs.

Since: OpenKM 6.0.1

Available only in OpenKM Professional.

References

[1] http://docs.oracle.com/javase/tutorial/java/nutsandbolts/datatypes.html
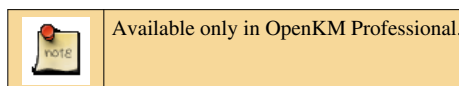
Configure Tomcat service

These instructions are related to installing and running Tomcat 7 as a service, which means that will be launched at system boot and will be closed properly on system shutdown.

Running as a Linux Service

For security reasons you shouldn't run Tomcat as **root**. It is better to create a user named openkm and run Tomcat from him:

```
$ sudo adduser openkm
```

Create a file with the script:

```
$ sudo vim /etc/init.d/tomcat
```

```sh
#!/bin/sh

### BEGIN INIT INFO
# Provides:          tomcat
# Required-Start:    $remote_fs $syslog
# Required-Stop:     $remote_fs $syslog
# Default-Start:     2 3 4 5
# Default-Stop:      0 1 6
# Short-Description: Start and stop Apache Tomcat
# Description:       Enable Apache Tomcat service provided by daemon.
### END INIT INFO

ECHO=/bin/echo
TEST=/usr/bin/test
TOMCAT_USER=openkm
TOMCAT_HOME=/home/openkm/tomcat-7.0.27
TOMCAT_START_SCRIPT=$TOMCAT_HOME/bin/startup.sh
TOMCAT_STOP_SCRIPT=$TOMCAT_HOME/bin/shutdown.sh

$TEST -x $TOMCAT_START_SCRIPT || exit 0
$TEST -x $TOMCAT_STOP_SCRIPT || exit 0

start() {
    $ECHO -n "Starting Tomcat"
    su - $TOMCAT_USER -c "$TOMCAT_START_SCRIPT &"
    $ECHO "."
}

stop() {
    $ECHO -n "Stopping Tomcat"
    su - $TOMCAT_USER -c "$TOMCAT_STOP_SCRIPT 60 -force &"
    while [ "$(ps -fu $TOMCAT_USER | grep java | grep tomcat | wc -l)"
-gt "0" ]; do
```

```
            sleep 5; $ECHO -n "."
    done
    $ECHO "."
}


case "$1" in
    start)
        start
        ;;
    stop)
        stop
        ;;
    restart)
        stop
        sleep 30
        start
        ;;
    *)
        $ECHO "Usage: tomcat {start|stop|restart}"
        exit 1
esac
exit 0
```

And make it executable:

```
$ sudo chmod 755 /etc/init.d/tomcat
```

Now update the run-levels:

```
$ sudo update-rc.d tomcat defaults
 Adding system startup for /etc/init.d/tomcat ...
   /etc/rc0.d/K20tomcat -> ../init.d/tomcat
   /etc/rc1.d/K20tomcat -> ../init.d/tomcat
   /etc/rc6.d/K20tomcat -> ../init.d/tomcat
   /etc/rc2.d/S20tomcat -> ../init.d/tomcat
   /etc/rc3.d/S20tomcat -> ../init.d/tomcat
   /etc/rc4.d/S20tomcat -> ../init.d/tomcat
   /etc/rc5.d/S20tomcat -> ../init.d/tomcat
```

start Tomcat service:

```
$ sudo service tomcat start
```

stop Tomcat service:

```
$ sudo service tomcat stop
```

It's also a good idea to configure Tomcat memory utilization. Edit the file *$TOMCAT_HOME/bin/setenv.sh* and edit the parameter **JAVA_OPTS** where you can increase the system memory managed by the JVM (Java Virtual Machine):

```
JAVA_OPTS="-Xms256m -Xmx1024m -XX:PermSize=128m -XX:MaxPermSize=256m
-Djava.awt.headless=true -Dfile.encoding=utf-8"
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$CATALINA_HOME/lib/sigar
```

This example is for a system with 2 GB of RAM.

Configure on Redhat / CentOS

```
$ chkconfig tomcat --level 2345 on
```

> Should be the same as in Ubuntu / Debian.

Running as a Windows Service

Donwload and install 32-bit/64-bit Windows Service Installer from http://tomcat.apache.org/download-70.cgi

Simply uncompress and overwrite openkm tomcat bundle into exiting tomcat folder.

> Do not overwritten tomcat openkm bundle with tomcat windows service intaller !!!

Known issue

If you got openoffice or libreoffice configured will get some error when OpenKM try start as service, to solve it edit your general environment variable PATH and add your **tomcat\lib\sigar** folder, for example like **PATH=...;C:\Program Files\OpenKM-6.0.0\tomcat\lib\sigar**

```
Caused by: java.lang.UnsatisfiedLinkError:
org.hyperic.sigar.Sigar.getSigNum(Ljava/lang/String;)I
      at org.hyperic.sigar.Sigar.getSigNum(Native Method)
      at org.hyperic.sigar.Sigar.kill(Sigar.java:275)
```

Tomcat native libraries

Tomcat can use the Apache Portable Runtime to provide superior scalability, performance, and better integration with native server technologies. The Apache Portable Runtime is a highly portable library that is at the heart of Apache HTTP Server 2.x. APR has many uses, including access to advanced IO functionality (such as sendfile, epoll and OpenSSL), OS level functionality (random number generation, system status, etc), and native process handling (shared memory, NT pipes and Unix sockets).

These features allows making Tomcat a general purpose webserver, will enable much better integration with other native web technologies, and overall make Java much more viable as a full fledged webserver platform rather than simply a backend focused technology.

Install on Linux

To follow these steps you need to be root.

• Install the APR itself, along with development packages that will be use by the build for the native wrappers:

Ubuntu / Debian

```
$ aptitude install build-essential libapr1 libaprutil1 libapr1-dev libssl-dev
```

RedHat / CentOS

```
$ yum install apr-devel openssl-devel make
```

• Untar the native wrappers archive that's shipped with Tomcat:

```
$ cd $TOMCAT_HOME/bin
$ tar zxvf tomcat-native.tar.gz
```

• Build and install the native wrappers:

```
$ cd tomcat-native*/jni/native
$ ./configure --with-apr=/usr/bin/apr-1-config --with-java-home=/usr/lib/jvm/java-6-sun
$ make
$ make install
```

• Modify $TOMCAT_HOME/bin/setenv.sh script to include this library path:

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$CATALINA_HOME/lib/sigar:/usr/local/apr/lib
```

• Re-start Tomcat and then look in the log: you should see a message like:

```
INFO: Loaded APR based Apache Tomcat Native Library 1.1.23
```

See also Apache Portable Runtime (APR) based Native library for Tomcat [1].

References

[1] http://tomcat.apache.org/tomcat-7.0-doc/apr.html

Several Tomcats in the same server

Edit *$TOMCAT_HOME/confg/server.xml* and look for all Tomcat port properties.

Service	Default port	New Port
Shutdown Port	8005	8105
Tomcat Connector Port	8080	8180
AJP Connector Port	8009	8109

To shutdown the different instances execute the **shutdown.sh** script from the *$TOMCAT_HOME/bin*.

More info at:

- Running Multiple Apache Tomcat on same Machine [1]
- Running Two Tomcat Instances on One Machine [2]
- How to change tomcat default port [3]
- How to create multiple tomcat instances [4]

References

[1] http://www.hiteshagrawal.com/apache/running-multiple-apache-tomcat-on-same-machine

[2] http://archive.gria.org/docs/5.0/user-guide/installation/services/two-JVMs.html

[3] http://www.servletworld.com/tomcat/howto-change-tomcat-port.html

[4] http://www.servletworld.com/tomcat/howto-create-multiple-tomcat-instances.html

Changing OpenKM timeout session

To change OpenKM timeout session you must add in web.xml file it (the number indicates the timeout in minutes). The web.xml file is located into OpenKM.war file (into WEB-INF folder). The OpenKM.war file is located in *$JBOSS_HOME/server/default/deploy* folder.

```
<session-config>
   <session-timeout>30</session-timeout>
</session-config>
```

Test OpenKM installation

Once you have configured OpenKM and Tomcat you can start them. You can run Tomcat from the command line from the $TOMCAT_HOME folder:

```
$ ./bin/catalina.sh start
```

This command will launch Tomcat and start the OpenKM application. By default Tomcat only listens on localhost, so OpenKM will only be accessible from http://localhost:8080/OpenKM.You will see a login screen like this:

You can log into OpenKM with okmAdmin user (default password is "admin"). If you want OpenKM to be accessible from others computers in your network, try modify $TOMCAT_HOME/conf/server.xml

```
<Connector address="'''0.0.0.0'''" connectionTimeout="20000" port="8080" protocol="HTTP/1.1" redirectPort="8443"/>
```

```
$ ./bin/catalina.sh start
```

Tomcat will bind to all network interfaces of the computer. Now OpenKM can be accessed from another computer using http://your-domain.com:8080/OpenKM.

> Don't close the terminal or Tomcat will shutdown and OpenKM application will stop.

If you have configured Tomcat service in your Debian / Ubuntu box, you can launch it this way:

```
$ /etc/init.d/tomcat start
```

You can watch the server log to see OpenKM messages.

```
$ tail -f $TOMCAT_HOME/logs/catalina.log
```

Change default okmAdmin password

Once you have logged into OpenKM you can see the application desktop. At the bottom-left you can see a red-and-white message which means that you have logged in as the administrator user and you must take care of your actions because can destroy the repository.
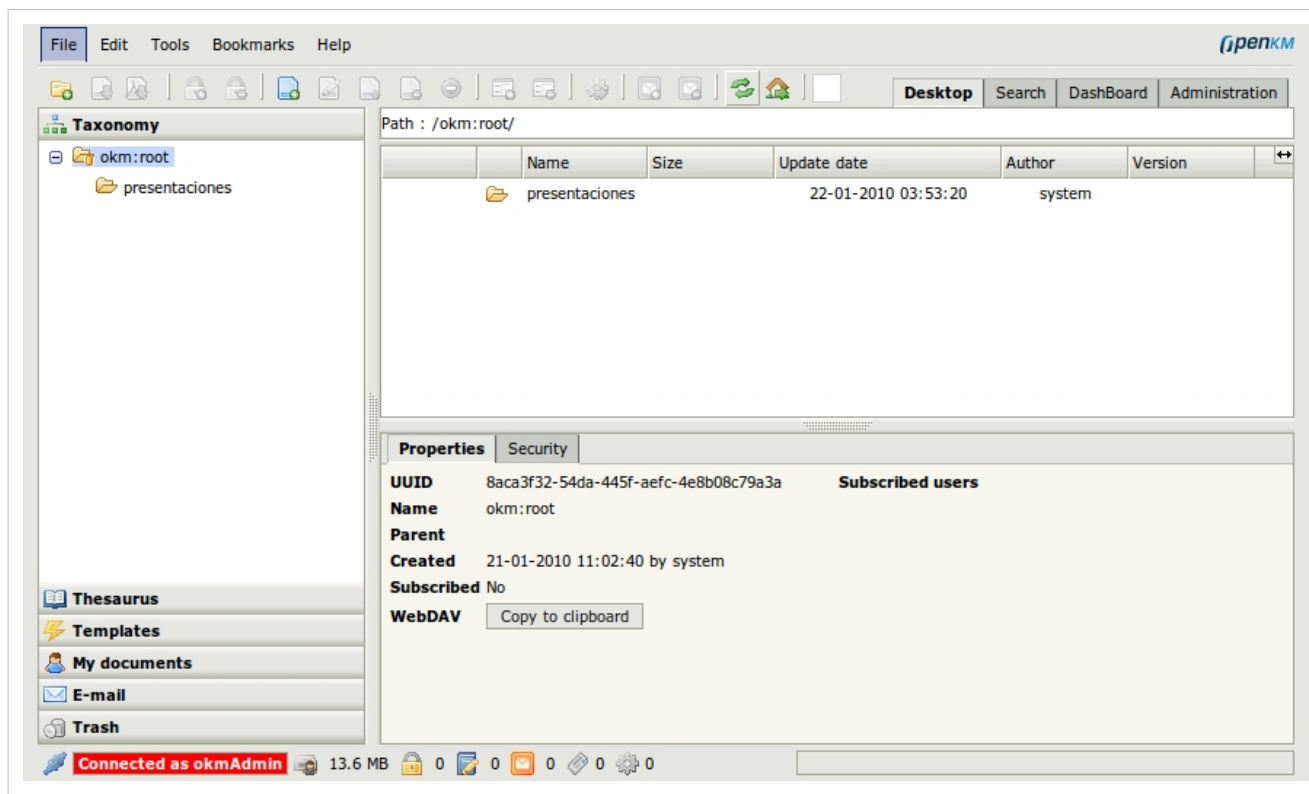
In the upper-right of the screen there is a tab called "Administration". This tab will be shown only if you log into OpenKM as the administration user. Click on this tab and you will see the OpenKM administration.
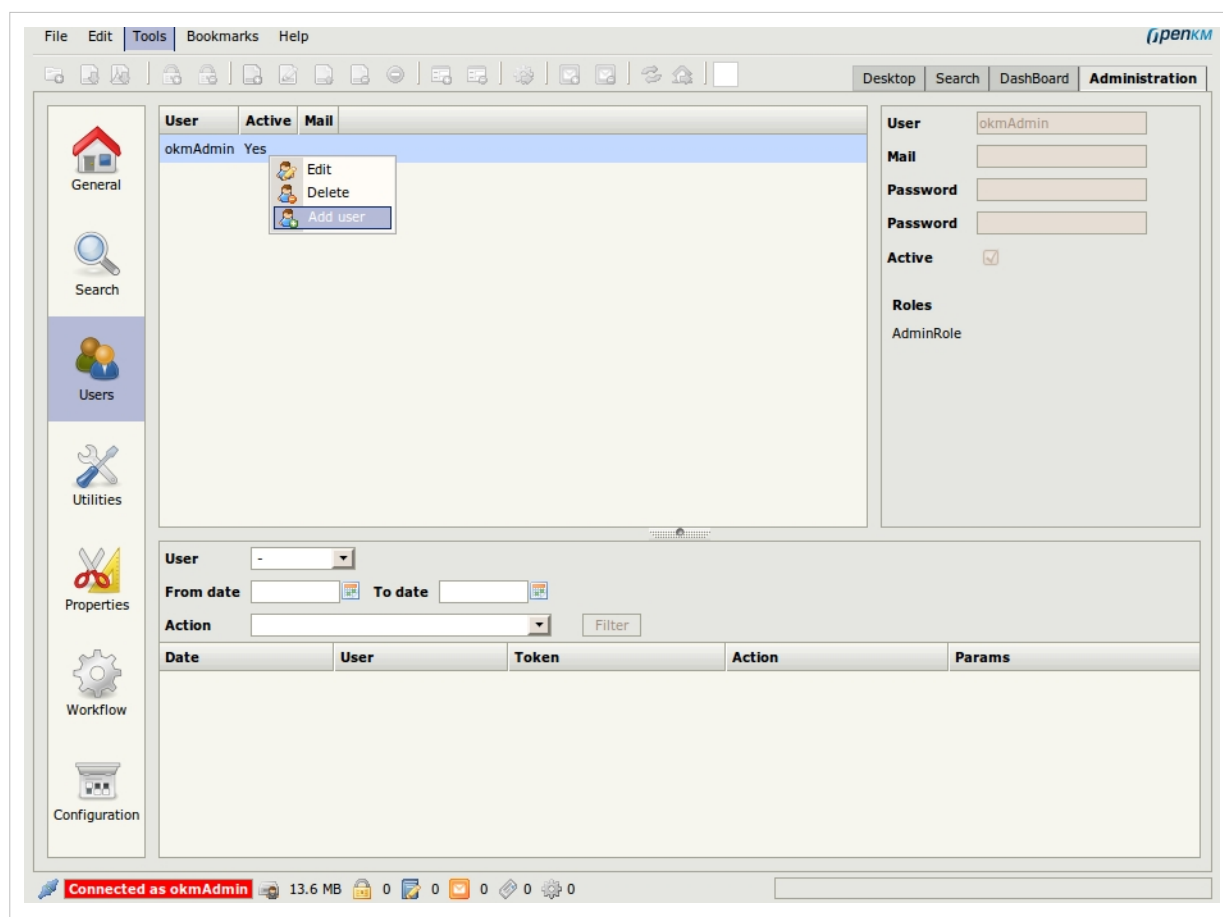
To manage users, click on Users icon. To modify the default okmAdmin password you have to right-click on the row and select Edit from the contextual menu. Here you can see the details of the user modification form:

Here you can set an email and change the default password. Specify the new password and keep it in a secured media.

> Be careful and don't delete the AdminRole or deactivate the okmAdmin user because you won't be able to manage OpenKM.

Create password validator

You can create your own password validation in OpenKM. By default OpenKM has password validation disabled and uses the **NoPasswordValidator** class. Also there's some default OpenKM password validation class called **CompletePasswordValidator** class.

Enabling **CompletePasswordValidator** class can configure minimum and maximum password length, number of lowercase and uppercase characters, number of numeric characters and number of special characters that appear in a password. You can see more information at Application configuration.

You can also create your own password class that must implement the PasswordValidator interface:

```java
public interface PasswordValidator {

  /**
   * Validate
   *
   * @param password
   * @throws ValidatorException
   */
  public void Validate(String password) throws ValidatorException;


}
```

CompletePasswordValidator class:

```java
/**
 * Complex password validator
 */
public class CompletePasswordValidator implements PasswordValidator {
  @SuppressWarnings("unused")
  private static Logger log =
LoggerFactory.getLogger(CompletePasswordValidator.class);

  @Override
  public void Validate(String password) throws ValidatorException {
    validateLength(password);
    checkLowerCase(password);
    checkUpperCase(password);
    checkDigits(password);
    checkSpecial(password);
  }

  /**
   * Validate length
   */
```

```java
  private void validateLength(String password) throws
ValidatorException {
    if (Config.VALIDATOR_PASSWORD_MIN_LENGTH > 0 &&
        password.length() < Config.VALIDATOR_PASSWORD_MIN_LENGTH) {
      throw new
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MIN_LENGTH);
    }

    if (Config.VALIDATOR_PASSWORD_MAX_LENGTH > 0 &&
        password.length() > Config.VALIDATOR_PASSWORD_MAX_LENGTH) {
      throw new
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MAX_LENGTH);
    }
  }

  /**
   * Validate lowercase characters
   */
  private void checkLowerCase(String password) throws
ValidatorException {
    int count = 0;

    if (Config.VALIDATOR_PASSWORD_MIN_LOWERCASE > 0) {
      for (int i=0; i<password.length(); i++) {
        if (Character.isLowerCase(password.charAt(i))) {
          count ++;
        }
      }

      if (Config.VALIDATOR_PASSWORD_MIN_LOWERCASE > count) {
        throw new
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MIN_LOWERCASE);
      }
    }
  }

  /**
   * Validate uppercase characters
   */
  private void checkUpperCase(String password) throws
ValidatorException {
    int count = 0;

    if (Config.VALIDATOR_PASSWORD_MIN_UPPERCASE > 0) {
      for (int i=0; i<password.length(); i++) {
        if (Character.isUpperCase(password.charAt(i))) {
          count ++;
```

```java
        }
      }

      if (Config.VALIDATOR_PASSWORD_MIN_UPPERCASE > count) {
        throw new
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MIN_UPPERCASE);
      }
    }
  }

  /**
   * Validate digits
   */
  private void checkDigits(String password) throws ValidatorException {
    int count = 0;

    if (Config.VALIDATOR_PASSWORD_MIN_DIGITS > 0) {
      for (int i=0; i<password.length(); i++) {
        if (Character.isDigit(password.charAt(i))) {
          count ++;
        }
      }

      if (Config.VALIDATOR_PASSWORD_MIN_DIGITS > count) {
        throw new
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MIN_DIGITS);
      }
    }
  }

  /**
   * Validate special characters
   */
  private void checkSpecial(String password) throws ValidatorException
{
    int count = 0;

    if (Config.VALIDATOR_PASSWORD_MIN_SPECIAL > 0) {
      for (int i=0; i<password.length(); i++) {
        if (!Character.isLetterOrDigit(password.charAt(i)) &&
          !Character.isWhitespace(password.charAt(i))) {
          count ++;
        }
      }

      if (Config.VALIDATOR_PASSWORD_MIN_SPECIAL > count) {
        throw new
```

```
ValidatorException(Config.VALIDATOR_PASSWORD_ERROR_MIN_SPECIAL);
        }
      }
    }
}
```

Previsualization

To take OpenKM previsualization should configure several applications that are used for OpenKM by this purpose. Configuration has two main steps:

Step 1 - Install OpenOffice or LibreOffice

- In Third-party software integration: OpenOffice.org is explained relevant information about how doing it Third-party software integration: OpenOffice.org and Application configuration > Enable OpenOffice.org integration
- In configuration parameters from administration there's a check button 🗹 (in older version is not used an icon is used a link called check) that can be used to ensure your openoffice or libreoffice path are written correctly.
- After configured and tested openoffice / libreoffice is installed is needed restarting OpenKM, because OpenKM will automatically starts soffice service on startup time.
- To ensure all is fine, login openkm, select some document convertible to pdf, and using Toolbar download document converted to pdf.

Configuration test:
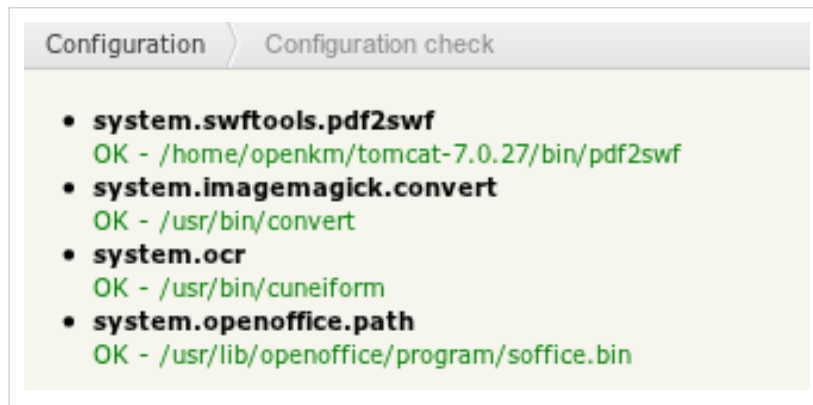
Log server indicating soffice service is started:

```
2012-07-01 10:23:14,578 [Thread-1] INFO
com.openkm.servlet.RepositoryStartupServlet - *** Start OpenOffice
manager ***
2012-07-01 10:23:14,584 [Thread-1] INFO  com.openkm.util.DocConverter -
 *** Build Office Manager ***
2012-07-01 10:23:14,584 [Thread-1] INFO  com.openkm.util.DocConverter -
 system.openoffice.path=/usr/lib/libreoffice
2012-07-01 10:23:14,584 [Thread-1] INFO  com.openkm.util.DocConverter -
 system.openoffice.tasks=200
2012-07-01 10:23:14,584 [Thread-1] INFO  com.openkm.util.DocConverter -
 system.openoffice.port=2002
```

```
2012-07-01 10:23:14,616 [Thread-1] INFO
org.artofsolving.jodconverter.office.ProcessPoolOfficeManager -
ProcessManager implementation is SigarProcessManager
2012-07-01 10:23:14,660 [OfficeProcessThread-0] INFO
org.artofsolving.jodconverter.office.OfficeProcess - starting process
with acceptString 'socket,host=127.0.0.1,port=2002,tcpNoDelay=1' and
profileDir '/tmp/.jodconverter_socket_host-127.0.0.1_port-2002'
2012-07-01 10:23:14,690 [OfficeProcessThread-0] INFO
org.artofsolving.jodconverter.office.OfficeProcess - started process;
pid = 11198
2012-07-01 10:23:14,996 [net.sf.ehcache.CacheManager@26767bef] INFO
net.sf.ehcache.util.UpdateChecker - New update(s) found: 2.4.7
[http://www.terracotta.org/confluence/display/release/Release+Notes+Ehcache+Core+2.4].
 Please check http://ehcache.org for the latest version.
2012-07-01 10:23:15,713 [net.sf.ehcache.CacheManager@78fa8ddf] INFO
net.sf.ehcache.util.UpdateChecker - New update(s) found: 2.4.7
[http://www.terracotta.org/confluence/display/release/Release+Notes+Ehcache+Core+2.4].
 Please check http://ehcache.org for the latest version.
2012-07-01 10:23:20,762 [OfficeProcessThread-0] WARN
org.artofsolving.jodconverter.office.ManagedOfficeProcess - office
process died with exit code 81; restarting it
2012-07-01 10:23:20,770 [OfficeProcessThread-0] INFO
org.artofsolving.jodconverter.office.OfficeProcess - starting process
with acceptString 'socket,host=127.0.0.1,port=2002,tcpNoDelay=1' and
profileDir '/tmp/.jodconverter_socket_host-127.0.0.1_port-2002'
2012-07-01 10:23:20,779 [OfficeProcessThread-0] INFO
org.artofsolving.jodconverter.office.OfficeProcess - started process;
pid = 11208
2012-07-01 10:23:21,099 [OfficeProcessThread-0] INFO
org.artofsolving.jodconverter.office.OfficeConnection - connected:
'socket,host=127.0.0.1,port=2002,tcpNoDelay=1'
```

• See also OpenOffice configuration issues.

Step 2 - Install pdf2swf

• Enable pdf to swf conversion, get more information at Application configuration > Enable PDF to SWF
  conversion.
• In configuration parameters from administration there's a check button ⊘ (in older version is not used an icon is
  used a link called check) that can be used to ensure your openoffice or libreoffice path are written correctly.
• Ensure your browser has macromedia flash plugin.
• To ensure all if fine, login openkm and try previewing some file.

Step 3 - Optional configurations

- Enable ps to swf conversion, get more information at Application configuration > Enable PS to SWF conversion
- Enable preview images, get more information at Application configuration > Enable image preview
- To ensure all if fine, login openkm and try previewing some file.

Aditional considerations about preview

OpenKM cache stores converted pdf and swf files into cache folder (in administration configuration paramaters the parameter **cache.home** indicates the path used in your server).

Notification and subscription messages

When you are subscribed to a document, any change in the document will be notified to you by email. These email messages are created using some defined templates. You can modify these default templates to create messages adapted to your company style. This modification is done by editing the Configuration_view.

	Olders version than OpenKM 5.1.x is needed modify OpenKM.cfg

	In OpenKM 5.1 Velocity will be replaced by FreeMarker.

These are the default values:

notification.message.subject	OpenKM - NOTIFICATION - ${documentName}
notification.message.body	\Document: \\${documentPath}\\ \User: \${userId}\ \Message: \${notificationMessage}\
subscription.message.subject	OpenKM - ${eventType} - ${documentPath}
subscription.message.body	\Document: \\${documentPath}\\ \User: \${userId}\ \Event: \${eventType}\ \Comment: \${subscriptionComment}\
subscription.twitter.status	OpenKM - ${documentUrl} - ${documentPath} - ${userId} - ${eventType}

And these are the substitution variables used:

Notification message subject & body

- ${documentUrl} - Document URL
- ${documentPath} - Document path
- ${documentName} - Document name
- ${userId} - User id
- ${notificationMessage} - Notification message

Subscription message subject & body & twitter

- ${documentUrl} - Document URL
- ${documentPath} - Document path
- ${documentName} - Document name
- ${userId} - User id
- ${eventType} - Event type
- ${subscriptionComment} - Subscription comment

> Take note of the OpenKM.cfg format: this is a Java properties file and has some limitations, for example, this file has to be coded in ISO-8859-1 format. Also single quotes (') should be escaped with another single quote (").

More info on this can be found at:

- http://java.sun.com/j2se/1.5.0/docs/api/java/text/MessageFormat.html
- http://www.w3schools.com/tags/ref_entities.asp

If you want to use a more complex template, the limitations of Java Properties files are a problem. In this case you can set the **subscription.message.subject** property to a template filename (for example, ComplexSubscriptionSubject.ftl). The template file should have the **.ftl** extension and needs to be located in the *$JBOSS_HOME* directory.

> FreeMarker does not allow you to render null values (will throw an exception). If you expect a value to be null you can also use the ! operator: ${content.title!}. This is the equivalent to ${content.title!*}*.

More info about FreeMarker templates at FreeMarker User Guide [1].

OpenKM 5.0.x

These are the default values:

notification.message.subject	OpenKM - NOTIFICATION - $documentName
notification.message.body	\<b\>Document: \</b\>\<a href="$documentUrl"\>$documentPath\</a\>\<br/\>\<b\>User: \</b\>$userId\<br/\>\<b\>Message: \</b\>$notificationMessage\<br/\>
subscription.message.subject	OpenKM - $eventType - $documentPath
subscription.message.body	\<b\>Document: \</b\>\<a href="$documentUrl"\>$documentPath\</a\>\<br/\>\<b\>User: \</b\>$userId\<br/\>\<b\>Event: \</b\>$eventType\<br/\>\<b\>Comment: \</b\>$subscriptionComment\<br/\>
subscription.twitter.status	OpenKM - $documentUrl - $documentPath - $userId - $eventType

And these are the substitution variables used:

Notification message subject & body

- $documentUrl - Document URL
- $documentPath - Document path
- $documentName - Document name
- $userId - User id
- $notificationMessage - Notification message

Subscription message subject & body & twitter

- $documentUrl - Document URL
- $documentPath - Document path
- $documentName - Document name
- $userId - User id
- $eventType - Event type
- $subscriptionComment - Subscription comment

> Take note of the OpenKM.cfg format: this is a Java properties file and has some limitations, for example, this file has to be coded in ISO-8859-1 format. Also single quotes (') should be escaped with another single quote (").

More info on this can be found at:

- http://java.sun.com/j2se/1.5.0/docs/api/java/text/MessageFormat.html

- http://www.w3schools.com/tags/ref_entities.asp

If you want to use a more complex template, the limitations of Java Properties files are a problem. In this case you can set the **subscription.message.subject** property to a template filename (for example, ComplexSubcriptionSubject.vm). The template file should have the **.vm** extension and needs to be located in the *$JBOSS_HOME* directory.

More info about Velocity templates at Apache Velocity User Guide [2].

OpenKM 4.0 and older

These are the default values:

notify.message.subject	OpenKM - NOTIFICATION - {0}
notify.message.body	Document: {1}
User: {3}
Message:{4}
subscription.message.subject	OpenKM - {0} - {1}
subscription.message.body	Document: {1}
User: {3}
Event:{4}
Comment: {5}

And these are the substitution variables used:

NOTIFY MESSAGE SUBJECT	**NOTIFY MESSAGE BODY**
{0} - document path	{0} - document URL
{1} - document name	{1} - document path
	{2} - document name
	{3} - user id
	{4} - message

SUBSCRIPTION MESSAGE SUBJECT	**SUBSCRIPTION MESSAGE BODY**
{0} - event type	{0} - document URL
{1} - document path	{1} - document path
{2} - document name	{2} - document name
	{3} - user id
	{4} - event type

References

[1] http://freemarker.sourceforge.net/docs
[2] http://velocity.apache.org/engine/releases/velocity-1.6.2/user-guide.html

OpenKM authentication

Authentication (from Greek: αυθεντικός; real or genuine, from authentes; author) is the act of establishing or confirming something (or someone) as authentic, that is, that claims made by or about the subject are true. This might involve confirming the identity of a person, the origins of an artifact, or assuring that a computer program is a trusted one. This task is handled by JAAS.

JAAS uses a service provider approach to its authentication features, meaning that it is possible to configure different login modules for an application without changing any code. The application remains unaware of the underlying authentication logic. It's even possible for an application to contain multiple login modules, somewhat akin to a stack of authentication procedures.

> Read Debugging JAAS configuration to learn how to debug a problematic JAAS configuration.

OpenKM relies on the authentication of the standard JAAS implemented in the JBoss application server. JBoss comes with some interesting modules which can be used to authenticate against a plain-text file, a database or an LDAP, for example. On recent versions, OpenKM uses the DatabaseServerLoginModule class to manage authentication.

> The JBoss security is configured in the file *$JBOSS_HOME/server/default/conf/login-config.xml*.

Also remember the principal.adapter configuration option. OpenKM need this configuration to create a list of users and roles available in the changing permissions dialog. This is done by the **DatabasePrincipalAdapter** class. This is an implementation of the **com.openkm.principal.PrincipalAdapter** interface:

```java
public interface PrincipalAdapter {
    /**
     * Method to retrieve all users from a authentication source.
     *
     * @return A Collection with all the users.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getUsers() throws PrincipalAdapterException;


    /**
     * Method to retrieve all roles from a authentication source.
     *
     * @return A Collection with all the roles.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getRoles() throws PrincipalAdapterException;


    /**
     * Method to retrieve all users from a role.
     *
     * @return A Collection with all the users within a role.
     * @throws PrincipalAdapterException If any error occurs.
     */
```

```java
    public List<String> getUsersByRole(String role) throws
PrincipalAdapterException;


    /**
     * Method to retrieve all roles from a user.
     *
     * @return A Collection with all the roles of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getRolesByUser(String user) throws
PrincipalAdapterException;


    /**
     * Method to retrieve the mail from a user.
     *
     * @param users A user id.
     * @return The email of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public String getMail(String user) throws
PrincipalAdapterException;


    /**
     * Method to retrieve the name from a user.
     *
     * @param users A user id.
     * @return The name of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public String getName(String user) throws
PrincipalAdapterException;
}
```

Roles

OpenKM has two roles defined by default - **ROLE_ADMIN** and **ROLE_USER**.

UserRole is mandatory for all users, because is internally used by OpenKM for connection purposes. Without this right, users can not connect to OpenKM and you'll get a 403 status code error.

You can give AdminRole to any user, and he'll get administrator privileges, seeing any folder and doing any operation without retrictions. Users with AdminRole have access to the administrator tab in the UI.

Active Directory

Configuration

- OpenKM 6.0 🔒
- OpenKM 5.1 🔒
- OpenKM 5.0 🔒
- OpenKM 4.1 🔒 (valid for older versions)

Enable debug on login process

It's good practice to enable login debugging when you make any change to the authentication mechanism. Edit the file /server/default/conf/jboss-log4j.xml and add the category (remember you must restart jboss for it to take effect):

```xml
<category name="org.jboss.security">
    <priority value="TRACE" class="org.jboss.logging.XLevel"/>
</category>
```

or

```xml
<category name="org.jboss.security">
    <priority value="TRACE" class="org.jboss.logging.XLevel"/>
    <appender-ref ref="SECURITY_F"/>
</category>

<appender name="SECURITY_F" class="org.jboss.logging.appender.DailyRollingFileAppender">
    <param name="Append" value="true"/>
    <param name="DatePattern" value="'.'yyyy-MM-dd"/>
    <param name="File" value="${jboss.server.home.dir}/log/jboss.security.log"/>
    <layout class="org.apache.log4j.PatternLayout">
        <param name="ConversionPattern" value="%d{ABSOLUTE} %-5p [%c] %m%n"/>
    </layout>
</appender>
```

More info at JBoss and JAAS debug [1].

Active directory utilities

We recommend to take a look at these tools:

- Apache Directory Studio [2]
- Active Directory Explorer Utility [3]

See also:

- Testing LDAP configuration
- Forum: Usuario administrador LDAP v.4 [4]
- JBoss and JAAS debug [1]
- LDAP - Apache Directory Studio: A Basic Tutorial [5]
- LDAP authentication using LDAPExtUserModuleImpl is case-inse [6]
- LdapExtLoginModule [7]
- LdapLoginModule [8]

- Problems with LdapExtLoginModule [9]

References

[1] http://primalcortex.wordpress.com/2007/11/28/jboss-and-jaas-debug/

[2] http://directory.apache.org/studio/

[3] http://technet.microsoft.com/en-us/sysinternals/bb963907.aspx

[4] http://forum.openkm.com/viewtopic.php?f=13&t=3535

[5] http://krams915.blogspot.com.es/2011/01/ldap-apache-directory-studio-basic.html

[6] http://community.jboss.org/message/427398

[7] http://community.jboss.org/wiki/LdapExtLoginModule

[8] http://community.jboss.org/wiki/LdapLoginModule

[9] http://community.jboss.org/thread/159069

Active Directory OpenKM 6.2

If you need to debug the security configuration, Edit the **$TOMCAT_HOME/lib/log4j.properties** file and add this line:

```
log4j.logger.org.springframework.security=DEBUG
```

Basic configuration

This is the suggested configuration to be used when roles and users are both defined in the same node, otherwise refer to the advanced configuration.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example all users are under same node **cn=users,dc=weyler,dc=local** and roles are under the same node **cn=users,dc=weyler,dc=local** too.

Login configuration

Change the OpenKM.xml file at $TOMCAT_HOME:

```xml
<security:ldap-server id="ldapServer"
    url="ldap://192.168.0.6:389/DC=ldap,dc=weyler,dc=local"
    manager-dn="CN=Administrator,cn=users,dc=weyler,dc=local"
    manager-password="password"/>

  <security:authentication-manager alias="authenticationManager">
    <security:ldap-authentication-provider
      server-ref="ldapServer"
      user-search-base="cn=Users"
      user-search-filter="(sAMAccountName={0})"
      group-search-base="cn=Users"
      group-search-filter="(member={0})"
      group-role-attribute="cn"
      role-prefix="none">
    </security:ldap-authentication-provider>
```

```
</security:authentication-manager>
```

You must restart Tomcat after changing OpenKM.xml.

Take care if your ldap server is configured under ssl then you should use ldaps://

Read also Spring Security - MVC: Using an LDAP Authentication Provider [1].

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName

principal.ldap.role.search.base=cn=users,dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.attribute=cn

principal.ldap.mail.search.base=cn=users,dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=cn=users,dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=cn={0},cn=users,dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(objectclass=group)
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf
```

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any dictiontion between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=user)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.users.by.role.search.filter=(&(objectclass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

Also add this option in OpenKM.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))</module-option>
```

> If you see an exception like this, probably you need to use advanced configuration:
>
> ```
> javax.naming.PartialResultException: Unprocessed Continuation Reference(s); remaining name 'cn=users,dc=weyler,dc=local
> ```
>
> read these articles:
> - Referrals in the JNDI [2]
> - JNDI Implementor Guidelines for LDAP Service Providers [3]
> - Resolving javax.naming.PartialResultException thrown by JBoss 5.1 LdapExtLoginModule [4]
>
> The type of referral in LdapPrincipalAdapter can be configured using the configuration property **principal.ldap.referral**.

Advanced configuration

This configuration should be used when roles and users are defined on different active directory nodes.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example the main ldap is node **dc=weyler,dc=local**, users and roles distributed in different active directory nodes.

Login configuration

Change the OpenKM.xml file in $TOMCAT_HOME:

> You must restart Tomcat after changing OpenKM.xml.

```
<security:authentication-manager alias="authenticationManager">

  <security:authentication-provider ref="ldapAuthProvider" />

</security:authentication-manager>


<beans:bean id="contextSource" class="org.springframework.security.ldap.DefaultSpringSecurityContextSource">

  <beans:constructor-arg value="ldap://192.168.0.6:389/dc=weyler,dc=local"/>

  <beans:property name="userDn" value="CN=Administrator,cn=users,dc=weyler,dc=local"/>
```

```xml
    <beans:property name="password" value="password"/>

</beans:bean>


<beans:bean id="ldapAuthProvider" class="org.springframework.security.ldap.authentication.LdapAuthenticationProvider">

  <beans:constructor-arg>

    <beans:bean class="org.springframework.security.ldap.authentication.BindAuthenticator">

      <beans:constructor-arg ref="contextSource"/>

      <beans:property name="userSearch" ref="userSearch"/>

    </beans:bean>

  </beans:constructor-arg>

  <beans:constructor-arg>

    <beans:bean class="org.springframework.security.ldap.userdetails.DefaultLdapAuthoritiesPopulator">

      <beans:constructor-arg ref="contextSource"/>

      <beans:constructor-arg value="objectclass=group"/>

      <beans:property name="groupSearchFilter" value="memberOf={1}"/>

      <beans:property name="groupRoleAttribute" value="cn"/>

      <beans:property name="searchSubtree" value="true" />

      <beans:property name="convertToUpperCase" value="false" />

      <beans:property name="rolePrefix" value="" />

    </beans:bean>

  </beans:constructor-arg>

</beans:bean>


<beans:bean id="userSearch" class="org.springframework.security.ldap.search.FilterBasedLdapUserSearch">

  <beans:constructor-arg index="0" value="" />

  <beans:constructor-arg index="1" value="sAMAccountName={0}" />

  <beans:constructor-arg index="2" ref="contextSource" />

  <beans:property name="searchSubtree" value="true" />

</beans:bean>
```

> **note** Take care if your ldap server is configured under ssl then you should use ldaps://

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName
```

```
principal.ldap.role.search.base=dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.attribute=cn

principal.ldap.mail.search.base=dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0}))
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf

principal.ldap.referral=follow
```

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any distinction between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=person)
(|(memberOf=CN=ROLE_USER,CN=users,dc=weyler,dc=local)(memberOf=CN=ROLE_ADMIN,CN=users,dc=weyler,dc=local)))
principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,dc=weyler,dc=local))
principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

> In the example we assume that role OpenKM is in node **CN=OpenKM,CN=users,DC=weyler,DC=local**.

