

# openCRX Installation Guide for Tomcat 6

Version 2.8.0



[www.opencrx.org](http://www.opencrx.org)

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# 1 About this Book

openCRX is the leading open source CRM enterprise suite. openCRX is based on the openMDX application framework, an open source application framework based on the OMG's model driven architecture (MDA) standards, delivering maximum openness, standards compliance and a state-of-the-art component-based architecture.

This book describes the manual installation of openCRX for deployment on Apache Tomcat.

## 1.1 Who this book is for

The intended audience are openCRX administrators and system administrators who either want to install openCRX manually (for whatever reason) or want to install openCRX on a platform not supported by our openCRX Server installer.

## 1.2 What do you need to understand this book

This book describes the manual installation of openCRX for deployment on Apache Tomcat. The book assumes that you are familiar with the Tomcat management and administration.

## 1.3 Tips, Warnings, etc.

We make use of the following pictograms:



Tip

Information provided as a "Tip" might be helpful for various reasons: time savings, risk reduction, etc.



Important

You should carefully read information marked with "Important". Ignoring such information is typically not a good idea.



Warning

Warnings should not be ignored (risk of data loss, etc.)

## 2 Prerequisites

As a first step select the openCRX version you want to install. Based on the published version compatibility information you can determine the appropriate versions of openMDX, Tomcat, and Java JDK:

<http://www.opencrx.org/faq.htm#versioncompatibility>



Write down the version numbers of the software packages you have chosen to install – this may be helpful in the future in case you require support or want to file a bug report:

openCRX v \_\_\_\_\_ (this guide is based on openCRX v2.8.0)  
openMDX v \_\_\_\_\_ (this guide is based on openMDX v2.8.0)  
Tomcat v \_\_\_\_\_ (this guide is based on Tomcat v6.0.26)  
JDK v \_\_\_\_\_ (this guide is based on Sun's JDK 1.6.19)



Throughout the installation of openCRX and related software it is a good idea to **avoid paths containing blanks** like the default installation directory ...\\Program Files\\... on Windows.

Whenever an installer proposes an installation path containing blanks, we recommend changing the path to avoid problems down the road.

### 2.1 JDK 6.0

**Download and install** the Sun Java JDK 6.0 available from <http://java.sun.com/javase/downloads/widget/jdk6.jsp>



You really need **Java 6**, i.e. neither Java 4 nor Java 5 will work.



It is not sufficient to have a Java Runtime Environment (JRE) only. The full-blown **JDK** is required to install the openCRX SDK.



On Windows, it is a good idea to **avoid paths containing blanks** like the default installation directory ...\\Program Files\\....



Don't forget to set the **environment variable** `JAVA_HOME`. It should point to your JDK installation directory, e.g. to `D:\\Java\\jdk1.6.0` on Windows or `opt/jdk1.6.0` on Linux.

## 2.2 Ant 1.8.0

**Download** Ant 1.8.0 (available from <http://ant.apache.org/>) for your platform **and install** it by expanding the downloaded file to a directory of your choice.



Don't forget to set the **environment variables** `ANT_HOME` and `ANT_OPTS` as follows:

- **ANT\_HOME** should point to the installation directory of Ant, e.g. `D:\apache-ant-1.8.0` on Windows or `/opt/apache-ant-1.8.0` on Linux.
- **ANT\_OPTS** should be set to `-Xmx512m` so that enough memory can be allocated to compile openCRX during the installation of the openCRX SDK.

## 2.3 openMDX SDK

Download and install the **openMDX SDK**: <http://www.openmdx.org/sdk.htm>  
Installation instructions are also available from the above website.



If your platform is not supported by the openMDX SDK Installer, you can install the openMDX SDK on one of the supported platforms and then copy the required files to your target platform.

## 2.4 openCRX SDK

Download and install the **openCRX SDK**: <http://www.opencrx.org/sdk.htm>  
Installation instructions are also available from the above website.



