```html
<h2>Installation of OpenCms 6</h2>
This page provides information on how to install OpenCms using <a
 target="extern" href="http://jakarta.apache.org/tomcat/index.html">Tomcat</a>
and <a
 target="extern" href="http://www.mysql.com/">MySql</a>. All
installation parts are described as single steps. After completing
each step you are strongly advised to verify the success.
<p><strong>1. Install the Java 2 SDK, version 1.4 or
newer</strong></p>
<blockquote dir="ltr">
<p>Install the Java 2 SDK, version 1.4 or newer (from SUN <code><a
 target="_blank"
  href="http://java.sun.com/products/j2se/"
 >http://java.sun.com/products/j2se/</a></code>).
For details on how to install these components on your operating
system, see the documentation that comes with them. You must
install the Java <i>SDK</i>, not the <i>JRE</i> (Java Runtime
Environment) that is also available from SUN. The JRE is <i>not</i>
sufficient to run OpenCms!</p>
<p><EM><b>Important</b>:</EM>  This OpenCms 6 was tested with Java
1.4 and 1.5 only. Some features regarding file encoding where used
that are not available with Java releases before 1.4.</p>
  <P><STRONG><EM>Please note: </EM></STRONG>FreeBSD users may need to setup new
  entropy sources in the O/S using <code>rndcontrol</code>. Otherwise the
installation
  process may hang. For example, on a machine with a network interface card on
  IRQs 9, you can execute </P>
  <P><CODE>rndcontrol -s 9</CODE></P>
</blockquote>
<p><strong>2. Install Tomcat</strong></p>
<blockquote dir="ltr">
<p>OpenCms 6.0 requires a Servlet 2.3 / JSP 1.2 standards compliant
container. Tomcat 4 is the reference implementation of this
Standard. This release was tested with Tomcat 4.1.x, Tomcat 5.0.x
and Tomcat 5.5.x. Older versions of Tomcat (3.x and earlier) do not
support this newer standard and are thus not usable for OpenCms
6.0. Tomcat 4.0.x was not tested, but may work.<br>
</p>
<p>Install Tomcat from <code><a target="extern"
href="http://jakarta.apache.org/tomcat/index.html">http://jakarta.apache.org/tom
cat/index.html</a></code>
into a folder of your choice. This is the
<code>CATALINA_HOME</code> folder. Don't forget to set the
environment variables <code>CATALINA_HOME</code> and
<code>JAVA_HOME</code>.</p>
<p>Test the installation by running Tomcat in standalone mode and
check the examples. Note: Tomcat uses port 8080 in standalone mode.
If you wish, you can combine the servlet-engine with a webserver
like the Apache Web Server <code><a target="extern"
href="http://www.apache.org/httpd.html">http://www.apache.org/httpd.html</a></co
de>
. Please see the documentation available with the webserver on how
to combine it with your servlet environment.</p>
<p><em><strong>Please note:</strong></em> There's an extended
OpenCms documentation module available from Alkacon Software GmbH
on the opencms.org website that describes how to setup OpenCms with
Apache httpd and Tomcat using mod_proxy.</p>
<p><em><strong>Please note:</strong></em> On Linux systems, Tomcat's JVM has to
be started with the command line argument
<code>-Djava.awt.headless=true</code>. The reason for this is that OpenCms uses
Swing
classes for parsing RTF documents. Using these classes initializes
the GUI system. This leads to an exception as the server process doesn't
```

have access to the GUI system when not using the described argument.</p>
<p>Please note: Older OpenCms Version
required an environment setting for the Java file encoding
<code>-dfile.encoding=....</code> for OpenCms. This is NOT longer
required with OpenCms 6.</p>
</blockquote>
<p>3. Install MySQL</p>
<blockquote dir="ltr">
<p>Install MySQL from <code><a target="extern"
href="http://www.mysql.com/downloads/index.html">http://www.mysql.com/downloads/
index.html</code>
(see the MySQL documentation on <code><a target="extern"
href="http://www.mysql.com/documentation/index.html">http://www.mysql.com/docume
ntation/index.html</code>
). On Windows-based systems MySQL has to be installed on the
<code>C:\</code> drive and should be registered as service using
<code>%MYSQL_HOME%/bin/mysqld -install</code>.</p>
<p>OpenCms can be used with MySQL 3.2, 4.0 and 4.1. For performance
reasons we recommend MySQL 4.1, or at last 4.0.</p>
<p>Start the MySQL server by running the service (WIN32) or
executing <code>%MYSQL_HOME%/bin/mysqld</code> (UNIX).</p>
<p>Check that MySQL is running before you continue by starting the
MySQL monitor (execute <code>mysql</code> in your MySQL bin
folder). The database works correctly if a MySQL prompt appears
after calling the monitor. Quit the MySQL monitor by typing exit
and go to the next step.</p>
<p>Important: You will have to increase
the MySQL configuration variable <code>max_allowed_packet</code> located
in the MySQL configuration file (usually called <code>my.ini</code>). For
OpenCms,
the limit should be as high as possible, a setting of
<code>max_allowed_packet=16M</code> is
recommended.</p>
</blockquote>
<p>4. Deploy the opencms.war file</p>
<blockquote dir="ltr">
<p>Copy the <code>opencms.war</code> file from the binary
distribution ZIP file to <code>CATALINA_HOME/webapps/</code>.