Also add this option in OpenKM.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(objectClass=user)(|(memberOf=CN=ROLE_USER,CN=users,dc=weyler,dc=local)(memberOf=CN=ROLE_ADMIN,CN=users,dc=weyler,dc=local)))</module-option>
```

LDAP example with uniqueMember

See LDAP and Active Directory uniqueMember user examples.

References

[1] http://krams915.blogspot.com.es/2011/01/spring-security-mvc-using-ldap.html

[2] http://download.oracle.com/javase/jndi/tutorial/ldap/referral/jndi.html

[3] http://java.sun.com/products/jndi/jndi-ldap-gl.html

[4] http://giocosmiano.blogspot.com/2011/02/resolving-javaxnamingpartialresultexcep.html

Active Directory OpenKM 5.1

Basic configuration

This is the suggested configuration to be used when roles and users are both defined in the same node, otherwise refer to the advanced configuration.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example all users are under same node **cn=users,dc=weyler,dc=local** and roles are under the same node
> **cn=users,dc=weyler,dc=local** too.

Login configuration

Change the login-config.xml file at $JBOSS_HOME/server/default/conf

> You must restart jboss after changing login-config.xml.

There're two configuration options, both valid:

Filter roles by users who are members

```xml
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,cn=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(sAMAccountName={0})</module-option>
      <module-option name="rolesCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="roleFilter">(member={1})</module-option>
      <module-option name="roleAttributeID">cn</module-option>
      <module-option name="roleAttributeIsDN">false</module-option>
      <module-option name="roleRecursion">2</module-option>
      <module-option name="searchScope">ONELEVEL_SCOPE</module-option>
```

```
        <module-option name="allowEmptyPasswords">false</module-option>
      </login-module>
   </authentication>
</application-policy>
```

Getting roles by user

```
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,cn=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(sAMAccountName={0})</module-option>
      <module-option name="rolesCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="roleFilter">(sAMAccountName={0})</module-option>
      <module-option name="roleAttributeID">memberOf</module-option>
      <module-option name="roleAttributeIsDN">true</module-option>
      <module-option name="roleNameAttributeID">cn</module-option>
      <module-option name="searchScope">ONELEVEL_SCOPE</module-option>
      <module-option name="allowEmptyPasswords">false</module-option>
    </login-module>
  </authentication>
</application-policy>
```

> Take care if your ldap server is configured under ssl then you should use ldaps://

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName

principal.ldap.role.search.base=cn=users,dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.attribute=cn
```

```
principal.ldap.mail.search.base=cn=users,dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=cn=users,dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=cn={0},cn=users,dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(objectclass=group)
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf
```

> With **OpenKM 5.0.4** we added more "users by role" and "roles by user" configuration properties, that are not present on older versions.

> With **OpenKM 5.1.10** we added more "username" configuration properties, that are not present on older versions.

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any dictiontion between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=user)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
principal.ldap.users.by.role.search.filter=(&(objectclass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

Also add this option in login-config.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))</module-option>
```

> If you see an exception like this, probably you need to use advanced configuration:
>
> ```
> javax.naming.PartialResultException: Unprocessed Continuation Reference(s); remaining name 'cn=users,dc=weyler,dc=local
> ```
>
> read these articles:
>
> - Referrals in the JNDI [2]
> - JNDI Implementor Guidelines for LDAP Service Providers [3]
> - Resolving javax.naming.PartialResultException thrown by JBoss 5.1 LdapExtLoginModule [4]
>
> The type of referral in LdapPrincipalAdapter can be configured using the configuration property **principal.ldap.referral**.

Advanced configuration

This configuration should be used when roles and users are defined on different active directory nodes.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example the main ldap is node **dc=weyler,dc=local**, users and roles distributed in different active directory nodes.

Login configuration

Change the login-config.xml file in $JBOSS_HOME/server/default/conf

> You must restart jboss after changing login-config.xml.

```xml
<application-policy name="OpenKM">

  <authentication>

    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >

      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>

      <module-option name="bindDN">CN=Administrador,CN=users,dc=weyler,dc=local</module-option>

      <module-option name="java.naming.referral">follow</module-option>

      <module-option name="java.naming.security.authentication">simple</module-option>

      <module-option name="bindCredential">password</module-option>

      <module-option name="baseCtxDN">dc=weyler,dc=local</module-option>

      <module-option name="baseFilter">(&amp;(sAMAccountName={0})(objectClass=user))</module-option>

      <module-option name="rolesCtxDN">dc=weyler,dc=local</module-option>

      <module-option name="roleFilter">(member={1})</module-option>

      <module-option name="roleAttributeID">cn</module-option>

      <module-option name="roleAttributeIsDN">false</module-option>

      <module-option name="roleRecursion">2</module-option>

      <module-option name="searchScope">SUBTREE_SCOPE</module-option>

      <module-option name="allowEmptyPasswords">false</module-option>

    </login-module>

  </authentication>

</application-policy>
```

> Take care if your ldap server is configured under ssl then you should use ldaps://

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName

principal.ldap.role.search.base=dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.attribute=cn

principal.ldap.mail.search.base=dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0}))
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf

principal.ldap.referral=follow
```

> With **OpenKM 5.0.4** we added more "users by role", "roles by user" and "referral" configuration properties, which are not present in older versions.

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any distinction between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=person)

(|(memberOf=CN=UserRole,dc=weyler,dc=local)(memberOf=CN=AdminRole,dc=weyler,dc=local)))

principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,dc=weyler,dc=local))

principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

> In the example we assume that role OpenKM is in node **CN=OpenKM,CN=users,DC=weyler,DC=local**.

Also add this option in login-config.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(objectClass=user)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))</module-option>
```

LDAP example with uniqueMember

See LDAP and Active Directory uniqueMember user examples.

Active Directory OpenKM 5.0

Basic configuration

This is the suggested configuration to be used when roles and users are both defined in the same node, otherwise refer to the advanced configuration.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example all users are under same node **cn=users,dc=weyler,dc=local** and roles are under the same node **cn=users,dc=weyler,dc=local** too.

Login configuration

Change the login-config.xml file at $JBOSS_HOME/server/default/conf

> 💡 You must restart jboss after changing login-config.xml.

There're two configuration options, both valid:

Filter roles by users who are members

```xml
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,cn=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(sAMAccountName={0})</module-option>
      <module-option name="rolesCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="roleFilter">(member={1})</module-option>
      <module-option name="roleAttributeID">cn</module-option>
      <module-option name="roleAttributeIsDN">false</module-option>
      <module-option name="roleRecursion">2</module-option>
      <module-option name="searchScope">ONELEVEL_SCOPE</module-option>
      <module-option name="allowEmptyPasswords">false</module-option>
    </login-module>
  </authentication>
</application-policy>
```

Getting roles by user

```xml
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,cn=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(sAMAccountName={0})</module-option>
      <module-option name="rolesCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="roleFilter">(sAMAccountName={0})</module-option>
      <module-option name="roleAttributeID">memberOf</module-option>
      <module-option name="roleAttributeIsDN">true</module-option>
      <module-option name="roleNameAttributeID">cn</module-option>
      <module-option name="searchScope">ONELEVEL_SCOPE</module-option>
      <module-option name="allowEmptyPasswords">false</module-option>
    </login-module>
  </authentication>
```

```
</application-policy>
```

Take care if your ldap server is configured under ssl then you should use ldaps://

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName

principal.ldap.role.search.base=cn=users,dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.attribute=cn

principal.ldap.mail.search.base=cn=users,dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=cn=users,dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=cn={0},cn=users,dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(objectclass=group)
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf
```

With **OpenKM 5.0.4** we added more "users by role" and "roles by user" configuration properties, that are not present on older versions.

With **OpenKM 5.1.10** we added more "username" configuration properties, that are not present on older versions.

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any dictiontion between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=user)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.users.by.role.search.filter=(&(objectclass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))

principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

Also add this option in login-config.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))</module-option>
```

> If you see an exception like this, probably you need to use advanced configuration:
>
> ```
> javax.naming.PartialResultException: Unprocessed Continuation Reference(s); remaining name 'cn=users,dc=weyler,dc=local
> ```
>
> read these articles:
> - Referrals in the JNDI [2]
> - JNDI Implementor Guidelines for LDAP Service Providers [3]
> - Resolving javax.naming.PartialResultException thrown by JBoss 5.1 LdapExtLoginModule [4]
>
> The type of referral in LdapPrincipalAdapter can be configured using the configuration property **principal.ldap.referral**.

Advanced configuration

This configuration should be used when roles and users are defined on different active directory nodes.

Active directory configuration has two parts; Login configuration and OpenKM integration.

In this example you must change **192.168.0.6, Administrator, password and weyler** values to your active directory values.

> In this example the main ldap is node **dc=weyler,dc=local**, users and roles distributed in different active directory nodes.

Login configuration

Change the login-config.xml file in $JBOSS_HOME/server/default/conf

> You must restart jboss after changing login-config.xml.

```xml
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,CN=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.referral">follow</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(&amp;(sAMAccountName={0})(objectClass=user))</module-option>
      <module-option name="rolesCtxDN">dc=weyler,dc=local</module-option>
      <module-option name="roleFilter">(member={1})</module-option>
      <module-option name="roleAttributeID">cn</module-option>
      <module-option name="roleAttributeIsDN">false</module-option>
      <module-option name="roleRecursion">2</module-option>
      <module-option name="searchScope">SUBTREE_SCOPE</module-option>
      <module-option name="allowEmptyPasswords">false</module-option>
    </login-module>
  </authentication>
</application-policy>
```

> Take care if your ldap server is configured under ssl then you should use ldaps://

OpenKM integration

To configure Active Directory we must make some changes in Configuration view. You only need to restart jboss the first time you change the principal.adapter parameter. Other changes can be made on the fly.

```
system.login.lowercase=on
principal.adapter=com.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.attribute=sAMAccountName

principal.ldap.role.search.base=dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
```

```
principal.ldap.role.attribute=cn

principal.ldap.mail.search.base=dc=weyler,dc=local
principal.ldap.mail.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.mail.attribute=mail

principal.ldap.username.search.base=dc=weyler,dc=local
principal.ldap.username.search.filter=(&(objectclass=person)(sAMAccountName={0}))
principal.ldap.username.attribute=cn

principal.ldap.users.by.role.search.base=dc=weyler,dc=local
principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0}))
principal.ldap.users.by.role.attribute=member

principal.ldap.roles.by.user.search.base=dc=weyler,dc=local
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0}))
principal.ldap.roles.by.user.attribute=memberOf

principal.ldap.referral=follow
```

> With **OpenKM 5.0.4** we added more "users by role", "roles by user" and "referral" configuration properties, which are not present in older versions.

In the case of Active directory (windows), it's important that all users logins be in lower case. For this purpose we enable

```
system.login.lowercase=on
```

The reason is simply because Windows does not make any distinction between upper and lower case when validating user name credentials.

OpenKM Integration - Filtering users and roles

Create a role called OpenKM. Assign this role to users and roles. It'll be used to filter users and roles. Only users and roles with OpenKM role will be displayed in OpenKM. If you want to restrict the users who can log into OpenKM, you should change these:

```
principal.ldap.user.search.filter=(&(objectclass=person)
(|(memberOf=CN=UserRole,dc=weyler,dc=local)(memberOf=CN=AdminRole,dc=weyler,dc=local)))
principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,dc=weyler,dc=local))
principal.ldap.users.by.role.search.filter=(&(objectClass=group)(cn={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
principal.ldap.roles.by.user.search.filter=(&(objectClass=person)(sAMAccountName={0})(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

> In the example we assume that role OpenKM is in node **CN=OpenKM,CN=users,DC=weyler,DC=local**.

Also add this option in login-config.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(objectClass=user)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))</module-option>
```

LDAP example with uniqueMember

See LDAP and Active Directory uniqueMember user examples.

Active Directory OpenKM 4.1

To configure Active Directory we must make some changes in OpenKM.cfg configuration file and in login-config.xml file that can be found at *$JBOSS_HOME/server/default/conf*. For both changes you need to restart JBoss server.

OpenKM.cfg file example (you must change **192.168.0.6, Administrador, password and weyler** values to your active directory values)

```
system.login.lowercase=on
principal.adapter=es.git.openkm.principal.LdapPrincipalAdapter

principal.ldap.server=ldap://192.168.0.6
principal.ldap.security.principal=CN=Administrator,cn=users,dc=weyler,dc=local
principal.ldap.security.credentials=password

principal.ldap.user.search.base=cn=users,dc=weyler,dc=local
principal.ldap.user.search.filter=(objectclass=person)
principal.ldap.user.atribute=cn

principal.ldap.role.search.base=cn=users,dc=weyler,dc=local
principal.ldap.role.search.filter=(objectclass=group)
principal.ldap.role.atribute=cn

principal.ldap.mail.search.base=cn={0},cn=users,dc=weyler,dc=local
principal.ldap.mail.search.filter=(objectclass=person)
principal.ldap.mail.atribute=mail
```

In case of Active directory (windows) it's important that all users login be in lower case, for it purpose we enable

```
system.login.lowercase=on
```

property in OpenKM.cfg. The reason is so simply, Windows not makes any difference between upper or lower case validating user name credentials.

login-config.xml file example (you must change **192.168.0.6, Administrador, password and weyler** values to your active directory values)

```xml
<application-policy name="OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://192.168.0.6</module-option>
      <module-option name="bindDN">CN=Administrador,cn=users,dc=weyler,dc=local</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="bindCredential">password</module-option>
      <module-option name="baseCtxDN">cn=users,dc=weyler,dc=local</module-option>
      <module-option name="baseFilter">(sAMAccountName={0})</module-option>
```

```
        <module-option name="rolesCtxDN">cn=users,dc=weyler,dc=local</module-option>

        <module-option name="roleFilter">(member={1})</module-option>

        <module-option name="roleAttributeID">cn</module-option>

        <module-option name="roleAttributeIsDN">false</module-option>

        <module-option name="roleRecursion">2</module-option>

        <module-option name="searchScope">ONELEVEL_SCOPE</module-option>

        <module-option name="defaultRole">UserRole</module-option>

        <module-option name="allowEmptyPasswords">false</module-option>

      </login-module>

    </authentication>

  </application-policy>
```

> **note** Take care if your ldap server is configured under ssl then you should use ldaps://

If you want to restrict the user who can log into OpenKM, you should change these two property in OpenKM.cfg:

```
principal.ldap.user.search.filter=(&(objectclass=user)(memberOf=CN=UserRole,CN=users,DC=weyler,DC=local))

principal.ldap.role.search.filter=(&(objectclass=group)(memberOf=CN=OpenKM,CN=users,DC=weyler,DC=local))
```

This means that only users within the UserRole groups will be shown as valid OpenKM users, and only roles which are included in the OpenKM group will be shown in OpenKM.

Also add this option one in login-config.xml:

```
<module-option name="baseFilter">(&amp;(sAMAccountName={0})(memberOf=CN=UserRole,CN=users,DC=weyler,DC=local))</module-option>
```

And remove this one:

```
<module-option name="defaultRole">UserRole</module-option>
```

All this means that only users member of the UserRole groups are able to log into OpenKM.

> **note** If you see an exception like this:
>
> ```
> javax.naming.PartialResultException: Unprocessed Continuation Reference(s); remaining name 'cn=users,dc=weyler,dc=local
> ```
>
> read these articles:
> - Referrals in the JNDI [2]
> - Resolving javax.naming.PartialResultException thrown by JBoss 5.1 LdapExtLoginModule [4]

Open Directory

Here are some tips on OS X Open Directory:

- **Create user**: dscl . -create /Users/openkm
- **Assign shell**: dscl . -create /Users/openkm UserShell /bin/bash
- **Assign user name**: dscl . -create /Users/openkm RealName "OpenKM user"
- **Search UID**: dscl . -search /Users uid 503
- **Assign UID**: dscl . -create /Users/openkm UniqueID 503
- **Assign user home**: dscl . -create /Users/openkm NFSHomeDirectory /opt/openkm
- **Assign password**: dscl . -passwd /Users/openkm xxxxxx

More on OpenDirectory and the dscl Tool at Introduction to Porting UNIX/Linux Applications to Mac OS X [1].

See also:

- Testing LDAP configuration
- Forum: Usuario administrador LDAP v.4 [4]
- JBoss and JAAS debug [1]

References

[1] http://developer.apple.com/mac/library/documentation/Porting/Conceptual/PortingUnix/intro/intro.html

Testing LDAP configuration

LDAP configuration maybe a little tricky sometimes. For this reason is very important following certain rules. First of all you need to configure JBoss LDAP authentication. If after that you can log into OpenKM, go ahead configuring OpenKM LDAP integration.

OpenKM is an J2EE that uses an Application Server called JBoss. In J2EE web applications, autentication and authorization are task delegated to the Application Server. This can be achieved because OpenKM use JAAS [1] and you need to configure JBoss to handle your users and passwords. JBoss has many predefined Login Modules which handles different the user and password storage, like RDBMS or LDAP. These Login Modules are configured at **$JBOSS_HOME/server/default/conf/login-config.xml** file.

Once the user is logged into OpenKM, the application also need to know which users and roles are defined. In the case of the default database based authentication, you can even manage these users, passwords and roles from OpenKM Administration. But if you use another authentication and authorization backend like LDAP, you only will see these users and their password but no modification is allowed.

In OpenKM you need to configure these LDAP queries:

- Get all users
- Get all roles
- Get email from a user
- Get name from a user
- Get users in a role
- Get roles from a user

Every query needs three configuration properties:

- Search base
- Filter

- Attribute

So, the "get all users" query is composed by:

- principal.ldap.user.search.base
- principal.ldap.user.search.filter
- principal.ldap.user.attribute

> Although OpenKM 5.1.x uses database for storing configuration properties, to simplify the usage this tool read these properties from OpenKM.cfg.

To build these queries, I recommend using the precious Apache Directory Studio [2] tool. It is multi-platform and works pretty well.

As you can imagine, configure all these properties correctly is complex. For this reason we have developed a tool for testing OpenKM configuration. This tool can be downloaded from http://www.openkm.com/download/okm/ OpenKM-5.1-LDAP.zip.

> With these configuration parameters you should be able to configure your LDAP. But in some cases, the user location is split in two or more branches. In this case you will need to develop a custom LDAP adapter which meets your particular requirements.

To execute the utility try:

```
$ java -jar testLdap.jar
```

And will provide you the available options:

```
java -jar testLdap.jar ACTION
Where ACTION can be:
 * getUsers
 * getRoles
 * getMail (need an additional parameter)
 * getName (need an additional parameter)
 * getUsersByRole (need an additional parameter)
 * getRolesByUser (need an additional parameter)
```

So if you want to get the list of users, you need to run:

```
$ java -jar testLdap.jar getUsers
```

References

[1] http://en.wikipedia.org/wiki/Java_Authentication_and_Authorization_Service

LDAP and Active Directory user examples

The examples described here has been shared by OpenKM users and should be taken with care.

Jboss LDAP example 1

Forum url: http://forum.openkm.com/viewtopic.php?f=4&t=5830&p=15048#p15048

LDAP Structure

```
dc=fr
   dc=soc
      ou=groups
         cn=UserRole, objectClass=posixGroup, memberUid = jack,
memberUid = joe
         cn=AdminRole, objectClass=posixGroup, memberUid = jack
      ou=people
         ou=intern
            cn = jack, objectClass=inetOrgperson, uid = jack
            cn = joe, objectClass=inetOrgperson, uid = joe
```

Configuration parameters

```
principal.adapter=com.openkm.principal.LdapPrincipalAdapter
principal.database.filter.inactive.users=true
principal.ldap.mail.attribute=mail
principal.ldap.mail.search.base=ou=intern,ou=users,dc=soc,dc=fr
principal.ldap.mail.search.filter=(&(objectClass=inetOrgPerson)(cn={0}))
principal.ldap.referral=follow
principal.ldap.role.attribute=cn
principal.ldap.role.search.base=ou=groups,dc=soc,dc=fr
principal.ldap.role.search.filter=(objectClass=posixGroup)
principal.ldap.roles.by.user.attribute=cn
principal.ldap.roles.by.user.search.base=ou=groups,dc=soc,dc=fr
principal.ldap.roles.by.user.search.filter=(memberUid={0})
principal.ldap.security.credentials?xxxxxx
principal.ldap.security.principal=cn=admin,dc=soc,dc=fr
principal.ldap.server=ldap://192.168.xxx.xxx:389
principal.ldap.user.attribute=cn
principal.ldap.user.search.base=ou=intern,ou=users,dc=soc,dc=fr
principal.ldap.user.search.filter=(objectClass=inetOrgPerson)
principal.ldap.users.by.role.attribute=memberUid
principal.ldap.users.by.role.search.base=ou=groups,dc=soc,dc=fr
principal.ldap.users.by.role.search.filter=(&(objectClass=posixGroup)(cn={0}))
system.login.lowercase=true
```

login-config.xml

```xml
<application-policy name="OpenKM">
   <authentication>
      <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
```

```
        <module-option name="java.naming.provider.url">ldap://192.168.xxx.xxx:389</module-option>

        <module-option name="java.naming.security.authentication">simple</module-option>

        <module-option name="bindDN">cn=admin,dc=soc,dc=fr</module-option>

        <module-option name="bindCredential">******</module-option>

        <module-option name="baseCtxDN">ou=intern,ou=users,dc=soc,dc=fr</module-option>

        <module-option name="baseFilter">(uid={0})</module-option>

        <module-option name="rolesCtxDN">ou=groups,dc=soc,dc=fr</module-option>

        <module-option name="roleFilter">(memberUid={0})</module-option>

        <module-option name="roleAttributeID">cn</module-option>

        <module-option name="roleAttributeIsDN">false</module-option>

        <module-option name="roleRecursion">-1</module-option>

        <module-option name="searchScope">SUBTREE_SCOPE</module-option>

        <module-option name="allowEmptyPasswords">false</module-option>
    <!-- <module-option name="defaultRole">UserRole</module-option> -->

    </login-module>

    </authentication>

</application-policy>
```

Repository configuration

OpenKM uses Apache Jackrabbit to handle the document repository. From the Jackrabbit site:

Apache Jackrabbit is a fully conforming implementation of the Content Repository for Java Technology API (JCR). A content repository is a hierarchical content store with support for structured and unstructured content, full text search, versioning, transactions, observation, and more. Typical applications that use content repositories include content management, document management, and records management systems.

This means that if you configure an OpenKM repository, you are configuring a Jackrabbit repository.Jackrabbit offers several repository configurations: it can be stored in the local filesystem or in a remote database, or even in the AWS (Amazon Web Service) cloud.

Configuration parameters

The repository configuration file, typically called repository.xml, specifies global options like security, versioning and clustering settings. A default workspace configuration template is also included in the repository configuration file. The top-level structure of the repository configuration file is shown below:

```
<!DOCTYPE Repository
        PUBLIC "-//The Apache Software Foundation//DTD Jackrabbit
1.4//EN"
        "http://jackrabbit.apache.org/dtd/repository-1.4.dtd">
<Repository>
    <FileSystem .../>
    <Security .../>
    <Workspaces .../>
    <Workspace .../>
    <Versioning .../>
    <SearchIndex .../>      <!-- optional -->
```

```
    <DataStore .../>        <!-- optional -->
</Repository>
```

The repository configuration elements are:

- **FileSystem**: The virtual file system used by the repository to store things like registered namespaces and node types.
- **Security**: Authentication and authorization configuration.
- **Workspaces**: Configuration on where and how workspaces are managed.
- **Workspace**: Default workspace configuration template.
- **Versioning**: Configuration of the repository-wide version store.
- **SearchIndex**: Configuration of the search index that covers the repository-wide /jcr:system content tree.
- **DataStore**: Data store configuration.

Bean configuration elements

Most of the entries in the configuration file are based on the following generic JavaBean configuration pattern. Such configuration specifies that the repository should use an instance of the specified class with the specified properties for the named functionality.

```
<ConfigurationElement class="fully.qualified.ClassName">
    <param name="property1" value="...">
    <param name="property2" value="...">
<ConfigurationElement>
```

Configuration variables

Jackrabbit supports configuration variables of the form ${name}. These variables can be used to avoid hardcoding specific options in the configuration files. The following variables are available in all Jackrabbit versions:

- **${rep.home}**: Repository home directory.
- **${wsp.name}**: Workspace name. Only available in workspace configuration.
- **${wsp.home}**: Workspace home directory. Only available in workspace configuration.

Security configuration

The security configuration element is used to specify authentication and authorization settings for the repository. The structure of the security configuration element is:

```
<Security appName="Jackrabbit">
    <SecurityManager .../> <!-- optional, available since 1.5 -->
    <AccessManager .../>        <!-- mandatory until 1.4, optional since 1.5 -->
    <LoginModule .../>          <!-- optional -->
</Security>
```

By default Jackrabbit uses the Java Authentication and Authorization Service (JAAS) to authenticate users who try to access the repository. The appName parameter in the <Security/> element is used as the JAAS application name of the repository.

If JAAS authentication is not available or (as is often the case) too complex to set up, Jackrabbit allows you to specify a repository-specific JAAS LoginModule that is then used for authenticating repository users. The default SimpleLoginModule class included in Jackrabbit implements a trivially simple authentication mechanism that accepts any username and any password as valid authentication credentials.

Once a user has been authenticated, Jackrabbit will use the configured AccessManager to control what parts of the repository content the user is allowed to access and modify. The default SimpleAccessManager class included in Jackrabbit implements a trivially simple authorization mechanism that grants full read access to all users and write access to everyone except anonymous users. The slightly more advanced SimpleJBossAccessManager class was added in Jackrabbit 1.3 (see JCR-650). This class is designed for use with the JBoss Application Server, where it maps JBoss roles to Jackrabbit permissions.

Workspace configuration

A Jackrabbit repository contains one or more workspaces that are each configured in a separate workspace.xml configuration file. The Workspaces element of the repository configuration specifies where and how the workspaces are managed. The repository configuration also contains a default workspace configuration template that is used to create the workspace.xml file of a new workspace unless more specific configuration is given when the workspace is created. See the createWorkspace methods in the JackrabbitWorkspace interface for more details on workspace creating workspaces.

The workspace settings in the repository configuration file are:

```xml
<Workspaces rootPath="${rep.home}/workspaces"
            defaultWorkspace="default"
            configRootPath="..." <!-- optional -->
            maxIdleTime="..."/>   <!-- optional -->
<Workspace .../>   <!-- default workspace configuration template -->
```

The following global workspace configuration options are specified in the Workspaces element:

- **rootPath**: The native file system directory for workspaces. A subdirectory is automatically created for each workspace, and the path of that subdirectory can be used in the workspace configuration as the ${wsp.path} variable.
- **defaultWorkspace**: Name of the default workspace. This workspace is automatically created when the repository is first started.
- **configRootPath**: By default the configuration of each workspace is stored in a workspace.xml file within the workspace directory within the rootPath directory. If this option is specified, then the workspace configuration files are stored within the specified path in the virtual file system (see above) configured for the repository.
- **maxIdleTime**: By default Jackrabbit only releases resources associated with an opened workspace when the entire repository is closed. This option, if specified, sets the maximum number of seconds that a workspace can remain unused before the workspace is automatically closed.

The workspace configuration template and all workspace.xml configuration files have the following structure:

```xml
<Workspace name="${wsp.name}">
    <FileSystem .../>
    <PersistenceManager .../>
    <SearchIndex .../>          <!-- optional -->
    <ISMLocking .../>           <!-- optional, available since 1.4 -->
</Workspace>
```

The workspace configuration elements are:

- **FileSystem**: The virtual file system passed to the persistence manager and search index.
- **PersistenceManager**: Persistence configuration for workspace content. For more info, read http://wiki.apache. org/jackrabbit/PersistenceManagerFAQ.
- **SearchIndex**: Configuration of the workspace search index.

- **ISMLocking**: Locking configuration for concurrent access to workspace content.

> To modify the configuration of an existing workspace, you need to change the workspace.xml file of that workspace. Changing the <Workspace/> element in the repository configuration file will not affect existing workspaces.

Indexing configuration

> This feature is only available in OpenKM 6.0

OpenKM 6.0 has more flexible indexing configuration, based in Apache Lucene.

For example, depending on the lenguage used in the documents and properties, you have obtain better search results configuring a proper Lucene Analyzer. This can be done editing the **OpenKM.cfg** file and setting the **hibernate.search.analyzer** configuration property.

By default, OpenKM use the **org.apache.lucene.analysis.standard.StandardAnalyzer** which works fine with english and most languages, but you can get better search results configuring more specific analyzer for you language. Some of them are listed here:

- org.apache.lucene.analysis.en.EnglishAnalyzer
- org.apache.lucene.analysis.es.SpanishAnalyzer
- org.apache.lucene.analysis.fr.FrenchAnalyzer
- org.apache.lucene.analysis.it.ItalianAnalyzer
- org.apache.lucene.analysis.de.GermanAnalyzer
- org.apache.lucene.analysis.el.GreekAnalyzer

If you configure the search analyzer before the first time you start OpenKM, the Lucene indexed will be created using this analyzer. But if you want to change this configuration property after the OpenKM repository has been created you need to rebuild the Lucene indexes. For this task, go to Administration > Utilities > Rebuild indexes:
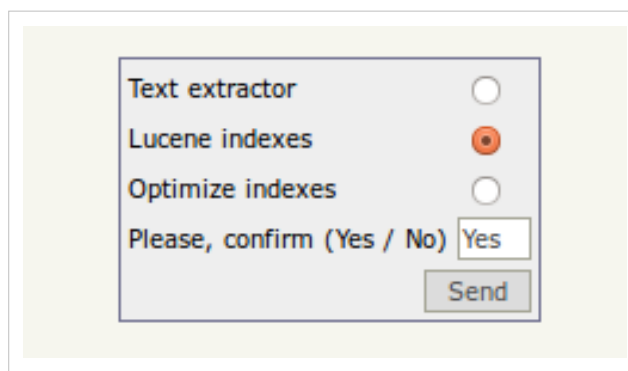
Once the operation has been completed, the Lucene indexes will be using the new analyzer.

Third-party software integration

In order to extend OpenKM functionalities, it can be integrated with some external software which improves the OpenKM user experience, adding new features to the application. We are working to expand this list of applications, so stay tuned!

- Apache 🔒
- OCR
- OpenOffice.org
- SWFTools 🔒
- Antivirus
- Acme CAD Converter

Third-party software integration: Apache

Expose OpenKM directly from JBoss can be dangerous if you need the application to be accessed from Internet (for example https://issues.jboss.org/browse/JBAS-3861).As result you can be infected by PerlBot [1]. Also this 8080 may be closed by a firewall. For these reasons, is a good idea expose your OpenKM installation through the standard web port 80. In the following steps we explain how to configure Apache to handle these request and forward to JBoss application server using the AJP13 protocol.

From the Apache documentation: The AJP13 protocol is packet-oriented. A binary format was presumably chosen over the more readable plain text for reasons of performance. The web server communicates with the servlet container over TCP connections. To cut down on the expensive process of socket creation, the web server will attempt to maintain persistent TCP connections to the servlet container, and to reuse a connection for multiple request/response cycles.

> 💡 You can see how to configure Apache with SSL at Apache SSL and more article.

Debian / Ubuntu

The first thing in to install the required Apache software. From Debian / Ubuntu you can install Apache with a single command:

```
$ sudo aptitude install apache2
```

Edit the file called /etc/apache2/apache2.conf and configure a ServerName to prevent warnings in the Apache startup process:

```
ServerRoot "/etc/apache2"
ServerName "your-domain.com"
```

Enable the proxy module, needed to forward petitions to JBoss:

```
$ sudo a2enmod proxy_ajp
```

Now create the configuration file /etc/apache2/sites-available/openkm.conf with this content:

```
<VirtualHost *>
    ServerName openkm.your-domain.com
```

```
    RedirectMatch ^/$ /OpenKM
    <Location /OpenKM>
        ProxyPass ajp://127.0.0.1:8009/OpenKM
        ProxyPassReverse http://openkm.your-domain.com/OpenKM
    </Location>
    ErrorLog /var/log/apache2/your-domain.com-error.log
    CustomLog /var/log/apache2/your-domain.com-access.log combined
</VirtualHost>
```

The VirtualHost ServerName must be other than ServerName in the main Apache configuration. Enable this site configuration:

```
$ sudo a2ensite openkm.conf
```

> If after restart Apache you see a warning like:
>
> ```
> [warn] NameVirtualHost *:80 has no VirtualHosts
> ```
>
> you have to change the virtual host definition from <VirtualHost *> to <VirtualHost *:80>

> If you see an error like:
>
> ```
> Invalid command 'RewriteEngine', perhaps misspelled or defined by a module not included in the server configuration
> ```
>
> you need to enable this Apache module:
>
> ```
> $ sudo a2enmod rewrite
> $ sudo a2enmod proxy_http
> $ sudo a2enmod headers
> ```

You have to enable explicitly the proxy access editing the Apache configuration file */etc/apache2/mods-available/proxy.conf*:

```
<IfModule mod_proxy.c>
  #turning ProxyRequests on and allowing proxying from all may allow
  #spammers to use your proxy to send email.


  ProxyRequests Off


  <Proxy *>
    AddDefaultCharset off
    Order deny,allow
    Allow from all
    Deny from all
    #Allow from .example.com
  </Proxy>


  # Enable/disable the handling of HTTP/1.1 "Via:" headers.
  # ("Full" adds the server version; "Block" removes all outgoing Via:
headers)
  # Set to one of: Off | On | Full | Block
```

```
    ProxyVia On
</IfModule>
```

Finally restart Apache:

```
$ sudo /etc/init.d/apache2 restart
```

Now you can access your OpenKM installation from http://openkm.your-domain.com/. Another advantage of using Apache is that you can log OpenKM access and generate web statistics.

The syntax is as follows to run syntax tests for configuration files only:

```
 /usr/sbin/apache2 -t
```

Red Hat / CentOS

Here you can use the yum application manager to install Apache:

```
$ sudo yum install httpd
```

Now create the file /etc/httpd/conf.d/openkm.conf with this content:

```
<VirtualHost *:80>
    ServerName openkm.your-domain.com
    RedirectMatch ^/$ /OpenKM
    <Location /OpenKM>
        ProxyPass ajp://127.0.0.1:8009/OpenKM
        ProxyPassReverse http://openkm.your-domain.com/OpenKM
    </Location>
    ErrorLog /var/log/httpd/your-domain.com-error.log
    CustomLog /var/log/httpd/your-domain.com-access.log combined
</VirtualHost>
```

After that, restart Apache to make effective this configuration.

```
$ sudo /etc/init.d/httpd restart
```

Mac OS X

Edit the file called /etc/apache2/apache2.conf and configure a ServerName, enable proxy modules and mod_proxy:

```
ServerRoot "/usr"
ServerName "your-domain.com"


LoadModule proxy_module libexec/apache2/mod_proxy.so
LoadModule proxy_ajp_module libexec/apache2/mod_proxy_ajp.so


<IfModule mod_proxy.c>
  ProxyRequests Off
  <Proxy "*">
    AddDefaultCharset off
    Allow from all
    Deny from all
    Order Deny,Allow
```

```
    </Proxy>
  ProxyVia On
</IfModule>
```

Now create the configuration file /etc/apache2/sites/openkm.conf with this content:

```
<VirtualHost *:80>
  ServerName openkm.your-domain.com
  RedirectMatch ^/$ /OpenKM
  <Location /OpenKM>
     ProxyPass ajp://127.0.0.1:8009/OpenKM
     ProxyPassReverse http://openkm.your-domain.com/OpenKM
  </Location>
  ErrorLog /var/log/apache2/your-domain.com-error.log
  CustomLog /var/log/apache2/your-domain.com-access.log combined
</VirtualHost>
```

Finally restart Apache.

Windows

Install de apache webserver from http://httpd.apache.org/download.cgi (windows binary no mod_ssl)

Edit the C:\Archivos de programa\Apache Software Foundation\Apache2.2\conf\httpd.conf

```
# Enable proxy modules
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so

#Add in bottom
NameVirtualHost *:80
<VirtualHost *:80>
  ServerName openkm.your-domain.com
  RedirectMatch ^/$ /OpenKM

  ProxyRequests Off
  ProxyVia On

  <Proxy *>
    AddDefaultCharset off
    Order deny,allow
    Allow from all
    Deny from All
  </Proxy>

  <Location /OpenKM>
    ProxyPass ajp://127.0.0.1:8009/OpenKM
    ProxyPassReverse http://openkm.your-domain.com/OpenKM
  </Location>

  ErrorLog logs/openkm.your-domain.com-error_log
```

```
    CustomLog logs/openkm.your-domain.com-access_log common
</VirtualHost>
```

> If you have installed IIS started you should change apache port (Listen from 80 to other in httpd.conf)

More info

For more info, visit:

- Apache Module mod_proxy [2]
- Apache Module mod_proxy_ajp [3]
- Apache Module mod_rewrite [4]
- mod_rewrite, a beginner's guide [5]
- Using Apache Virtual Hosts and ProxyPass Together [6]

References

[1] http://www.sophos.com/en-us/threat-center/threat-analyses/viruses-and-spyware/Mal~PerlBot-A.aspx

[2] http://httpd.apache.org/docs/2.2/mod/mod_proxy.html

[3] http://httpd.apache.org/docs/2.2/mod/mod_proxy_ajp.html

[4] http://httpd.apache.org/docs/2.2/mod/mod_rewrite.html

[5] http://www.workingwith.me.uk/articles/scripting/mod_rewrite

[6] http://www.thebuzzmedia.com/using-apache-virtual-hosts-and-proxypass-together/

Third-party software integration: Apache SSL and more

Advanced configuration

If you don't want to show the **/OpenKM** context, try this as your VirtualHost configuration:

```
<VirtualHost *>
  ServerName openkm.your-domain.com
  ProxyPass / ajp://localhost:8009/OpenKM/
  ProxyPassReverse / http://openkm.your-domain.com/OpenKM/
  ErrorLog /var/log/apache2/your-domain.com-error.log
  CustomLog /var/log/apache2/your-domain.com-access.log combined

  RewriteEngine on
  RewriteCond %{REQUEST_URI} /OpenKM*
  RewriteRule ^(/.*)$ http://localhost:8080$1 [P]

  RequestHeader edit X-GWT-Module-Base
^(http://openkm.your-domain)/frontend/(.*)$ $1/OpenKM/frontend/$2
</VirtualHost>
```

You need also set the configuration parameter **system.apache.request.header.fix** to on (true). Note than in OpenKM 5.1 the configuration is stored in database and the OpenKM.cfg configuration only make sense in the

database (Hibernate) configuration parameters.

	If you see an error like:
	`Invalid command 'RewriteEngine', perhaps misspelled or defined by a module not included in the server configuration`
	you need to enable this Apache module:

	`$ sudo a2enmod rewrite`
	`$ sudo a2enmod proxy_http`
	`$ sudo a2enmod headers`

You have to enable explicitly the proxy access editing the Apache configuration file
/etc/apache2/mods-available/proxy.conf:

```
<IfModule mod_proxy.c>
  #turning ProxyRequests on and allowing proxying from all may allow
  #spammers to use your proxy to send email.