If your platform is not supported by the openCRX SDK Installer, you can install the openCRX SDK on one of the supported platforms and then copy the required files to your target platform.



For some reason unknown to us the SDK installation sometimes stalls with Ant v1.8.0 on Windows. If you experience such problems with the SDK installation, kill the process `java.exe` and then execute the script `postinstallation.bat` manually from a DOS shell.

## 2.5 Apache Tomcat

Download **Tomcat 6.0.26** from

<http://archive.apache.org/dist/tomcat/tomcat-6/v6.0.26/bin/>

This guide is based on Tomcat v6.0.26:

<http://archive.apache.org/dist/tomcat/tomcat-6/v6.0.26/bin/apache-tomcat-6.0.26.zip> (Windows)

<http://archive.apache.org/dist/tomcat/tomcat-6/v6.0.26/bin/apache-tomcat-6.0.26.tar.gz> (Linux)



If you want to deploy openCRX on a Tomcat version different from Tomcat v6.0.26, we recommend to build the files **tomcat-juli.jar** and **catalina.jar** matching your Tomcat version as follows:

- download the desired Tomcat binary, e.g. **apache-tomcat-6.0.xx.zip** (or `apache-tomcat-6.0.xx.tar.gz` on Linux) and expand it to a directory of your choice, e.g. `D:\apache-tomcat-6.0.xx` on Windows or `/opt/apache-tomcat-6.0.xx` on Linux
- download and install the **openMDX SDK** (see <http://www.openmdx.org/sdk.htm>)
- **copy all the files** from the directory `TOMCAT_HOME\lib` to the openMDX SDK directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\apache\jre-1.6\tomcat\lib` (overwrite existing files)
- copy the file **tomcat-juli.jar** from the directory `TOMCAT_HOME\bin` to the openMDX SDK directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\apache\jre-1.6\tomcat\lib` (overwrite the existing file)
- open a shell and change to the directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\core`
- run **ant clean** and then run **ant deliverables**
- the above will build various files in the directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\jre-1.6\core\lib`
- copy the file **tomcat-juli.jar** to `TOMCAT_HOME\bin`
- open a shell and change to the directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\openejb`
- run **ant clean** and then run **ant deliverables**
- the above will build various files in the directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\openejb-3\openejb\lib`
- copy the file **catalina.jar** to `TOMCAT_HOME\lib`

## 2.6 Database

Please note that you **must set up and load the openCRX database** as described in the respective openCRX database installation guide **before you continue**. For example, if you want to install openCRX for PostgreSQL, you must first install PostgreSQL and create a database.

Database installation guides for the supported database management systems are available from <http://www.opencrx.org/documents.htm>



Tip

Please remember that you will also need a **JDBC driver** appropriate for your database management system (please refer to the relevant DB installation guide for additional information).

Copy the JDBC driver into the directory `TOMCAT_HOME\lib`.



Please note that this guides assumes that you installed PostgreSQL and create a database named **CRX\_CRX**.

If you decided for another DBMS, you might have to adapt some of the commands/instructions in this guide accordingly.

Once you have successfully installed the database you are ready to continue with the Tomcat setup.



### 3 Installing openCRX for Tomcat

In a first step, install Apache Tomcat by expanding the downloaded file **apache-tomcat-6.0.26.zip** (or **apache-tomcat-6.0.26.tar.gz** respectively) to a directory of your choice, e.g. `D:\apache-tomcat-6.0.26` on Windows or `/opt/apache-tomcat-6.0.26` on Linux. For the remainder of this document we assume that `TOMCAT_HOME` points to the Tomcat installation directory, e.g. **`TOMCAT_HOME=D:\apache-tomcat-6.0.26`**



Tip

On Windows, avoid paths that contain blanks (e.g. the famous `C:\Program File\...`) as there are all kinds of pitfalls down the road...