Replace <code>CATALINA_HOME</code> with the real path to your
Tomcat installation.</p>
<p>Start (or restart) Tomcat. Tomcat will now deploy the web
application OpenCms.</p>
<p>Important: OpenCms requires that it's
<code>*.war</code> file is unpacked. OpenCms can not be deployed as
war file only. Make sure Tomcat does unpack the war file and
creates the <code>CATALINA_HOME/webapps/opencms/</code> directory,
placing the OpenCms files in this directory. The default
configuration for your Servlet containers / environment could be to
not unpack the deployed <code>*.war</code> file. If this is so you
must unpack the opencms.war file manually. Use an unzip tool for
this, <code>*.war</code> files are just <code>*.zip</code> files
with a different extension. The OpenCms setup wizard will display a
warning and not allow you to continue if you did not unpack the
<code>*.war</code> file.</p>
</blockquote>
<p>5. Install OpenCms using the Setup-Wizard</p>
<blockquote dir="ltr">
<p>Start the Setup-Wizard by pointing your webbrowser to <code><a
 href="http://www.default.opencmstest.com/setup"
 >http://localhost:8080/opencms/setup</code>.
Depending on your configuration, you have to replace
<code>localhost</code> with your servername. The port 8080 is only
used if you start Tomcat in standalone mode.</p>

```
<p> Follow the instructions of the OpenCms Setup-Wizard. It will set up the
OpenCms database and
import all available modules into the system. For normal installations
with MySql and Tomcat running on the same server all default
settings will fit your needs.<br>
If you are using different database users with MySql, be sure that they exist
before creating the database tables and importing the modules.</p>
<p><em><strong>Important:</strong></em> Make sure you disable all
popup blockers for the server URL you installed OpenCms on.
Otherwise you will not be able to log in to the OpenCms
Workplace.</p>
</blockquote>
<p><strong>6. Now your system is ready</strong></p>
<blockquote dir="ltr">
<p>Now your system is ready to use. You can login with username:
<code>Admin</code> and password: <code>admin</code>. Please change
this password as soon as possible. The login URL of OpenCms in a
default configuration is: <code><A
href="/system/login/">http://localhost:8080/opencms/opencms/system/login/</A></c
ode></p>
</blockquote>
<p><strong>7. Security issues</strong></p>
<blockquote dir="ltr">
<p>Finally after you have installed OpenCms you should have a look
at the security settings.</p>
<p>First change the <code>Admin</code> user password of OpenCms by
calling the user preferences (the "checkbox" icon on the main screen
of the Workplace).</p>
<p>Then you can add a password to the MySQL database. Enter the
following commands at the MySQL command line.</p>
<blockquote>

<pre>
use mysql;
insert into user values ('localhost', 'opencmsuser', password('XXXXX'),\
    'N','N','N','N','N','N','N','N','N','N','N','N','N','N');
insert into db values ('localhost', 'opencms', 'opencmsuser',\
    'Y','Y','Y','Y','Y','Y','Y','Y','Y','Y');
flush privileges;
</pre>

</blockquote>
<p>Make sure you replace <code>opencmsuser</code> and
<code>opencms</code> with the name of your user and database in
case you have changed them on the setup wizard.</p>
<p>Don't forget to add the new user and password to all connect
strings of the database in your <code>opencms.properties</code>
file. Only the new user can now connect to the OpenCms tables. For
more information see the MySQL documentation.</p>
</blockquote></CODE></CODE>
```