  ProxyRequests Off

  <Proxy *>
    AddDefaultCharset off
    Order deny,allow
    Allow from all
    Deny from all
    #Allow from .example.com
  </Proxy>

  # Enable/disable the handling of HTTP/1.1 "Via:" headers.
  # ("Full" adds the server version; "Block" removes all outgoing Via:
headers)
  # Set to one of: Off | On | Full | Block

  ProxyVia On
</IfModule>
```

Finally restart Apache:

```
$ sudo /etc/init.d/apache2 restart
```

Now you can access your OpenKM installation from http://openkm.your-domain.com/. Another advantage of
using Apache is that you can log OpenKM access and generate web statistics.

SSL in Debian / Ubuntu

```
$ sudo mkdir /etc/apache2/ssl
$ sudo /usr/sbin/make-ssl-cert /usr/share/ssl-cert/ssleay.cnf /etc/apache2/ssl/apache.pem
$ sudo a2enmod ssl
```

> If you need to converting .pem file to crt use: openssl x509 -in cacert.pem -out cacert.crt

Ensure ports 443 is listen in /etc/apache2/ports.conf

Do the same task related to port 80 but changing the configuration file /etc/apache2/sites-available/openkm.conf with this content:

```
<VirtualHost *:443>
    ServerName openkm.your-domain.com
    RedirectMatch ^/$ /OpenKM
    <Location /OpenKM>
        ProxyPass ajp://127.0.0.1:8009/OpenKM
        ProxyPassReverse https://openkm.your-domain.com/OpenKM
    </Location>
    ErrorLog /var/log/apache2/openkm.your-domain.com-error.log
    CustomLog /var/log/apache2/openkm.your-domain.com-access.log
combined

    SSLEngine on
    SSLCertificateFile /etc/apache2/ssl/apache.pem
</VirtualHost>
```

> if you see some error like "[error] VirtualHost *:443 -- mixing * ports and non-* ports with a NameVirtualHost address is not supported, proceeding with undefined results" add **NameVirtualHost *:443** before **<VirtualHost *:443>**

If you want redirect HTTP connections to HTTPS, add this VirtualHost configuration:

```
<VirtualHost *:80>
  ServerName openkm.your-domain.com
  Redirect permanent / https://openkm.your-domain.com/
</VirtualHost>
```

SSL in Red Hat / CentOS

```
$ sudo yum install mod_ssl openssl crypto-utils
```

Generate private keys (for more information visit Apache HTTP Secure Server Configuration [1])

```
$ genkey your-domain.com
```

> Normally you want to generate self-certificate and not sending to Certify Authority. Is good practice put some password on private key, but in this case each time you restart apache service it'll be demanded.

During the process will be generated two files at

```
SSLCertificateFile /etc/pki/tls/certs/your-domain.com.cert
SSLCertificateKeyFile /etc/pki/tls/private/your-domain.com.key
```

Must modify the /etc/httpd/conf.d/openkm.conf file

```
<VirtualHost *:443>
  ServerName your-domain.com
  ProxyPass / ajp://localhost:8009/OpenKM/
  ProxyPassReverse / http://your-domain.com/OpenKM/
  ErrorLog /var/log/your-domain.com-error.log
  CustomLog /var/log/your-domain.com-access.log combined

  RewriteEngine on
  RewriteCond %{REQUEST_URI} /OpenKM*
  RewriteRule ^(/.*)$ http://localhost:8080$1 [P]
  ProxyPassReverse / http://localhost:8080/

  SSLEngine on
  SSLCertificateFile /etc/pki/tls/certs/your-domain.com.cert
  SSLCertificateKeyFile /etc/pki/tls/private/your-domain.com.key
</VirtualHost>
```

Finally must modify SSLCertificateFile and SSLCertificateKeyFile values in file /etc/httpd/conf.d/ssl.conf

```
SSLCertificateFile /etc/pki/tls/certs/your-domain.com.cert
SSLCertificateKeyFile /etc/pki/tls/private/your-domain.com.key
```

Now you can access your OpenKM installation from http://openkm.your-domain.com/. Another advantage of using Apache is that you can log OpenKM access and generate web statistics.

More info

For more info, visit:

- Apache Module mod_proxy [2]
- Apache Module mod_proxy_ajp [3]
- Apache Module mod_rewrite [4]
- mod_rewrite, a beginner's guide [5]
- Using Apache Virtual Hosts and ProxyPass Together [6]
- Apache configuration for GWT applications [2]
- Rewrite HTTP To HTTPS [3]
- Redirect to SSL [4]
- Configuración SSL de Tomcat [5]

References

[1] http://www.linuxtopia.org/online_books/rhel5/rhel5_administration/rhel5_s1-httpd-secure-server.html

[2] http://pgt.de/2011/01/27/apache-configuration-for-gwt-applications

[3] http://wiki.apache.org/httpd/RewriteHTTPToHTTPS

[4] http://wiki.apache.org/httpd/RedirectSSL

[5] http://www.securitybydefault.com/2012/04/configuracion-ssl-de-tomcat.html

Third-party software integration: OCR

Starting with OpenKM 5.1.9 you can choose between several OCR engines:

OCR Engine	Text Extractor	Image Formats	Program arguments
Tesseract 2.x	com.openkm.extractor.Tesseract2TextExtractor	TIFF	/path/to/tesseract ${fileIn} ${fileOut}
Tesseract 3.x	com.openkm.extractor.Tesseract3TextExtractor	TIFF PNG JPG GIF	/path/to/tesseract ${fileIn} ${fileOut}
Cuneiform	com.openkm.extractor.CuneiformTextExtractor	TIFF PNG JPG GIF	/path/to/cuneiform ${fileIn} -o ${fileOut}
Abby	com.openkm.extractor.AbbyTextExtractor	TIFF PNG JPG GIF	/path/to/abby ${fileIn} -o ${fileOut}

> Starting from OpenKM 5.1.8 Cuneiform configuration was changed and the parameters are, set in **system.ocr** configuration. Should be set to "/usr/bin/cuneiform ${fileIn} -o ${fileOut}". See Migration from 5.1.7 to 5.1.8 for more info. In older OpenKM releases the right configuration was "/usr/bin/cuneiform".

> Starting from OpenKM 5.1.9 Tesseract configuration has changed and the parameters are, set in **system.ocr** configuration. Should be set to "/usr/bin/tesseract ${fileIn} ${fileOut}". See Migration from 5.1.8 to 5.1.9 for more info. In older OpenKM releases the right configuration was "/usr/bin/tesseract".

So, if you want to pass a command line parameter to your tesseract executable, you should use this configuration:

```
system.ocr=/usr/bin/tesseract -l esp
```

In this OpenKM version you can also use an OpenOffice.org dictionary to enhance the OCR process. You can find these language specific dictionaries at OpenOffice.org Dictionary Repository [1]. After download, set this configuration property with the path to the dictorionay file:

```
system.openoffice.dictionary=/path/to/dictionary.(oxt|zip)
```

Since OpenKM 5.1.10 you have a new configuration property which make possible to perform OCR in upside down scanned pages. This optional configuration property is called **system.ocr.rotate** and is defined as a list of degrees to rotate the pages. For example:

```
system.ocr.rotate=90;180;270;
```

Software required

You can enable any of these text extractors adding it in the **textFilterClasses** param of the **SearchIndex** section in your repository.xml file.

Starting with OpenKM 5.1 we offer integration with Cognitive OpenOCR (Cuneiform) [2]. This OCR engine make a very good job improving Tesseract conversion ratios.

- Tesseract
- Cuneiform

References

[1] http://extensions.services.openoffice.org/en/dictionaries

[2] http://en.openocr.org/

Third-party software integration: OCR Tesseract

Tesseract is an Open Source OCR engine adopted by Google. It works really well. The OCR natively can read TIFF documents and has hight ratio of recognition with images 300 dpi of resolution and converted to lineart (1 bit color).

If you are using a computer with Debian / Ubuntu, the installation simplifies a lot:

```
$ aptitude install tesseract-ocr
```

And

```
$ aptitude install tesseract-ocr-eng
```

If you want to add support for english language. You can also download Windows executables for tesseract-2.04 at http://code.google.com/p/tesseract-ocr/downloads/list.

Now you have to tell OpenKM to use this OCR application. Edit the file OpenKM.cfg:

```
$ vim OpenKM.cfg
```

And set the system.ocr property to the path of the tesseract executable:

```
system.ocr=/usr/local/bin/tesseract
```

For more info, go to http://code.google.com/p/tesseract-ocr/and Tesseract - Summary & first experiences [1].

You can download Tesseract 3 for Windows from tesseract-ocr Google Code [2]. To install Tesseract 3 in Ubuntu, add the PPA and install Tesseract OCR 3.0 SVN:

```
$ sudo add-apt-repository ppa:alex-p/notesalexp
$ sudo apt-get update
$ sudo apt-get install tesseract-ocr tesseract-ocr-eng
```

> You must add the PPA, install the latest Tesseract and then disable the PPA as it contains a lot of bleeding edge packages!

```
$ sudo add-apt-repository -r ppa:alex-p/notesalexp
```

There is also another interesting free OCR application called OCRopus. It has many improvements over Tesseract but is on early development stage. Last released version (0.3.1) is quite usable and works very well but have to be compiled and actually is a difficult task. Visit http://code.google.com/p/ocropus/for more info.

Compile from source code

You can download the source code from http://code.google.com/p/tesseract-ocr/ and compile yourself. Also download the language files you need and uncompress them in the same folder of the application.

```
$ sudo aptitude install build-essential libtiff4-dev
$ wget http://tesseract-ocr.googlecode.com/files/tesseract-2.04.tar.gz
$ tar xzvf tesseract-2.04.tar.gz
$ cd tesseract-2.04
$ ./configure --prefix=/opt/tesseract
$ make
$ wget http://tesseract-ocr.googlecode.com/files/tesseract-2.00.eng.tar.gz
$ tar xzvf tesseract-2.00.eng.tar.gz
$ sudo make install
```

The executable should be located at /opt/tesseract/bin/tesseract. More info about compilation at:

- http://code.google.com/p/tesseract-ocr/wiki/ReadMe
- http://code.google.com/p/tesseract-ocr/wiki/FAQ

External links

- Tesseract OCR Google Groups [3]
- First Interactions with Tesseract OCR on Ubuntu Linux [4]

References

[1] http://www.win.tue.nl/~aeb/linux/ocr/tesseract.html

[2] http://code.google.com/p/tesseract-ocr/

[3] http://groups.google.com/group/tesseract-ocr

[4] http://triviaatwork.blogspot.com/2009/08/first-interactions-with-tesseract-ocr.html

Third-party software integration: OCR Cuneiform

CuneiForm is an OCR tool. It was originally developed at Cognitive Technologies [2] and, after a few years with no development, released as freeware on December 12, 2007. The kernel of OCR engine was released under the open source BSD license license at the beginning of April 2008.

You can grab binaries from these sites:

- http://en.openocr.org
- http://pkgs.org/search/?keyword=cuneiform
- http://ftp.es.debian.org/debian/pool/non-free/c/cuneiform
- http://notesalexp.net/

If you are using a computer with Debian / Ubuntu, the installation simplifies a lot:

```
$ aptitude install cuneiform
```

Compile from source code

You can download the source code from http://code.google.com/p/tesseract-ocr/ and compile yourself. Also download the language files you need and uncompress them in the same folder of the application.

```
$ aptitude install cmake g++ imagemagick libmagick++-dev
$ tar xjvf cuneiform-linux-1.0.0.tar.bz2
$ cd cuneiform-linux-1.0.0
$ mkdir builddir
$ cd builddir
$ cmake -DCMAKE_BUILD_TYPE=release ..
$ make install
```

Once installed, edit the file **/etc/bash.bashrc** and add at the end:

```
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/usr/local/lib64
```

The Cuneiform executable will be located at:

```
/usr/local/bin/cuneiform
```

Third-party software integration: OpenOffice.org

OpenKM can convert some document types to PDF. This is a great help if need to read an Microsoft Office / OpenOffice.org document and you don't have the software installed in the computer.

> OpenKM has been roughly tested with **OpenOffice.org 3.2.1**, but we have also configured with **OpenOffice.org 3.3.2** and **LibreOffice 3.3.2** and seems to work pretty well, but for now we prefer OpenOffice.org 3.2.1 for production environments.

In a recent Ubuntu or Debian release, you can install it simply as:

```
$ sudo aptitude install openoffice.org
```

Recently has been released OpenOffice.org 3.3.0 and is not fully tested unde OpenKM. You can download the previous stable from OpenOffice Archive Servers [1].

OpenKM 5.1

Configuration parameters are the same as OpenKM 5.0, but in this case they should not go into OpenKM.cfg file, but they are stored at database and configured at Administration > Configuration.

You can also configure OpenKM to use a remote server for OpenOffice document conversion.

```
system.openoffice.server=http://localhost:8080/converter/convert
```

> This feature is under development and actually not released for public testing.

> If you have problems with OpenOffice / LibreOffice integration, take a look at OpenOffice configuration issues.

OpenKM 5.0

In this OpenKM some things changes. You can configure OpenOffice.org listen port and a maximun conversion tasks:

```
system.openoffice.path=/usr/lib/openoffice
system.openoffice.tasks=5
system.openoffice.port=2222
```

In case of LibreOffice and Linux, the **system.openoffice.path** property should be set to */usr/lib/libreoffice*. Note that **system.openoffice.tasks** and **system.openoffice.port** have already a default value and is not needed to be set.

> Starting from OpenKM 5.0 you don't need to start OpenOffice.org as a service because OpenKM will take case of this. You only need to set the **system.openoffice** configuration property in OpenKM.cfg to the path of a working OpenOffice.org installation.

Linux

```
system.openoffice.path=/usr/lib/openoffice
```

Windows

```
system.openoffice.path=C:/Program Files/OpenOffice.org 3
```

or

```
system.openoffice.path=C:\\Program Files\\OpenOffice.org 3
```

> If you have problems with OpenOffice / LibreOffice integration, take a look at OpenOffice configuration issues.

OpenKM 4.x and older versions

You need an OpenOffice.org installation in the OpenKM server, and also this OpenOffice.org application has to be running in server mode (also known as headless). In Debian / Ubuntu, depending of you OpenOffice.org version you will have to install an X11 virtual server or not:

```
$ apt-get install xvfb
```

And start it using this command:

```
$ xvfb-run /usr/lib/openoffice/program/soffice -headless -accept="socket,host=127.0.0.1,port=8100;urp;" -nofirststartwizard
```

From OpenOffice.org 2.3, it is not necessary the X11 virtual server but you should install these packages:

```
$ aptitude install openoffice.org-headless openoffice.org-java openoffice.org
```

But before of this, you must enable a couple of repositories:

```
 deb http://en.archive.ubuntu.com/ubuntu/ hardy-updates universe
 deb http://en.archive.ubuntu.com/ubuntu/ hardy-updates multiverse
```

This script simplifies the start process (For security reasons, you should no start OpenOffice.org as root):

```sh
#!/bin/sh
unset DISPLAY
/usr/lib/openoffice/program/soffice
"-accept=socket,host=localhost,port=8100;urp;StarOffice.ServiceManager"
 -nologo
 -headless -nofirststartwizard
```

OpenOffice.org will listen at port 8100, so you can check that the application has started running this:

```
$ netstat -putan | grep 8100
```

Also you can configure OpenOffice.org as a service with this script:

```bash
#!/bin/bash
# openoffice.org headless server script
#
# chkconfig: 2345 80 30
# description: headless openoffice server script
# processname: openoffice
#
# Author: Vic Vijayakumar
# Modified by Paco Avila and Federico Ch. Tomasczik
#
SOFFICE=/usr/bin/soffice
PIDFILE=/var/run/openoffice-server.pid
```

```
set -e
case "$1" in
    start)
        if [ -f $PIDFILE ]; then
            echo "OpenOffice headless server has already started."
            sleep 5
            exit
        fi
        echo "Starting OpenOffice headless server"
        $SOFFICE -headless -nologo -nofirststartwizard
-accept="socket,host=127.0.0.1,port=8100;urp" & > /dev/null 2>&1
        touch $PIDFILE
        ;;
    stop)
        if [ -f $PIDFILE ]; then
            echo "Stopping OpenOffice headless server."
            killall -9 soffice && killall -9 soffice.bin
            rm -f $PIDFILE
            exit
        fi
        echo "Openoffice headless server is not running."
        exit
        ;;
    *)
        echo "Usage: $0 {start|stop}"
        exit 1
esac
exit 0
```

Change the permissions to this file:

```
$ chmod 0755 /etc/init.d/openoffice
```

Install openoffice init script links:

For Debian based distros like Ubuntu

```
$ update-rc.d openoffice defaults
```

For RedHat based distros like CentOS

```
$ chkconfig --add openoffice
```

And this script will launch OpenOffice.org on every system reboot. Also you can launch it manually this way:

```
$ /etc/init.d/openoffice start
```

More info at:

- OpenOffice Installation Instructions for Windows [2]
- http://www.artofsolving.com/node/10
- http://www.oooforum.org/forum/viewtopic.phtml?t=11890
- http://code.google.com/p/openmeetings/wiki/OpenOfficeConverter

Windows

Install Windows Server 2003 Resource Kit Tools [3] in your computer for example at c:\tools

Create a openoffice service **cd c:\tools**

```
instsrv openoffice c:\tools\srvany.exe
```

Modify sy**stem registry using regedit,** got to
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\openoffice

Add key **Parameters**

Into Parameters add mew parameters key **Application** as **REG_SZ** (String value) with your server soffice.exe path, for example **C:\Archivos de programa\OpenOffice.org 3\program\soffice.exe**

Into Parameter add new parameters key AppParameters as REG_SZ with value **-nofirststartwizard -nologo -headless -accept=socket,host=localhost,port=8100;urp;StarOffice.ServiceManager**

To start service type:

```
net start openoffice
```

To ensure service is well installed:

```
netstat -anp tcp
```

To delete the service type:

```
sc delete openoffice
```

More info at:

- http://yaib.eu/2008/10/30/run-openofficeorg-3-as-windows-service/
- http://support.microsoft.com/kb/q137890/
- http://www.iopus.com/guides/srvany.htm

References

[1] http://archive.services.openoffice.org/pub/openoffice-archive/stable/3.2.1/

[2] http://support.etouch.net/cm/wiki/?id=34626

[3] http://go.microsoft.com/fwlink/?LinkId=4544

Third-party software integration: SWFTools

To enable preview UI tab, OpenKM need to convert pdf files to swf.

> Starting from OpenKM 5.1 this configuration property has changed to **system.swftools.pdf2swf**.

> Since OpenKM 5.1.9 the pdf2swf command line parameters should be added in the configuration property, for example:
>
> ```
> system.swftools.pdf2swf=/usr/bin/pdf2swf -T 9 -f ${fileIn} -o ${fileOut}
> ```

See FlexPaper: Converting Documents [1] for more info.

Linux

Ubuntu

Swftools can be installed running in terminal:

```
$ sudo aptitude install swftools
```

Enable in OpenKM.cfg or Administration > Configuration depending on your OpenKM version:

```
system.swftools.pdf2swf=/usr/bin/pdf2swf
```

> In Ubuntu 10.04 is possible you need to add this line to **/etc/apt/sources.list**
>
> ```
> deb [2] lucid partner
> ```

> In Ubuntu 10.10 this package is not included, so you need to compile it or grab from [3]
>
> ```
> $ sudo add-apt-repository ppa:ella-animation/dev
> $ sudo aptitude update
> $ sudo aptitude install swftools
> ```

Red hat

Better if you compile version 0.9.x

```
$ yum install zlib-devel libjpeg-devel giflib-devel freetype-devel gcc gcc-c++
$ wget http://www.swftools.org/swftools-0.9.1.tar.gz
$ tar xzf swftools-0.9.1.tar.gz
$ cd swftools-0.9.1
$ ./configure --prefix=/usr/local
$ make
$ make install
```

Debian

This package is not include in the Debian repositories, so you need to compile from source:

```
$ aptitude install build-essential libgif-dev xpdf libfreetype6 libfreetype6-dev libjpeg62 libjpeg8 libjpeg8-dev

$ wget http://www.swftools.org/swftools-0.9.1.tar.gz

$ tar xzf swftools-0.9.1.tar.gz

$ cd swftools-0.9.1

$ ./configure --prefix=/usr/local

$ make

$ make install
```

Or you can try to install the Ubuntu package. For Debian Squeeze I recommend the Ubuntu Lucid package.

Improving performance

For better performance, use this configuration.

```
system.swftools.pdf2swf=/usr/bin/pdf2swf -T 9 -f -t -G -s storeallcharacters ${fileIn} -o ${fileOut}
```

The parameters specifies that:

- -f : Fonts should be embedded, improves searchability in the document
- -t : Inserts a stop between each frame, improves stability
- -G : Makes the document smaller and faster to render
- -s storeallcharacters : Stores all character information about the texts in the document, improves searchability

OpenKM 5.0.x

Create file pdf2swf_wrapper.sh

```bash
#!/bin/bash

/usr/bin/pdf2swf $* -f -t -G -s storeallcharacters
```

Make it executable:

```
$ chmod +x pdf2swf_wrapper.sh
```

And don't forget to change the OpenKM.cfg file:

```
system.pdf2swf=/path/to/pdf2swf_wrapper.sh
```

> Take a look at pdf2swf wiki [4] for complete parameters reference, and remember that JBoss must be restarted after every OpenKM.cfg modification.

Conversion problems with big files

If the document is big (has many pages) or is complex, the conversion may fail with this error:

```
ERROR    ID Table overflow
ERROR    This file is too complex to render- SWF only supports 65536 shapes at once
```

You can workaround this error adding the **-s poly2bitmap** parameter which convert graphics to bitmaps:

```
system.swftools.pdf2swf=/usr/bin/pdf2swf -T 9 -f -t -G -s poly2bitmap -s storeallcharacters ${fileIn} -o ${fileOut}
```

See also Troubleshooting: Some PDF file not shown in preview.

Windows

Donwload last swftools http://www.swftools.org/download.html and install it.

Enable in OpenKM.cfg (put this character to indicate path separator "/" not "\")

```
system.pdf2swf=c:/program files/swftools/pdf2swf.exe
```

Improving performance

For better performance in conversion,

```
system.swftools.pdf2swf=c:/path/to/pdf2swf.exe -T 9 -f -t -G -s storeallcharacters ${fileIn} -o ${fileOut}
```

The parameters specifies that:

- -f : Fonts should be embedded, improves searchability in the document
- -t : Inserts a stop between each frame, improves stability
- -G : Makes the document smaller and faster to render
- -s storeallcharacters : Stores all character information about the texts in the document, improves searchability

OpenKM 5.0.x

Create file pdf2swf_wrapper.bat

```
c:\path\to\pdf2swf %1 %2 %3 -f -t -G -s storeallcharacters
```

And don't forget to change the OpenKM.cfg file:

```
system.pdf2swf=c:/path/to/pdf2swf_wrapper.bat
```

	Take a look at pdf2swf wiki [4] for complete parameters reference, and remember that JBoss must be restarted after every OpenKM.cfg modification.

See also Troubleshooting: Some PDF file not shown in preview.

References

[1] http://flexpaper.devaldi.com/docs_converting.jsp

[2] http://archive.canonical.com/ubuntu

[3] https://launchpad.net/~ella-animation/+archive/dev:

[4] http://wiki.swftools.org/index.php/Pdf2swf

Third-party software integration: Antivirus

OpenKM can check if a submitted document is infected. It works with an Open Source antivirus software called ClamAV. Edit OpenKM.cfg and add this line:

```
system.antivir=/path/to/clamscan
```

This screenshot shows an error message from OpenKM because the submitted document is infected by a virus:
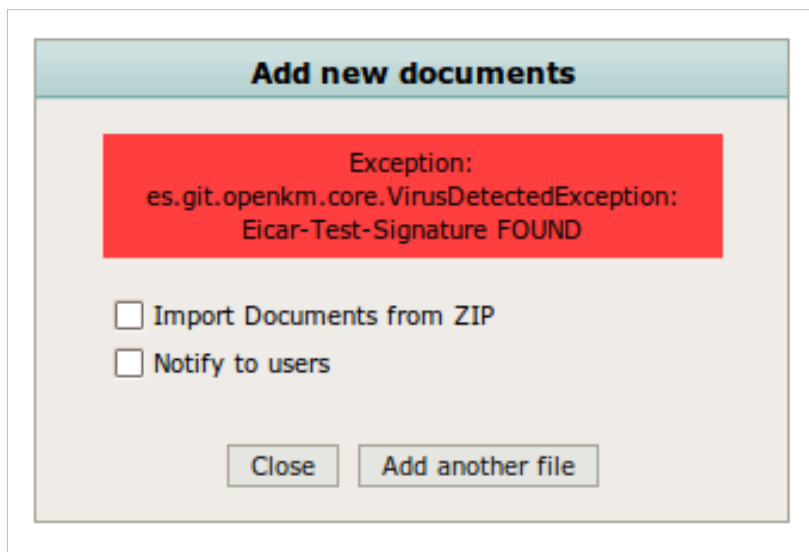
Debian / Ubuntu

To install ClamAV on Debian / Ubuntu distribution:

```
$ sudo aptitude install clamav
```

RedHat / CentOS

To install ClamAV in Centos 5.2 you need more work. First create a file named */etc/yum.repos.d/dag.repo* with this content:

```
[dag]
name=Dag RPM Repository for Red Hat Enterprise Linux
baseurl=http://apt.sw.be/redhat/el$releasever/en/$basearch/dag/
gpgcheck=1
gpgkey=http://dag.wieers.com/packages/RPM-GPG-KEY.dag.txt
enabled=1
```

Now install the program as root:

```
$ yum install clamd.i386
```

Start the daemon:

```
$ /etc/init.d/clamd start
```

And update the virus database:

```
$ freshclam
```

Windows

To Install and Configure ClamAV on Windows:

Note: **GREEN Text** like this denotes commands run in a command console/terminal

BLACK Text like this denotes code changes

- Download the newest version (either i386 OR 64 bit) from: http://sourceforge.net/projects/clamav/files/clamav/win32/

- Unpack the ZIP archive and move it to: C:\ so that it appears in your path as: C:\ClamAV

- Copy the example conf files from C:\ClamAV\conf_examples to C:\ClamAV

- Open up a command terminal: Start->Run **cmd**
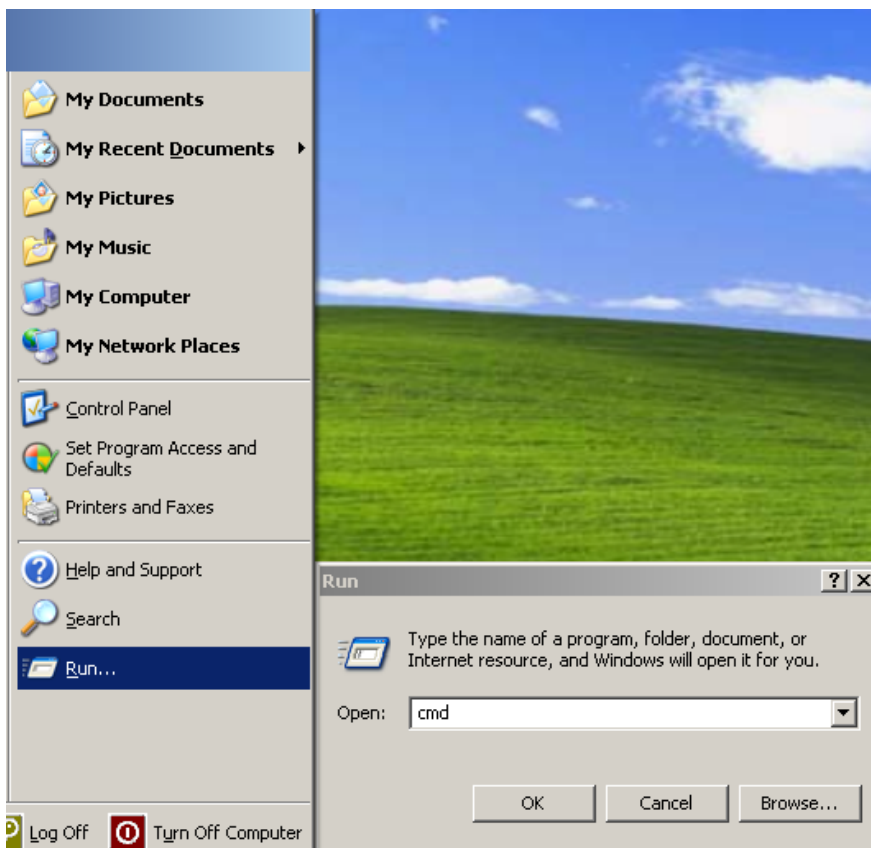
- Change to the ClamAV directory: **cd C:\ClamAV**

- Run **clamconf.exe**, it should complain that you need to edit the example config file. (I included this just so you can check that the files are in the right location)

For DEFAULT MINIMAL configuration (Probably not suitable and you should configure the parameters for your situation) Edit freshclam.conf, clamav-milter.conf and comment **Example**. In addition to commenting **Example** in clamd.conf; to enable the local server you will need to change line 80 to: **LocalSocket C:\CLAMAV\clamd.socket**

- Run **clamconf.exe** again, you will get an output of all your configurations.

> Initially you will get a note about being unable to open database, this is because it has not been created yet.
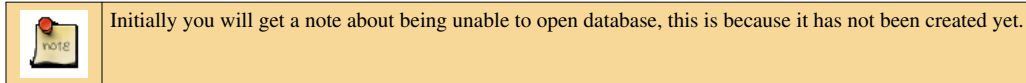
- Run **mkdir database**. If you run clamconf again you will see that the database error is gone and that you have 0 signatures

- Run **freshclam.exe**, this will start the initial signature download for ClamAV and may take a few minutes.

At this point you can run **clamd.exe** to check that the server can run manually. (If you decide to test run at this point, you will have to kill the process for the next section)

Clamd Service Setup

Now to setup it up so it starts automatically:

Details for the screen capture are below:

- Run **sc create ClamD binPath= C:\Program Files\Windows Resource Kits\Tools\srvany.exe** (yes the space is required in this command and you may have your resource tools in a different location)

It should tell you: [SC] CreateService SUCCESS

- Run **Regedit**. Find: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ClamD

  - Right click on ClamD and create a new Key
  - Name the key **Parameters**
  - Click on the new Parameters Key, in the right pane create a new String Value
  - Name the String Value **Application**
  - Right click and Modify Application to: **C:\ClamAV\clamd.exe –c C:\ClamAV\clamd.conf**
  - Close Regedit

- Run **services.msc**

  - Find ClamD in the list
  - Right click -> Properties
  - Change Startup type to: Automatic
  - Select the recovery tab and change all three failures to: Restart the Service
  - Select the General tab and Apply

Freshclam Virus Signature Auto Update

We are almost done!

- Navigate to: Start->All Programs->Accessories->System Tools->Scheduled Tasks
- Add Scheduled Task
- Next->Browse to C:\ClamAV\freshclam.exe
- Select to Perform this task daily
- Next
- Select a good time to update
- Next
- Enter the user credentials to run as
- Next
- Select open Advance options
- Next
- Alter Run to be: **C\ClamAV\freshclam.exe –c C:\ClamAV\freshclam.conf**
- Select the Settings Tab
- Change the Stop Task to 30 minutes
- Apply
- Ok

Right click and run the freshclam task to make sure you do not have any errors

Finally, you need to set **system.antivir=C:\ClamAV\clamscan.exe** in OpenKM. Depending on your version you can use the Administration panel or OpenKM.cfg.

If everything is working, the document scanning will work in the OpenKM Windows install!

Third-party software integration: Acme CAD Converter

This utility is used to manage AutoCAD preview and conversion. This configuration has been tested with Acme CAD Converter 2011 v8.2.2.

As this is a Windows application, you need to install **wine** in Linux to be used. A tip in Linux is making a soft link to ease the application execution:

```
.wine/ACC -> .wine/drive_c/Program\ Files/Acme\ CAD\ Converter/
```

To achieve this, run these commands:

```
$ cd .wine
$ ln -s drive_c/Program\ Files/Acme\ CAD\ Converter ACC
```

This way, the configuration of the **system.dwg2dxf** property is:

```
wine /home/openkm/.wine/ACC/AcmeCADConverter.exe
```

If the server does not have the X-Window system, is necessary to install a Virtual Framebuffer 'fake' X server:

```
$ sudo aptitude install xvfb
```

And modify the startup JBoss script:

```
DIRNAME=`dirname $0`
PROGNAME=`basename $0`
GREP="grep"
JAVA_OPTS="-Xms256m -Xmx2048m -XX:PermSize=128m -XX:MaxPermSize=256m
-Djava.awt.headless=true"

# Wine stuff
echo "Starting Xvfb"
Xvfb :1 &
export DISPLAY=:1

# Use the maximum available, or set MAX_FD != -1 to use that
MAX_FD="maximum"
```

If you see an error like this:

```
X11DRV_WineGL_InitOpenglInfo Direct rendering is disabled, most likely your OpenGL drivers haven't been installed correctly
```

Try to set this environment variables (In that case will be needed to add to the startup JBoss script):

```
export LIBGL_DRIVERS_PATH=/usr/lib32/dri
```

If you see this error:

```
 Error initialising GL driver, check that the file 'opengl32.dll' exists
```

Try to install these packages:

```
 $ sudo aptitude install fontforge libgl1-mesa-glx
```

See also Autocad preview.

Repository backup

OpenKM backup depends on repository configuration. By default, all documents are stored in $JBOSS_HOME/repository. This default folder can be changed using the property repository.home in the file OpenKM.cfg. If you want to make a backup, you should keep a copy of this folder. Is also recommended to backup files located at *$JBOSS_HOME/server/default/data/hypersonic* because there are several databases which handle important data.

> Keep on mind that OpenKM by default use the embedded Hypersonic database, which files are located at *$JBOSS_HOME/server/default/data/hypersonic*. If you configure another database ad MySQL you need to backup this database, and not the previous Hypersonic files.

> It is recommended to stop JBoss before start the backup to prevent file modifications in the middle of the process because can make the backup useless.

The backup process should have these steps:

- Stop JBoss
- Backup important folders
- Start JBoss

In Unix / Linux you can backup the repository folder running these commands from $JBOSS_HOME. First stop JBoss:

```
$ ./bin/shutdown.sh -S
```

Once JBoss is stopped (you can see the JBoss log to ensure it has stopped) , make the backup:

```
$ tar czf repository.tgz repository
```

To check the backup, rename the repository folder:

```
$ mv repository repository-old
```

Restore the backup:

```
$ tar xzf repository.tgz
```

And start JBoss:

```
$ ./bin/run.sh
```

See also Backup scripts.

In Windows could be something like this:

- Stop JBoss

```
c:\jboss\bin\shutdown.bat -S
```

- Make backup

```
xcopy c:\jboss-4.2.3.GA\*.* e:\Backup\ /s/e
```

- Start JBoss again

```
c:\jboss-4.2.3.GA\bin\run.bat -b 0.0.0.0
```

The complete script may be like this one:

```
c:\jboss\bin\shutdown.bat -S
xcopy c:\jboss-4.2.3.GA\*.* e:\Backup\ /s/e
c:\jboss-4.2.3.GA\bin\run.bat -b 0.0.0.0
```

There's a little problem in default shutdown.bat and run.bat script because makes a pause at ends, you might delete the final line in both scripts

```
if "%NOPAUSE%" == "" pause
```

> Due to Jackrabbit flexibility you can configure your OpenKM installation to store the documents in a database, for example. In this case you have to modify the backup procedure. Anyway the $JBOSS_HOME/repository folder should be backup because it contains repository meta data.

Alternative backup procedure

There is an alternative method for backups: you can export the whole repository from OpenKM administration. The folder structure will be re-created in the local filesystem, and all document on them. Since **OpenKM 5.1.9 also can export document related metadata**, but in older versions you can't and will lose the document history and other metadata like Property Groups.

> Ensure you have enough free disk space before perform this operation.

This export is only of the document repository and won't backup all other information stored in OpenKM database as user, roles, property groups definitions, workflows, mail accounts, etc.

Backup with rsync

rsync is a software application and network protocol for Unix, Linux and Windows systems which synchronizes files and directories from one location to another while minimizing data transfer using delta encoding when appropriate. An important feature of rsync not found in most similar programs/protocols is that the mirroring takes place with only one transmission in each direction. rsync can copy or display directory contents and copy files, optionally using compression and recursion.

Remote backup with rsync

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
FILES="/home/openkm"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##
echo -e "### BEGIN: $(date +"%x %X") ###\n"

# Stop JBoss
/etc/init.d/jboss stop
while [ "$(ps -ef | grep java | grep jboss | wc -l)" -gt "0" ]; do
  sleep 5; echo ".";
```

```
done

# Copy to backup server
rsync -apzhR --stats --delete --exclude=*~ --delete-excluded $FILES
backup@server:$BACKUP_DIR/$HOST

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"
```

Remote backup with rsync and rotation

```
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
FILES="/home/openkm"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##
echo -e "### BEGIN: $(date +"%x %X") ###\n"

# Stop JBoss
/etc/init.d/jboss stop

# Copy to backup server
ssh backup@server "cd $HOST; rm -rf backup.3; mv backup.2 backup.3; mv
backup.1 backup.2; mv backup.0 backup.1"
rsync -apzhR --stats --delete --exclude=*~ --delete-excluded
--link-dest="$BACKUP_DIR/$HOST/backup.1" \
$FILES backup@server:$BACKUP_DIR/$HOST/backup.0

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"
```

Local backup with rsync and MySQL

```
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS=""
OPENKM_HOME="/home/openkm"
JBOSS_HOME="$OPENKM_HOME/jboss-4.2.3.GA"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##
```

```bash
if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Stop JBoss
/etc/init.d/jboss stop

# Clean logs
echo "Clean JBoss temporal files."
# rm -rf $JBOSS_HOME/server/default/log
rm -rf $JBOSS_HOME/server/default/tmp
rm -rf $JBOSS_HOME/server/default/work
rm -rf $JBOSS_HOME/server/default/data/wsdl

# Backup de MySQL
if [ -n "$MYSQL_PASS" ]; then
  MYSQL_DBS=$(mysqlshow -h localhost -u root -p$MYSQL_PASS | awk '(NR >
2) && (/[a-zA-Z0-9]+[ ]+[|]/) && ($2 != "mysql") && ($2 != "test") &&
($2 != "information_schema") { print $2 }');

  for DB in $MYSQL_DBS ; do
    echo "* Backuping MySQL data from $DB...";
    mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
  done
  echo "----------------------------------";
fi

# Create backup
rsync -apzhR --stats --delete --exclude=*~ --delete-excluded
$OPENKM_HOME $BACKUP_DIR/$HOST

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"
```

Local backup with rsync and rotation

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
FILES="/home/openkm"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##
```

```bash
echo -e "### BEGIN: $(date +"%x %X") ###\n"


# Stop JBoss
/etc/init.d/jboss stop


# Calculate snapshot
LAST_SNAPSHOT=`ls -ltr $BACKUP_DIR | tail -1 | awk {'print $8'} | cut
-d . -f 2`
NEW_SNAPSHOT=$((LAST_SNAPSHOT+1))


# Copy to backup server
rsync -apzhR --stats --delete --exclude=*~
--exclude="$JBOSS_HOME/cache" --delete-excluded \
--link-dest="$BACKUP_DIR/$HOST/backup.$LAST_SNAPSHOT" $FILES
"$BACKUP_DIR/$HOST/backup.$NEW_SNAPSHOT"


# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"


# Status
echo "==============================";
du -hs $BACKUP_DIR
echo "********************************";
du -hs --time $BACKUP_DIR/*
echo "==============================";
df -h | grep "$BACKUP_DIR"
echo "==============================";
```

Remote backup with rsync (Tomcat - PostgreSQL)

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
RSYNC_OPTS="-ahPR --stats --delete --exclude=*~ --delete-excluded"
OPENKM_HOME="/home/openkm"
TOMCAT_HOME="$OPENKM_HOME/tomcat-7.0.27"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_SRV="user@server.com"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##


if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi


echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
```

```
mkdir -p $DATABASE_EXP

# Stop Tomcat
/etc/init.d/tomcat stop

# Clean logs
#echo "Clean Tomcat temporal files."
#rm -rf $TOMCAT_HOME/logs/*
#rm -rf $TOMCAT_HOME/temp/*
#rm -rf $TOMCAT_HOME/work/Catalina/localhost

# Backup de PostgreSQL
POSTGRESQL_DBS=$(su postgres -c "psql -l" | awk '(NR > 2) &&
(/[a-zA-Z0-9]+[ ]+[|]/) && ($1 !~ /template[0-1]/) && ($1 !=
"postgres") { print $1 }');

for DB in $POSTGRESQL_DBS ; do
  echo "* Backuping PostgreSQL data from $DB..."
  su postgres -c "pg_dump -Fc -b $DB" > $DATABASE_EXP/pg_$DB.dmp
done

# Databases optimizations
su postgres -c "vacuumdb -a -z" > /dev/null
su postgres -c "reindexdb -a -q" 2> /dev/null

# Calculate snapshot
NEW_SNAPSHOT=$(date "+%Y-%m-%dT%H:%M:%S")
LAST_SNAPSHOT=$(ssh $BACKUP_SRV ls -tr $BACKUP_DIR/$HOST | tail -1)

# Backup and rotate
if [ $LAST_SNAPSHOT ]; then
  echo "Incremental backup $NEW_SNAPSHOT based on $LAST_SNAPSHOT... "
  rsync $RSYNC_OPTS --link-dest="$BACKUP_DIR/$HOST/$LAST_SNAPSHOT"
"$OPENKM_HOME" "$BACKUP_SRV:$BACKUP_DIR/$HOST/$NEW_SNAPSHOT"
else
  echo "Initial full backup $NEW_SNAPSHOT..."
  rsync $RSYNC_OPTS "$OPENKM_HOME"
"$BACKUP_SRV:$BACKUP_DIR/$HOST/$NEW_SNAPSHOT"
fi

# Start Tomcat
/etc/init.d/tomcat start
echo -e "\n### END: $(date +"%x %X") ###"

# Status
echo "==============================";
ssh $BACKUP_SRV ls -l "$BACKUP_DIR/$HOST"
```

```
echo "=============================";
```

Backup with rdiff-backup

rdiff-backup backs up one directory to another, possibly over a network. The target directory ends up a copy of the source directory, but extra reverse diffs are stored in a special subdirectory of that target directory, so you can still recover files lost some time ago. The idea is to combine the best features of a mirror and an incremental backup. rdiff-backup also preserves subdirectories, hard links, dev files, permissions, uid/gid ownership, modification times, extended attributes, acls, and resource forks. Also, rdiff-backup can operate in a bandwidth efficient manner over a pipe, like rsync. Thus you can use rdiff-backup and ssh to securely back a hard drive up to a remote location, and only the differences will be transmitted.

> rdiff-backup from Debian throws a warning due to a deprecated method [os.popen2 is deprecated [1]], which can be hidden following the steps at How to shut up Python deprecation warnings [2].

> If you need to backup to CIFS (SMB, Samba) or Mac's HFS, please take a look at rdiff-backup FAQ [3].