Important

Make sure that you added `JAVA_HOME` to your system environment variables as Tomcat needs the JDK to compile JSPs, e.g. `JAVA_HOME=D:\java\jdk1.6.0` on Windows or `JAVA_HOME=/opt/java/jdk1.6.0` on Linux.

Now we **add openMDX and Apache OpenEJB** to Tomcat by copying several files from the openCRX SDK to the Tomcat directory structure:

- copy the file **tomcat-juli.jar** from the openMDX SDK installation directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\jre-1.6\core\lib` to the Tomcat directory `TOMCAT_HOME\bin` (overwrite the existing file)
- copy the file **catalina.jar** from the openMDX SDK installation directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\openejb-3\openejb\lib` to the Tomcat directory `TOMCAT_HOME\lib` (overwrite the existing file)



Important

Please note that the files *tomcat-juli.jar* and *catalina.jar* are version-specific, i.e. if you want to run openCRX on a Tomcat version different from Tomcat v6.0.26 you need to go back to chapter 2.5 Apache Tomcat and build them as explained.

- copy the file **openmdx-base.jar** from the openMDX SDK installation directory `<MDX_SDK_Install_Dir>\openmdx-2.8.0\jre-1.6\core\lib` to the Tomcat directory `TOMCAT_HOME\lib`
- open the ZIP file `<MDX_SDK_Install_Dir>\repository\distribution\openmdx-2.8.0-openejb.openejb-3.zip` (\*.tar on Linux) and copy the file **openmdx-openejb.war** - located in the folder **openmdx-2.8.0/openejb-3/openejb/deployment-unit** - to the Tomcat directory `TOMCAT_HOME\webapps` and then rename it to **0-openmdx-openejb.war** (Tomcat must load it as the first WebApp)

Next we create some directories and then install the **openCRX enterprise archive**:

- create the directory `TOMCAT_HOME\airsyncdir`
- create the directory `TOMCAT_HOME\maildir`
- create the directory `TOMCAT_HOME\apps`

- copy the file **opencrx-core-CRX.ear** from the directory `<CRX_SDK_Install_Dir>\opencrx-2.8.0\jre-1.6\core\deployment-unit` to to the Tomcat directory `TOMCAT_HOME\apps`

Next we configure the database connection (and optionally a mail resource):

- create a new file `TOMCAT_HOME\conf\openejb.xml` and open it with an editor (Notepad, kate, etc.); paste the following text into the file:

*Listing 1: The file openejb.xml for PostgreSQL*

```
<?xml version="1.0" encoding="UTF-8"?>
<openejb>

<Container id="My Stateless Container" type="STATELESS">
  Timeout 0
  PoolSize 10
  StrictPooling true
</Container>

<!-- openCRX with PostgreSQL, DB: CRX_CRX -->
<Resource id="jdbc_opencrx_CRX" type="DataSource">
  JdbcDriver org.postgresql.Driver
  JdbcUrl jdbc:postgresql://127.0.0.1:5432/CRX_CRX
  UserName system
  Password manager
  JtaManaged true
  ValidationQuery SELECT object_oid FROM prefs_preference WHERE object_oid = 'PERSISTENCE:type' AND object_idx = 0
  TestWhileIdle true
  TimeBetweenEvictionRunsMillis 1000
</Resource>

<Resource id="mail/provider/CRX" type="javax.mail.Session">
  mail.debug true
  mail.transport.protocol smtp
  mail.smtp.user myusername
  mail.smtp.password mypassword
  mail.smtp.starttls.enable true
  mail.smtp.auth true
  mail.smtp.host myhost
  mail.smtp.port 25
  mail.smtp.user myuseruname
  mail.from mymailfrom
  mail.store.protocol pop3s
  mail.pop3s.host myhost
  mail.pop3s.port 995
  mail.pop3s.auth true
  mail.pop3s.user myusername
  mail.pop3s.password mypassword
</Resource>

<Deployments dir="apps/" />

</openejb>
```

See <http://openejb.apache.org/configuration.html> for additional details.