More info about rdiff-backup:

- rdiff-backup home page [4]
- rdiff-backup wiki [5]

Remote backup with rdiff-backup

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
FILES="/home/openkm"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##
echo -e "### BEGIN: $(date +"%x %X") ###\n"

# Stop JBoss
/etc/init.d/jboss stop

# Backup and purge old backups
rdiff-backup --remove-older-than 30B backup@server::$BACKUP_DIR/$HOST
rdiff-backup -v 3 --print-statistics --exclude /media --exclude /mnt \
  --include $FILES --exclude '**' / backup@server::$BACKUP_DIR/$HOST

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"

# Status
echo "=============================";
```

```
rdiff-backup --list-increment-sizes backup@server::$BACKUP_DIR/$HOST
echo "================================";
```

Local backup to USB disk with rdiff-backup

USB disk mount point can be defined in */etc/fstab* as:

```
/dev/sdb1          /mnt/backup     ext4    defaults        0       0
```

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS=""
OPENKM_HOME="/home/openkm"
JBOSS_HOME="$OPENKM_HOME/jboss-4.2.3.GA"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DIR="/mnt/backup"
## END CONFIG ##

if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Mount disk
if mount | grep "$BACKUP_DIR type" > /dev/null; then
  echo "$BACKUP_DIR already mounted";
else
  mount "$BACKUP_DIR";
fi

# Stop JBoss
/etc/init.d/jboss stop

# Clean logs
echo "Clean JBoss temporal files."
# rm -rf $JBOSS_HOME/server/default/log
rm -rf $JBOSS_HOME/server/default/tmp
rm -rf $JBOSS_HOME/server/default/work
rm -rf $JBOSS_HOME/server/default/data/wsdl

# Backup de MySQL
if [ -n "$MYSQL_PASS" ]; then
  MYSQL_DBS=$(mysqlshow -h localhost -u root -p$MYSQL_PASS | awk '(NR >
2) && (/[a-zA-Z0-9]+[ ]+[|]/) && ($2 != "mysql") && ($2 != "test") &&
($2 != "information_schema") { print $2 }');
```

```bash
  for DB in $MYSQL_DBS ; do
    echo "* Backuping MySQL data from $DB...";
    mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
  done
  echo "----------------------------------";
fi


# Backup and purge old backups
rdiff-backup --remove-older-than 30B $BACKUP_DIR/$HOST
rdiff-backup -v 3 --print-statistics --exclude /media --exclude /mnt \
  --include $OPENKM_HOME --exclude '**' / $BACKUP_DIR/$HOST


# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"


# Status
echo "================================";
rdiff-backup --list-increment-sizes $BACKUP_DIR/$HOST
echo "********************************";
df -h | grep "$BACKUP_DIR"
echo "================================";


# Umount disk
sync
umount "$BACKUP_DIR"
```

Be sure to have the last JBoss startup script, otherwise use this piece of code to ensure that JBoss is stopped before backuping the files:

```bash
while [ "$(ps -ef | grep java | grep jboss | wc -l)" -gt "0" ]; do
  sleep 5; echo ".";
done
```

Remote backup with rdiff-backup (JBoss)

```bash
#!/bin/bash
#
# @weekly /root/backup.sh
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS="****"
OPENKM_HOME="/home/openkm"
JBOSS_HOME="$OPENKM_HOME/jboss-4.2.3.GA"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DST="user@server::/path/to/backup"
```

```
## END CONFIG ##

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Stop JBoss
/etc/init.d/jboss stop

# Clean logs
echo "Clean JBoss temporal files."
# rm -rf $JBOSS_HOME/server/default/log
rm -rf $JBOSS_HOME/server/default/tmp
rm -rf $JBOSS_HOME/server/default/work
rm -rf $JBOSS_HOME/server/default/data/wsdl

# Backup de MySQL
MYSQL_DBS=$(mysqlshow -h localhost -u root -p$MYSQL_PASS | awk '(NR > 2)
 && (/[a-zA-Z0-9]+[ ]+[||]/) && ($2 != "mysql") && ($2 != "test") && ($2
 != "information_schema") { print $2 }');

for DB in $MYSQL_DBS ; do
  echo "* Backuping MySQL data from $DB..."
  mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
done

echo "------------------------------------"

# Backup and purge old backups
rdiff-backup --remove-older-than 30B $BACKUP_DST

rdiff-backup -v 3 --print-statistics \
  --exclude /media --exclude /mnt \
  --include /etc --include /root \
  --include $JBOSS_HOME --include $DATABASE_EXP \
  --exclude / / $BACKUP_DST

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"

# Status
echo "===============================";
rdiff-backup --list-increment-sizes $BACKUP_DST
echo "===============================";
```

Remote backup with rdiff-backup (Tomcat - MySQL)

```bash
#!/bin/bash
#
# @weekly /root/backup.sh
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS="****"
OPENKM_HOME="/home/openkm"
TOMCAT_HOME="$OPENKM_HOME/tomcat-7.0.27"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DST="user@server::/path/to/backup"
## END CONFIG ##

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Stop Tomcat
/etc/init.d/tomcat stop

# Clean logs
#echo "Clean Tomcat temporal files."
#rm -rf $TOMCAT_HOME/logs/*
#rm -rf $TOMCAT_HOME/temp/*
#rm -rf $TOMCAT_HOME/work/Catalina/localhost

# Backup de MySQL
MYSQL_DBS=$(mysqlshow -h localhost -u root -p$MYSQL_PASS | awk '(NR > 2)
 && (/[a-zA-Z0-9]+[ ]+[|]/) && ($2 != "mysql") && ($2 != "test") && ($2
 != "information_schema") { print $2 }');

for DB in $MYSQL_DBS ; do
  echo "* Backuping MySQL data from $DB..."
  mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
done

echo "---------------------------------"

# Backup and purge old backups
rdiff-backup --remove-older-than 30B $BACKUP_DST

rdiff-backup -v 3 --print-statistics \
  --exclude /media --exclude /mnt \
  --include /etc --include /root \
  --include $TOMCAT_HOME --include $DATABASE_EXP \
```

```
  --exclude / / $BACKUP_DST


# Start Tomcat
/etc/init.d/tomcat start
echo -e "\n### END: $(date +"%x %X") ###"


# Status
echo "===============================";
rdiff-backup --list-increment-sizes $BACKUP_DST
echo "===============================";
```

Remote backup with rdiff-backup (Tomcat - PostgreSQL)

```
#!/bin/bash
#
# @weekly /root/backup.sh
#
## BEGIN CONFIG ##
HOST=$(uname -n)
OPENKM_HOME="/home/openkm"
TOMCAT_HOME="$OPENKM_HOME/tomcat-7.0.27"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DST="user@server::/path/to/backup"
## END CONFIG ##


echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP


# Stop Tomcat
/etc/init.d/tomcat stop


# Clean logs
#echo "Clean Tomcat temporal files."
#rm -rf $TOMCAT_HOME/logs/*
#rm -rf $TOMCAT_HOME/temp/*
#rm -rf $TOMCAT_HOME/work/Catalina/localhost


# Backup de PostgreSQL
POSTGRESQL_DBS=$(su postgres -c "psql -l" | awk '(NR > 2) &&
(/[a-zA-Z0-9]+[ ]+[|]/) && ($1 !~ /template[0-1]/) && ($1 !=
"postgres") { print $1 }');


for DB in $POSTGRESQL_DBS ; do
  echo "* Backuping PostgreSQL data from $DB..."
  su postgres -c "pg_dump $DB" > $DATABASE_EXP/pg_$DB.sql
done
```

```
# Databases optimizations
su postgres -c "vacuumdb -a -z" > /dev/null
su postgres -c "reindexdb -a -q" 2> /dev/null


echo "------------------------------------"


# Backup and purge old backups
rdiff-backup --remove-older-than 30B $BACKUP_DST

rdiff-backup -v 3 --print-statistics \
  --exclude /media --exclude /mnt \
  --include /etc --include /root \
  --include $TOMCAT_HOME --include $DATABASE_EXP \
  --exclude / / $BACKUP_DST


# Start Tomcat
/etc/init.d/tomcat start
echo -e "\n### END: $(date +"%x %X") ###"


# Status
echo "================================";
rdiff-backup --list-increment-sizes $BACKUP_DST
echo "================================";
```

References

[1] http://bugs.debian.org/cgi-bin/bugreport.cgi?bug=590107

[2] http://www.linuxinsight.com/how-to-shut-up-python-deprecation-warnings.html

[3] http://rdiff-backup.nongnu.org/FAQ.html

[4] http://rdiff-backup.nongnu.org/

[5] http://wiki.rdiff-backup.org/wiki/index.php/Main_Page

Backup with duplicity

duplicity backs directories by producing encrypted tar-format volumes and uploading them to a remote or local file server. Because duplicity uses librsync, the incremental archives are space efficient and only record the parts of files that have changed since the last backup. Because duplicity uses GnuPG to encrypt and/or sign these archives, they will be safe from spying and/or modification by the server.

Duplicity can be installed in Debian / Ubuntu as simple as:

```
$ sudo aptitude install duplicity
```

But it not in the CentOS / RedHat default repositories, so you need to install from another source. This script will help in this installation process:

```bash
#!/bin/bash

wget
http://dl.fedoraproject.org/pub/epel/6/x86_64/duplicity-0.6.18-1.el6.x86_64.rpm
wget
http://dl.fedoraproject.org/pub/epel/6/x86_64/ncftp-3.2.4-1.el6.x86_64.rpm
wget
http://dl.fedoraproject.org/pub/epel/6/x86_64/librsync-0.9.7-15.el6.x86_64.rpm
wget
http://dl.fedoraproject.org/pub/epel/6/x86_64/python-GnuPGInterface-0.3.2-6.el6.noarch.rpm
wget
http://dl.fedoraproject.org/pub/epel/6/x86_64/python-boto-2.5.2-1.el6.noarch.rpm


rpm -Uvh duplicity-0.6.18-1.el6.x86_64.rpm ncftp-3.2.4-1.el6.x86_64.rpm
 librsync-0.9.7-15.el6.x86_64.rpm
python-GnuPGInterface-0.3.2-6.el6.noarch.rpm
python-boto-2.5.2-1.el6.noarch.rpm
```

See also:

- Duplicity Backup Howto [1]
- Duplicity URL Format [2]
- Installation and configuration of duplicity for encrypted SFTP remote backup [3]

Problems deleting old backups

You have configured Duplicity to make a full backups every 7 days, and deleting backups older than 14 days to save space. What happen if you see a message like this?

```
Tue May  1 00:00:00 2012
Wed May  2 00:00:00 2012
Which can't be deleted because newer sets depend on them
```

Duplicity uses rsync, which contains incremental changes. Those files won't be deleted because, even though the backup maybe older than 7 days, there are backups which are incrementals and younger than 7 days.

So, after 2 weeks have passed, those files will be deleted, since the full backup and the incremental backups are now 14 days old, and there exists a full backup newer than the full and incremental backups.

Remote backup with duplicity (JBoss)

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS=""
OPENKM_HOME="/home/openkm"
JBOSS_HOME="$OPENKM_HOME/jboss-4.2.3.GA"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DIR="ftp://user@ftp.domain.es/backup"
export FTP_PASSWORD="WhateverPasswordYouSetUp"
## END CONFIG ##


if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi


echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP


# Stop JBoss
/etc/init.d/jboss stop


# Clean logs
echo "Clean JBoss temporal files."
# rm -rf $JBOSS_HOME/server/default/log
rm -rf $JBOSS_HOME/server/default/tmp
rm -rf $JBOSS_HOME/server/default/work
rm -rf $JBOSS_HOME/server/default/data/wsdl


# Backup de MySQL
if [ -n "$MYSQL_PASS" ]; then
  MYSQL_DBS=$(mysqlshow -h localhost -u root -p$MYSQL_PASS | awk '(NR >
2) && (/[a-zA-Z0-9]+[ ]+[|]/) && ($2 != "mysql") && ($2 != "test") &&
($2 != "information_schema") { print $2 }');

  for DB in $MYSQL_DBS ; do
    echo "* Backuping MySQL data from $DB...";
    mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
  done
  echo "------------------------------------";
fi


# Backup and purge old backups
duplicity remove-older-than 3M --force $BACKUP_DIR/$HOST
```

```
if [ $(date +%u) -eq 7 ]; then
  echo "*** Full Backup ***"
  duplicity full --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
else
  echo "*** Incremental Backup ***"
  duplicity --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
fi

# Start JBoss
/etc/init.d/jboss start
echo -e "\n### END: $(date +"%x %X") ###"

# Status
echo "================================";
duplicity collection-status $BACKUP_DIR/$HOST
unset FTP_PASSWORD
echo "================================";
```

Remote backup with duplicity (Tomcat - MySQL)

```
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
MYSQL_PASS=""
OPENKM_HOME="/home/openkm"
TOMCAT_HOME="$OPENKM_HOME/tomcat-7.0.27"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DIR="ftp://user@ftp.domain.es/backup"
# BACKUP_DIR="sftp://user@sftp.domain.es//path/to/backup"
export FTP_PASSWORD="WhateverPasswordYouSetUp"
## END CONFIG ##

if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Stop Tomcat
/etc/init.d/tomcat stop

# Clean logs
#echo "Clean Tomcat temporal files."
#rm -rf $TOMCAT_HOME/logs/*
#rm -rf $TOMCAT_HOME/temp/*
#rm -rf $TOMCAT_HOME/work/Catalina/localhost
```

```bash
# Backup de MySQL
if [ -n "$MYSQL_PASS" ]; then
  DB="okm_app"
  echo "* Backuping MySQL data from $DB...";
  mysqldump -h localhost -u root -p$MYSQL_PASS $DB >
$DATABASE_EXP/mysql_$DB.sql
  echo "------------------------------------";
fi


# Backup and purge old backups
duplicity remove-older-than 1M --force $BACKUP_DIR/$HOST


if [ $(date +%u) -eq 7 ]; then
  echo "*** Full Backup ***"
  duplicity full --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
  RETVAL=$?
else
  echo "*** Incremental Backup ***"
  duplicity --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
  RETVAL=$?
fi


[ $RETVAL -eq 0 ] && echo "*** SUCCESS ***"
[ $RETVAL -ne 0 ] && echo "*** FAILURE ***"


# Start Tomcat
/etc/init.d/tomcat start
echo -e "\n### END: $(date +"%x %X") ###"


# Status
echo "================================";
duplicity collection-status $BACKUP_DIR/$HOST
unset FTP_PASSWORD
echo "================================";
```

Remote backup with duplicity (Tomcat - PostgreSQL)

```bash
#!/bin/bash
#
## BEGIN CONFIG ##
HOST=$(uname -n)
OPENKM_HOME="/home/openkm"
TOMCAT_HOME="$OPENKM_HOME/tomcat-7.0.27"
DATABASE_EXP="$OPENKM_HOME/db"
BACKUP_DIR="ftp://user@ftp.domain.es/backup"
# BACKUP_DIR="sftp://user@sftp.domain.es//path/to/backup"
export FTP_PASSWORD="WhateverPasswordYouSetUp"
```

```
## END CONFIG ##

if [ $(id -u) != 0 ]; then echo "You should run this script as root";
exit; fi

echo -e "### BEGIN: $(date +"%x %X") ###\n"
rm -rf $DATABASE_EXP
mkdir -p $DATABASE_EXP

# Stop Tomcat
/etc/init.d/tomcat stop

# Clean logs
#echo "Clean Tomcat temporal files."
#rm -rf $TOMCAT_HOME/logs/*
#rm -rf $TOMCAT_HOME/temp/*
#rm -rf $TOMCAT_HOME/work/Catalina/localhost

# Backup de PostgreSQL
POSTGRESQL_DBS=$(su postgres -c "psql -l" | awk '(NR > 2) &&
(/[a-zA-Z0-9]+[ ]+[|]/) && ($1 !~ /template[0-1]/) && ($1 !=
"postgres") { print $1 }');

for DB in $POSTGRESQL_DBS ; do
  echo "* Backuping PostgreSQL data from $DB..."
  su postgres -c "pg_dump -Fc -b $DB" > $DATABASE_EXP/pg_$DB.dmp
done

# Databases optimizations
su postgres -c "vacuumdb -a -z" > /dev/null
su postgres -c "reindexdb -a -q" 2> /dev/null

# Backup and purge old backups
duplicity remove-older-than 1M --force $BACKUP_DIR/$HOST

if [ $(date +%u) -eq 7 ]; then
  echo "*** Full Backup ***"
  duplicity full --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
  RETVAL=$?
else
  echo "*** Incremental Backup ***"
  duplicity --no-encryption $OPENKM_HOME $BACKUP_DIR/$HOST
  RETVAL=$?
fi

[ $RETVAL -eq 0 ] && echo "*** SUCCESS ***"
[ $RETVAL -ne 0 ] && echo "*** FAILURE ***"
```

```
# Start Tomcat
/etc/init.d/tomcat start
echo -e "\n### END: $(date +"%x %X") ###"

# Status
echo "===============================";
duplicity collection-status $BACKUP_DIR/$HOST
unset FTP_PASSWORD
echo "===============================";
```

References

[1] https://help.ubuntu.com/community/DuplicityBackupHowto

[2] http://www.nongnu.org/duplicity/duplicity.1.html#sect8

[3] http://zertrin.org/how-to/installation-and-configuration-of-duplicity-for-encrypted-sftp-remote-backup/

Backup scripts

These backup scripts use rsync to minimize network load and creates incremental backups, preserving last four backups. For more info, read http://www.mikerubel.org/computers/rsync_snapshots/. Also recommend the article DAR differential backup mini-howto [1].

To install the cron job, run:

```
$ sudo crontab -e
```

And add these lines according to your personal configuration:

```
MAILTO=nomail@openkm.com
@weekly /root/backup.sh | tee -a /root/backup.log
```

Or, if you want to separate log reports by date:

```
MAILTO=nomail@openkm.com
@weekly /root/backup.sh | tee /root/backup.$(date
+\%Y.\%m.\%d_\%H.\%M.\%S).log
```

> MAILTO may also be used to direct mail to multiple recipients by separating recipient users with a comma.

For more information take a look at Crontab quick reference [2]

- Backup with rsync 🔒
- Backup with rdiff-backup 🔒
- Backup with duplicity 🔒

References

[1] http://dar.linux.free.fr/doc/mini-howto/dar-differential-backup-mini-howto.es.html

[2] http://adminschoice.com/crontab-quick-reference

Backup restoring

In cause of a hardware failure you may need to restore a backup. Backups are very important for OpenKM because you store a lot of documentation on it.

First of all, we need to locate the right backup. In case of rdiff-backup you can list with:

```
$ rdiff-backup --list-increment-sizes /path/to/backup
Sun Sep 11 05:00:19 2011          4.25 GB          4.25 GB    (current mirror)
Sun Sep  4 00:00:18 2011          13.3 MB          4.26 GB
Sun Aug 28 00:00:13 2011           674 MB          4.92 GB
Sun Aug 21 00:00:14 2011          5.50 MB          4.93 GB
Sun Aug 14 00:00:16 2011          1.75 MB          4.93 GB
Sun Aug  7 00:00:12 2011           288 KB          4.93 GB
Sun Jul 31 00:00:13 2011          43.0 KB          4.93 GB
Fri Jul 29 10:36:39 2011          5.56 KB          4.93 GB
```

Then we have decided to restore the backup of made on *Sun Aug 28 00:00:13 2011*:

```
$ rdiff-backup --restore-as-of 2011-08-28 /path/to/backup /path/to/destination
```

The **--restore-as-of** parameter accepts several formats. See **rdiff-backup** documentation for more info.

Inside of **/path/to/destination** you should see a directory **/home/openkm**, and inside it a couple of directories:

- **db**: The backup of the database.
- **jboss-4.2.3.GA**: The backup of the JBoss installation.

> The default OpenKM installation uses an embedded database called Hipersonic. So, the **db** directory may not exists, because all the needed info is under the **jboss-4.2.3.GA** directory. Refer to Using OpenKM with other databases for more info.

In case you have a MySQL database configured, these are the steps:

```sql
DROP DATABASE IF EXISTS okm_repo_bak;
DROP DATABASE IF EXISTS okm_app_bak;

CREATE DATABASE okm_repo_bak DEFAULT CHARACTER SET utf8 DEFAULT COLLATE
 utf8_bin;
CREATE DATABASE okm_app_bak DEFAULT CHARACTER SET utf8 DEFAULT COLLATE
utf8_bin;

GRANT ALL ON okm_repo_bak.* TO openkm@localhost WITH GRANT OPTION;
GRANT ALL ON okm_app_bak.* TO openkm@localhost WITH GRANT OPTION;
```

> We have already created a **openkm** user when the database was created on OpenKM installation. If you want to restore the backuped databases in another MySQL installation you will need to create this user. Refer to MySQL-OpenKM 5.0 for more info.

Now restore the previous backup to these new databases:

> Be careful and don't restore the data into the wrong database because you can damage your current OpenKM installation.

```
$ mysql -h localhost -u openkm -p okm_repo_bak < db/mysql_okm_repo.sql
$ mysql -h localhost -u openkm -p okm_app_bak < db/mysql_okm_app.sql
```

Copy the **jboss-4.2.3.GA** to **/home/openkm/jboss-4.2.3.GA_bak** and modify these configuration files to use the new backuped databases:

- repository.xml
- server/default/deploy/openkm-ds.xml

Stop the current JBoss (from **/home/openkm/jboss-4.2.3.GA**) and start the new one (**/home/openkm/jboss-4.2.3.GA_bak**). Log into the restored OpenKM and make a **Repository export** from **Administration**. Once completed, stop the backuped JBoss and start the original one. Then go to **Administration > Repository import** and import the desired content.

> In case of a complete restore from backup, you don't need to create the **okm_repo_bak** and **okm_app_bak** database nor modify and start the backuped JBoss.

Disaster recovering

In case of hardware failure maybe your OpenKM repository became corrupted. In this case you should restore from the last backup (See Backup restoring). But what happen if the backup is missing or even also corrupted? Everything is lost? Well, not exactly. Depending on the kind of disaster you can recover at least the document content.

> This recovering process will only work if OpenKM is configured to store the document content in a File DataStore.

By default, OpenKM is configured to use a File DataStore. This means thar every document content is stored in the filesystem. This give us very good performance when retrieving document content. But also has a hidden benefit. If your OpenKM installation has been damaged but you can read these DataStore file, you can recover these document contents.

To help up with the process, we have created a simple Bash script, called **rescue.sh**:

```bash
#!/bin/bash
RESCUE="rescue"
mkdir -p $RESCUE

for DOC in $(find repository/repository/datastore -type f); do
  FILE=$(basename $DOC)
  MIME=$(file -i $DOC | cut -d' ' -f2 | cut -d';' -f1)

  if [ $MIME == "text/plain" ]; then
    EXT="txt"
  elif [ $MIME == "application/pdf" ]; then
    EXT="pdf"
  elif [ $MIME == "text/rtf" ]; then
    EXT="rtf"
  elif [ $MIME == "application/vnd.ms-office" ]; then
```

```
    EXT="doc"
  elif [ $MIME == "application/vnd.oasis.opendocument.text" ]; then
    EXT="odt"
  elif [ $MIME == "image/gif" ]; then
    EXT="gif"
  elif [ $MIME == "image/png" ]; then
    EXT="png"
  elif [ $MIME == "image/jpeg" ]; then
    EXT="jpg"
  elif [ $MIME == "image/tiff" ]; then
    EXT="tif"
  elif [ $MIME == "application/zip" ]; then
    EXT="zip"
  elif [ $MIME == "application/x-dosexec" ]; then
    EXT="exe"
  elif [ $MIME == "application/octet-stream" ]; then
    EXT="bin"
  else
    EXT=$MIME
  fi


  cp -v $DOC $RESCUE/$FILE.$EXT
done
```

You need to run this script from **$JBOSS_HOME** directory. All the recovered documents will be copied to the **$JBOSS_HOME/rescue** directory. This script is only a guide and should be improved to support more MIME types.

> Recovered document name are not the original ones. They will be like *e5de262a84a39f553392751ffd9f4c56796c0029.pdf*.

If you have a functional OpenKM installation but want to recover deleted documents from a damaged backup you can also make use of this script. After you have executed the **rescue.sh** script you will have a lot of file under the **rescue** directory. To remove the document already have in the current OpenKM installation, copy the rescue directory to the working OpenKM installation and execute this script, called **prune.sh**:

```
#!/bin/bash
RESCUE="rescue"

for DOC in $(find repository/repository/datastore -type f); do
  FILE=$(basename $DOC)

  if [ -f $RESCUE/$FILE.* ]; then
    rm $RESCUE/$FILE.*
  fi
done
```

Repository mirroring

To enhance OpenKM availability you can have two instances of the application running in different servers. If the principal server gets down due to a hardware failure you can switch to the mirrored server and keep working.
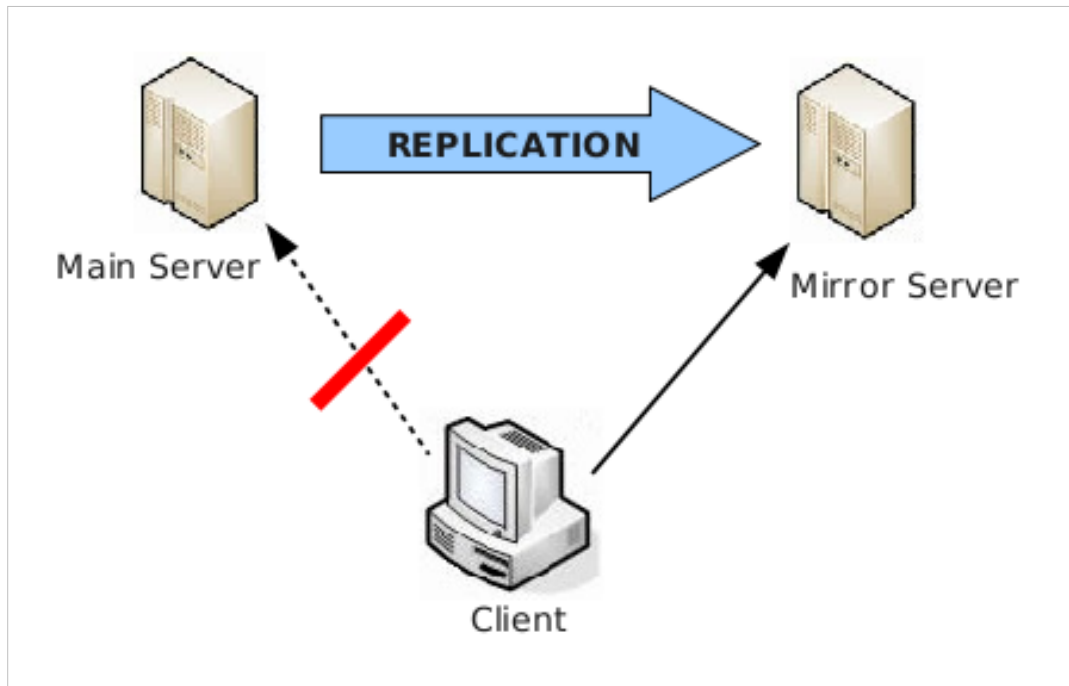
The replication only is done in one direction: from main server to mirror server. Mirror server can be configured to be in read-only mode so users can't add or modify documents. This behavior can be achieved using the system.readonly configuration parameter.

The follow script will propagate the repository changes from main server to mirror server:

```bash
#!/bin/bash
echo -e "### BEGIN: $(date +"%x %X") ###\n"

# Stop local JBoss
/home/openkm/OpenKM/secure_stop.sh

# Stop remote JBoss
ssh root@192.168.1.101 '/home/openkm/OpenKM/secure_stop.sh'

# Sync OpenKM repositories
rsync -rahe 'ssh -p 22022' --stats --delete --exclude OpenKM/OpenKM.cfg
 --exclude OpenKM/server/default/log /home/openkm/OpenKM
root@192.168.1.101:/home/openkm

# Start local JBoss
/etc/init.d/jboss start

# Start remote JBoss
ssh root@192.168.1.201 '/etc/init.d/jboss start'
```

```
echo -e "\n### END: $(date +"%x %X")  ###"
```

This script should be executed - by user root - from the main server, and can be scheduled to be executed every day using Linux cron utility, for example. The script uses rsync to minimize network load and only modified or added documents will be transferred. The whole process can take a few minutes, depending on your repository activity.

Note that both OpenKM are installed at the openkm user home (/home/openkm) for simplicity.

And this is the secure_stop.sh script:

```bash
#!/bin/bash

# Stop JBoss
/etc/init.d/jboss stop
while [ "$(ps -ef | grep java | grep jboss | wc -l)" -gt "0" ]; do
   sleep 5; echo ".";
done
```

WebDAV access

While OpenKM has had WebDAV support since early versions, the new WebDAV implementation in version 5.1.8 brings improved WebDAV compatibility, thanks to its use of the excellent open-source Milton WebDAV API for Java [1]. The Milton project [2] maintains a detailed WebDAV client compatibility list [3] that describes a "Recipe for broad client compatibility."

Below you there is a list of WebDAV clientes grouped by Operating System. Once you have installed any of these tools, you can access to OpenKM repository with this URL:

```
http://your-domain.com/OpenKM/webdav
```

To enhance compatibility, starting with OpenKM 5.0.4 when an WebDAV path is like **/okm:root/myfile.txt** it is translated to **/okm_root/myfile.txt** because some WebDAV clients does not like character : in the path. Starting with OpenKM 5.1 we have added a new configuration parameter called **system.webdav.fix** to make this behavior configurable.

	Since OpenKM 5.0 WebDAV is disabled by default. If you want to enable it, add
	`system.webdav≠on`
	to your OpenKM.cfg configuration file. Starting with OpenKM 5.1 this property will be renamed to:
	`system.webdav.server≠on`
	And should be changed from **Administration > Configuration**.

Windows

From Windows you can access OpenKM repository exposed via WebDAV using one o this tools:

- http://www.netdrive.net/(Free for home use but does not handle document versioning properly)
- http://www.webdrive.com/(The recommended option and create a new document version when you save the modifications)

> Starting with OpenKM 5.1.8 WebDAV URL is [4]
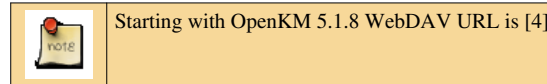
WebDrive

Probably this is the best choice if you are under Windows, because of its stability and ease of configuration. WebDrive 10 (Version 10.00, Build 2521) has been roughly tested with OpenKM 5.1.9 to enhance compatibility effort. This is the supported configuration to work with OpenKM WebDAV connector:
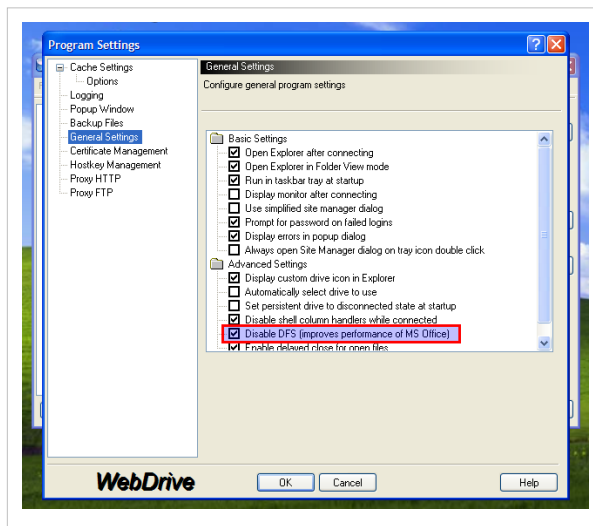
Program Settings   **Site Options**
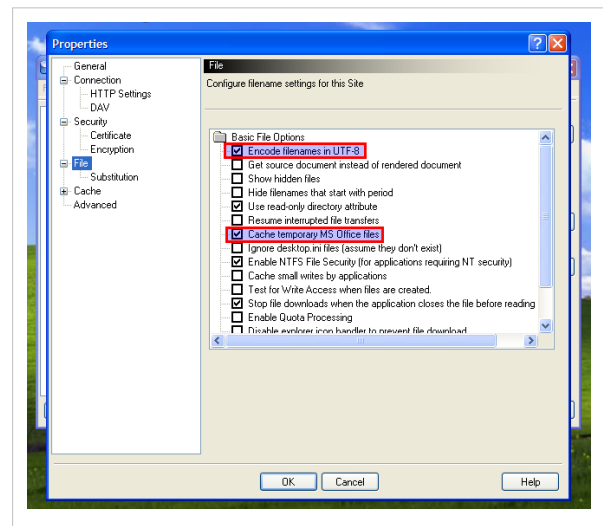
Also is recommended to set these OpenKM options:

Windows Web Folders

Out of the box, Windows (XP, 7) has some native support for the WebDAV protocol, but there are some well-known issues. Please consult the following articles in case of any problem.

> Be aware that there are multiple versions of WebDAV Microsoft libraries (and different flavors of bugs). To avoid some frustration if the steps below don't work for you, [Update Windows XP for Web Folders [5]], or take more information about Web Folder Client (MSDAIPP.DLL) Versions and Issues [6].

> Windows Vista and Windows 7 both restrict access to WebDAV servers that use Basic HTTP authentication on non-SSL connections. This restriction can be solved by changing a registry key. Read more on . However, SSL connections do bring improved security. This page from Greenbytes [7] is an excellent resource to analyze & fix problems with your Windows WebDAV client.

Perform the following steps in Internet Explorer:

- Select File -> Open.
- Fill in URL like http://localhost:8080:/OpenKM/webdav
- Check "Open as Web Folder".
- Click OK.

Windows XP's My Network Places

This enables you to access OpenKM from almost any Windows XP application that supports 'Network Places' in the standard File dialog:

- Open networking
- Connect as network resource
- Write url http://host:8080/OpenKM/webdav
- Write user and password

- Open the Registry Editor utility (regedit.exe).
- Into **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WebClient\Parameters** look for **TypeUseBasicAuth** and replace the default value (1) by 2 allowing BasicAuth through NON SSL connections.
- Then map your drive using this address: \\localhost:8080/OpenKM/repository/default/okm_root/

> Starting with OpenKM 5.1.8 the WebDAV URL is \\localhost:8080/OpenKM/webdav/okm_root/.

See also: Forum: OpenKM + Webdav + Windows 7 => finally working [8].

Windows slow WebDAV performance

If you have a slow webdav connection in windows 7 please follow the instructions in Fix Slow WebDAV Performance in Windows 7 [9]. *It turns out to be a windows issue, not OpenKM*.

Furthermore in Windows 7/Vista you need to add your certificate (if its not issued by a verified CA) into windows if you plan to use Webdav over SSL (and,like me, do not compensate with digest auth):

1. Get the certificate from the server administrator in CER format or download it from Firefox.
2. Start windows Certificate Manager: in "cmd" type certmgr.msc
3. Select on the left "Trusted Root Certification Authorities"
4. In the menu "Actions" -> "All Tasks" select "Import" and then "Next"
5. Browse for the location of certificate file you saved earlier on your computer and click "Open".
6. You will get a few more warning messages. Just say to go through with it until the certificate is accepted.

Then you can map webdav content as a network drive without any other software. The folder should be: https://server:port/OpenKM/repository/default/

To make sure that everything is ok with certificates, open the address using IE. If no warning pops up then its a go.

This allows you to read/view files. If you need write access over a network drive you need to disable File Locking (windows does not support webdav file lock).

Note: For Windows XP there is a fix (KB907306).

Turn off file locking

Choose "Run" in the start menu and type "regedit". Now modify or create this configuration para meter:

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\WebClient\Parameters]
"SupportLocking"=dword:00000000
```

More info

- Forum: OpenKM + Webdav + Windows 7 => finally working [8].
- WebDAV Clients on Windows XP [10]
- Web Lockers Webdav For MS Windows [11]

Mac

From OS X you can use:

- http://cyberduck.ch/
- http://www.webdrive.com/(Yes, there is a version for Macintosh OS/X)

Mac OS X Finder

The OpenKM repository can be accessed easily with the Mac OS X Finder.

- First select in the Finder "Go" and "Connect to Server...".
- Fill in the WebDAV URL http://localhost:8080/OpenKM/webdav
- Enter a username and password...
- And the document repository is accessible!

Linux

From Linux you can use:

- http://dav.sourceforge.net/
- http://savannah.nongnu.org/projects/davfs2

For example, in Ubuntu or any Debian-based Linux distro you can install this utility this way:

```
$ sudo aptitude install davfs2
```

Make a mount point:

```
$ mkdir ~/okmdav
```

And mount it:

```
$ sudo mount.davfs "http://localhost:8080/OpenKM/repository/default" ~/okmdav
```

 Starting with OpenKM 5.1.8 WebDAV URL is [12]

See also:

- Ubuntu: Mounting remote filesystem using davfs2 (FUSE) [13]

References

[1]   http://milton.io/

[2]   http://milton.ettrema.com/

[3]   http://milton.io/guide/compat/

[4]   http://host:8080/OpenKM/webdav/okm:root.

[5]   http://support.microsoft.com/?kbid=892211

[6]   http://greenbytes.de/tech/webdav/webfolder-client-list.html

[7]   http://greenbytes.de/tech/webdav/webdav-redirector-list.html

[8]   http://forum.openkm.com/viewtopic.php?f=4&t=5183&p=12123

[9]   http://oddballupdate.com/2009/12/18/fix-slow-webdav-performance-in-windows-7/

[10] https://ecommunities.belgium.be/ecomnlsupport/help/_en_US/webdav/wd_clientsonxp_bg.html|Understanding

[11] http://myweblocker.lcisd.org/client/webdav.aspx#windows|School

[12] http://host:8080/OpenKM/webdav.

[13] http://sysblogd.wordpress.com/2007/09/09/ubuntu-mounting-remote-filesystem-using-davfs2-fuse/

Property Groups

This is an easy and powerful way for building custom properties. You can use this feature to add information to documents. For example, if you store the invoices in a folder you can add a property group to set the client name and the quantity. You will see this important data without opening the documents. Also you can search by these custom properties later.

New feature in OpenKM 4.1
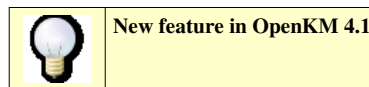
Refer to Property Groups definition where you can see the new way to describe Property Groups.

To try this, login as okmAdmin and go to Administration → Utilities → Register property groups. Set full path with the location of the local file *PropertyGroups.cnd* and click on the register button. The properties will be registered.

REGISTERED GROUPS CANNOT NOT BE UNREGISTERED. They can always be updated but they cannot be deleted after registration !!! Try it out on a test installation first.

The users can assign a property group to a document using these toolbar buttons:

- Add property group →
- Remove property group →

And the properties will be shown in the information area. You can edit the values of the properties using the Change button. Then you can change these values. You can also remove a property group from a document by clicking the Delete button.

OpenKM 4.0 and older

You need to create some file, for example **PropertyGroup.cnd** and insert some values in two other files **PropertyGroupBundle.properties** and **PropertyGroupValues.properties**.

- $JBOSS_HOME/PropertyGroup.cnd
- $JBOSS_HOME/PropertyGroupBundle.properties
- $JBOSS_HOME/PropertyGroupValues.properties

About files:

- **PropertyGroup.cnd**: There are general definitions on each parameter (for example the parameter okp:technology.type)

```
<okm = 'http://www.openkm.org/1.0'>
<okg = 'http://www.openkm.org/group/1.0'>
<okp = 'http://www.openkm.org/group/property/1.0'>


[okg:technology] mixin
- okp:technology.type (string) = '' multiple autocreated
- okp:technology.language (string) = '' autocreated
- okp:technology.description (string) = '' autocreated
- okp:technology.comment (string) = '' autocreated


[okg:consulting] mixin
- okp:consulting.type (string) = '' autocreated
- okp:consulting.comment (string) = '' autocreated
```

- **PropertyGroupValues.properties**: In this file you can see the property values, for example for parameter (okp\:technology.type=4,one,two,three) has 3 values (one, two, three) the first number indicates the order, the second one the type (1 = list, 2 = input, 3 = select multiple, 4 = Text area)

```
okp\:technology.type=1,4,one,two,three
okp\:technology.language=2,3,java,c,c#,c++,python
okp\:technology.description=3,1
okp\:technology.comment=4,2
okp\:consulting.type=1,3,one,two,three
okp\:consulting.comment=2,2
```

- **PropertyGroupBundle.properties**: This file contains general translations for each value. You can have more files for each language like PropertyGroupBundle_ES.properties etc.

```
okg\:technology=Tecnology
okp\:technology.type=Type
okp\:technology.type.one=Type One
okp\:technology.type.two=Type Two
okp\:technology.type.three=Type Three
okp\:technology.language=Language
okp\:technology.language.java=Java
okp\:technology.language.c=C
okp\:technology.language.c++=C++
okp\:technology.language.python=Python
okp\:tecnology.description=Description
okp\:technology.comment=Comment
okg\:consulting=Consulting
okp\:consulting.type=Type
okp\:consulting.type.one=Type One
okp\:consulting.type.two=Type Two
okp\:consulting.type.three=Type Three
okp\:consulting.comment=Comment
```

OpenKM tries to find the correct language in your property files. If it does not exist it uses *PropertyBundle.properties*.

Property Groups definition

Sometimes you want to add more information to a document, for example, you may want to add an internal code to the document for organization purposes and a description. OpenKM uses two files to describe this metadata: **PropertyGroups.cnd** and **PropertyGroups.xml**. The first one describes the properties to be added to the document node. This definition is used by Jackrabbit to retrieve and set these values. The second one is used by OpenKM to render the values described in the previous file.

> - For **OpenKM 6.1** the property groups DTD is **property-groups-2.1.dtd**.
> - For **OpenKM 6.0** the property groups DTD is **property-groups-2.0.dtd**.
> - For **OpenKM 5.1** the property groups DTD is **property-groups-2.0.dtd**.
> - For **OpenKM 5.0** the property groups DTD is **property-groups-1.1.dtd**.
> - For **OpenKM 4.1** is **property-groups-1.0.dtd**.

See this sample:

> Starting from OpenKM 6.0 you don't need this CND file and only the XML definition is needed. For OpenKM 5.1 (and previous released) you need another Property Group definition file called **PropertyGroups.cnd**

```
<okm = 'http://www.openkm.org/1.0'>
<okg = 'http://www.openkm.org/group/1.0'>
<okp = 'http://www.openkm.org/group/property/1.0'>

[okg:consulting] mixin
- okp:consulting.code (string) = '' autocreated
- okp:consulting.comment (string) = '' autocreated
```

PropertyGroups.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE property-groups PUBLIC "-//OpenKM//DTD Property Groups 2.0//EN"

"http://www.openkm.com/dtd/property-groups-2.0.dtd">
<property-groups>
  <property-group label="Consulting" name="okg:consulting">
    <input label="Code" type="text" name="okp:consulting.code" value="COD-0000" />
    <textarea label="Comment" name="okp:consulting.comment" value=""/>
  </property-group>
</property-groups>
```

Here we can see an XML which describes the "Consulting" property group with a couple of properties. In the description, we can see an INPUT where the user should type an internal code (with a default value of "COD-0000" and a comment which describes the document content.

As you can see in the XML DOCTYPE, there is a formal definition at http:/ / www. openkm. com/ dtd/ property-groups-2.0.dtd.

> If your OpenKM server can't access to Internet, you can download this DTD and copy to a convenient place at you server. Remember to update your PropertyGroups.xml with the TDT location.
>
> ```xml
> <!DOCTYPE property-groups PUBLIC "-//OpenKM//DTD Property Groups 2.0//EN"
>
> "file:///path/to/property-groups-2.0.dtd">
> ```

But let's see which components it can handle:

- input
- suggestbox
- checkbox
- textarea
- select
- separator
- text

See Form Element description for a detailed definition of every form element. These form elements have also an additional property called "readonly" with can be used to make a property not modifiable by the user.

Debugging OpenKM

You can debug your OpenKM installation using the JBoss logging facility. This is an useful thing when you have problems with your configuration. Default OpenKM installation tries to log important events like errors and warnings. Is possible to change this configuration editing the file *$JBOSS_HOME/server/default/conf/jboss-log4j.xml*.

Default JBoss log configuration can generate a lot of messages. These files are stored at *$JBOSS_HOME/server/default/log*. It is configured to use the DailyRollingFileAppender. This appender create a new log file for every day. This is better than have a unique huge log file, os course. The rollover is performed at midnight each day, but you can configure it to make the rollover every hour (uncomment the proper line).

```xml
<!-- A time/date based rolling appender -->
<appender name="FILE"
          class="org.jboss.logging.appender.DailyRollingFileAppender">
   <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
   <param name="File" value="${jboss.server.log.dir}/server.log"/>
   <param name="Append" value="false"/>
   <!-- Rollover at midnight each day -->
   <param name="DatePattern" value="'.'yyyy-MM-dd"/>
   <!-- Rollover at the top of each hour
   <param name="DatePattern" value="'.'yyyy-MM-dd-HH"/>
   -->
   <layout class="org.apache.log4j.PatternLayout">
      <!-- The default pattern: Date Priority [Category] Message\n -->
      <param name="ConversionPattern" value="%d %-5p [%c] %m%n"/>
      <!-- The full pattern: Date MS Priority [Category] (Thread:NDC) Message\n
      <param name="ConversionPattern" value="%d %-5r %-5p [%c] (%t:%x) %m%n"/>
      -->
   </layout>
</appender>
```

You can reduce the amount of log messages produced by OpenKM, or can increase them. In this example we limit the log messages produced by the class OKMAccessManager for those of type ERROR.

```xml
<category name="com.openkm.core.OKMAccessManager">
   <priority value="ERROR" />
</category>
```

If you create this configuration:

```xml
<category name="com.openkm">
   <priority value="DEBUG" />
</category>
```

All the log messages generated by OpenKM will be shown. As you can see, you can increase debug messages in some parts of OpenKM to check a determinate behavior.

Debugging JAAS configuration

If you are trying to setup another authentication source different from the default provided by OpenKM, you can afford some problems. The JBoss **login-config.xml** is supposed to have the right configuration, but you can't log into the application. The most common case is a bad or missing JAAS configuration. So if you need to debug the JAAS, you can add to the **$JBOSS_HOME/server/default/conf/jboss-log4j.xml** file the following:

```xml
<category name="org.jboss.security">
   <priority value="TRACE" class="org.jboss.logging.XLevel"/>
   <appender-ref ref="SECURITY_F"/>
</category>
<appender name="SECURITY_F" class='org.jboss.logging.appender.DailyRollingFileAppender'>
   <param name="Append" value="true"/>
   <param name="DatePattern" value="'.'yyyy-MM-dd"/>
   <param name="File" value="${jboss.server.home.dir}/log/jboss.security.log"/>
   <layout class="org.apache.log4j.PatternLayout">
      <param name="ConversionPattern" value="%d{ABSOLUTE} %-5p [%c] %m%n"/>
   </layout>
</appender>
```

This is more or less in the middle of the file, just where the <category-name> section begins. And you should look at this new log file:

```
$ tailf -f $JBOSS_HOME/server/default/log/jboss.security.log
```

Email error notification

Always is good idea to be notified when things goes wrong. There are some log appenders that can help you. The SMTPAppender will mail you log messages with threshold ERROR by default. You can lower this threshold, but you will got lots of useless mail messages. Here you must configure some properties:

- **To**: The mail account where the messages will arrive.
- **From**: You can set it simply as noreply@your-domain.com.
- **Subject**: Here you can specify the subject of the mail. If you have several OpenKM installations, you can create a filter in your mail client using this value.
- **SMTPHost**: The mail server server. Can be localhost if there is a mail server installed in this computer.

```xml
<!-- EMail events to an administrator -->
<appender name="SMTP" class="org.apache.log4j.net.SMTPAppender">
  <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
  <param name="Threshold" value="ERROR"/>
  <param name="To" value="admin@myhost.domain.com"/>
  <param name="From" value="nobody@myhost.domain.com"/>
  <param name="Subject" value="JBoss Sever Errors"/>
  <param name="SMTPHost" value="localhost"/>
  <param name="BufferSize" value="10"/>
  <layout class="org.apache.log4j.PatternLayout">
     <param name="ConversionPattern" value="[%d{ABSOLUTE},%c{1}] %m%n"/>
  </layout>
</appender>
```

In Unix / Linux systems there is a centralized log manager called syslog. You can configure Log4J to use this system using the SyslogAppender:

```xml
<!-- Syslog events -->
<appender name="SYSLOG" class="org.apache.log4j.net.SyslogAppender">
  <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
  <param name="Facility" value="LOCAL7"/>
  <param name="FacilityPrinting" value="true"/>
  <param name="SyslogHost" value="localhost"/>
  <layout class="org.apache.log4j.PatternLayout">
      <param name="ConversionPattern" value="[%d{ABSOLUTE},%c{1}] %m%n"/>
  </layout>
</appender>
```

- **SyslogHost**: This configuration parameters allows you to specify the local syslog or a remote syslog server used to centralize the network log management.

For more info, visit:

- http://jboss.org/community/docs/DOC-11280
- http://jboss.org/community/docs/DOC-9372
- http://jakarta.apache.org/log4j
- http://primalcortex.wordpress.com/2007/11/28/jboss-and-jaas-debug
- can I get log4j to delete old rotating log files? [1]

References

[1] http://stackoverflow.com/questions/1050256/how-can-i-get-log4j-to-delete-old-rotating-log-files|How

Troubleshooting

This is a compilation of the most common OpenKM user problems and their solutions. If you have any other problem not listed here, please take a look at http://forum.openkm.com/to be helped by our community. Also you can request professional support at http://www.openkm.com/Contact.

Can't access OpenKM from other computers

By default, JBoss only listens for connections on localhost. If you want to access OpenKM from other computers, you need to start JBoss passing the parameter -b 0.0.0.0

GNU/Linux

```
./bin/run.sh -b 0.0.0.0
```

Windows

```
\bin\run.bat -b 0.0.0.0
```

Other options

```
./bin/run.sh -Djboss.bind.address=0.0.0.0
```

Error downloading document as PDF

```
Code: OKM-004006
Message: conversion failed: could not save output document; OOo
errorCode: 2074
```

This error occurs when you want to download a document as PDF and there is some error with OpenOffice.org. Perhaps the OpenOffice.org installation has some missing components. Try to install these packages:

```
$ aptitude install openoffice.org2-l10n-es openoffice.org-java openoffice.org-java-common openoffice.org
```

```
Code: OKM-004013
Message: connection failed:
socket,host=localhost,port=8100,tcpNoDelay=1:java.net.ConnectException:
 Connection refused'
```

This error occurs when you want to download a document as PDF and there is some error with the OpenOffice.org connection. Perhaps there is no OpenOffice.org running in server mode (headless). See Third-party software integration: OpenOffice.org for more info.

OpenKM not deployed due to a webservice error

Perhaps your computer doesn't have Internet access? JBoss tries to validate WSDL descriptors on application deployment, can't access DTD and throws an exception. This is a known JBoss issue [1]. More on JBoss webservices at http://jboss.org/community/docs/DOC-10823.

A workaround is disabling webservices in OpenKM:

- Stop JBoss.
- Delete the folder
  $JBOSS_HOME/server/default/deploy/OpenKM.ear/OpenKM.war/WEB-INF/classes/es/git/openkm/ws.
- Start JBoss again.

It should solve the deployment problem. If the EAR is not exploded you can browse it with Midnight Commander (on Linux) or WinRAR (on Windows).

Error when click on "Copy to clipboard"

To enable JavaScript "Copy to clipboard" buttons on Firefox and Mozilla, enter the following line into browser address bar: "about:config"

The list of preferences should open in browser window. Right-click somewhere in the active part of preference list window and choose New > Boolean option from context menu. Paste the following Preference name into the New boolean value window input box: "signed.applets.codebase_principal_support"

Error opening contextual menu - right click on firefox"

I right-click on a document, but OpenKM contextual menu is hidden by the browser. If you use Firefox, go to Edit → Preferences → Content, check "Active JavaScript", click on "Advanced" and check "Deactivate or replace contextual menus" option.

The Administration tab is empty

This is a known bug of Internet Explorer. Switch to Firefox: its JavaScript engine also is faster, so your OpenKM experience will be better. Or access it from Tools → Show administration. Or point your browser to http:// localhost/OpenKM/es.git.openkm.backend.Main/.

IMAP SSL certificate error

First obtained my certificate with the openssl command and after this import the certificate with:

```
keytool -import -alias mail.yourcompany.com -keystore /etc/java-6-sun/security/cacerts -file imapd.pem
```

You have to restart JBoss to refresh the SSL certificates. See also: http://confluence.atlassian.com/display/JIRA/ Connecting+to+SSL+services

Unable to run Scanner applet under Linux

If you enable the Java Console and see this error:

```
java.lang.UnsatisfiedLinkError: uk.co.mmscomputing.util.JarLib.loadX: Could not find library [libjsane.so]
```

You have to install the **libsane-dev** package:

```
$ sudo aptitude install libsane-dev
```

Some PDF file not shown in preview

Perhaps the PDF is copy protected. Hence, you're not allowed to convert it.

```
FATAL    PDF disallows copying
```

If you created this PDF using Acrobat Distiller, try switching the copy protection checkbox off. If you can't disable the protection you can modify the *'pdf2swf* source code to disable this check (see http://www.foolabs.com/xpdf/cracking.html).

Other problems may be due to complex PDF documents.

```
ERROR This file is too complex to render- SWF only supports 65536 shapes at once
```

You can invoke the *pdf2swf* utility with the *-s poly2bitmap* option. The generated document quality is worse, but you can see it at least. This can be simplified to be used by OpenKM in the preview generation. Create a script called *pdf2swf_wrapper.sh*:

```bash
#!/bin/bash

/usr/bin/pdf2swf -s poly2bitmap $*
```

Make it executable:

```
$ chmod +x pdf2swf_wrapper.sh
```

And don't forget to change the OpenKM.cfg file:

```
system.pdf2swf=/path/to/pdf2swf_wrapper.sh
```

Or set in the administration depending on your OpenKM version:

```
system.swftools.pdf2swf=/path/to/pdf2swf_wrapper.sh
```

See SWFTools for more info.

Random errors in preview

We have detected errors especially with Firefox under Linux, because the Flash plugin is quite old or you have installed the GNASH flash plugin and not the original one from Adobe. To fix this, install the "Flash Aid" plugin under Firefox and run the wizard. It will install the right Flash Plugin version into your preferred browser.

Export to zip file gives wrong charset

This issue is corrected since OpenKM 4.1-RC2 and exported zip archives should be opened without problems from WinZip 14 or higher. But you may have an issue in Ubuntu Linux. The problem is the *unzip* package, which should be compiled with a patch to enable UTF-8 chars in file names. You can find a patched *unzip* for Ubuntu/Debian at http://packages.ubuntu.com/jaunty/unzip.To keep informed about the progress in this issue, go to Bug #10979: unzip does not support UTF-8 filenames [2].

Also you can try to install the port of the 7-Zip compression tool for Linux:

```
$ sudo aptitude install p7zip-full
```

Jackrabbit: Bad check digit

If you have a problem like this when starting OpenKM

```
2010-06-03 17:56:14,640 ERROR
[org.apache.jackrabbit.webdav.simple.DavResourceImpl] Error while
importing resource: java.io.IOException: cannot read item
dd85e9b7-6398-4720-a00d-87374467e4f9
2010-06-03 17:56:14,640 WARN
[org.apache.jackrabbit.core.lock.LockManagerImpl] Bad lock token: Bad
check digit.
```

Probably you have a problem with the crappy LVM setup that was responsible for this problem. Fresh installation could solve the problem!

Take a look at forum post at http://forum.openkm.com/viewtopic.php?f=3&t=3806&start=0

Errors caused by proxy configuration / Error OKM-009006

If you've configured OpenKM under a proxy, sometimes it's necessary to set JBoss params to indicate it, because there could be some connection errors in rpc calls.

```
-Dhttp.proxyHost=x.x.x.x -Dhttp.proxyPort=yyyy
```

Microsoft Office Addin disappears after restarting Office

Could be a problem with default template (normal.dot). To solve it:

- Open normal.dot
- Go to menu tools / personalize / Tool bars
- Open OpenKM toolbar
- Save normal.dot

OpenKM server has no direct Internet connection

If you need a proxy to access the Internet, edit your **/etc/bash.bashrc** file as root and put these lines at the end of your /etc/bash.bashrc file :

```
export http_proxy=http://username:password@proxyserver.net:port/
export ftp_proxy=http://username:password@proxyserver.net:port/
```

You can omit the username:password, if your proxy server has no password.

But maybe the server can't access the Internet at all. In this case you will have problems when validating *$JBOSS_HOME/PropertyGroups.xml*. Read Property Groups definition to see the solution. Also edit OpenKM.cfg and set:

```
update.info=off
```

Access denied installing OpenKM as service on Windows 7

The command shell works slightly differently in Vista. By default when you run cmd.exe, it does not give administrator rights. To get around it, create a shortcut to cmd.exe on desktop, open Properties, Compatibility tab and check box for Administrator rights. Then you can do admin stuff on cmd line. More information here Configure JBoss service

Problems with character encodings

If your language has non-ASCII characters and they are displayed as garbage you have a problem with encodings. To solve this, you have to edit the JBoss start script.

> This process, as described here will destroy the OpenKM database and will create a new one. Be careful! If you want a non-destructive way of achieving this, you need to delete actual inserted translations and insert them again.

In the case of Linux, edit the file $JBOSS_HOME/bin/run.sh and replace the line:

```
JAVA_OPTS="-Xms256m -Xmx2048m -XX:PermSize=128m -XX:MaxPermSize=256m"
```

With this one:

```
JAVA_OPTS="-Xms256m -Xmx2048m -XX:PermSize=128m -XX:MaxPermSize=256m -Dfile.encoding=utf-8"
```

In the case of Windows, edit the file $JBOSS_HOME/bin/run.bat and replace the line:

```
set JAVA_OPTS=%JAVA_OPTS% -Dprogram.name=%PROGNAME%
```

With this one:

```
set JAVA_OPTS=%JAVA_OPTS% -Dprogram.name=%PROGNAME% -Dfile.encoding=utf-8
```

You need to stop JBoss, delete the $JBOSS_HOME/server/default/data/hypersonic folder and start JBoss again. Now the OpenKM database will be created again and the language translation will be imported right.

Checking error "Document name is different"

This is a known error in Internet Explorer family. To disable name mismatch check, take a look at Disable document name mismatch check [3].

Error dowloading files under IE with https / SSL

There's a very old bug from version 5.5 until now that seems like Microsoft has not decided to fix , that causes a problem downloading files with IE behind SSL protocol (the force may be with you, hope some day they will decide to fix it).

The problem is caused by "**Cache-control: no-cache HTTP header to the response message**", obviously that's valid for any browser except IE family ... other Microsoft IE hidden feature ?

Can see some supporting and forum information about it:

- IE SSL download problem [4]
- http://support.microsoft.com/kb/815313
- http://support.microsoft.com/kb/323308
- http://support.microsoft.com/kb/316431

The solution is to change a couple of entries in the Windows Registry:

- Create a file called ss_download_patch.reg

- Copy the contents

```
REGEDIT4
[HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Internet Settings]
"DisableCachingOfSSLPages"=dword:00000000
"BypassSSLNoCacheCheck"=dword:00000001
"BypassHTTPNoCacheCheck"=dword:00000001
"SSLPragmaNoCache"=dword:00000001
```

- Execute it (will be imported into Windows Registry)
- Then you need to restart Windows for this to take effect.

> This IE bug has been fixed in OpenKM 5.1.8 (nightbuild from 6 Oct 2011).
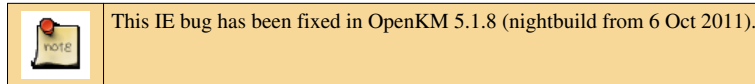
Error in uploader / scanner applet

To provide more complete information in order to determine the issue, please activate the Java Console. Read How do I enable and view the Java Console? [5] for more info.

PermGen errors

If you see this error when executing OpenKM:

```
java.lang.OutOfMemoryError: PermGen space
```

Edit your $JBOSS_HOME/bin/run.sh (or $JBOSS_HOME/bin/run.bat if using Windows) and set the **JAVA_OPTS** variable to this value:

```
JAVA_OPTS="-Xms256m -Xmx2048m -XX:PermSize=128m -XX:MaxPermSize=256m"
```

See also [Presenting the Permanent Generation [6]].

LDAP - Sizelimit exceeded

Caused because bindDN has size limit for each ldap query.

In Openldap The solution is set to bindDN a grat limit, for example (to change size limit to user used by openkm ldap connection)

```
limits dn.exact="cn=reader,ou=accounts,ou=admins,dc=example,dc=com" size=100000
```

See also [openldap [7]]

References

[1] http://www.jboss.com/index.html?module=bb&op=viewtopic&p=4125074

[2] https://bugs.launchpad.net/ubuntu/+source/unzip/+bug/10979

[3] http://wiki.openkm.com/index.php/OpenKM.cfg#Disable_document_name_mismatch_check

[4] http://www.sibsoft.net/forum/post1670.html

[5] http://www.java.com/en/download/help/javaconsole.xml

[6] http://blogs.oracle.com/jonthecollector/entry/presenting_the_permanent_generation

[7] http://www.openldap.org/doc/admin24/limits.html

Error codes

OpenKM error codes are composed of a OKM-XXX-YYY codification. First 3 digits indicates the origin and second three digits indicates the cause.

First three digits - Origin

OKM-001 Some problem getting folders to server.

OKM-002 Some problem getting documents to server.

OKM-003 Some problem in remote server session.

OKM-004 Some problem downloading document form server.

OKM-005 Some problem uploading document to server.

OKM-006 Some problem on server session.

OKM-007 Some problem on authentication.

OKM-008 Some problem making a search.

OKM-009 Some problem with property groups (metadata).

OKM-010 Some problem with notification service.

OKM-011 Some problem with bookmark.

OKM-012 Some problem with repository (internal).

OKM-013 Some problem into general utils service.

OKM-014 Some problem with authetication in admin mode.

OKM-015 Some problem with search in admin mode.

OKM-016 Some problem in remote session in admin mode.

OKM-017 Some problem with property groups (metadata) in admin mode.

OKM-018 Some problem in repository (internal) in admin mode.

OKM-019 Some problem getting folder in admin mode.

OKM-020 Some problem getting dashboard

OKM-021 Some problem getting workspace.

OKM-022 Some problem executing a workflow.

OKM-023 Some problem uploading a workflow in admin mode.

OKM-024 Some problem with mail service.

OKM-025 Some problem getting properties.

OKM-026 Some browser problem.

OKM-027 Some problem in contact.

OKM-028 Some problem in activity log.

OKM-029 Some wiki problem.

OKM-030 Some zoho problem.

OKM-031 Some forum problem.

OKM-032 Some database metadata problem.

OKM-033 Some Key value problem.

OKM-034 Some char problem.

OKM-035 Some google problem.

OKM-037 Some massive problem.

OKM-038 Some fast action problem.

OKM-039 Some openmeetings problem.

Second three digits - Cause by

001 Caused by repository.

002 Caused by item not found.

003 Caused by item not exist.

004 Caused by lock.

005 Caused by unlock.

006 Caused by general cause.

007 Caused by general cause.

008 Caused by GWT shell environment.

009 Caused by access denied.

010 Caused by unsupported mime type.

011 Caused by file size exceed.

012 Caused by no such group.

013 Caused by IO exception.

014 Caused by no such property.

015 Caused by path not found.

016 Caused by version.

017 Caused by session lost.

018 Caused by file not found.

019 Caused by parse exception.

020 Caused by invalid node type definition.

021 Caused by sql exception.

022 Caused by configuration problem.

023 Caused by quota exceed.

024 Caused by database problem.

025 Caused by principal adapter problem.

026 Caused by workflow problem.

027 Caused by document name problem.

028 Caused by number format problem.

029 Caused by login problem.

030 Caused by document problem.

031 Caused by eval problem.

032 Caused by virus problem.

033 Caused by conversion problem.

034 Caused by authentication problem.

035 Caused by google.

036 Caused by unsupported encoding problem.

037 Caused by malformed url problem.

038 Caused by zoho problem.

039 Caused by documen template problem.

040 Caused by template problem.

041 Caused by extension problem.

042 Caused by illegal access problem.

043 Caused by invocation target problem.

044 Caused by no such method problem.

045 Caused by user yet logged problem.

046 Caused by automation problem.

047 Caused by service problem.

048 Caused by user quote exceed problem.

049 Caused by Openmeetings problem.

050 Caused by messaging problem.

Using OpenKM with other databases

By default, OpenKM uses an embedded database called HSQLDB [1]. This database is integrated into JBoss and offers good performance and low hardware requirements. But sometimes it is not enough for some users who need OpenKM to be deployed within their IT structure, which may be based on another database vendor.

Starting with OpenKM 5, you can create the databases automatically by configuring the **hibernate.dialect** and **hibernate.hbm2ddl** properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.HSQLDialect
hibernate.hbm2ddl=create
```

Once the tables are created, change the **hibernate.hbm2ddl** property from *create* to *none*. Also, a couple of new configuration properties are of interest:

```
hibernate.show_sql=false
hibernate.statistics=true
```

With these properties you can configure if you want to see the SQL sentences generated by Hibernate, and enable Hibernate statistics. Only meaningful for development and fine tuning.

Generating database script

If you want to see the table creation script, create, compile and run this piece of code:

```java
import java.io.File;

import org.hibernate.cfg.Configuration;
import org.hibernate.tool.hbm2ddl.SchemaExport;

public class Test {
  public static void main(String[] args) throws Exception {
    Configuration cfg = new Configuration();
    cfg.configure(new File("/path/to/hibernate.cfg.xml"));
    SchemaExport se = new SchemaExport(cfg);
    se.setOutputFile("/path/to/schema.sql");
    se.setFormat(true);
    se.create(false, false);
  }
}
```

> This configuration property should be set before the database creation. Once the database has been initialized don't modify it because you can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQLDB) you can't switch to another database simply by changing this property.

Here we will discuss the changes needed to run OpenKM with these databases:

- MySQL
  - OpenKM 6.2
  - OpenKM 5.0
  - OpenKM 4.1
- PostgreSQL 🔒

- • OpenKM 6.2 🔒
- • OpenKM 5.0 🔒
- • OpenKM 4.1 🔒
- Other DBMS

You can find the DDL SQL sentences for table creation for several databases at   .

See also:

- How To Generate DDL Scripts from Hibernate [2]

References

[1] http://hsqldb.org/

[2] http://jandrewthompson.blogspot.com/2009/10/how-to-generate-ddl-scripts-from.html

MySQL

Download MySQL JDBC driver from MySQL Home Page [1] and move it to *$JBOSS_HOME/server/default/lib*.

If you get an error like this:

```
Packet for query is too large (1708726 > 1048576).
You can change this value on the server by setting the 'max_allowed_packet' variable.
```

You need to modify your MySQL server configuration file and increase the value of the **max_allowed_packet** property. Don't forget to restart the MySQL after any change in this file. In Debian based distros like Ubuntu, this configuration file is located at */etc/mysql/my.cnf*.

- • OpenKM 6.0 🔒 (also valid for OpenKM 6.1)
- • OpenKM 5.0 🔒 (also valid for OpenKM 5.1)
- • OpenKM 4.1 🔒

Change mysql default engine to InnoDB

Check if your MySQL installation has InnoDB engin enabled:

```
$ mysql -h localhost -u root -p
mysql> show engines;
```

In order to change the default storage engine edit **/etc/mysql/my.cnf** and under **[mysqld]** section in your ini file, and add:

```
default-storage-engine = innodb
```

InnoDB [2] is the preferred engine because it support transactions. MyISAM [3] is more responsive but does not support transactions.

See also:

- Converting Tables from Other Storage Engines to InnoDB [4]
- Convert your MySQL database from MyISAM to InnoDB [5]

References

[1] http://www.mysql.com/products/connector/

[2] http://en.wikipedia.org/wiki/InnoDB

[3] http://en.wikipedia.org/wiki/MyISAM

[4] http://dev.mysql.com/doc/refman/5.0/en/converting-tables-to-innodb.html

[5] http://highervisibilitywebsites.com/convert-your-mysql-database-myisam-innodb-and-get-ready-drupal-7-same-time

MySQL-OpenKM 6.2

In this OpenKM release you can create the databases automatically configuring the **hibernate.dialect** and **hibernate.hbm2ddl** properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.MySQL5Dialect
hibernate.hbm2ddl=create
```

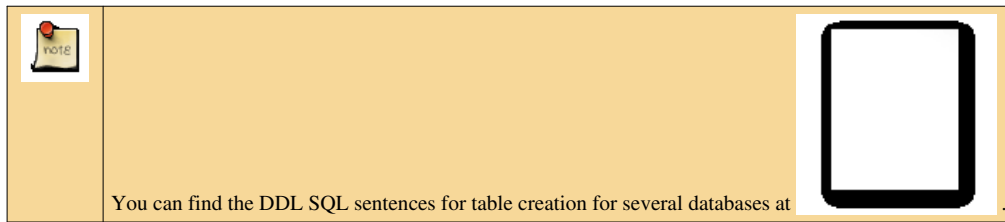Once the tables are created, OpenKM will automatically change the **hibernate.hbm2ddl** property from *create* to *none*.

This configuration property should be set before the database creation. Once the database has been initialized don't modify it because can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

More info about this at:

- Hibernate: SQL Dialects [1]

Database creation

Starting with OpenKM 6.0, only one database is needed:

```
DROP DATABASE IF EXISTS okm_app;

CREATE DATABASE okm_app DEFAULT CHARACTER SET utf8 DEFAULT COLLATE
utf8_bin;

CREATE USER openkm@localhost IDENTIFIED BY '*secret*';
GRANT ALL ON okm_app.* TO openkm@localhost WITH GRANT OPTION;
```

More info at MySQL: Case Sensitivity in String Searches [2].

Tomcat datasources

```
$ vim $TOMCAT_HOME/conf/server.xml
```

```
<Resource name="jdbc/OpenKMDS" auth="Container" type="javax.sql.DataSource"
        maxActive="100" maxIdle="30" maxWait="10000"
validationQuery="select 1"
        username="openkm" password="*****"
driverClassName="com.mysql.jdbc.Driver"
```

```
url="jdbc:mysql://localhost:3306/okm_app?autoReconnect=true&amp;useUnicode=true&amp;characterEncoding=UTF8"/>
```

Login configuration

```
$ vim $TOMCAT_HOME/OpenKM.xml
```

```xml
<security:authentication-manager alias="authenticationManager">
  <security:authentication-provider>
    <security:password-encoder hash="md5"/>
    <security:jdbc-user-service
        data-source-ref="dataSource"
        users-by-username-query="select usr_id, usr_password, 1 from
OKM_USER where usr_id=? and usr_active='T'"
        authorities-by-username-query="select ur_user, ur_role from
OKM_USER_ROLE where ur_user=?"/>
  </security:authentication-provider>
</security:authentication-manager>
```

References

[1] http://docs.jboss.org/hibernate/core/3.3/reference/en/html/session-configuration.html#configuration-optional-dialects

[2] http://dev.mysql.com/doc/refman/5.0/en/case-sensitivity.html

MySQL-OpenKM 5.0

These instructions are also valid for OpenKM 5.1, but #Login configuration has a minor change.

In this OpenKM release you can create the databases automatically configuring the **hibernate.dialect** and **hibernate.hbm2ddl** properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.MySQL5Dialect
hibernate.hbm2ddl=create
```

Once the tables are created, change the **hibernate.hbm2ddl** property from *create* to *none*.

This configuration property should be set before the database creation. Once the database has been initialized don't modify it because can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

More info about this at:

- Hibernate: SQL Dialects [1]

Database creation

Starting with OpenKM 5.0, only two databases are needed:

```sql
DROP DATABASE IF EXISTS okm_repo;
DROP DATABASE IF EXISTS okm_app;


CREATE DATABASE okm_repo DEFAULT CHARACTER SET utf8 DEFAULT COLLATE
utf8_bin;
CREATE DATABASE okm_app DEFAULT CHARACTER SET utf8 DEFAULT COLLATE
utf8_bin;


CREATE USER openkm@localhost IDENTIFIED BY '*secret*';
GRANT ALL ON okm_repo.* TO openkm@localhost WITH GRANT OPTION;
GRANT ALL ON okm_app.* TO openkm@localhost WITH GRANT OPTION;
```

You can also change the default collation of a previously created database:

```sql
ALTER DATABASE okm_app DEFAULT COLLATE utf8_bin;
```

But remember to change the collation of the already created tables:

```sql
ALTER TABLE table_name COLLATE utf8_bin;
```

This script may help:

```bash
#!/bin/bash
PASSWORD=xxx
DATABASE=okm_app


echo "* Changing collation for database $DATABASE...";
mysql -h localhost -u root -p$PASSWORD $DATABASE -Bse "ALTER DATABASE
$TABLE DEFAULT CHARACTER SET utf8 COLLATE utf8_bin;"
TABLES=$(mysql -h localhost -u root -p$PASSWORD $DATABASE -Bse "show
tables")

for TABLE in $TABLES ; do
    echo "* Changing collation for table $TABLE...";
    mysql -h localhost -u root -p$PASSWORD $DATABASE -Bse "ALTER TABLE
$TABLE CONVERT TO CHARACTER SET utf8;"
    mysql -h localhost -u root -p$PASSWORD $DATABASE -Bse "ALTER TABLE
$TABLE DEFAULT CHARACTER SET utf8 COLLATE utf8_bin;"
done
```

More info at MySQL: Case Sensitivity in String Searches [2].

JBoss datasources

```
$ vim $JBOSS_HOME/server/default/deploy/openkm-ds.xml
```

```xml
<local-tx-datasource>

    <jndi-name>OpenKMDS</jndi-name>


    <connection-url>jdbc:mysql://localhost:3306/okm_app?autoReconnect=true&amp;useUnicode=true&amp;characterEncoding=UTF8</connection-url>

    <driver-class>com.mysql.jdbc.Driver</driver-class>

    <user-name>openkm</user-name>

    <password>*****</password>

    <min-pool-size>5</min-pool-size>

    <max-pool-size>20</max-pool-size>

    <idle-timeout-minutes>28680</idle-timeout-minutes>

    <exception-sorter-class-name>com.mysql.jdbc.integration.jboss.ExtendedMysqlExceptionSorter</exception-sorter-class-name>

    <valid-connection-checker-class-name>com.mysql.jdbc.integration.jboss.MysqlValidConnectionChecker</valid-connection-checker-class-name>

    <metadata>

        <type-mapping>mySQL</type-mapping>

    </metadata>

</local-tx-datasource>
```

The type mapping should match a type-mapping/name element from *$JBOSS_HOME/server/default/conf/standardjbosscmp-jdbc.xml*. Example configurations for many third-party JDBC drivers are included in the *$JBOSS_HOME/docs/examples/jca* directory.

You may be interested in Encrypting DataSource Passwords [1].

Login configuration

```
$ vim $JBOSS_HOME/server/default/conf/login-config.xml
```

```xml
<!-- OpenKM -->
<application-policy name = "OpenKM">

    <authentication>

        <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">

            <module-option name="dsJndiName">java:/OpenKMDS</module-option>

            <module-option name="principalsQuery">select usr_password as PASSWD from OKM_USER where usr_id=?
and usr_active=true</module-option>

            <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from OKM_USER_ROLE where
ur_user=?</module-option>

            <module-option name="hashAlgorithm">md5</module-option>

            <module-option name="hashEncoding">hex</module-option>

        </login-module>

    </authentication>

</application-policy>
```

For OpenKM 5.1.x this is the right configuration:

```xml
<!-- OpenKM -->
<application-policy name = "OpenKM">

    <authentication>
```

```
        <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">

            <module-option name="dsJndiName">java:/OpenKMDS</module-option>

            <module-option name="principalsQuery">select usr_password as PASSWD from OKM_USER where usr_id=?
and usr_active='T'</module-option>

            <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from OKM_USER_ROLE where
ur_user=?</module-option>

            <module-option name="hashAlgorithm">md5</module-option>

            <module-option name="hashEncoding">hex</module-option>

        </login-module>

    </authentication>

</application-policy>
```

Read also: Dynamic login-config.xml [2].

Repository configuration

Default location for *repository.xml*:

```
$ vim $JBOSS_HOME/repository.xml
```

You can change it by editing OpenKM.cfg. For more information see Application configuration.

```
<?xml version="1.0"?>
<!DOCTYPE Repository PUBLIC "-//The Apache Software Foundation//DTD Jackrabbit 1.6//EN"

"http://jackrabbit.apache.org/dtd/repository-1.6.dtd">
<Repository>
    <!-- virtual file system where the repository stores global state

        (e.g. registered namespaces, custom node types, etc.) -->
    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

        <param name="path" value="${rep.home}/repository"/>

    </FileSystem>


    <!-- Security configuration -->

    <Security appName="OpenKM">

        <!-- Access manager: FQN of class implementing the AccessManager interface -->

        <AccessManager class="com.openkm.core.OKMAccessManager"/>

        <!-- <AccessManager class="org.apache.jackrabbit.core.security.SimpleAccessManager"/> -->

        <!-- <AccessManager class="org.apache.jackrabbit.core.security.DefaultAccessManager"> -->

            <!-- <param name="config" value="${rep.home}/access.xml"/> -->

        <!-- </AccessManager> -->

    </Security>


    <!-- Location of workspaces root directory and name of default workspace -->

    <Workspaces rootPath="${rep.home}/workspaces" defaultWorkspace="default"/>


    <!-- Workspace configuration template:

        used to create the initial workspace if there's no workspace

yet -->

    <Workspace name="${wsp.name}">
```

```xml
    <!-- Virtual file system of the workspace:

        class: FQN of class implementing the FileSystem interface
-->

    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

        <param name="path" value="${wsp.home}"/>

    </FileSystem>


    <!-- Persistence manager of the workspace:

        class: FQN of class implementing the PersistenceManager
interface -->

    <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.MySqlPersistenceManager">

      <param name="driver" value="com.mysql.jdbc.Driver"/>

      <param name="url" value="jdbc:mysql://localhost:3306/okm_repo?autoReconnect=true&amp;useUnicode=true&amp;characterEncoding=UTF8"/>

      <param name="schema" value="mysql"/>

      <param name="user" value="openkm"/>

      <param name="password" value="*****"/>

      <param name="schemaObjectPrefix" value="${wsp.name}_"/>

      <param name="externalBLOBs" value="false"/>

    </PersistenceManager>


    <!-- Search index and the file system it uses.

        class: FQN of class implementing the QueryHandler
interface -->

    <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">

        <param name="path" value="${wsp.home}/index"/>

        <param name="textFilterClasses" value="

        org.apache.jackrabbit.extractor.PlainTextExtractor,

        org.apache.jackrabbit.extractor.MsWordTextExtractor,

        org.apache.jackrabbit.extractor.MsExcelTextExtractor,

        org.apache.jackrabbit.extractor.MsPowerPointTextExtractor,

        org.apache.jackrabbit.extractor.OpenOfficeTextExtractor,

        org.apache.jackrabbit.extractor.RTFTextExtractor,

        org.apache.jackrabbit.extractor.HTMLTextExtractor,

        org.apache.jackrabbit.extractor.XMLTextExtractor,

        org.apache.jackrabbit.extractor.PngTextExtractor,

        org.apache.jackrabbit.extractor.MsOutlookTextExtractor,

        com.openkm.extractor.PdfTextExtractor,

        com.openkm.extractor.AudioTextExtractor,

        com.openkm.extractor.ExifTextExtractor,

        com.openkm.extractor.TiffTextExtractor,

        com.openkm.extractor.SourceCodeTextExtractor,

        com.openkm.extractor.MsOffice2007TextExtractor"/>

        <param name="extractorPoolSize" value="2"/>

        <param name="supportHighlighting" value="false"/>

        <param name="indexingConfiguration" value="${wsp.home}/../../../indexing_configuration.xml"/>

    </SearchIndex>

  </Workspace>
```

```xml
    <!-- Configures the versioning -->

    <Versioning rootPath="${rep.home}/version">

        <!-- Configures the filesystem to use for versioning for the respective

             persistence manager -->

        <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

            <param name="path" value="${rep.home}/version" />

        </FileSystem>


        <!-- Configures the persistence manager to be used for persisting version state.

             Please note that the current versioning implementation is
based on

             a 'normal' persistence manager, but this could change in
future

             implementations. -->

        <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.MySqlPersistenceManager">

          <param name="driver" value="com.mysql.jdbc.Driver"/>

          <param name="url" value="jdbc:mysql://localhost:3306/okm_repo?autoReconnect=true&amp;useUnicode=true&amp;characterEncoding=UTF8"/>

          <param name="schema" value="mysql"/>

          <param name="user" value="openkm"/>

          <param name="password" value="*****"/>

          <param name="schemaObjectPrefix" value="version_"/>

          <param name="externalBLOBs" value="false"/>

        </PersistenceManager>

    </Versioning>


    <!-- Search index for content that is shared repository wide

         (/jcr:system tree, contains mainly versions) -->

    <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">

        <param name="path" value="${rep.home}/repository/index"/>

        <param name="textFilterClasses" value=""/>

        <param name="extractorPoolSize" value="2"/>

        <param name="supportHighlighting" value="false"/>

    </SearchIndex>


    <!-- DataStore improve file handling performance -->

    <DataStore class="org.apache.jackrabbit.core.data.FileDataStore">

        <param name="path" value="${rep.home}/repository/datastore"/>

        <param name="minRecordLength" value="100"/>

    </DataStore>

</Repository>
```

More info about this at Jackrabbit Configuration [3].