- adapt the values of **UserName**, **Password** and the **JdbcUrl** to your own environment and then save the file (see also table below)
- make sure the XML file is UTF-8 encoded

The following table might be helpful to configure your database connection:

<b>HSQLDB 1</b>	org.hsqldb.jdbcDriver jdbc:hsqldb:hsq://127.0.0.1:9001/CRX_CRX
<b>MySQL 5</b>	com.mysql.jdbc.Driver jdbc:mysql://127.0.0.1:3306/CRX_CRX
<b>PostgreSQL 8</b>	org.postgresql.Driver jdbc:postgresql://127.0.0.1:5432/CRX_CRX

<b>MS SQL 2005</b>	com.microsoft.sqlserver.jdbc.SQLServerDriver jdbc:sqlserver://127.0.0.1:1433;databaseName=CRX_CRX;selectMethod=cursor
<b>DB/2 9</b>	com.ibm.db2.jcc.DB2Driver jdbc:db2://127.0.0.1:50000/CRX_CRX
<b>Oracle 10</b>	oracle.jdbc.driver.OracleDriver jdbc:oracle:thin:@127.0.0.1:1521:XE



Verify all the relevant information for correctness, e.g. ensure that the **JdbcUrl** – in particular the **database name** – the **UserName**, and the **Password** match with your installation.

A simple copy/paste of the above sample file will typically not work, i.e. it is expected that you will have to adapt some of the parameters.

Next we create a **batch file to start Apache Tomcat** with all the appropriate JVM options:

- **on Windows:** create the file **run.bat** with the following content in the Tomcat directory **TOMCAT\_HOME\bin**:

*Listing 2: The file run.bat*

```
set TOMCAT_HOME=D:\apache-tomcat-6.0.26
set JAVA_HOME=D:\Java\jdk1.6.0

RMDIR /S /Q %TOMCAT_HOME%\temp
MKDIR %TOMCAT_HOME%\temp
RMDIR /S /Q %TOMCAT_HOME%\work
MKDIR %TOMCAT_HOME%\work
REM RMDIR /S /Q %TOMCAT_HOME%\maildir

set JAVA_OPTS=-Xmx800M
set JAVA_OPTS=%JAVA_OPTS% -Djava.protocol.handler.pkgs=org.openmdx.kernel.url.protocol
set JAVA_OPTS=%JAVA_OPTS% -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager
set JAVA_OPTS=%JAVA_OPTS% -Dorg.opencrx.maildir=%TOMCAT_HOME%\maildir
set JAVA_OPTS=%JAVA_OPTS% -Dorg.opencrx.airsyncdir=%TOMCAT_HOME%\airsyncdir

set JAVA_OPTS=%JAVA_OPTS% -Dopencrx.CRX.jdbc.driverName="org.postgresql.Driver"
set JAVA_OPTS=%JAVA_OPTS% -Dopencrx.CRX.jdbc.url="jdbc:postgresql://localhost:5432/CRX_CRX"
set JAVA_OPTS=%JAVA_OPTS% -Dopencrx.CRX.jdbc.userName="system"
set JAVA_OPTS=%JAVA_OPTS% -Dopencrx.CRX.jdbc.password="manager"
REM JAVA_OPTS=%JAVA_OPTS% -Dorg.openmdx.persistence.jdbc.useLikeForOidMatching=false

catalina.bat run
```



- adapt **D:\apache-tomcat-6.0.26** to your environment
- adapt **D:\Java\jdk1.6.0** to your environment
- adapt the options related to the database connection to your environment (**driverName**, **url**, **userName**, and **password**)
- if you are using PostgreSQL and if you set up the database as proposed by us, you can also uncomment the JVM option **useLikeForOidMatching=false** for enhanced performance.