References

[1] http://community.jboss.org/wiki/encryptingdatasourcepasswords

[2] http://community.jboss.org/wiki/DynamicLoginConfig

[3] http://jackrabbit.apache.org/jackrabbit-configuration.html

MySQL-OpenKM 4.1

Database creation

The first thing to do is create the required databases where the tables will be created:

```sql
DROP DATABASE IF EXISTS okm_repository;
DROP DATABASE IF EXISTS okm_activity;
DROP DATABASE IF EXISTS okm_auth;
DROP DATABASE IF EXISTS okm_dashboard;
DROP DATABASE IF EXISTS okm_workflow;

CREATE DATABASE okm_repository DEFAULT CHARACTER SET utf8;
CREATE DATABASE okm_activity DEFAULT CHARACTER SET utf8;
CREATE DATABASE okm_auth DEFAULT CHARACTER SET utf8;
CREATE DATABASE okm_dashboard DEFAULT CHARACTER SET utf8;
CREATE DATABASE okm_workflow DEFAULT CHARACTER SET utf8;

GRANT USAGE ON *.* TO 'openkm'@'%' IDENTIFIED BY '*secret*';
GRANT ALL PRIVILEGES ON *.* TO 'openkm'@'%';
```

Table creation

In this OpenKM 4.1 release you can create the databases automatically configuring the **system.database** property in OpenKM.cfg.

```
system.database=mysql
```

This configuration property should be set before the repository creation. Once the document repository has been initialized don't modify it because can damage your documents. If your repository has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

OpenKM 4.0 and older

```
#
# Generic activity database definition
#
CREATE TABLE activity(act_date TIMESTAMP, act_user VARCHAR(32),
act_token VARCHAR(48), act_action VARCHAR(48), act_item VARCHAR(256),
act_params VARCHAR(256));
```

```
#
# Generic auth database definition
#
```

```
CREATE TABLE users(usr_id VARCHAR(32), usr_name VARCHAR(64), usr_pass
VARCHAR(32) NOT NULL, usr_email VARCHAR(32) NOT NULL, usr_active
BOOLEAN, PRIMARY KEY(usr_id));
CREATE TABLE roles(rol_id VARCHAR(32), PRIMARY KEY(rol_id));
CREATE TABLE user_role(ur_user VARCHAR(32), ur_role VARCHAR(32),
PRIMARY KEY(ur_user, ur_role));
CREATE TABLE mail_accounts(ma_id INTEGER AUTO_INCREMENT, ma_user
VARCHAR(32), ma_mhost VARCHAR(32), ma_muser VARCHAR(32), ma_mpass
VARCHAR(32), ma_mfolder VARCHAR(32), ma_active BOOLEAN, PRIMARY
KEY(ma_id));
CREATE TABLE twitter_accounts(ta_id INTEGER AUTO_INCREMENT, ta_user
VARCHAR(32), ta_tuser VARCHAR(32), ta_active BOOLEAN, PRIMARY
KEY(ta_id));

# INSERT DEFAULT USER / ROLES
INSERT INTO users (usr_id, usr_name, usr_pass, usr_email, usr_active)
VALUES ('okmAdmin', 'Administrator',
'21232f297a57a5a743894a0e4a801fc3', '', true);
INSERT INTO roles (rol_id) VALUES ('AdminRole');
INSERT INTO roles (rol_id) VALUES ('UserRole');
INSERT INTO user_role (ur_user, ur_role) VALUES ('okmAdmin',
'AdminRole');
```

```
#
# Generic dashboard stats database definition
#
CREATE TABLE dashboard_stats(ds_user VARCHAR(32), ds_source
VARCHAR(64), ds_node VARCHAR(256), ds_date TIMESTAMP);
```

Workflow engine

You have to modify the file *WEB-INF/classes/hibernate.cfg.xml* located inside the OpenKM.war archive. These are the entries to change:

```
<!-- hibernate dialect -->
<property name="hibernate.dialect">org.hibernate.dialect.HSQLDialect</property>
```

to

```
<!-- hibernate dialect -->
<property name="hibernate.dialect">org.hibernate.dialect.MySQL5Dialect</property>
```

And in ⬚ are the sententeces needed to create the tables. More info about this at:

• The jBPM Database [1]
• Hibernate: SQL Dialects [1]

JBoss datasources

```xml
<?xml version="1.0" encoding="UTF-8"?>
<datasources>
  <!-- OpenKM User Activity -->
  <local-tx-datasource>
    <jndi-name>OKMActivityDS</jndi-name>
    <connection-url>jdbc:mysql://localhost:3306/okm_activity?autoReconnect=true</connection-url>
    <driver-class>com.mysql.jdbc.Driver</driver-class>
    <user-name>openkm</user-name>
    <password>*secret*</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>MySQL</type-mapping>
    </metadata>
  </local-tx-datasource>

  <!-- OpenKM User Auth -->
  <local-tx-datasource>
    <jndi-name>OKMAuthDS</jndi-name>
    <connection-url>jdbc:mysql://localhost:3306/okm_auth?autoReconnect=true</connection-url>
    <driver-class>com.mysql.jdbc.Driver</driver-class>
    <user-name>openkm</user-name>
    <password>*secret*</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>MySQL</type-mapping>
    </metadata>
  </local-tx-datasource>

  <!-- OpenKM Dashboard Stats -->
  <local-tx-datasource>
    <jndi-name>OKMDashboardStatsDS</jndi-name>
    <connection-url>jdbc:mysql://localhost:3306/okm_dashboard?autoReconnect=true</connection-url>
    <driver-class>com.mysql.jdbc.Driver</driver-class>
    <user-name>openkm</user-name>
    <password>*secret*</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
```

```xml
      <track-statements/>

      <prepared-statement-cache-size>32</prepared-statement-cache-size>

      <metadata>

        <type-mapping>MySQL</type-mapping>

      </metadata>

  </local-tx-datasource>


  <!-- OpenKM Workflow -->

  <local-tx-datasource>

    <jndi-name>OKMWorkflowDS</jndi-name>

    <connection-url>jdbc:mysql://localhost:3306/okm_workflow?autoReconnect=true</connection-url>

    <driver-class>com.mysql.jdbc.Driver</driver-class>

    <user-name>openkm</user-name>

    <password>*secret*</password>

    <min-pool-size>5</min-pool-size>

    <max-pool-size>20</max-pool-size>

    <idle-timeout-minutes>0</idle-timeout-minutes>

    <track-statements/>

    <prepared-statement-cache-size>32</prepared-statement-cache-size>

    <metadata>

      <type-mapping>MySQL</type-mapping>

    </metadata>

  </local-tx-datasource>

</datasources>
```

More info about this at Configuring JDBC DataSources [2].

Login configuration

Due to the nature of HSQL database and the booleans, you need a little modification in the *$JBOSS_HOME/server/default/conf/login-config.xml*. Edit this file and change:

```xml
<!-- OpenKM -->

<application-policy name = "OpenKM">

  <authentication>

    <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">

      <module-option name="dsJndiName">java:/OKMAuthDS</module-option>

      <module-option name="principalsQuery">select usr_pass as PASSWD from users where usr_id=? and
usr_active='true'</module-option>

      <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from user_role where
ur_user=?</module-option>

      <module-option name="hashAlgorithm">md5</module-option>

      <module-option name="hashEncoding">hex</module-option>

    </login-module>

  </authentication>

</application-policy>
```

to

```xml
<!-- OpenKM -->
<application-policy name = "OpenKM">
   <authentication>
      <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">
         <module-option name="dsJndiName">java:/OKMAuthDS</module-option>
         <module-option name="principalsQuery">select usr_pass as PASSWD from users where usr_id=? and
usr_active=true</module-option>
         <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from user_role where
ur_user=?</module-option>
         <module-option name="hashAlgorithm">md5</module-option>
         <module-option name="hashEncoding">hex</module-option>
      </login-module>
   </authentication>
</application-policy>
```

Repository configuration

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Repository PUBLIC "-//The Apache Software Foundation//DTD Jackrabbit 1.4//EN"

"http://jackrabbit.apache.org/dtd/repository-1.4.dtd">
<Repository>
  <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">
    <param name="path" value="${rep.home}/repository"/>
  </FileSystem>
  <Security appName="OpenKM">
    <AccessManager class="es.git.openkm.core.OKMAccessManager"/>
  </Security>
  <Workspaces rootPath="${rep.home}/workspaces" defaultWorkspace="default"/>
  <Workspace name="${wsp.name}">
    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">
      <param name="path" value="${wsp.home}"/>
    </FileSystem>
    <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.MySqlPersistenceManager">
      <param name="driver" value="com.mysql.jdbc.Driver"/>
      <param name="url" value="jdbc:mysql://localhost:3306/okm_repository?autoReconnect=true"/>
      <param name="schema" value="mysql"/>
      <param name="user" value="openkm"/>
      <param name="password" value="*secret*"/>
      <param name="schemaObjectPrefix" value="${wsp.name}_"/>
      <param name="externalBLOBs" value="false"/>
    </PersistenceManager>
    <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">
      <param name="path" value="${wsp.home}/index"/>
      <param name="useCompoundFile" value="true"/>
      <param name="minMergeDocs" value="100"/>
      <param name="volatileIdleTime" value="3"/>
      <param name="maxMergeDocs" value="100000"/>
```

```xml
        <param name="mergeFactor" value="10"/>

        <param name="bufferSize" value="10"/>

        <param name="cacheSize" value="1000"/>

        <param name="forceConsistencyCheck" value="false"/>

        <param name="autoRepair" value="true"/>

        <param name="analyzer" value="org.apache.lucene.analysis.standard.StandardAnalyzer"/>

        <param name="respectDocumentOrder" value="false"/>

        <param name="indexingConfiguration" value="$ {wsp.home}/../../../indexing_configuration.xml"/>

        <param name="textFilterClasses" value="
org.apache.jackrabbit.core.query.lucene.TextPlainTextFilter,

org.apache.jackrabbit.extractor.PdfTextExtractor,

org.apache.jackrabbit.extractor.HTMLTextExtractor,

org.apache.jackrabbit.extractor.XMLTextExtractor,

org.apache.jackrabbit.extractor.RTFTextExtractor,

org.apache.jackrabbit.extractor.OpenOfficeTextExtractor,

es.git.openkm.extractor.MsExcelTextExtractor,

es.git.openkm.extractor.MsPowerPointTextExtractor,

es.git.openkm.extractor.MsWordTextExtractor,

es.git.openkm.extractor.MsOffice2007TextExtractor,

es.git.openkm.extractor.ExifTextExtractor,

es.git.openkm.extractor.TiffTextExtractor,

es.git.openkm.extractor.AudioTextExtractor" />
      </SearchIndex>

    </Workspace>

    <Versioning rootPath="${rep.home}/version">

      <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

        <param name="path" value="${rep.home}/version"/>

      </FileSystem>

      <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.MySqlPersistenceManager">

        <param name="driver" value="com.mysql.jdbc.Driver"/>

        <param name="url" value="jdbc:mysql://localhost:3306/okm_repository?autoReconnect=true"/>

        <param name="schema" value="mysql"/>

        <param name="user" value="openkm"/>

        <param name="password" value="*secret*"/>

        <param name="schemaObjectPrefix" value="version_"/>

        <param name="externalBLOBs" value="false"/>

      </PersistenceManager>

    </Versioning>

    <!-- Also see DatabaseDataStore-->

    <DataStore class="org.apache.jackrabbit.core.data.FileDataStore"/>

</Repository>
```

More info about this at Jackrabbit Configuration [3].

References

[1] http://docs.jboss.org/jbpm/v3/userguide/thejbpmdatabase.html

[2] http://www.jboss.org/file-access/default/members/jbossas/freezone/docs/Server_Configuration_Guide/4/html/
     Connectors_on_JBoss-Configuring_JDBC_DataSources.html

PostgreSQL

Download PostgreSQL JDBC driver from PostgreSQL Driver Page [1] and move it to
$JBOSS_HOME/server/default/lib.

> **OpenKM 5.1.8** has been verified to run with **PostgreSQL 9.1** using the JDBC driver **postgresql-9.1-901.jdbc4.jar** under JBoss 4.2.3.

- OpenKM 6.0 🔒 (also valid for OpenKM 6.1)
- OpenKM 5.0 🔒 (also valid for OpenKM 5.1)
- OpenKM 4.1 🔒

If you want to obtain the maximun performance from PostgreSQL, pgFouine [2] will help in your task.

References

[1] http://jdbc.postgresql.org/

[2] http://pgfouine.projects.postgresql.org/index.html

PostgreSQL-OpenKM 6.0

In this OpenKM release you can create the databases automatically configuring the **hibernate.dialect** and
hibernate.hbm2ddl properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.PostgreSQLDialect
hibernate.hbm2ddl=create
```

Once the tables are created, OpenKM will automatically change the **hibernate.hbm2ddl** property from *create* to
none.

> This configuration property should be set before the database creation. Once the database has been initialized don't modify it because can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

More info about this at:

- Hibernate: SQL Dialects [1]

Database creation

Starting with OpenKM 6.0, only one database is needed:

```
DROP DATABASE IF EXISTS okm_app;

CREATE USER openkm WITH PASSWORD '*secret*';

CREATE DATABASE okm_app WITH OWNER openkm ENCODING 'UTF8';
```

More info at:

- PostgreSQL 9.1 Documentation [2]

Tomcat datasources

```
$ vim $TOMCAT_HOME/conf/server.xml
```

```xml
<Resource name="jdbc/OpenKMDS" auth="Container" type="javax.sql.DataSource"
          maxActive="100" maxIdle="30" maxWait="10000"
validationQuery="select 1"
          username="openkm" password="*****"
driverClassName="org.postgresql.Driver"
          url="jdbc:postgresql://localhost:5432/okm_app"/>
```

Login configuration

```
$ vim $TOMCAT_HOME/OpenKM.xml
```

```xml
<security:authentication-manager alias="authenticationManager">
  <security:authentication-provider>
    <security:password-encoder hash="md5"/>
    <security:jdbc-user-service
        data-source-ref="dataSource"
        users-by-username-query="select usr_id, usr_password, 1 from
OKM_USER where usr_id=? and usr_active='T'"
        authorities-by-username-query="select ur_user, ur_role from
OKM_USER_ROLE where ur_user=?"/>
  </security:authentication-provider>
</security:authentication-manager>
```

References

[1] http://docs.jboss.org/hibernate/orm/3.6/reference/en-US/html/session-configuration.html#configuration-optional-dialects

[2] http://www.postgresql.org/docs/9.1/static/index.html

PostgreSQL-OpenKM 5.0

> These instructions are also valid for OpenKM 5.1.

In this OpenKM release you can create the databases automatically configuring the **hibernate.dialect** and **hibernate.hbm2ddl** properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.PostgreSQLDialect
hibernate.hbm2ddl=create
```

Once the tables are created, change the **hibernate.hbm2ddl** property from *create* to *none*.

> This configuration property should be set before the database creation. Once the database has been initialized don't modify it because can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

More info about this at:

• Hibernate: SQL Dialects [1]

Database creation

Starting with OpenKM 5.0, only two databases are needed:

```
DROP DATABASE IF EXISTS okm_repo;
DROP DATABASE IF EXISTS okm_app;


CREATE USER openkm WITH PASSWORD '*secret*';


CREATE DATABASE okm_repo WITH OWNER openkm ENCODING 'UTF8';
CREATE DATABASE okm_app WITH OWNER openkm ENCODING 'UTF8';
```

More info at:

• PostgreSQL 8.4.5 Documentation [1]

JBoss datasources

```
$ vim $JBOSS_HOME/server/default/deploy/openkm-ds.xml
```

```xml
<local-tx-datasource>

    <jndi-name>OpenKMDS</jndi-name>

    <connection-url>jdbc:postgresql://localhost:5432/okm_app</connection-url>

    <driver-class>org.postgresql.Driver</driver-class>

    <user-name>openkm</user-name>

    <password>*****</password>

    <min-pool-size>5</min-pool-size>

    <max-pool-size>20</max-pool-size>

    <idle-timeout-minutes>28680</idle-timeout-minutes>


    <exception-sorter-class-name>org.jboss.jca.adapters.jdbc.extensions.postgres.PostgreSQLExceptionSorter</exception-sorter-class-name>
```

```
    <valid-connection-checker-class-name>org.jboss.jca.adapters.jdbc.extensions.postgres.PostgreSQLValidConnectionChecker</valid-connection-checker-class-name>

    <metadata>

        <type-mapping>PostgreSQL</type-mapping>

        <!-- <type-mapping>PostgreSQL 8.0</type-mapping> -->

        <!-- <type-mapping>PostgreSQL 7.2</type-mapping> -->

    </metadata>

</local-tx-datasource>
```

The type mapping should match a type-mapping/name element from *$JBOSS_HOME/server/default/conf/standardjbosscmp-jdbc.xml*. Example configurations for many third-party JDBC drivers are included in the *$JBOSS_HOME/docs/examples/jca* directory.

You may be interested in Encrypting DataSource Passwords [1].

Login configuration

```
$ vim $JBOSS_HOME/server/default/conf/login-config.xml
```

This is for 5.0 version:

```
<!-- OpenKM -->

<application-policy name = "OpenKM">

    <authentication>

        <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">

            <module-option name="dsJndiName">java:/OpenKMDS</module-option>

            <module-option name="principalsQuery">select usr_password as PASSWD from OKM_USER where usr_id=?
and usr_active=true</module-option>

            <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from OKM_USER_ROLE where
ur_user=?</module-option>

            <module-option name="hashAlgorithm">md5</module-option>

            <module-option name="hashEncoding">hex</module-option>

        </login-module>

    </authentication>

</application-policy>
```

This is for 5.1 version:

```
<!-- OpenKM -->

<application-policy name = "OpenKM">

    <authentication>

        <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">

            <module-option name="dsJndiName">java:/OpenKMDS</module-option>

            <module-option name="principalsQuery">select usr_password as PASSWD from OKM_USER where usr_id=?
and usr_active='T'</module-option>

            <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from OKM_USER_ROLE where
ur_user=?</module-option>

            <module-option name="hashAlgorithm">md5</module-option>

            <module-option name="hashEncoding">hex</module-option>

        </login-module>

    </authentication>
```

```
</application-policy>
```

Read also: Dynamic login-config.xml [2].

Repository configuration

```
$ vim $JBOSS_HOME/repository.xml
```

```xml
<?xml version="1.0"?>
<!DOCTYPE Repository PUBLIC "-//The Apache Software Foundation//DTD Jackrabbit 1.6//EN"

"http://jackrabbit.apache.org/dtd/repository-1.6.dtd">
<Repository>
    <!-- virtual file system where the repository stores global state
        (e.g. registered namespaces, custom node types, etc.) -->
    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">
        <param name="path" value="${rep.home}/repository"/>
    </FileSystem>


    <!-- Security configuration -->
    <Security appName="OpenKM">
        <!-- Access manager: FQN of class implementing the AccessManager interface -->
        <AccessManager class="com.openkm.core.OKMAccessManager"/>
        <!-- <AccessManager class="org.apache.jackrabbit.core.security.SimpleAccessManager"/> -->
        <!-- <AccessManager class="org.apache.jackrabbit.core.security.DefaultAccessManager"> -->
            <!-- <param name="config" value="${rep.home}/access.xml"/> -->
        <!-- </AccessManager> -->
    </Security>


    <!-- Location of workspaces root directory and name of default workspace -->
    <Workspaces rootPath="${rep.home}/workspaces" defaultWorkspace="default"/>


    <!-- Workspace configuration template:
        used to create the initial workspace if there's no workspace
yet -->
    <Workspace name="${wsp.name}">
        <!-- Virtual file system of the workspace:
            class: FQN of class implementing the FileSystem interface
-->
        <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">
            <param name="path" value="${wsp.home}"/>
        </FileSystem>


        <!-- Persistence manager of the workspace:
            class: FQN of class implementing the PersistenceManager
interface -->
        <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.PostgreSQLPersistenceManager">
          <param name="driver" value="org.postgresql.Driver"/>
          <param name="url" value="jdbc:postgresql://localhost:5432/okm_repo"/>
```

```xml
        <param name="schema" value="postgresql"/>

        <param name="user" value="openkm"/>

        <param name="password" value="*****"/>

        <param name="schemaObjectPrefix" value="${wsp.name}_"/>

        <param name="externalBLOBs" value="false"/>

    </PersistenceManager>


    <!-- Search index and the file system it uses.

         class: FQN of class implementing the QueryHandler

interface -->

    <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">

        <param name="path" value="${wsp.home}/index"/>

        <param name="textFilterClasses" value="

        org.apache.jackrabbit.extractor.PlainTextExtractor,

        org.apache.jackrabbit.extractor.MsWordTextExtractor,

        org.apache.jackrabbit.extractor.MsExcelTextExtractor,

        org.apache.jackrabbit.extractor.MsPowerPointTextExtractor,

        org.apache.jackrabbit.extractor.OpenOfficeTextExtractor,

        org.apache.jackrabbit.extractor.RTFTextExtractor,

        org.apache.jackrabbit.extractor.HTMLTextExtractor,

        org.apache.jackrabbit.extractor.XMLTextExtractor,

        org.apache.jackrabbit.extractor.PngTextExtractor,

        org.apache.jackrabbit.extractor.MsOutlookTextExtractor,

        com.openkm.extractor.PdfTextExtractor,

        com.openkm.extractor.AudioTextExtractor,

        com.openkm.extractor.ExifTextExtractor,

        com.openkm.extractor.TiffTextExtractor,

        com.openkm.extractor.SourceCodeTextExtractor,

        com.openkm.extractor.MsOffice2007TextExtractor"/>

        <param name="extractorPoolSize" value="2"/>

        <param name="supportHighlighting" value="false"/>

        <param name="indexingConfiguration" value="${wsp.home}/../../../indexing_configuration.xml"/>

    </SearchIndex>

</Workspace>


<!-- Configures the versioning -->

<Versioning rootPath="${rep.home}/version">

    <!-- Configures the filesystem to use for versioning for the respective

         persistence manager -->

    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

        <param name="path" value="${rep.home}/version" />

    </FileSystem>


    <!-- Configures the persistence manager to be used for persisting version state.

         Please note that the current versioning implementation is

based on

         a 'normal' persistence manager, but this could change in
```

```
future

        implementations. -->

    <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.PostgreSQLPersistenceManager">

      <param name="driver" value="org.postgresql.Driver"/>

      <param name="url" value="jdbc:postgresql://localhost:5432/okm_repo"/>

      <param name="schema" value="postgresql"/>

      <param name="user" value="openkm"/>

      <param name="password" value="*****"/>

      <param name="schemaObjectPrefix" value="version_"/>

      <param name="externalBLOBs" value="false"/>

    </PersistenceManager>

  </Versioning>


  <!-- Search index for content that is shared repository wide

       (/jcr:system tree, contains mainly versions) -->

  <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">

    <param name="path" value="${rep.home}/repository/index"/>

    <param name="textFilterClasses" value=""/>

    <param name="extractorPoolSize" value="2"/>

    <param name="supportHighlighting" value="false"/>

  </SearchIndex>


  <!-- DataStore improve file handling performance -->

  <DataStore class="org.apache.jackrabbit.core.data.FileDataStore">

    <param name="path" value="${rep.home}/repository/datastore"/>

    <param name="minRecordLength" value="100"/>

  </DataStore>

</Repository>
```

More info about this at Jackrabbit Configuration [3].

References

[1] http://www.postgresql.org/docs/8.4/static/index.html

PostgreSQL-OpenKM 4.1

Table creation

```
#
# Generic activity database definition
#
CREATE TABLE activity(act_date TIMESTAMP, act_user VARCHAR(32),
act_token VARCHAR(48), act_action VARCHAR(48), act_item VARCHAR(256),
act_params VARCHAR(256));
```

```
#
# Generic auth database definition
#
CREATE TABLE users(usr_id VARCHAR(32), usr_name VARCHAR(64), usr_pass
VARCHAR(32) NOT NULL, usr_email VARCHAR(32) NOT NULL, usr_active
BOOLEAN, PRIMARY KEY(usr_id));
CREATE TABLE roles(rol_id VARCHAR(32), PRIMARY KEY(rol_id));
CREATE TABLE user_role(ur_user VARCHAR(32), ur_role VARCHAR(32),
PRIMARY KEY(ur_user, ur_role));
CREATE TABLE mail_accounts(ma_id SERIAL, ma_user VARCHAR(32), ma_mhost
VARCHAR(32), ma_muser VARCHAR(32), ma_mpass VARCHAR(32), ma_mfolder
VARCHAR(32), ma_active BOOLEAN, PRIMARY KEY(ma_id));
CREATE TABLE twitter_accounts(ta_id SERIAL, ta_user VARCHAR(32),
ta_tuser VARCHAR(32), ta_active BOOLEAN, PRIMARY KEY(ta_id));

# INSERT DEFAULT USER / ROLES
INSERT INTO users (usr_id, usr_name, usr_pass, usr_email, usr_active)
VALUES ('okmAdmin', 'Administrator',
'21232f297a57a5a743894a0e4a801fc3', '', true);
INSERT INTO roles (rol_id) VALUES ('AdminRole');
INSERT INTO roles (rol_id) VALUES ('UserRole');
INSERT INTO user_role (ur_user, ur_role) VALUES ('okmAdmin',
'AdminRole');
```

```
#
# Generic dashboard stats database definition
#
CREATE TABLE dashboard_stats(ds_user VARCHAR(32), ds_source
VARCHAR(64), ds_node VARCHAR(256), ds_date TIMESTAMP);
```

Workflow engine

You have to modify the file *WEB-INF/classes/hibernate.cfg.xml* located inside the OpenKM.war archive. These are the entries to change:

```xml
<!-- hibernate dialect -->
<property name="hibernate.dialect">org.hibernate.dialect.HSQLDialect</property>
```

to

```xml
<!-- hibernate dialect -->
<property name="hibernate.dialect">org.hibernate.dialect.PostgreSQLDialect</property>
```

And in are the sententeces needed to create the tables. More info about this at:

- The jBPM Database [1]
- Hibernate: SQL Dialects [1]

JBoss datasources

```xml
<?xml version="1.0" encoding="UTF-8"?>
<datasources>
  <!-- OpenKM User Activity -->
  <local-tx-datasource>
    <jndi-name>OKMActivityDS</jndi-name>
    <connection-url>jdbc:postgresql://localhost:5432/openkm</connection-url>
    <driver-class>org.postgresql.Driver</driver-class>
    <user-name>db_user</user-name>
    <password>db_pass</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>PostgreSQL</type-mapping>
    </metadata>
  </local-tx-datasource>

  <!-- OpenKM User Auth -->
  <local-tx-datasource>
    <jndi-name>OKMAuthDS</jndi-name>
    <connection-url>jdbc:postgresql://localhost:5432/openkm</connection-url>
    <driver-class>org.postgresql.Driver</driver-class>
    <user-name>db_user</user-name>
    <password>db_pass</password>
    <min-pool-size>5</min-pool-size>
```

```xml
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>PostgreSQL</type-mapping>
    </metadata>
  </local-tx-datasource>

  <!-- OpenKM Dashboard Stats -->
  <local-tx-datasource>
    <jndi-name>OKMDashboardStatsDS</jndi-name>
    <connection-url>jdbc:postgresql://localhost:5432/openkm</connection-url>
    <driver-class>org.postgresql.Driver</driver-class>
    <user-name>db_user</user-name>
    <password>db_pass</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>PostgreSQL</type-mapping>
    </metadata>
  </local-tx-datasource>

  <!-- OpenKM Workflow -->
  <local-tx-datasource>
    <jndi-name>OKMWorkflowDS</jndi-name>
    <connection-url>jdbc:postgresql://localhost:5432/openkm</connection-url>
    <driver-class>org.postgresql.Driver</driver-class>
    <user-name>db_user</user-name>
    <password>db_pass</password>
    <min-pool-size>5</min-pool-size>
    <max-pool-size>20</max-pool-size>
    <idle-timeout-minutes>0</idle-timeout-minutes>
    <track-statements/>
    <prepared-statement-cache-size>32</prepared-statement-cache-size>
    <metadata>
      <type-mapping>PostgreSQL</type-mapping>
    </metadata>
  </local-tx-datasource>
</datasources>
```

More info about this at Configuring JDBC DataSources [2].

Repository configuration

```xml
<?xml version="1.0" encoding="UTF-8"?>

<Repository>

  <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

    <param name="path" value="${rep.home}/repository"/>

  </FileSystem>

  <Security appName="OpenKM">

    <AccessManager class="com.openkm.core.OKMAccessManager"/>

  </Security>

  <Workspaces rootPath="${rep.home}/workspaces" defaultWorkspace="default"/>

  <Workspace name="${wsp.name}">

    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

      <param name="path" value="${wsp.home}"/>

    </FileSystem>

    <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.PostgreSQLPersistenceManager">

      <param name="driver" value="org.postgresql.Driver"/>

      <param name="url" value="jdbc:postgresql://localhost:5432/openkm?autoReconnect=true"/>

      <param name="schema" value="postgresql"/>

      <param name="user" value="db_user"/>

      <param name="password" value="db_pass"/>

      <param name="schemaObjectPrefix" value="${wsp.name}_"/>

      <param name="externalBLOBs" value="false"/>

    </PersistenceManager>

    <SearchIndex class="org.apache.jackrabbit.core.query.lucene.SearchIndex">

      <param name="path" value="${wsp.home}/index"/>

      <param name="useCompoundFile" value="true"/>

      <param name="minMergeDocs" value="100"/>

      <param name="volatileIdleTime" value="3"/>

      <param name="maxMergeDocs" value="100000"/>

      <param name="mergeFactor" value="10"/>

      <param name="bufferSize" value="10"/>

      <param name="cacheSize" value="1000"/>

      <param name="forceConsistencyCheck" value="false"/>

      <param name="autoRepair" value="true"/>

      <param name="analyzer" value="org.apache.lucene.analysis.standard.StandardAnalyzer"/>

      <param name="respectDocumentOrder" value="false"/>

      <param name="indexingConfiguration" value="$ {wsp.home}/../../../indexing_configuration.xml"/>

      <param name="textFilterClasses" value="
org.apache.jackrabbit.core.query.lucene.TextPlainTextFilter,
org.apache.jackrabbit.extractor.PdfTextExtractor,
org.apache.jackrabbit.extractor.HTMLTextExtractor,
org.apache.jackrabbit.extractor.XMLTextExtractor,
org.apache.jackrabbit.extractor.RTFTextExtractor,
org.apache.jackrabbit.extractor.OpenOfficeTextExtractor,
com.openkm.extractor.MsExcelTextExtractor,
com.openkm.extractor.MsPowerPointTextExtractor,
com.openkm.extractor.MsWordTextExtractor,
```

```
com.openkm.extractor.MsOffice2007TextExtractor,

com.openkm.extractor.ExifTextExtractor,

com.openkm.extractor.TiffTextExtractor,

com.openkm.extractor.AudioTextExtractor" />

    </SearchIndex>

  </Workspace>

  <Versioning rootPath="${rep.home}/version">

    <FileSystem class="org.apache.jackrabbit.core.fs.local.LocalFileSystem">

      <param name="path" value="${rep.home}/version"/>

    </FileSystem>

    <PersistenceManager class="org.apache.jackrabbit.core.persistence.bundle.PostgreSQLPersistenceManager">

      <param name="driver" value="org.postgresql.Driver"/>

      <param name="url" value="jdbc:postgresql://localhost:5432/openkm?autoReconnect=true"/>

      <param name="schema" value="postgresql"/>

      <param name="user" value="db_user"/>

      <param name="password" value="db_pass"/>

      <param name="schemaObjectPrefix" value="version_"/>

      <param name="externalBLOBs" value="false"/>

    </PersistenceManager>

  </Versioning>

  <!-- Also see DatabaseDataStore-->

  <DataStore class="org.apache.jackrabbit.core.data.FileDataStore"/>

</Repository>
```

More info about this at Jackrabbit Configuration [3].

Other DBMS

OpenKM uses Lucene that means can be installed on major DBMS. By default OpenKM community tested DBMS are MySQL and PostgreSQL. In the OpenKM comparasion matrix [1] can see other DBMS tested and supported at OpenKM professional version.

Test in other DBMS

First you should know which is your hibernate dialect. For info about this take a look at Hibernate: SQL Dialects [1]

To create the databases automatically configuring the **hibernate.dialect** and **hibernate.hbm2ddl** properties in OpenKM.cfg.

```
hibernate.dialect=org.hibernate.dialect.SomeDialect
hibernate.hbm2ddl=create
```

Once the tables are created, OpenKM will automatically change the **hibernate.hbm2ddl** property from *create* to *none*.

> Is possible depending your DBMS should be needed to make some minimal optimization in source code. Refer to Developer_Guide

> This configuration property should be set before the database creation. Once the database has been initialized don't modify it because can damage your installation. If your OpenKM installation has been already configured with another database (default one is an embedded one called HSQL) you can't switch to another database simply changing this property.

References

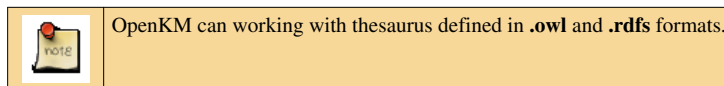[1] http://www.openkm.com/en/overview/comparison-of-versions.html

Thesaurus

A **thesaurus** is a book that lists **words grouped together according to similarity of meaning** (containing synonyms and sometimes antonyms), in contrast to a dictionary, which contains definitions and pronunciations.

> Thesaurus is only available starting from OpenKM 5.0.
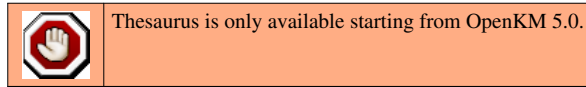
In Information Science, Library Science, and **Information Technology, specialized thesauri are designed for information retrieval**. They are a type of controlled vocabulary, for indexing or tagging purposes. If you want more information about the term you can take a look at http://en.wikipedia.org/wiki/Thesaurus.

> OpenKM can working with thesaurus defined in **.owl** and **.rdfs** formats.

There's a great utility http://protege.stanford.edu/ for creating and maintaining your own thesaurus. Specific thesauri can be found on the Internet. For example, Agrovoc [1] (FAO), NASA Thesuarus [2], UNESCO Thesaurus [3], Public administration Thesaurus [4] among others. Some of them are free and some have usage restrictions.

In order to correctly configure OpenKM to use a thesaurus the following OpenKM.cfg entries must be set:

```
kea.thesaurus.owl.file
kea.thesaurus.base.url
kea.thesaurus.tree.root
kea.thesaurus.tree.childs
```

Set OWL file

```
kea.thesaurus.owl.file=vocabulary/file.owl
```

Set base url

```
kea.thesaurus.base.url=http://www.someweb.org
```

Query to get root node

```
kea.thesaurus.tree.root=SELECT DISTINCT UID, TEXT FROM {UID} Y

{OBJECT}, {UID} rdfs:label {TEXT} ; [rdfs:subClassOf {CLAZZ}] where not

bound(CLAZZ)

and lang(TEXT)="en" USING NAMESPACE foaf=<http://xmlns.com/foaf/0.1/>, dcterms=<http://purl.org/dc/terms/>,

rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>, owl=<http://www.w3.org/2002/07/owl#>, rdfs=<http://www.w3.org/2000/01/rdf-schema#>,

skos=<http://www.w3.org/2004/02/skos/core#>, dc=<http://purl.org/dc/elements/1.1/>
```

Query to get childs node

```
kea.thesaurus.tree.childs=SELECT DISTINCT UID, TEXT FROM {UID}

rdfs:subClassOf {CLAZZ}, {UID} rdfs:label {TEXT} where

xsd:string(CLAZZ) =

"RDFparentID" and lang(TEXT)="en" USING NAMESPACE foaf=<http://xmlns.com/foaf/0.1/>, dcterms=<http://purl.org/dc/terms/>,

rdf=<http://www.w3.org /1999/02/22-rdf-syntax-ns#>, owl=<http://www.w3.org/2002/07/owl#>, rdfs=<http://www.w3.org/2000/01/rdf-schema#>,

skos=<http://www.w3.org/2004/02/skos/core#>, dc=<http://purl.org/dc/elements/1.1/>
```

You could be interested in:

- A Method for Converting Thesauri to RDF/OWL [5]

- OWL to SKOS online conversor [6]
- SKOS to OWL online conversor [7]
- SKOS Simple Knowledge Organization System [8]

Also check Thesaurus full example 🔒 for a step-by-step guide.

References

[1] http://aims.fao.org/website/AGROVOC-Thesaurus/sub

[2] http://www.sti.nasa.gov/thesfrm1.htm

[3] http://www2.ulcc.ac.uk/unesco/

[4] http://redined.r020.com.ar/es/index.php?tema=55

[5] http://thesauri.cs.vu.nl/

[6] http://owl.cs.manchester.ac.uk/owltoskos/

[7] http://www.ebusiness-unibw.org/tools/skos2owl/

[8] http://www.w3.org/2004/02/skos/

Thesaurus full example

OpenKM.cfg configuration

> Starting from OpenKM 5.1.x all this configuration should be configured from Administration > Configuration, so do not edit this OpenKM.cfg file because will be ignored.