- **on Linux:** create the file **run.sh** with the following content in the Tomcat directory **TOMCAT\_HOME\bin**:

### Listing 3: The file run.sh

```
#!/bin/sh

export CATALINA_HOME=/opt/apache-tomcat-6.0.26
export JAVA_HOME=/opt/Java/jdk1.6.0
export JAVA_OPTS="-Xmx800M -XX:MaxPermSize=128m -Dtomcat.server.port=8005"
export JAVA_OPTS="$JAVA_OPTS -Djava.protocol.handler.pkgs=org.openmdx.kernel.url.protocol"
export JAVA_OPTS="$JAVA_OPTS -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager"
export JAVA_OPTS="$JAVA_OPTS -Dorg.opencrx.maildir=$CATALINA_HOME/maildir"
export JAVA_OPTS="$JAVA_OPTS -Dorg.opencrx.airsyncdir=$CATALINA_HOME/airsyncdir"
export JAVA_OPTS="$JAVA_OPTS -Dopencrx.CRX.jdbc.driverName=org.postgresql.Driver"
export JAVA_OPTS="$JAVA_OPTS -Dopencrx.CRX.jdbc.url=jdbc:postgresql://localhost:5432/CRX_CRX"
export JAVA_OPTS="$JAVA_OPTS -Dopencrx.CRX.jdbc.userName=system"
export JAVA_OPTS="$JAVA_OPTS -Dopencrx.CRX.jdbc.password=manager"

cd $CATALINA_HOME
rm -Rf temp
mkdir temp
rm -Rf work
./bin/catalina.sh run
```



- adapt **/opt/apache-tomcat-6.0.26** to your environment
- adapt **/opt/Java/jdk1.6.0** to your environment
- adapt the options related to the database connection to your environment (**driverName**, **url**, **userName**, and **password**)
- if you are using PostgreSQL and if you set up the database as proposed by us, you can also add the following JVM option for enhanced performance:
  - Dorg.openmdx.persistence.jdbc.useLikeForOidMatching=false

Next, we have to make a few changes to Tomcat's **server.xml**:

- open the file **TOMCAT\_HOME\conf\server.xml**
- look for the connector definition **<Connector port="8080" protocol="HTTP/1.1"** and add the option **URIEncoding="UTF-8"** so that the connector definition looks as shown below:

### Listing 4: Connector definition in server.xml

```
<Connector port="8080" protocol="HTTP/1.1"
  connectionTimeout="20000"
  redirectPort="8443"
  URIEncoding="UTF-8"
 />
```



Tomcat can create Apache-style access log files as follows: in the file **TOMCAT\_HOME\conf\server.xml**, look for the engine definition **<Engine name="Catalina" defaultHost="localhost">** and then add the following valve section just below:

### Listing 5: Access Log Valve in server.xml

```
...
<Engine name="Catalina" defaultHost="localhost">

<Valve className="org.apache.catalina.valves.AccessLogValve"
  directory="logs" prefix="combined_access_log."
  suffix=".txt" pattern="combined" resolveHosts="false" />
...
```

As a final step, you must activate security for the openCRX application.

- open the file `TOMCAT_HOME\conf\tomcat-users.xml` and add users and roles as follows:

*Listing 6: The file tomcat-users.xml*

```
<?xml version='1.0' encoding='utf-8'?>
<tomcat-users>
  <role rolename="OpenCrxAdministrator"/>
  <role rolename="OpenCrxUser"/>
  <role rolename="OpenCrxRoot"/>
  <role rolename="manager"/>
  <user username="admin-Root" password="admin-Root" roles="OpenCrxRoot"/>
  <user username="admin-Standard" password="admin-Standard" roles="OpenCrxAdministrator,OpenCrxUser"/>
  <user username="system" password="manager" roles="manager"/>
  <user username="guest" password="guest" roles="OpenCrxUser"/>
</tomcat-users>
```



adapt the passwords to your liking



We recommend that you stay with the file-based authentication for all users until you have finished installing openCRX. You avoid situations where you have to trouble-shoot multiple issues at the same time...



It is recommended that you stay with the file-based authentication for the user **admin-Root**. This simplifies the openCRX bootstrapping.



Just a quick reminder before you move on to starting Tomcat. Please remember to copy the **JDBC driver** appropriate for your database management system to the Tomcat directory `TOMCAT_HOME\lib` (refer to the relevant DB installation guide for additional information).

Optionally, you may want to adjust the Tomcat log level in the file `TOMCAT_HOME\conf\logging.properties` from FINE to SEVERE. Open this file and replace all occurrences of FINE with SEVERE and then save the file again.

## 4 Starting Tomcat

You are now ready to start Tomcat. Open a command shell and start run.bat (or run.sh on Linux). You should verify whether the start options match the ones described earlier:

### Listing 7: Tomcat console output

```
[14:26:35.95]D:\apache-tomcat-6.0.26\bin>run.bat
[14:26:37.71]D:\apache-tomcat-6.0.26\bin>set TOMCAT_HOME=P:\apache-tomcat-6.0.26
[14:26:37.71]D:\apache-tomcat-6.0.26\bin>set JAVA_HOME=D:\Java\jdk1.6.0
[14:26:37.71]D:\apache-tomcat-6.0.26\bin>RMDIR /S /Q P:\apache-tomcat-6.0.26\temp
[14:26:37.73]D:\apache-tomcat-6.0.26\bin>MKDIR P:\apache-tomcat-6.0.26\temp
[14:26:37.73]D:\apache-tomcat-6.0.26\bin>RMDIR /S /Q P:\apache-tomcat-6.0.26\work
[14:26:37.73]D:\apache-tomcat-6.0.26\bin>MKDIR P:\apache-tomcat-6.0.26\work
[14:26:37.74]D:\apache-tomcat-6.0.26\bin>REM RMDIR /S /Q P:\apache-tomcat-6.0.26\maildir
[14:26:37.87]D:\apache-tomcat-6.0.26\bin>set JAVA_OPTS=-Xmx800M
-Djava.protocol.handler.pkgs=org.openmdx.kernel.url.protocol
-Dorg.opencrx.maildir=P:\apache-tomcat-6.0.26\maildir
-Dorg.opencrx.airsyncdir=P:\apache-tomcat-6.0.26\airsyncdir
-rx.CRX.jdbc.url="jdbc:postgresql://localhost:5432/CRX_CRX"
-Dopencrx.CRX.jdbc.userName="system"
-Dopencrx.CRX.jdbc.password="manager"
-Dorg.openmdx.persistence.jdbc.useLikeForOidMatching=false
[14:26:37.87]D:\apache-tomcat-6.0.26\bin>catalina.bat run
Using CATALINA_BASE:   "D:\apache-tomcat-6.0.26"
Using CATALINA_HOME:   "D:\apache-tomcat-6.0.26"
Using CATALINA_TMPDIR: "D:\apache-tomcat-6.0.26\temp"
Using JRE_HOME:        "D:\Java\jdk1.6.0"
Using CLASSPATH:       "D:\apache-tomcat-6.0.26\bin\bootstrap.jar"
OpenEJB init-params:
Apache OpenEJB 3.1.2    build: 20091010-03:11
http://openejb.apache.org/
context path = /0-openmdx-openejb
context path = /host-manager
context path = /manager
context path = /docs
context path = /examples
context path =
```



Please note that as long as Tomcat reports errors/exceptions during this startup phase (no reason to worry about warnings, though) that are not related to the IMAP servlet (which cannot start properly with an empty database) you must investigate and fix them before you continue. You might want to inspect the log files in the Tomcat directory **TOMCAT\_HOME\logs** to find out what went wrong.

Once Tomcat starts without errors you are ready to continue with the initial setup of the openCRX application.