```
kea.Thesaurus.owl.file=vocabulary/inroute.owl

kea.Thesaurus.base.url=http://www.inroutenetwork.org

kea.Thesaurus.tree.root=SELECT DISTINCT UID, TEXT FROM {UID} T

{OBJECT}, {UID} rdfs:label {TEXT} ; [rdfs:subClassOf {CLASS}] where not

bound({CLASS} and lang{TEXT}="en" USING NAMESPACE foaf=<http://xmlns.com/foaf/0.1/>, dcterms=<http://purl.org/dc/terms/>,

rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>, owl=<http://www.w3.org/2002/07/owl#>, rdfs=<http://www.w3.org/2000/01/rdf-schema#>, skos=<http://www.w3.org/2004/02/skos/core#>, dc=<http://purl.org/dc/elements1.1/>

kea.Thesaurus.tree.childs=SELECT DISTINCT UID, TEXT FROM {UID}

rdfs:subClassOf {CLASS}, {UID} rdfs:label {TEXT} where

substring{CLASS} = "#Objects=34" and lang{TEXT}="en" USING NAMESPACE

foaf=<http://xmlns.com/foaf/0.1/>, dcterms=http://purl.org/dc/terms/>, rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>, owl=<http://www.w3.org/2002/07/owl#>, rdfs=<http://www.w3.org/2000/01/rdf-schema#>, skos=<http://www.w3.org/2004/02/skos/core#>, dc=<http://purl.org/dc/elements/1.1/>
```

> **Exceptionaly**, after OpenKM thesaurus parameters are configured **JBoss must be restarted**, because thesaurus dictionary is loaded during JBoss startup. After that you can run the thesaurus generation process.

inroute.owl file

```xml
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
        xmlns:foaf="http://xmlns.com/foaf/0.1/"
        xmlns:dcterms="http://purl.org/dc/terms/"
        xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
        xmlns:owl="http://www.w3.org/2002/07/owl#"
        xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#"
        xmlns:skos="http://www.w3.org/2004/02/skos/core#"
        xmlns:dc="http://purl.org/dc/elements/1.1/">
```

```xml
<rdf:Description rdf:about="http://www.inroutenetwork.org">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Ontology"/>
     <rdfs:comment>INROUTE</rdfs:comment>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_1">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Visitors trips and activities</rdfs:label>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_2">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Supply and employment</rdfs:label>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_3">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Tourism and territory</rdfs:label>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_4">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Tourism destination management</rdfs:label>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_5">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Research and tools</rdfs:label>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_1">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Visitor</rdfs:label>
     <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_2">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Trip</rdfs:label>
     <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_3">
     <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
     <rdfs:label xml:lang="en">Activities</rdfs:label>
     <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
```

```xml
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_4">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Measurement and analysis tools (A.5)</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_5">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Forecast modellinsg (A.6)</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_6">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Other accounting tools (A7)</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_7">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Oter terms</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_1_8">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Forms of toruism</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_1"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_2_1">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Establishments ( productive )</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_2"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_2_2">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Companies</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_2"/>
    </rdf:Description>

    <rdf:Description rdf:about="http://www.inroutenetwork.org#c_2_3">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Tourism industries</rdfs:label>
```

```
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_2"/>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_2_4">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Job</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_2"/>
</rdf:Description>


<rdf:Description rdf:about="http://www.inroutenetwork.org#c_2_5">
        <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
        <rdfs:label xml:lang="en">Other terms</rdfs:label>
        <rdfs:subClassOf rdf:resource="http://www.inroutenetwork.org#c_2"/>
</rdf:Description>


</rdf:RDF>
```

Additional steps

- Create folder **$JBOSS_HOME/vocabulary**
- Copy the file **inroute.owl** into vocabulary folder
- Login with some user with adminitrator grants
- Select administrator tab
- Select generate thesaurus option


- Select the show level and execute send

```
Founded 5 terms in level 0
2010/09/20 01:36:34 Creating term > [Research and tools] - with uid:http://www.inroutenetwork.org#c_5
Founded 0 terms in level 1
2010/09/20 01:36:34 Creating term > [Supply and employment] - with uid:http://www.inroutenetwork.org#c_2
Founded 5 terms in level 1
2010/09/20 01:36:34 Creating term -> [Companies] - with uid:http://www.inroutenetwork.org#c_2_2
Founded 0 terms in level 2
2010/09/20 01:36:34 Creating term -> [Establishments ( productive )] - with uid:http://www.inroutenetwork.org#c_2_1
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Job] - with uid:http://www.inroutenetwork.org#c_2_4
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Other terms] - with uid:http://www.inroutenetwork.org#c_2_5
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Tourism industries] - with uid:http://www.inroutenetwork.org#c_2_3
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term > [Tourism and territory] - with uid:http://www.inroutenetwork.org#c_3
Founded 0 terms in level 1
2010/09/20 01:36:35 Creating term > [Tourism destination management] - with uid:http://www.inroutenetwork.org#c_4
Founded 0 terms in level 1
2010/09/20 01:36:35 Creating term > [Visitors trips and activities] - with uid:http://www.inroutenetwork.org#c_1
Founded 8 terms in level 1
2010/09/20 01:36:35 Creating term -> [Activities] - with uid:http://www.inroutenetwork.org#c_1_3
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Forecast modellinsg (A.6)] - with uid:http://www.inroutenetwork.org#c_1_5
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Forms of toruism] - with uid:http://www.inroutenetwork.org#c_1_8
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Measurement and analysis tools (A.5)] - with uid:http://www.inroutenetwork.org#c_1_4
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Oter terms] - with uid:http://www.inroutenetwork.org#c_1_7
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Other accounting tools (A7)] - with uid:http://www.inroutenetwork.org#c_1_6
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Trip] - with uid:http://www.inroutenetwork.org#c_1_2
Founded 0 terms in level 2
2010/09/20 01:36:35 Creating term -> [Visitor] - with uid:http://www.inroutenetwork.org#c_1_1
Founded 0 terms in level 2
```

Level '2'

Now in thesaurus view you'll see
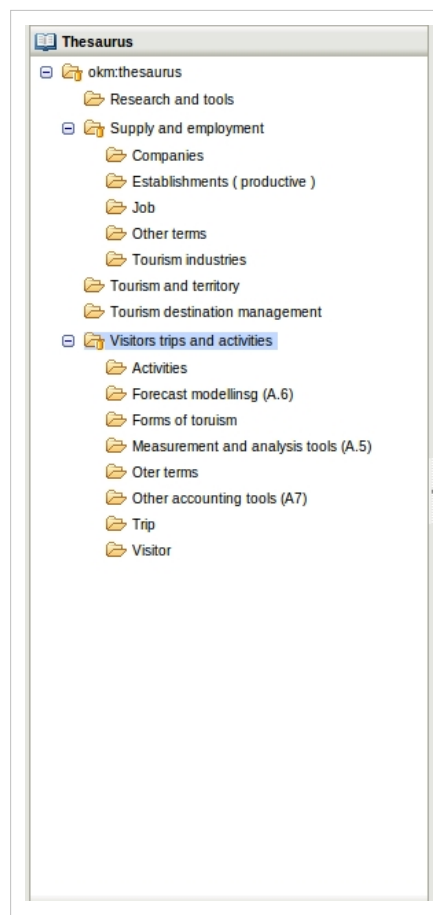
Automatic key extraction

> Automatic key extraction is only available from OpenKM 5.0 and upper.

OpenKM uses **KEA** for extracting keyphrases from text documents. **KEA** it by default can be either used for free indexing or for indexing with a controlled vocabulary, but with OpenKM is **mandatory having a controled vocabulary**. OpenKM automatic extractrion keyphrases is based in KEA 5.0.

If order having KEA running in OpenKM must be a well done configured vocabulary (Thesaurus).

KEA is a training module that uses a Thesaurus as the controller vocabulary. In order how to configure OpenKM Thesaurus take a look at Thesaurus in installation guide.

To creating KEA model must checkout openkm and thesaurus modules:

Select the svn type and type the url https://openkm.svn.sourceforge.net/svnroot/openkm/trunk/openkm to refer openkm:

Select the svn type and type the url https://openkm.svn.sourceforge.net/svnroot/openkm/trunk/thesausus to refer thesaurus:

In KEA web page could downloading file that comes with some example how to creating KEA model. In similar way using class ModelBuilder in thesaurus modules must be created the KEA model based in some vocabulary controller (Thesaurus).

For training KEA module is needed execute ModelBuilder class with that params:

```
sourceFolder
trainingFolder
vocabularyFile
vocabularyType
stopwordFile
modelFileName
porterStemmerClass
stopwordClass
language
documentEncoding
```

In order to correctly configure OpenKM thesaurus you must set this OpenKM.cfg entries:

```
kea.thesaurus.skos.file
kea.thesaurus.vocabulary.serql
kea.model.file
kea.stopwords.file
kea.automatic.keyword.extraction.number
kea.automatic.keyword.extraction.restriction
```

Setting the SKOS file

```
kea.thesaurus.skos.file=file.rdf
```

Setting vocabulary query

kea.thesaurus.vocabulary.serql=SELECT X,UID FROM {X} skos:prefLabel {UID} WHERE lang(UID) ="en" USING NAMESPACE rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>, skos=<http://www.w3.org/2004/02/skos/core#>,rdfs=<http://www.w3.org/2000/01/rdf-schema#>, dc=<http://purl.org/dc/elements/1.1/>, dcterms=<http://purl.org/dc/terms/>, foaf=<http://xmlns.com/foaf/0.1/>

Setting model file

```
kea.model.file=file.model
```

Setting stop words

```
kea.stopwords.file=stopwords.txt
```

Setting max keywords extraction

```
kea.automatic.keyword.extraction.number=10
```

Setting dictionary restriction

Only dictionary words are allowed

```
kea.automatic.keyword.extraction.restriction=on
```

Automatic key extraction full example 🔒

You could be interested in:

- KEA [1]
- WEKA - Data mining with Open Source machine learning in Java [2]
- Aperture framework [3]
- RDF2GO [4]
- OpenRDF [5]

References

[1] http://www.nzdl.org/Kea/index.html

[2] http://www.cs.waikato.ac.nz/~ml/weka/

[3] http://aperture.sourceforge.net/

[4] http://mavenrepo.fzi.de/semweb4j.org/site/rdf2go/

[5] http://www.openrdf.org/

Automatic key extraction full example

SVN checkout modules

To creating KEA model must checkout openkm and thesaurus modules:

Select the svn type and type the url https://openkm.svn.sourceforge.net/svnroot/openkm/trunk/openkm to refer openkm:

Select the svn type and type the url https://openkm.svn.sourceforge.net/svnroot/openkm/trunk/thesaurus to refer thesaurus:

Installing openkm classes into maven repository

Ensure you've intalled openkm into your local maven repository, to ensure it you can execute the command:

```
mvn clean package install –Dmaven.test.skip=true
```

Donwloading AGROVOC thesaurus

We'll use agrovoc for testing purposes, you can downloading from http://oaei.ontologymatching.org/2007/environment/please read terms of use.

Copy into **thesaurus/src/test/resources/vocabulary** folder the file **ag_skos_20070219.rdf and** agrovoc_oaei2007.owl

Into **vocabulary** folder there's **testdocs** folders are some agrovoc training docs to creating KEA module.

Create runtime configuration

Now we can create runtime configuration, it must be executed the ModelBuilder class with some params
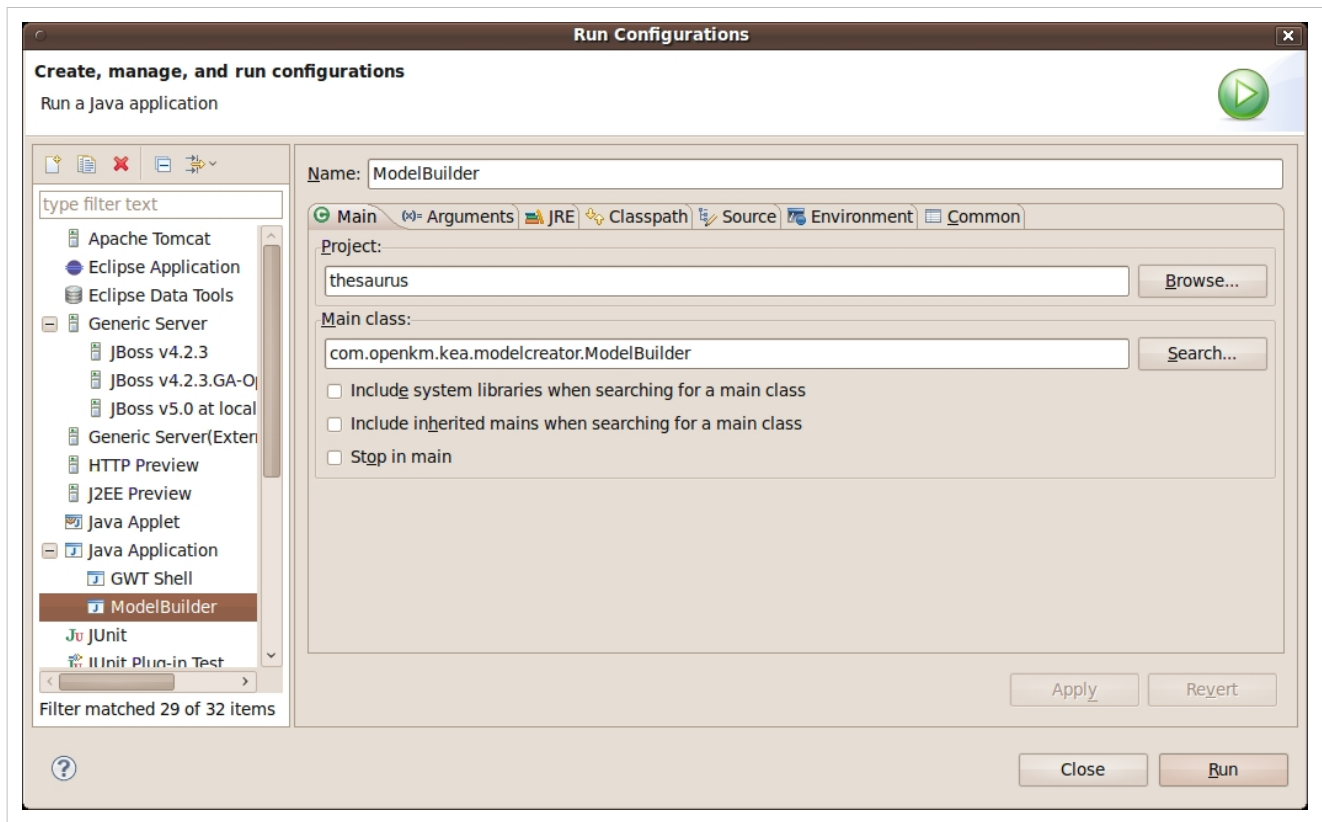
For training KEA module is needed execute ModelBuilder class with that params:

```
sourceFolder
trainingFolder
vocabularyFile
vocabularyType
stopwordFile
modelFileName
porterStemmerClass
stopwordClass
language
documentEncoding
testDocs ( optional )
```

In my case

sourceFolder=/home/jllort/softwareFactoryGalileo/thesaurus/vocabulary (all path are relative to sourceFolder)

trainingFolder=testdocs/en/train

vocabularyFile=ag_skos_20070219.rdf

vocabularyType=skos

stopwordFile=stopwords_en.txt

modelFileName=ag_skos_20070219.model

porterStemmerClass=com.openkm.kea.stemmers.PorterStemmer

stopwordClass=com.openkm.kea.stopwords.StopwordsEnglish

language=en

documentEncoding=UTF-8

testDocs=testdocs/en/test

The params to execute ModelBuilder class are "**/home/jllort/softwareFactoryGalileo/thesaurus/vocabulary testdocs/en/train ag_skos_20070219.rdf skos stopwords_en.txt ag_skos_20070219.model com.openkm.kea.stemmers.PorterStemmer com.openkm.kea.stopwords.StopwordsEnglish en UTF-8 testdocs/en/test**" and VM argument "**-Xmx526M**" as you can see in next screenshot
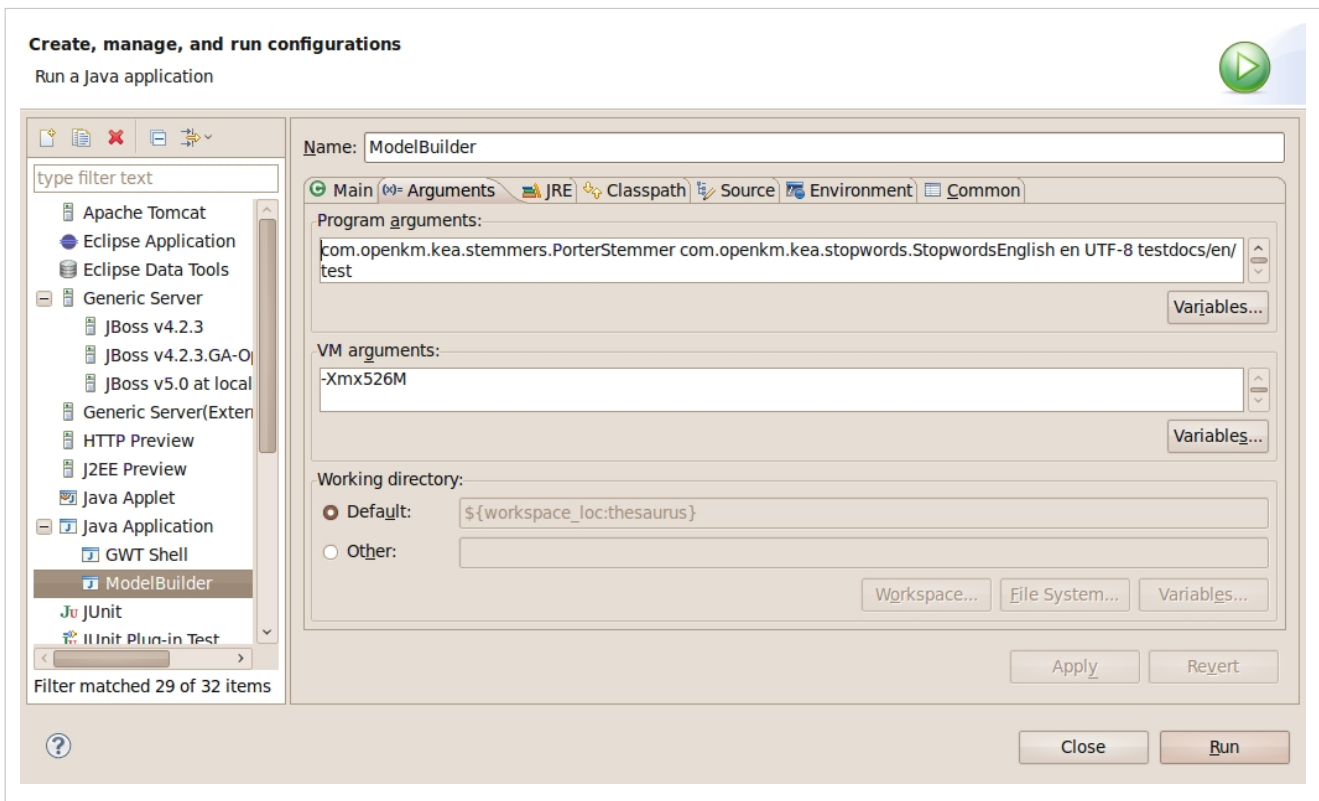
Classpath must be shown as
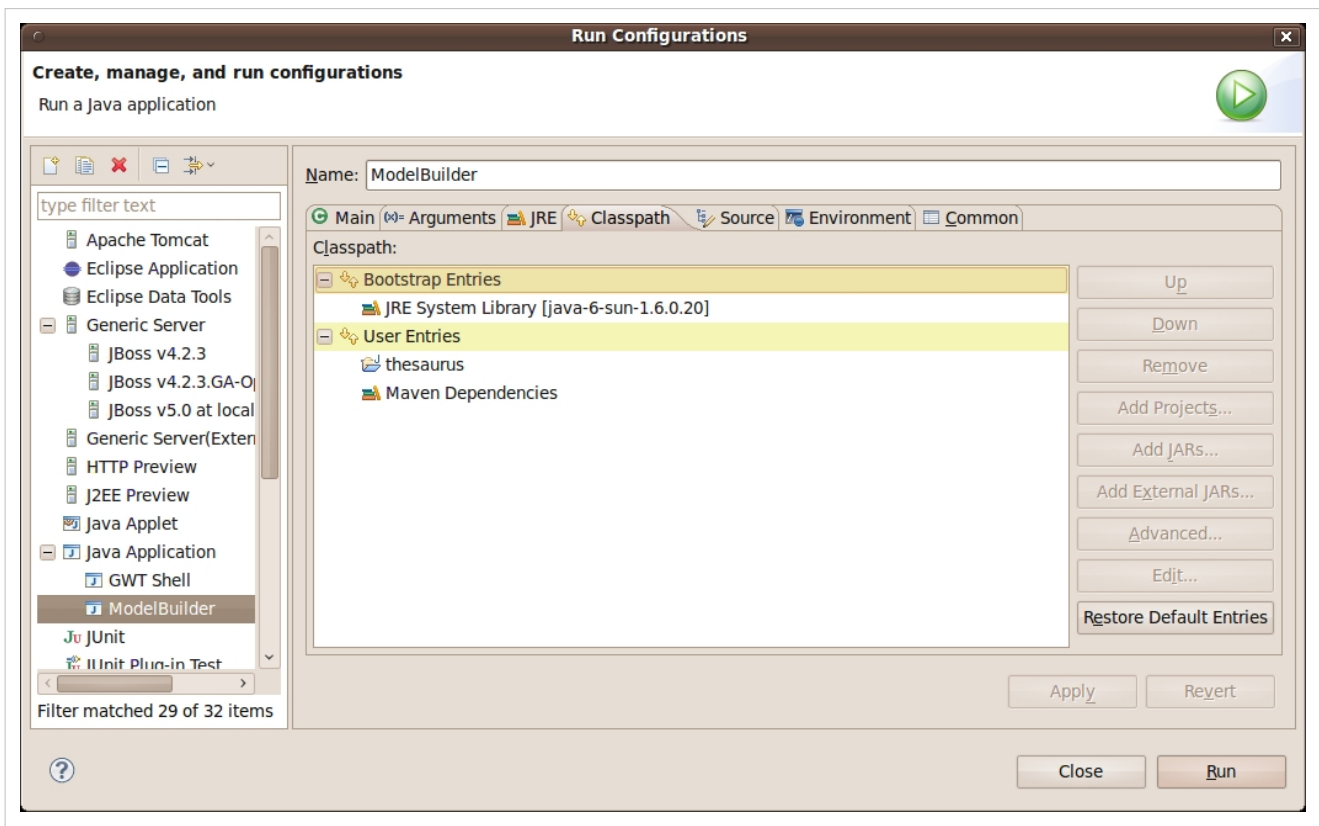
It all goes fine it has been generated into vocabulary folder a file called agrovoc_oaei2007.model

```
INFO  com.openkm.core.Config - Using default dir: /home/jllort/softwareFactoryGalileo/thesaurus/src/test
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Source folder: /home/jllort/softwareFactoryGalileo/th
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Training folder: /home/jllort/softwareFactoryGalileo/
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Vocabulary file: /home/jllort/softwareFactoryGalileo/
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Vocabulary type: skos
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Stopwords file: stopwords_en.txt
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Model file: /home/jllort/softwareFactoryGalileo/thesa
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Stemmer class: com.openkm.kea.stemmers.PorterStemmer
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Stopword class: com.openkm.kea.stopwords.StopwordsEng
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Language: en
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Document encoding: UTF-8
INFO  com.openkm.kea.modelcreator.ModelBuilder - * Testing folder: /home/jllort/softwareFactoryGalileo/t
INFO  com.openkm.kea.modelcreator.ModelBuilder - Creating the model...
WARN  com.hp.hpl.jena.rdf.model.impl.RDFDefaultErrorHandler - file:///home/jllort/softwareFactoryGalileo
WARN  com.hp.hpl.jena.rdf.model.impl.RDFDefaultErrorHandler - file:///home/jllort/softwareFactoryGalileo
INFO  com.openkm.kea.modelcreator.KEAModelBuilder - -- Reading the Documents...
INFO  com.openkm.kea.modelcreator.ModelBuilder - Extracting keyphrases from test documents...
WARN  com.hp.hpl.jena.rdf.model.impl.RDFDefaultErrorHandler - file:///home/jllort/softwareFactoryGalileo
WARN  com.hp.hpl.jena.rdf.model.impl.RDFDefaultErrorHandler - file:///home/jllort/softwareFactoryGalileo
INFO  com.openkm.kea.modelcreator.KEAKeyphraseExtractor - -- Extracting Keyphrases...
INFO  com.openkm.kea.modelcreator.KEAKeyphraseExtractor - Avg. number of matching keyphrases compared to
INFO  com.openkm.kea.modelcreator.KEAKeyphraseExtractor - Based on 5 documents
INFO  com.openkm.kea.modelcreator.ModelBuilder - Look into /home/jllort/softwareFactoryGalileo/thesaurus
INFO  com.openkm.kea.modelcreator.ModelBuilder - and compare them to /home/jllort/softwareFactoryGalileo
```

Copying vocabulary files into OpenKM

Create a folder called vocabulary int %JBOSS_HOME%, copy into files called **ag_skos_20070219.rdf**, **agrovoc_oaei2007.owl**, **ag_skos_20070219.model**, and **stopwords_en.txt**

Configuring OpenKM.cfg

Thesaurus configuration values

```
kea.thesaurus.owl.file=/vocabulary/agrovoc_oaei2007.owl
kea.thesaurus.base.url=http://www.fao.org/aos/agrovoc
kea.thesaurus.tree.root=SELECT DISTINCT UID, TEXT FROM {UID} Y
{OBJECT}, {UID} rdfs:label {TEXT} ; [rdfs:subClassOf {CLAZZ}] where not
 bound(CLAZZ) and lang(TEXT)="en" USING NAMESPACE
foaf=<http://xmlns.com/foaf/0.1/>,
dcterms=<http://purl.org/dc/terms/>,
rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>,
owl=<http://www.w3.org/2002/07/owl#>,
rdfs=<http://www.w3.org/2000/01/rdf-schema#>,
skos=<http://www.w3.org/2004/02/skos/core#>,
dc=<http://purl.org/dc/elements/1.1/>
kea.thesaurus.tree.childs=SELECT DISTINCT UID, TEXT FROM {UID}
rdfs:subClassOf {CLAZZ}, {UID} rdfs:label {TEXT} where
xsd:string(CLAZZ) = "RDFparentID" and lang(TEXT)="en" USING NAMESPACE
```

```
foaf=<http://xmlns.com/foaf/0.1/>,
dcterms=<http://purl.org/dc/terms/>,
rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>,
owl=<http://www.w3.org/2002/07/owl#>,
rdfs=<http://www.w3.org/2000/01/rdf-schema#>,
skos=<http://www.w3.org/2004/02/skos/core#>,
dc=<http://purl.org/dc/elements/1.1/>
```

KEA model configuration values

```
kea.thesaurus.skos.file=/vocabulary/ag_skos_20070219.rdf
kea.thesaurus.vocabulary.serql=SELECT X,UID FROM {X} skos:prefLabel
{UID} WHERE lang(UID) ="en" USING NAMESPACE
rdf=<http://www.w3.org/1999/02/22-rdf-syntax-ns#>,
skos=<http://www.w3.org/2004/02/skos/core#>,rdfs=<http://www.w3.org/2000/01/rdf-schema#>,
 dcterms=<http://purl.org/dc/terms/>,
foaf=<http://xmlns.com/foaf/0.1/>
kea.model.file=/vocabulary/ag_skos_20070219.model
kea.stopwords.file=/vocabulary/stopwords_en.txt
kea.automatic.keyword.extraction.number=10
kea.automatic.keyword.extraction.restriction=on
```

kea.automatic.keyword.extraction.restriction is an optional paramater to indicate that only words in thesaurus are enabled to be extracted.

Creating thesaurus

Login into OpenKM with some user with administrator grants, go to Administration tab and select Generate Thesaurus option. Then select the "show level" and execute the "send" option.


Please be patient it's needed some time to building all thesaurus. Depending your hardware configuration (RAM) could take some hours before process it'll be finishing.

```
Founded 1954 terms in level 0
2010/09/20 06:12:57 Creating term > [ability] - with uid:http://www.fao.org/aos/agrovoc#c_49830
Founded 1 terms in level 1
2010/09/20 06:13:02 Creating term -> [interoperability] - with uid:http://www.fao.org/aos/agrovoc#c_49831
Founded 0 terms in level 2
2010/09/20 06:13:03 Creating term > [Abiotic injuries] - with uid:http://www.fao.org/aos/agrovoc#c_26768
Founded 16 terms in level 1
2010/09/20 06:13:03 Creating term -> [Browsing damage] - with uid:http://www.fao.org/aos/agrovoc#c_1119
Founded 0 terms in level 2
2010/09/20 06:13:03 Creating term -> [Bruises of products] - with uid:http://www.fao.org/aos/agrovoc#c_16138
Founded 1 terms in level 2
2010/09/20 06:13:03 Creating term --> [Trampling] - with uid:http://www.fao.org/aos/agrovoc#c_24093
2010/09/20 06:13:07 Creating term -> [Cold injury] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
2010/09/20 06:13:07 Creating term -> [Fouling] - with uid:http://www.fao.org/aos/agrovoc#c_25400
Founded 0 terms in level 2
2010/09/20 06:13:07 Creating term -> [Freeze damage (environment)] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
2010/09/20 06:13:08 Creating term -> [Frost damage] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
2010/09/20 06:13:08 Creating term -> [Frost injury] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
2010/09/20 06:13:11 Creating term -> [Frostbite] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
2010/09/20 06:13:12 Creating term -> [Ice damage] - with uid:http://www.fao.org/aos/agrovoc#c_3114
Founded 0 terms in level 2
```

After finishing Thesarus creation in your desktop could see the thesaurus folders representation as is shown:
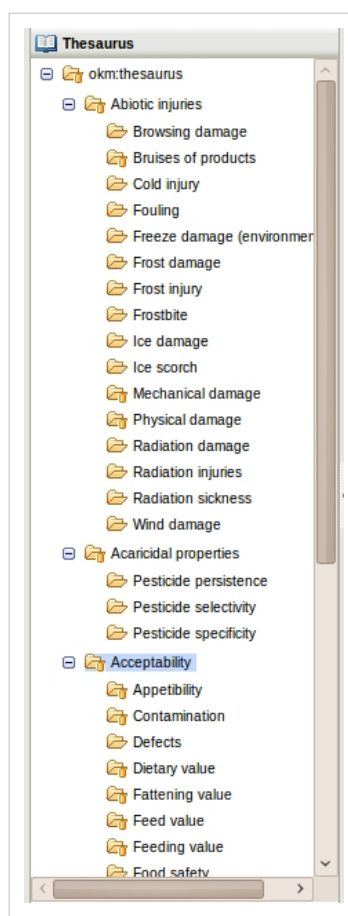
Automatic key extraction in new uploaded document

Upload a new document, for example some document from testdocs/en/train

In your jboss console it'll appears something like this:

```
18:43:34,098 INFO  [SubjectExtractor] Subject extraction completed in 880ms
18:43:34,099 INFO  [DirectDocumentModule] Creator:
18:43:34,099 INFO  [DirectDocumentModule] Title: Calliandra calothyrsus - Production and use: A Field Manual
18:43:34,099 INFO  [DirectDocumentModule] Mime type: text/html
18:43:34,099 INFO  [DirectDocumentModule] Filename: null
18:43:34,099 INFO  [DirectDocumentModule] Content created: null
18:43:34,099 INFO  [DirectDocumentModule] Content last modified: null
18:43:34,099 INFO  [DirectDocumentModule] Term:Seed
18:43:34,102 INFO  [DirectDocumentModule] Term:Calliandra
18:43:34,103 INFO  [DirectDocumentModule] Term:Production
18:43:34,105 INFO  [DirectDocumentModule] Term:Forests
18:43:34,106 INFO  [DirectDocumentModule] Term:Calliandra calothyrsus
18:43:34,106 INFO  [DirectDocumentModule] Term:Planting
18:43:34,108 INFO  [DirectDocumentModule] Term:Water
18:43:34,111 INFO  [DirectDocumentModule] Term:Self management
18:43:34,116 INFO  [DirectDocumentModule] Term:Trees
18:43:34,119 INFO  [DirectDocumentModule] Term:Arkansas
```

And in your OpenKM UI the extracted keywords as shown:

Creating automatic key extraction training files

Creating training files is so easy you simply must create a couple of files that KEA will use for creating KEA model extractor.

The main file to be analyzed by kea must be a foo.txt file (if you've got pdf, doc, rtf or other type of file, that must be converted to txt). Each file foo.txt must have a foo.key file. The foo.key file contains the keys which you identifies the document, that keys must be present into your thesaurus.

Example of foo.key

```
AMARANTHUS
PLANT PRODUCTION
GEOGRAPHICAL DISTRIBUTION
NUTRITIVE VALUE
SEEDS
MERCHANTS
```

Both files among other pair of couples must be under some directory. That directoy path is what it'll be used by KEA to create the model. Take a look at Automatic_key_extraction_full_example and the use of the trainingFolder param used by application to creation the KEA model.

You need a significative couples of documents in order making a good key extraction model. Upper 100 or more files (depending how large is your thesaurus, etc...) it's good size to starting.

We suggest you take a look at KEA project in order to see how that files are defined in training folder [1]

How optimize model

The KEA model is something alive. The idea is that users tunning the KEA model in OpenKM. For doing it we suggest creation of some metadata (property group) to indicating that user has validated some documents key (flag to indicate that are documents that can be used to creating a new model). After passed some time you can create a minimal application to extract relevant documents (using openoffice conversion can created easilly txt files) and key files too (assigned keywords to documents).

While your repository is growing your KEA model it'll become more efficient.

References

[1] http://www.nzdl.org/Kea

Experimental features

These features are not enabled by default, but is very easy to do so from Administration.

Experimental text extraction

Edit **experimental.text.extraction** configuration property and set to true.

To enable this feature you have to edit the **repository.xml** and **repository/workspaces/default/workspace.xml** and remove all contents at **textFilterClasses** parameter from **SearchIndex** section. Be sure to stop OpenKM before editing these files. Once modified and started OpenKM again, the new uploaded documents will be indexed with the new experimental text extraction mechanism.

From **Administration > Repository view** you would be able to see a property called **text** where the document extracted text is store. This way you can see exactly which has been indexed by OpenKM search engine. Also from **Administration > Database query** you can look for text extraction problems executing this JDBC query:

```sql
select * from OKM_ACTIVITY where
ACT_ACTION='MISC_TEXT_EXTRACTION_FAILURE'
```

Experimental mobile version

Edit **experimental.mobile.version** configuration property and set to true.

Community extensions

OpenKM community extensions are:

- Macros
- Downloading restricted buttons

Enable macros

Go to administration Database_query section and execute:

```sql
INSERT INTO OKM_EXTENSION (EXT_UUID, EXT_NAME) VALUES
('c60082c2-7d4c-4750-901b-a817f246cfa1', 'Macros');
```

Enable

Go to administration Database_query section and execute:

```sql
INSERT INTO OKM_EXTENSION (EXT_UUID, EXT_NAME) VALUES
('df5eb783-fb06-4b4b-bc89-4fdaa244e888', 'Download Buttons');
```

OpenKM 5.x and older
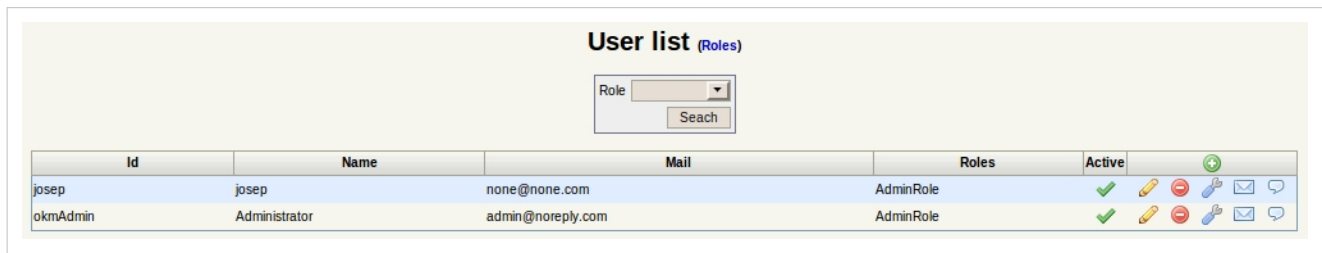
Basic application knowledge with jboss

First login

The default username is **okmAdmin** and its password is **admin**. Note that username and password are case sensitive.

Managing users

Since OpenKM 3.0, user management is done from the Administration tab. There you can create users, roles and assign roles to users, etc. Older OpenKM versions use text file based user management. These files are located in the *$JBOSS/server/default/conf/props* directory, so you need to edit the openkm-users.conf, openkm-roles.conf and openkm-emails.conf files to add or remove a user from the system.

There are two important roles called **AdminRole** and **UserRole** (these roles are case sensitive). All users must have UserRole. This allows them to connect to the OpenKM server. Any user with AdminRole will be able to view the whole repository without limits, and have the Administration tab enabled.

OpenKM authentication

OpenKM can use several authentication systems (Database, LDAP, Active Directory, etc.) but, by default is configured with an embedded database (HSQLDB).

Setting maximum file upload size

By default the maximum file upload size is set at 64MB. To increase this, make changes to the Application configuration.

Making OpenKM accessible from other computers

By default, JBoss only listens for connections on localhost. If you want to access OpenKM from other computers, you need to start JBoss passing the parameter **-b 0.0.0.0**

GNU/Linux

```
./bin/run.sh -b 0.0.0.0
```

Windows

```
\bin\run.bat -b 0.0.0.0
```

Other options

```
./bin/run.sh -Djboss.bind.address=0.0.0.0
```

or edit the run.bat (or run.sh) file, adding the **-b 0.0.0.0** parameter to the java startup command (the windows and linux scripts have some minimal differences, but basically it's the same idea)

```
:RESTART
"%JAVA%" %JAVA_OPTS% ^
  -Djava.endorsed.dirs="%JBOSS_ENDORSED_DIRS%" ^
  -classpath "%JBOSS_CLASSPATH%" ^
  org.jboss.Main %* -b 0.0.0.0
```

JBoss mail configuration

OpenKM is a J2EE application deployed in a JBoss application server. Some parameters have a default configuration that fit common user requirements but others depend on specific user configuration.

For specific JBoss issues, visit [1]

OpenKM sometimes sends emails to users (because they have subscribed a document or folder, for example) and you have to check that this email configuration is correct. If you edit the file *$JBOSS_HOME/server/default/deploy/mail-service.xml*:

```
$ vim $JBOSS_HOME/server/default/deploy/mail-service.xml
```

You will see something like this:

```xml
<mbean code="org.jboss.mail.MailService" name="jboss:service=OpenKM">
  <attribute name="JNDIName">java:/mail/OpenKM</attribute>
  <attribute name="User">nobody</attribute>
  <attribute name="Password">password</attribute>
  <attribute name="Configuration">
    <!-- A test configuration -->
    <configuration>
      <!-- Change to your mail server prototocol -->
      <property name="mail.store.protocol" value="pop3"/>
      <property name="mail.transport.protocol" value="smtp"/>
      <!-- Change to the user who will receive mail  -->
      <property name="mail.user" value="nobody"/>
      <!-- Change to the mail server -->
      <property name="mail.pop3.host" value="pop3.your-domain.com "/>
      <!-- Change to the SMTP gateway server -->
      <property name="mail.smtp.host" value="smtp.your-domain.com "/>
      <!-- The mail server port -->
      <property name="mail.smtp.port" value="25"/>
      <!-- Change to the address mail will be from -->
      <property name="mail.from" value="noreply@your-domain.com"/>
      <!-- Enable debugging output from the javamail classes -->
      <property name="mail.debug" value="false"/>
```

```
      </configuration>
    </attribute>
    <depends>jboss:service=Naming</depends>
</mbean>
```

Typically you only have to configure these parameters:

- **mail.smtp.host**: this is the host where your mail server is located. Can be localhost if you have a local mail server installed (like Postfix)
- **mail.from**: all the mails sent by OpenKM will be from this email address. Can be in the form of noreply@your-domain.com.

But it depends on you own email configuration. If you run into problems, set the parameter **mail.debug** to *true* and review the JBoss log.

```
$ tail -f $JBOSS_HOME/server/default/log/server.log
```

For more info, read http://community.jboss.org/wiki/JavaMail.

Configuration for SMTP authentication

When we want to use a mail server via a secured SMTP server with authentication we should make some changes to mail-service.xml file (an example using the SMTP server gmail.com).

```xml
<mbean code="org.jboss.mail.MailService" name="jboss:service=OpenKM">
  <attribute name="JNDIName">java:/mail/OpenKM</attribute>
  <attribute name="User">USUARIO@gmail.com</attribute>
  <attribute name="Password">PASSWORD</attribute>
  <attribute name="Configuration">
    <!-- A test configuration -->
    <configuration>
      <!-- Change to your mail server prototocol -->
      <property name="mail.store.protocol" value="pop3"/>
      <property name="mail.transport.protocol" value="smtp"/>


      <!-- Change to the user who will receive mail  -->
      <property name="mail.user" value="USUARIO@gmail.com"/>


      <!-- Change to the mail server  -->
      <property name="mail.pop3.host" value="pop.gmail.com"/>


      <!-- Change to the SMTP gateway server -->
      <property name="mail.smtp.host" value="smtp.gmail.com"/>
      <property name="mail.smtp.starttls.enable" value="true" />
      <property name="mail.smtp.socketFactory.class" value="javax.net.ssl.SSLSocketFactory" />


      <!-- The mail server port -->
      <property name="mail.smtp.port" value="465"/>
      <property name="mail.smtp.socketFactory.port" value="465" />


      <!-- Change to the address mail will be from  -->
```

```
        <property name="mail.from" value="USUARIO@gmail.com"/>

        <property name="mail.smtp.user" value="USUARIO@gmail.com"/>

        <property name="mail.smtp.password" value="PASSWORD"/>

        <property name="mail.smtp.auth" value="true"/>


        <!-- Enable debugging output from the javamail classes -->

        <property name="mail.debug" value="false"/>

    </configuration>

  </attribute>

  <depends>jboss:service=Naming</depends>

</mbean>
```

Adding PKI certificate

Some mail servers need you to have installed a PKI certificate on the server. If you don't have it installed you'll get some error like this:

```
ERROR [STDERR] javax.mail.MessagingException: Exception reading response;

nested exception is:

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
```

In this case, you must install the certificate.

- Download the file
- Execute application

```
java InstallCert serverName
```

- Select option '1'. A file called jssecacerts is generated
- Overwrite jssecacerts to /usr/lib/jvm/java-6-sun/jre/lib/security/cacerts (the path depends on your OS server and jdk version)
- You must restart jboss for this to take effect

For more information about installing certificates, read:

- http://blogs.oracle.com/gc/entry/unable_to_find_valid_certification
- http://www.grim.se/guide/jre-cert

For more info read:

- http://java.sun.com/products/javamail/javadocs/com/sun/mail/smtp/package-summary.html.
- jGuru: Fundamentals of the JavaMail API [2]

References

[1] http://jboss.org/community/docs/DOC-10376.

[2] http://java.sun.com/developer/onlineTraining/JavaMail/contents.html

Configure JBoss service

These instructions are related to installing and running JBoss 4.2.3 as a service, which means that will be launched at system boot and will be closed properly on system shutdown.

Running as a Linux Service

For security reasons you shouldn't run JBoss as **root**. It is better to create a user named openkm and run JBoss from him:

```
$ sudo adduser openkm
```

It's important to check if owner of OpenKM dir is openkm user, if not you can use chown:

```
$ sudo chown -R openkm /home/openkm
```

Create a file with the script:

```
$ sudo vim /etc/init.d/jboss
```

```sh
#!/bin/sh

### BEGIN INIT INFO
# Provides:          jboss
# Required-Start:    $remote_fs $syslog
# Required-Stop:     $remote_fs $syslog
# Default-Start:     2 3 4 5
# Default-Stop:      0 1 6
# Short-Description: Start and stop JBoss AS
# Description:       Enable JBoss AS service provided by daemon.
### END INIT INFO

ECHO=/bin/echo
TEST=/usr/bin/test
JBOSS_USER=openkm
JBOSS_IP=127.0.0.1
JBOSS_HOME=/home/openkm/jboss-4.2.3.GA
JBOSS_START_SCRIPT=$JBOSS_HOME/bin/run.sh
JBOSS_STOP_SCRIPT=$JBOSS_HOME/bin/shutdown.sh

$TEST -x $JBOSS_START_SCRIPT || exit 0
$TEST -x $JBOSS_STOP_SCRIPT || exit 0

start() {
    $ECHO -n "Starting JBoss"
    su - $JBOSS_USER -c "$JBOSS_START_SCRIPT -b $JBOSS_IP > /dev/null &"
```

```
    $ECHO "."
}

stop() {
    $ECHO -n "Stopping JBoss"
    su - $JBOSS_USER -c "$JBOSS_STOP_SCRIPT -s $JBOSS_IP > /dev/null &"
    while [ "$(ps -fu $JBOSS_USER | grep java | grep jboss | wc -l)"
-gt "0" ]; do
        sleep 5; $ECHO -n "."
    done
    $ECHO "."
}

case "$1" in
    start)
        start
        ;;
    stop)
        stop
        ;;
    restart)
        stop
        sleep 30
        start
        ;;
    *)
        $ECHO "Usage: jboss {start|stop|restart}"
        exit 1
esac
exit 0
```

And make it executable:

```
$ sudo chmod 755 /etc/init.d/jboss
```

Now update the run-levels:

```
$ sudo update-rc.d jboss defaults
 Adding system startup for /etc/init.d/jboss ...
   /etc/rc0.d/K20jboss -> ../init.d/jboss
   /etc/rc1.d/K20jboss -> ../init.d/jboss
   /etc/rc6.d/K20jboss -> ../init.d/jboss
   /etc/rc2.d/S20jboss -> ../init.d/jboss
   /etc/rc3.d/S20jboss -> ../init.d/jboss
   /etc/rc4.d/S20jboss -> ../init.d/jboss
   /etc/rc5.d/S20jboss -> ../init.d/jboss
```

start jboss service:

```
$ sudo service jboss start
```

stop jboss service:

```
$ sudo service jboss stop
```

It's also a good idea to configure JBoss memory utilization. Edit the file *$JBOSS_HOME/bin/run.sh* and add a new parameter **JAVA_OPTS** where you can increase the system memory managed by the JVM (Java Virtual Machine):

```
DIRNAME=`dirname $0`
PROGNAME=`basename $0`
GREP="grep"
JAVA_OPTS="-Xmx1744m -XX:MaxPermSize=256m"
```

This example is for a system with 2 GB of RAM.

For more info, read http://jboss.org/community/docs/DOC-11566.

Configure on Redhat / CentOS

Copy the jboss_init_redhat.sh located into $JBOSS_HOME/bin to /etc/init.d/jboss

```
$ cp bin/jboss_init_redhat.sh /etc/init.d/jboss
```

Make jboss script executable

```
$ chmod +x /etc/init.d/jboss
```

Modify default jboss script (add or modify some lines)

```
# chkconfig: - 64 36
# description: Jboss Start|Restart|Stop Application Server
# pidfile: /var/run/jboss.pid

....

JBOSS_HOME=${JBOSS_HOME:-"/home/openkm/jboss-4.2.3.GA"}

#define the user under which jboss will run, or use 'RUNASIS' to run as the current user
JBOSS_USER=${JBOSS_USER:-"openkm"}

#make sure java is in your path
JAVAPTH=${JAVAPTH:-"/usr/java/jdk1.6.0_27/bin"}

#configuration to use, usually one of 'minimal', 'default', 'all'
JBOSS_CONF=${JBOSS_CONF:-"default"}

#if JBOSS_HOST specified, use -b to bind jboss services to that address
JBOSS_HOST="0.0.0.0"
JBOSS_BIND_ADDR=${JBOSS_HOST:+"-b $JBOSS_HOST"}
```

Add jboss script as service

```
$ chkconfig --add jboss
```

If you see an error message like **service jboss does not support chkconfig**, edit /etc/init.d/jboss file and add the following lines right after "#!/bin/sh":

```
# chkconfig: 345 90 10
# description: Runs the JBoss Application Server
# processname: jboss
```

Change service level

```
$ chkconfig jboss --level 3 on
```

Run or stop jboss service

```
$ service jboss start
$ service jboss stop
```

Running as a Windows Service

You can install JBoss as a service on the Windows platform in several ways:

First method

JBoss recomended is using jboss **native windows**. Take a look here http:/ / community. jboss. org/ wiki/ RunJBossAsAServiceOnWIndows and http://community.jboss.org/wiki/JBossNativeWindows.Download **jboss native** in concordance with your architecture - 32 bit or 64 bit. http://labs.jboss.com/jbossweb/downloads/(jboss native).

- Uncompress files into your %JBOSS_HOME%
- If you want, you can edit the service name by editing the file %JBOSS_HOME%\bin\service.bat

```
set SVCNAME=JBAS50SVC
set SVCDISP=JBoss Application Server 5.0
set SVCDESC=JBoss Application Server 5.0.0 GA/Platform: Windows x86
```

- Then open a command promt window, cd to the %JBOSS_HOME%\bin\ folder and execute

```
service.bat install
```

- Now in your service control panel, JBoss is installed as a service. We tested it on several Windows versions and it runs well.

> If you're executing **service.bat** on **Windows Vista / Windows 7** you may get an **Access Denied error**. The command prompt works slightly differently in Vista. By default when you run cmd.exe, it does not give administrator rights. To get around it, create a shortcut to cmd.exe on the desktop, open Properties, Compatibility tab and check the box for Administrator rights. Or simply execute the shortcut as administrator (popup menu with right click). Then you can execute **service.bat install**.

> Other windows service installation methods explained below haven't been tested directly by us.

Second method

- Download JavaService-2.0.10.zip from http://download.forge.objectweb.org/javaservice/
- Extract to C:\JavaService-2.0.10
- copy InstallJBoss.bat⬚UninstallJBoss.bat⬚ JavaService.exe (JavaService.exe must be renames as JBossService.exe) to jboss bin directory. In our case C:\jboss-4.2.3.GA\
- Make sure JBOSS_HOME and JAVA_HOME are set. In our case: C:\jboss-4.2.3.GA and D:\jdk1.6.0 respectively
- Create a batch file install.bat in %JBOSS_HOME%/bin directory. Its contents should be as follows:

```
Rem Start Here

set JAVA_HOME=d:/jdk1.6.0
set javadll=%JAVA_HOME%\jre\bin\client\jvm.dll
set javatool=%JAVA_HOME%\lib\tools.jar
set javarun=%JBOSS_HOME%\bin\run.jar
set outlog=%JBOSS_HOME%\bin\stdout.log
set errlog=%JBOSS_HOME%\bin\stderr.log

JBossService.exe -install JBoss "%javadll%"
-Djava.class.path="%javatool%";"%javarun%" -Xms1024M -Xmx1024M
-XX:PermSize=64m -XX:MaxPermSize=128m -start org.jboss.Main -params -b
0.0.0.0 -stop org.jboss.Main -method systemExit -out "%outlog%" -err
"%errlog%" -current "%JBOSS_HOME%\bin" -manual

Rem End Here
```

- Make sure to set word wrap off in the file and do not forget the quotes. This will allow the Program

Files path to work correctly. You can change the location of stderr.log and stdout.log to another path if you prefer.

- Start a command prompt window and cd to %JBOSS_HOME%\bin. Run install.bat by typing install. This will install JBoss as a service.

To start the service type:

```
net start JBoss.
```

- JBoss should now be running as a service.
- To uninstall the JBoss service:

```
javaservice -uninstall jboss
```

Third method

Start a command prompt window. To start the service, type:

```
set JAVA_HOME=d:/jdk1.6.0
set JBOSS_HOME=C:/jboss-4.2.3.GA/
installJboss MSSQLSERVER -auto
```

MSSQLSERVER is a service that must be running before JBoss starts.

Fourth method

Is using Microsoft Resource KIT, you can get more information here:

- http://support.microsoft.com/kb/137890
- Windows XP Embedded SP2 Resource Kit [2]

Microsoft resource kit are several programs that cover specific functionalities not present by default in Windows OS (really it could be a good question why it doesn't come by default - other Microsoft policy? The thing is that in these utilities is present a service registration utility).

Mac OS X Server

Create a file called jboss.plist with values (some paths, adminserver user name could be different) save into /Users/adminuser/Library/LaunchAgents

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC "-//Apple Computer//DTD PLIST 1.0//EN"
                      "http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
  <dict>
    <key>Label</key>
    <string>openkm</string>

    <key>UserName</key>
    <string>adminuser</string>

    <key>GroupName</key>
    <string>staff</string>

    <key>ProgramArguments</key>
    <array>
      <string>/Users/adminserver/jboss-4.2.3.GA/bin/run.sh</string>
      <string>-c</string>
      <string>default</string>
      <string>-b</string>
      <string>0.0.0.0</string>
    </array>

    <key>RunAtLoad</key>
    <true/>
  </dict>
```

```
</plist>
```

Change the user owner to root and privilegees to 644

```
$ sudo chown root jboss.plist
$ sudo chmod 644 jboss.plist
```

Register as service

```
$ launchctl load <path-to-file>/jboss.plist
```

Start service

```
$ launchctl start openkm
```

Stop service

```
$ launchctl stop openkm
```

More information at Running JBoss As A Mac OS X Service [3].

FreeBSD 9.0

FreeBSD service configuration is a forum contribution, more information at http://forum.openkm.com/viewtopic.
php?f=3&t=5766&p=17109#p17109

Create file /usr/local/etc/rc.d/openkm.sh

```sh
#!/bin/sh
# Openkm startup Script

# PROVIDE: Openkm
# REQUIRE: mysql LOGIN
# KEYWORD: shutdown

. /etc/rc.subr

name="Openkm"
rcvar=${name}_enable
Openkm_enable=${Openkm_enable-"NO"}

start_cmd="${name}_start"
stop_cmd="${name}_stop"

load_rc_config $name

JAVA_HOME="/usr/local/openjdk6/";

export JAVA_HOME

procname="java"

Openkm_start(){
echo "Starting OpenKM....."
```

```
rm -r /alldata/programs/jboss/server/default/work &
rm -r /alldata/programs/jboss/server/default/tmp &
/usr/local/lib/libreoffice/program/soffice
"--accept=socket,host=localhost,port=2222;urp;StarOffice.ServiceManager"
 --nologo --headless --nofirststartwizard &
su -m nobody -c /alldata/programs/jboss/bin/run.sh -b 0.0.0.0 & >
/dev/null


}


Openkm_stop(){

echo "Stopping OpenKM....."
/alldata/programs/jboss/bin/shutdown.sh -S
killall -9 soffice.bin &
}



run_rc_command "$1"
```

Add the following to /etc/rc.conf

```
openkm_enable="YES"
```

Add the following to /etc/rc.conf

```
soffice_enable="YES"
```

JBoss with SSL

We encourage using apache proxy to port 80 or 443 and not expose directly jboss ports. There could be some security bugs if the jboss ports are exposed. For those people who decide to expose jboss ports, there's a problem with IE and https / SSL jboss configuration. To solve it:

Edit the file $JBOSS_HOME/server/default/deploy/jboss-web.deployer/server.xml and uncomment

```
<Connector port="8443" protocol="HTTP/1.1" SSLEnabled="true"
            maxThreads="150" scheme="https" secure="true"
             keystorePass="XxXxXxXx"
            clientAuth="false" sslProtocol="TLS" />
```

You need to generate some keystorePass.

References

[1]   http://www.cyberciti.biz/faq/rhel5-update-rcd-command/

[2]   http://www.microsoft.com/downloads/details.aspx?FamilyID=F4A453E2-FCEF-49C2-87AC-CEBE233A5F8D&displaylang=en&
      displaylang=en|Microsoft

[3]   http://community.jboss.org/wiki/RunningJBossAsAMacOSXService

Several JBoss in the same server

Using multiple IPs

If your server has several IP addresses assigned, the preferred solution is to use the -b command line option to bind each instance of JBoss AS to a particular IP address:

```
./run.sh -b 192.168.0.10
```

See also:

• Create virtual interface in Ubuntu [1]
• Add Virtual Interfaces in Linux [2]

Only one IP

Modify *$JBOSS_HOME/server/default/conf/jboss-service.xml* and uncomment the "Service Binding" section and select a "ServerName" value from **sample-bindings.xml**. See *$JBOSS_HOME/docs/examples/binding-manager/sample-bindings.xml* "ports-default" entries for all JBoss port properties.

Service	Default port	New Port	Description
jboss:service=Naming	1098, 1099	1198, 1199	JNDI
jboss.remoting:type=Connector,name=DefaultEjb3Connector,handler=ejb3	3873	3973	EJB3
jboss:service=WebService	8083	8183	Web Service
jboss:service=invoker,type=jrmp	4444	4544	
jboss:service=invoker,type=pooled	4445	4545	
jboss:service=HAJNDI	1100, 1101	1200, 1201	HA-JNDI / clusters
jboss:service=invoker,type=jrmpha	4444	4544	Clusters
jboss:service=invoker,type=pooledha	4448	4548	Clusters
jboss:service=CorbaORB	3528	3628	CORBA
jboss.jmx:type=Connector,name=RMI	19001	19101	RMI
jboss.jmx:name=SnmpAgent,service=trapd,type=logger	1162	1262	SNMP
jboss.jmx:name=SnmpAgent,service=snmp,type=adaptor	1161	1261	SNMP
jboss.mq:service=InvocationLayer,type=UIL2	8093	8193	JMS
jboss.mq:service=InvocationLayer,type=HTTP	8080	8180	JMS-HTTP

jboss.mq:service=JMSProviderLoader,name=HAJNDIJMSProvider	1100	1200	HA JMS (MAKE SURE java.naming.provider.url PORT IS SAME AS HA-JNDI ABOVE)
jboss.web:service=WebServer	8080, 8443	8180, 8543	HTTP Web Server
jboss.messaging:service=Connector,transport=bisocket	4457	4557	JBoss Messaging

> By default there are several port mappings alredy defined which can be used: *ports-default*, *ports-01*, *ports-02* and *ports-03*.

To shutdown the different instances execute the **shutdown.sh** script from the *$JBOSS_HOME/bin* directory with extra arguments. If you have configured 2 instances of JBoss, one on port 1099 (the NamingService port) and another on 1199, then in order to shutdown the first JBoss instance use this command:

```
./bin/shutdown.sh -s jnp://localhost:1099
```

And for the second instance, use this command:

```
./bin/shutdown.sh -s jnp://localhost:1199
```

More info at:

- http://docs.jboss.org/jbossas/javadoc/4.0.2/org/jboss/Shutdown.java.html
- http://community.jboss.org/wiki/ConfiguringMultipleJBossInstancesOnOneMachine
- http://community.jboss.org/wiki/ConfigurePorts

References

[1] http://ubuntuforums.org/showthread.php?t=555319

[2] http://lazysystemadmin.blogspot.com/2010/05/add-virtual-interfaces-in-linux-quick.html

Several JBoss instances in the same server

You can have several JBoss instances in the same server, and only need to modify some default JBoss ports.

- Edit *$JBOSS_HOME/server/default/deploy/jbossweb-tomcat55.sar/server.xml* and change these ports: 8080, 8009 and 8443.
- Edit *$JBOSS_HOME/server/default/conf/jboss-service.xml* and change these ports: 8083, 4444, 4445,4446, 1098 and 1099.
- Edit *$JBOSS_HOME/server/default/deploy/jms/uil2-service.xml* and change this port: 8093.
- Edit *$JBOSS_HOME/server/default/deploy/ejb3.deployer/META-INF/jboss-service.xml* and change this port: 3873.
- Edit *$JBOSS_HOME/bin/shutdown.sh* and add to the last "localhost" line the new HTTP port.

```
# Execute the JVM
exec "$JAVA" \
    $JAVA_OPTS \
    -classpath $JBOSS_CLASSPATH \
    org.jboss.Shutdown localhost 8081 "$@"
```

> The simplest way is increasing the default port by +1, keeping in mind the pairs 4444-4446 and 1098-1099 where your have to add +3,+2 because they are consecutive.

Following this advice, the new ports will be:

- 8080 -> 8081 (Put this one in the shutdown.sh script)
- 8009 -> 8010
- 8443 -> 8444
- 8083 -> 8084
- 4444 -> 4447 (+3 because consecutive)
- 4445 -> 4448 (+3 because consecutive)
- 4446 -> 4449 (+3 because consecutive)
- 1098 -> 1100 (+2 because consecutive)
- 1099 -> 1101 (+2 because consecutive)
- 8093 -> 8094
- 3873 -> 3874

More info about this topic at:

- http://community.jboss.org/wiki/ConfigurePorts.
- http://community.jboss.org/wiki/VersionOfTomcatInJBossAS

Securing JBoss

When you run JBoss, OpenKM is accessible through the 8080 port. The bad news is that JBoss web console and JMX console is accessible and everybody can read and modify JBoss configuration. This is particularity dangerous if the OpenKM is accessible from Internet.

JMX Console

Edit the configuration file:

```
$ vim $JBOSS_HOME/server/default/deploy/jmx-console.war/WEB-INF/web.xml
```

Uncomment the block <security-constraint> and delete lines <http-method>WHATEVER_METHOD</http-method> inside the block if they are there (see this [1]: CVE-2010-0738). Edit this other configuration file:

```
$ vim $JBOSS_HOME/server/default/deploy/jmx-console.war/WEB-INF/jboss-web.xml
```

Uncomment the block defined by <security-domain>. Edit the users file:

```
$ vim $JBOSS_HOME/server/default/conf/props/jmx-console-users.properties
```

Change the password of the admin user.

Web Console

Edit the configuration file:

```
$ vim $JBOSS_HOME/server/default/deploy/management/console-mgr.sar/web-console.war/WEB-INF/web.xml
```

Uncomment the block <security-constraint> and delete lines <http-method>WHATEVER_METHOD</http-method> inside the block if they are there. Edit this other configuration file:

```
$ vim $JBOSS_HOME/server/default/deploy/management/console-mgr.sar/web-console.war/WEB-INF/jboss-web.xml
```

Uncomment the block defined by <security-domain>. Edit also this file:

```
$ vim $JBOSS_HOME/server/default/conf/login-config.xml
```

Change the path of the files web-console-users.properties and web-console-roles.properties (add props/ at the beginning of the file name)

```xml
<module-option name="usersProperties">props/web-console-users.properties
</module-option>
<module-option name="rolesProperties">props/web-console-roles.properties
</module-option>
```

And copy the files to the new location:

```
$ cp
$JBOSS_HOME/server/default/deploy/management/console-mgr.sar/web-console.war/WEB-INF/clas
 $JBOSS_HOME/server/default/conf/props
```

Now all the authentication files are located in the same folder. Edit the users file:

```
$ vim $JBOSS_HOME/server/default/conf/props/web-console-users.properties
```

Change the password of the admin user. The last step is restart JBoss:

```
$ /etc/init.d/jboss restart
```

For more info, visit:

• http://jboss.org/community/docs/DOC-12190.
• http://www.techienuggets.com/Detail?tx=9

References

[1] https://community.jboss.org/wiki/SecureTheJmxConsole

Adding APR to JBoss

Out-of-the-box, JBoss AS 4.2.3 is a 100% pure Java application server, and embeds Tomcat 6 as its servlet container. By default, it will use Java to handle HTTP connections. With a few simple steps you can add the Apache Portable Runtime (APR) to achieve native HTTP processing performance.

If you run JBoss, you can notice certain console output that indicates no APR presence:

```
...
17:33:23,852 INFO  [AprLifecycleListener] The Apache Tomcat Native
library which allows optimal performance in production environments was
not found on the java.library.path:
/usr/java/java-6-sun-1.6.0.24/jre/lib/i386/server:/usr/java/java-6-sun-1.6.0.24/jre/lib/a
17:33:23,973 INFO  [Http11Protocol] Initializing Coyote HTTP/1.1 on
http-127.0.0.1-8080
17:33:23,974 INFO  [AjpProtocol] Initializing Coyote AJP/1.3 on
ajp-127.0.0.1-8009
...
17:33:30,162 INFO  [Http11Protocol] Starting Coyote HTTP/1.1 on
http-127.0.0.1-8080
17:33:30,181 INFO  [AjpProtocol] Starting Coyote AJP/1.3 on
ajp-127.0.0.1-8009
17:33:30,202 INFO  [Server] JBoss (MX MicroKernel) [4.2.3.GA (build:
SVNTag=JBoss_4_2_3_GA date=200807181439)] Started in 23s:669ms
```

Stop JBoss and download JBoss Native from http://www.jboss.org/jbossweb/downloads.It is very important that you choose the right native-built libraries for your operating system. Extract the archive into $JBOSS_HOME:

```
$ cd jboss-4.2.3.GA
$ tar xzvf jboss-native-2.0.8-linux2-x64-ssl.tar.gz
```

Now you have a folder $JBOSS_HOME/bin/native with some dynamic libraries. Re-run JBoss AS, which will now detect the presence of the native libraries:

```
$ ./bin/run.sh
```

Notice certain console output that indicates the presence of the APR:

```
...
17:35:39,240 INFO  [AprLifecycleListener] Loaded Apache Tomcat Native library 1.1.18.

17:35:39,241 INFO  [AprLifecycleListener] APR capabilities: IPv6 [true], sendfile [true], accept filters [false], random [true].

17:35:39,511 INFO  [Http11AprProtocol] Initializing Coyote HTTP/1.1 on http-127.0.0.1-8080

17:35:39,512 INFO  [AjpAprProtocol] Initializing Coyote AJP/1.3 on ajp-127.0.0.1-8009

...
17:35:44,525 INFO  [Http11AprProtocol] Starting Coyote HTTP/1.1 on http-127.0.0.1-8080

17:35:44,544 INFO  [AjpAprProtocol] Starting Coyote AJP/1.3 on ajp-127.0.0.1-8009

17:35:44,566 INFO  [Server] JBoss (MX MicroKernel) [4.2.3.GA (build: SVNTag=JBoss_4_2_3_GA date=200807181439)] Started in 18s:462ms
```

In case it is not working edit the jboss-log4j.xml corresponding to your configuration add:

```
<category name="org.apache.catalina.core">
    <priority value="DEBUG"/>
</category>
```

Restart   JBoss   AS   and   look   in   server.log   file   and   look   for   the   exception   near
org.apache.catalina.core.AprLifecycleListener.

See also:

- http://anonsvn.jboss.org/repos/jbossnative/trunk/

Debugging OpenKM with Jboss

You can debug your OpenKM installation using the JBoss logging facility. This is an useful thing when you have problems with your configuration. Default OpenKM installation tries to log important events like errors and warnings.   Is   possible   to   change   this   configuration   editing   the   file *$JBOSS_HOME/server/default/conf/jboss-log4j.xml*.

Default JBoss log configuration can generate a lot of messages. These files are stored at *$JBOSS_HOME/server/default/log*. It is configured to use the DailyRollingFileAppender. This appender create a new log file for every day. This is better than have a unique huge log file, os course. The rollover is performed at midnight each day, but you can configure it to make the rollover every hour (uncomment the proper line).

```xml
<!-- A time/date based rolling appender -->
<appender name="FILE"
          class="org.jboss.logging.appender.DailyRollingFileAppender">
   <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
   <param name="File" value="${jboss.server.log.dir}/server.log"/>
   <param name="Append" value="false"/>
   <!-- Rollover at midnight each day -->
   <param name="DatePattern" value="'.'yyyy-MM-dd"/>
   <!-- Rollover at the top of each hour
   <param name="DatePattern" value="'.'yyyy-MM-dd-HH"/>
   -->
   <layout class="org.apache.log4j.PatternLayout">
      <!-- The default pattern: Date Priority [Category] Message\n -->
      <param name="ConversionPattern" value="%d %-5p [%c] %m%n"/>
      <!-- The full pattern: Date MS Priority [Category] (Thread:NDC) Message\n
      <param name="ConversionPattern" value="%d %-5r %-5p [%c] (%t:%x) %m%n"/>
```

```
      -->
   </layout>
</appender>
```

You can reduce the amount of log messages produced by OpenKM, or can increase them. In this example we limit the log messages produced by the class OKMAccessManager for those of type ERROR.

```
<category name="com.openkm.core.OKMAccessManager">
   <priority value="ERROR" />
</category>
```

If you create this configuration:

```
<category name="com.openkm">
   <priority value="DEBUG" />
</category>
```

All the log messages generated by OpenKM will be shown. As you can see, you can increase debug messages in some parts of OpenKM to check a determinate behavior.

Debugging JAAS configuration

If you are trying to setup another authentication source different from the default provided by OpenKM, you can afford some problems. The JBoss **login-config.xml** is supposed to have the right configuration, but you can't log into the application. The most common case is a bad or missing JAAS configuration. So if you need to debug the JAAS, you can add to the **$JBOSS_HOME/server/default/conf/jboss-log4j.xml** file the following:

```
<category name="org.jboss.security">
   <priority value="TRACE" class="org.jboss.logging.XLevel"/>
   <appender-ref ref="SECURITY_F"/>
</category>
<appender name="SECURITY_F" class='org.jboss.logging.appender.DailyRollingFileAppender'>
   <param name="Append" value="true"/>
   <param name="DatePattern" value="'.'yyyy-MM-dd"/>
   <param name="File" value="${jboss.server.home.dir}/log/jboss.security.log"/>
   <layout class="org.apache.log4j.PatternLayout">
      <param name="ConversionPattern" value="%d{ABSOLUTE} %-5p [%c] %m%n"/>
   </layout>
</appender>
```

This is more or less in the middle of the file, just where the <category-name> section begins. And you should look at this new log file:

```
$ tailf -f $JBOSS_HOME/server/default/log/jboss.security.log
```

Email error notification

Always is good idea to be notified when things goes wrong. There are some log appenders that can help you. The SMTPAppender will mail you log messages with threshold ERROR by default. You can lower this threshold, but you will got lots of useless mail messages. Here you must configure some properties:

- **To**: The mail account where the messages will arrive.
- **From**: You can set it simply as noreply@your-domain.com.
- **Subject**: Here you can specify the subject of the mail. If you have several OpenKM installations, you can create a filter in your mail client using this value.
- **SMTPHost**: The mail server server. Can be localhost if there is a mail server installed in this computer.

```xml
<!-- EMail events to an administrator -->
<appender name="SMTP" class="org.apache.log4j.net.SMTPAppender">
  <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
  <param name="Threshold" value="ERROR"/>
  <param name="To" value="admin@myhost.domain.com"/>
  <param name="From" value="nobody@myhost.domain.com"/>
  <param name="Subject" value="JBoss Sever Errors"/>
  <param name="SMTPHost" value="localhost"/>
  <param name="BufferSize" value="10"/>
  <layout class="org.apache.log4j.PatternLayout">
     <param name="ConversionPattern" value="[%d{ABSOLUTE},%c{1}] %m%n"/>
  </layout>
</appender>
```

In Unix / Linux systems there is a centralized log manager called syslog. You can configure Log4J to use this system using the SyslogAppender:

```xml
<!-- Syslog events -->
<appender name="SYSLOG" class="org.apache.log4j.net.SyslogAppender">
  <errorHandler class="org.jboss.logging.util.OnlyOnceErrorHandler"/>
  <param name="Facility" value="LOCAL7"/>
  <param name="FacilityPrinting" value="true"/>
  <param name="SyslogHost" value="localhost"/>
  <layout class="org.apache.log4j.PatternLayout">
     <param name="ConversionPattern" value="[%d{ABSOLUTE},%c{1}] %m%n"/>
  </layout>
</appender>
```

- **SyslogHost**: This configuration parameters allows you to specify the local syslog or a remote syslog server used to centralize the network log management.

For more info, visit:

- http://jboss.org/community/docs/DOC-11280
- http://jboss.org/community/docs/DOC-9372
- http://jakarta.apache.org/log4j
- http://primalcortex.wordpress.com/2007/11/28/jboss-and-jaas-debug
- can I get log4j to delete old rotating log files? [1]

Test OpenKM installation with jboss

Once you have configured OpenKM and Tomcat you can start them. You can run Tomcat from the command line from the $TOMCAT_HOME folder:

```
$ ./bin/catalina.sh start
```

This command will launch Tomcat and start the OpenKM application. By default Tomcat only listens on localhost, so OpenKM will only be accessible from http://localhost:8080/OpenKM.You will see a login screen like this:

You can log into OpenKM with okmAdmin user (default password is "admin"). If you want OpenKM to be accessible from others computers in your network, try modify $TOMCAT_HOME/conf/server.xml

```
<Connector address="'''0.0.0.0'''" connectionTimeout="20000" port="8080" protocol="HTTP/1.1" redirectPort="8443"/>
```

```
$ ./bin/catalina.sh start
```

Tomcat will bind to all network interfaces of the computer. Now OpenKM can be accessed from another computer using http://your-domain.com:8080/OpenKM.

Don't close the terminal or Tomcat will shutdown and OpenKM application will stop.

If you have configured Tomcat service in your Debian / Ubuntu box, you can launch it this way:

```
$ /etc/init.d/tomcat start
```

You can watch the server log to see OpenKM messages.

```
$ tail -f $TOMCAT_HOME/logs/catalina.log
```

OpenKM jboss Authentication

Authentication (from Greek: αυθεντικός; real or genuine, from authentes; author) is the act of establishing or confirming something (or someone) as authentic, that is, that claims made by or about the subject are true. This might involve confirming the identity of a person, the origins of an artifact, or assuring that a computer program is a trusted one. This task is handled by JAAS.

JAAS uses a service provider approach to its authentication features, meaning that it is possible to configure different login modules for an application without changing any code. The application remains unaware of the underlying authentication logic. It's even possible for an application to contain multiple login modules, somewhat akin to a stack of authentication procedures.

	Read Debugging JAAS configuration to learn how to debug a problematic JAAS configuration.

OpenKM relies on the authentication of the standard JAAS implemented in the JBoss application server. JBoss comes with some interesting modules which can be used to authenticate against a plain-text file, a database or an LDAP, for example. On recent versions, OpenKM uses the DatabaseServerLoginModule class to manage authentication.

	The JBoss security is configured in the file *$JBOSS_HOME/server/default/conf/login-config.xml*.

Also remember the principal.adapter configuration option. OpenKM need this configuration to create a list of users and roles available in the changing permissions dialog. This is done by the **DatabasePrincipalAdapter** class. This is an implementation of the **com.openkm.principal.PrincipalAdapter** interface:

```java
public interface PrincipalAdapter {
    /**
     * Method to retrieve all users from a authentication source.
     *
     * @return A Collection with all the users.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getUsers() throws PrincipalAdapterException;

    /**
     * Method to retrieve all roles from a authentication source.
     *
     * @return A Collection with all the roles.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getRoles() throws PrincipalAdapterException;

    /**
     * Method to retrieve all users from a role.
     *
     * @return A Collection with all the users within a role.
     * @throws PrincipalAdapterException If any error occurs.
     */
```

```java
    public List<String> getUsersByRole(String role) throws
PrincipalAdapterException;


    /**
     * Method to retrieve all roles from a user.
     *
     * @return A Collection with all the roles of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public List<String> getRolesByUser(String user) throws
PrincipalAdapterException;


    /**
     * Method to retrieve the mail from a user.
     *
     * @param users A user id.
     * @return The email of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public String getMail(String user) throws
PrincipalAdapterException;


    /**
     * Method to retrieve the name from a user.
     *
     * @param users A user id.
     * @return The name of the user.
     * @throws PrincipalAdapterException If any error occurs.
     */
    public String getName(String user) throws
PrincipalAdapterException;
}
```

Roles

OpenKM has two roles defined by default - **AdminRole** and **UserRole**.

UserRole is mandatory for all users, because is internally used by OpenKM for connection purposes. Without this right, users can not connect to OpenKM and you'll get a 403 status code error.

You can give AdminRole to any user, and he'll get administrator privileges, seeing any folder and doing any operation without retrictions. Users with AdminRole have access to the administrator tab in the UI.

Plain-text file

This is the simplest security configuration. This was the default authentication method in older OpenKM versions. It is achieved using the JBoss UsersRolesLoginModule login module. User are stored in the file *$JBOSS_HOME/server/default/conf/props/openkm-users.properties* in this form:

```
user1=pass1
user2=pass2
...
```

The password in not encrypted. The roles are in the file *$JBOSS_HOME/server/default/conf/props/openkm-roles.properties* in this form:

```
user1=UserRole,Rol1,Rol2,...
user1=UserRole,Rol1,Rol2,...
...
```

This is the JBoss configuration for this method:

```xml
<application-policy name = "OpenKM">
   <authentication>
     <login-module code="org.jboss.security.auth.spi.UsersRolesLoginModule" flag = "required">
        <module-option name="usersProperties">props/openkm-users.properties</module-option>
        <module-option name="rolesProperties">props/openkm-roles.properties</module-option>
     </login-module>
     <login-module code="org.jboss.security.ClientLoginModule" flag="required" />
   </authentication>
</application-policy>
```

The principal.adapter should be set to es.git.openkm.principal.UsersRolesPrincipalAdapter.

Database

This is the default security configuration for recent OpenKM versions. It's a good option because it simplifies user and role management: now user and roles can be managed from OpenKM administration. This module connects to the database using a data-source.

```xml
<application-policy name = "OpenKM">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.DatabaseServerLoginModule" flag = "required">
      <module-option name="dsJndiName">java:/OKMAuthDS</module-option>
      <module-option name="principalsQuery">select usr_pass as PASSWD from users where usr_id=? and
usr_active='true'</module-option>
      <module-option name="rolesQuery">select ur_role as ROLEID, 'Roles' from user_role where ur_user=?</module-option>
      <module-option name="hashAlgorithm">md5</module-option>
      <module-option name="hashEncoding">hex</module-option>
    </login-module>
  </authentication>
</application-policy>
```

The principal.adapter should be set to *com.openkm.principal.DatabasePrincipalAdapter*, which is the default value.

LDAP (Active Directory, Open Directory)

You can get LDAP integration through the LdapExtLoginModule login module.

```xml
<application-policy name="OpenKM">

  <authentication>

    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >

      <module-option name="java.naming.provider.url">ldap://my-company.com:389</module-option>

      <module-option name="bindDN">cn=My_adm_account,ou=Admin Accounts,dc=my-company,dc=br</module-option>

      <module-option name="java.naming.security.authentication">simple</module-option>

      <module-option name="bindCredential">My_adm_account_password</module-option>

      <module-option name="baseCtxDN">ou=Users Accounts,dc=my-company,dc=com</module-option>

      <module-option name="baseFilter">(sAMAccountName={0})</module-option>

      <module-option name="rolesCtxDN">ou=Users Accounts,dc=my-company,dc=com</module-option>

      <module-option name="roleFilter">(sAMAccountName={0})</module-option>

      <module-option name="roleAttributeID">memberOf</module-option>

      <module-option name="roleAttributeIsDN">true</module-option>

      <module-option name="roleNameAttributeID">cn</module-option>

      <module-option name="roleRecursion">-1</module-option>

      <module-option name="searchScope">SUBTREE_SCOPE</module-option>

      <module-option name="defaultRole">UserRole</module-option>

    </login-module>

  </authentication>

</application-policy>
```

Here are some configuration comments:

- **bindDN**: This is some DN with read/search permissions on the baseCtxDN and rolesCtxDN.
- **bindCredential**: The password for the bindDN.
- **baseCtxDN**: The fixed DN of the context to start the user search from.
- **rolesCtxDN**: The fixed DN of the context to search for user roles.

Don't forget the <module-option name="defaultRole">UserRole</module-option> (adds this role to every authenticated user, because only users with that role are allowed to access OpenKM).

See also:

- Active Directory 🔒
- Open Directory 🔒
- Testing LDAP configuration 🔒
- Forum: Usuario administrador LDAP v.4 [4]

Changes from version 3.0. to 4.0

- **UserRol** now is called **UserRole**
- **AdminRol** now is called **AdminRole**

More information

More information about JASS and other login modules can be found at:

- JBoss and JAAS debug [1]
- JBoss Community: SecurityFAQ [1]
- JBoss Community: JBossSX [2]
- JBoss Community: LdapExtLoginModule [7]
- JBoss Community: OSXOpenDirectoryLoginConfig.xml [3]

References

[1] http://community.jboss.org/wiki/SecurityFAQ

[2] http://community.jboss.org/wiki/JBossSX

[3] http://community.jboss.org/wiki/OSXOpenDirectoryLoginConfigxml

Central Authentication Service

The Central Authentication Service (CAS) is a single sign-on protocol for the web. Its purpose is to permit a user to access multiple applications while providing their credentials (such as userid and password) only once. It also allows web applications to authenticate users without gaining access to a user's security credentials, such as a password. The name CAS also refers to a software package that implements this protocol.

Once you have the CAS server up and running it is easy to set SSO in OpenKM. I wanted to keep basic authentication for the WebDav part that is why the filter mapping is complicated. I did the following changes in OpenKM:

1. In server/default/deploy/OpenKM.war/WEB-INF/web.xml:

```xml
<!-- CAS SSO-->
<!-- Facilitates CAS single sign-out -->
<listener>
  <listener-class>org.jasig.cas.client.session.SingleSignOutHttpSessionListener</listener-class>
</listener>


<!-- Following is needed only if CAS single-sign out is desired -->
<filter>
  <filter-name>CAS Single Sign Out Filter</filter-name>
  <filter-class>org.jasig.cas.client.session.SingleSignOutFilter</filter-class>
</filter>


<!-- Only 2 CAS filters are required for JAAS support -->
<context-param>
  <param-name>service</param-name>
  <param-value>https://openkm.chronossoftware.com/OpenKM</param-value>
</context-param>
```

```xml
<context-param>
  <param-name>casServerLoginUrl</param-name>
  <param-value>https://openkm.chronossoftware.com/cas/login</param-value>
</context-param>


<filter>
  <filter-name>CASWebAuthenticationFilter</filter-name>
  <filter-class>org.jasig.cas.client.jboss.authentication.WebAuthenticationFilter</filter-class>
</filter>
<filter>
  <filter-name>CASAuthenticationFilter</filter-name>
  <filter-class>org.jasig.cas.client.authentication.AuthenticationFilter</filter-class>
</filter>


<!-- CAS client filter mappings -->
<!-- The order of the following filters is vitally important -->
<filter-mapping>
  <filter-name>CAS Single Sign Out Filter</filter-name>
  <url-pattern>*.jsp</url-pattern>


  <!-- GWT -->
  <url-pattern>/frontend/*</url-pattern>


  <!-- JSPs -->
  <url-pattern>/admin/*</url-pattern>
  <url-pattern>/mobile/*</url-pattern>
  <url-pattern>/mobile-nt/*</url-pattern>


  <!-- Servlets -->
  <url-pattern>/RepositoryStartup</url-pattern>
  <url-pattern>/TextToSpeech</url-pattern>
  <url-pattern>/Test</url-pattern>
  <url-pattern>/frontend/*</url-pattern>
  <url-pattern>/extension/*</url-pattern>
  <!--url-pattern>/*</url-pattern-->
</filter-mapping>
<filter-mapping>
  <filter-name>CASWebAuthenticationFilter</filter-name>
  <url-pattern>*.jsp</url-pattern>


  <!-- GWT -->
  <url-pattern>/frontend/*</url-pattern>


  <!-- JSPs -->
  <url-pattern>/admin/*</url-pattern>
  <url-pattern>/mobile/*</url-pattern>
  <url-pattern>/mobile-nt/*</url-pattern>
```

```xml
    <!-- Servlets -->
    <url-pattern>/RepositoryStartup</url-pattern>
    <url-pattern>/TextToSpeech</url-pattern>
    <url-pattern>/Test</url-pattern>
    <url-pattern>/frontend/*</url-pattern>
    <url-pattern>/extension/*</url-pattern>


    <!--url-pattern>/*</url-pattern-->
  </filter-mapping>
  <filter-mapping>
    <filter-name>CASAuthenticationFilter</filter-name>
    <url-pattern>*.jsp</url-pattern>


    <!-- GWT -->
    <url-pattern>/frontend/*</url-pattern>


    <!-- JSPs -->
    <url-pattern>/admin/*</url-pattern>
    <url-pattern>/mobile/*</url-pattern>
    <url-pattern>/mobile-nt/*</url-pattern>


    <!-- Servlets -->
    <url-pattern>/RepositoryStartup</url-pattern>
    <url-pattern>/TextToSpeech</url-pattern>
    <url-pattern>/Test</url-pattern>
    <url-pattern>/frontend/*</url-pattern>
    <url-pattern>/extension/*</url-pattern>


    <!--url-pattern>/*</url-pattern-->
  </filter-mapping>
  <!-- /CAS SSO -->
```

2. In server/default/conf/login-config.xml:

```xml
<application-policy name="OpenKMWebDav">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.LdapExtLoginModule" flag="required" >
      <module-option name="java.naming.provider.url">ldap://dokumentum2.chronossoftware.com:389</module-option>
      <module-option name="java.naming.security.authentication">simple</module-option>
      <module-option name="baseCtxDN">ou=Users,dc=igyuk,dc=hu</module-option>
      <module-option name="baseFilter">(cn={0})</module-option>
      <module-option name="rolesCtxDN">ou=Groups,dc= igyuk,dc=hu </module-option>
      <module-option name="roleFilter">(uniqueMember={1})</module-option>
      <module-option name="roleAttributeID">cn</module-option>
      <module-option name="roleNameAttributeID">cn</module-option>
      <module-option name="roleAttributeIsDN">true</module-option>
      <module-option name="roleRecursion">2</module-option>
```

```
      <module-option name="searchScope">ONELEVEL_SCOPE</module-option>

      <module-option name="allowEmptyPasswords">False</module-option>

      <module-option name="defaultRole">UserRole</module-option>

    </login-module>

  </authentication>

</application-policy>


<application-policy name="OpenKM">

  <authentication>

    <login-module code="org.jasig.cas.client.jaas.CasLoginModule" flag="required">

      <module-option name="ticketValidatorClass">org.jasig.cas.client.validation.Saml11TicketValidator</module-option>

      <module-option name="casServerUrlPrefix">https://dokumentum2.chronossoftware.com/cas</module-option>

      <module-option name="service">https://dokumentum2.chronossoftware.com/OpenKM</module-option>

      <module-option name="defaultRoles">UserRole</module-option>

      <module-option name="roleAttributeNames">groupMembership</module-option>

      <module-option name="principalGroupName">CallerPrincipal</module-option>

      <module-option name="roleGroupName">Roles</module-option>

      <module-option name="cacheAssertions">true</module-option>

      <module-option name="tolerance">20000</module-option>

      <module-option name="cacheTimeout">480</module-option>

    </login-module>

  </authentication>

</application-policy>
```

3. In repository.xml I changed the "OpenKM" to "OpenKMWebDav" at

```
<Security appName="OpenKM">
```

4. Add the certificate of the CAS server to cacerts using the instructions from JBoss mail configuration#Adding PKI certificate.

5. Copy these 2 JAR files from CAS client distribution to $JBOSS_HOME/server/default/deploy/OpenKM.war/WEB-INF/lib:

- cas-client-core-3.2.0.jar
- cas-client-integration-jboss-3.2.0.jar

Suggested changes

SSO CAS work with Cas client-client-3.2.1, cas-server-3.4.12-release, OpenKM-5.1.10_JBoss-4.2.3.GA

Need to be changed in openkm/pom.xml <milton.version>, change "1.7.1" by "1.7.2" Need to be changed in cas-client-3.2.1/cas-client-core/pom.xml <spring.version> (=2.5.6) by 3.0.5.RELEASE Delete JBoss-4.2.3.GA default lib into : (server/default/lib/) ejb3-persistence.jar Add hibernate-jpa-2.0-api-1.0.0.Final.jar into JBoss-4.2.3.GA default lib (server/default/lib/)

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