## 4.1 Initial Setup of openCRX Application

Connect to the login page of openCRX. The exact URL depends on your deployment details. For a standard openCRX deployment on Tomcat running on your local machine and listening at port 8080 the URL is

**<http://localhost:8080/opencrx-core-CRX/Login>**

You should see the openCRX Login page as follows:

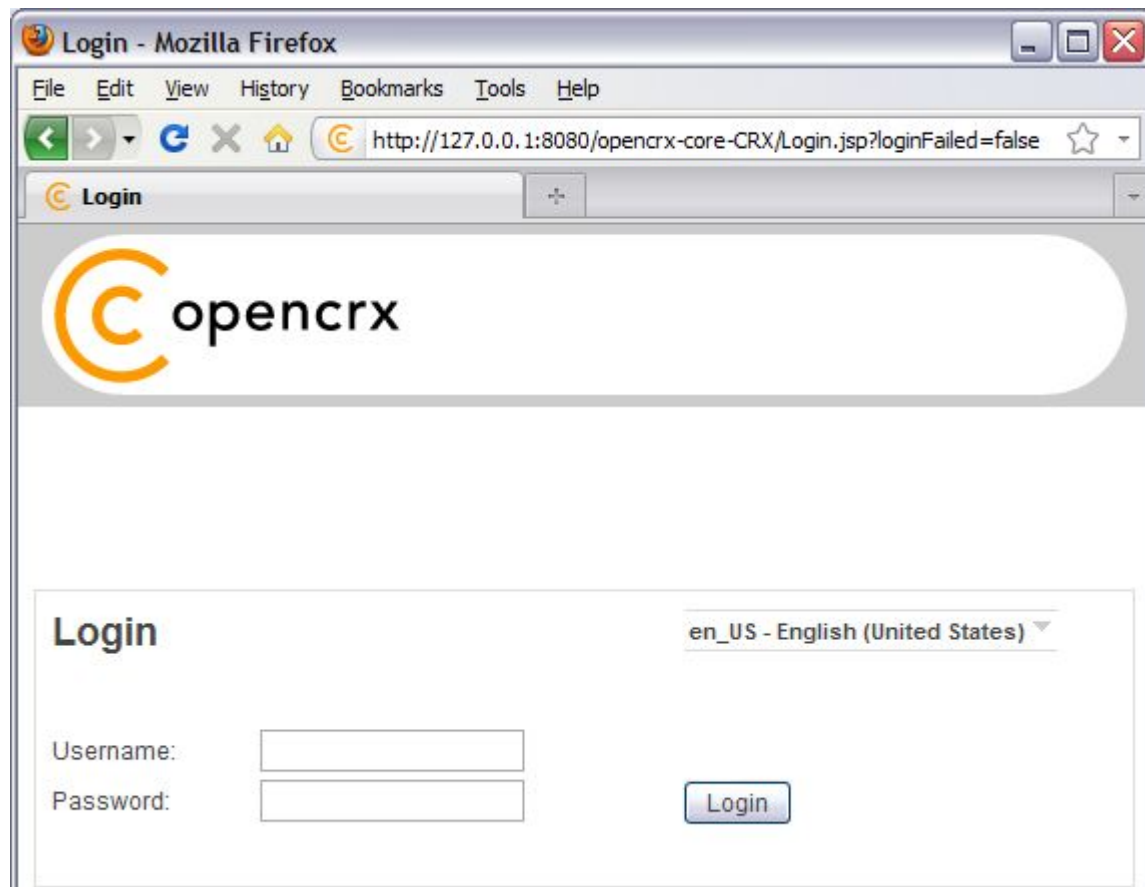


Figure 1: openCRX Login page



openCRX tries to determine the locale from your environment. You can change the locale at any time with the drop down on the login page. For information on how to directly load a locale-specific login page see <http://www.opencrx.org/faq.htm#login>

### 4.1.1 First Login as “admin-Root”

Enter **admin-Root** into the field *Username* and then enter **admin-Root** into the field *Password* (obviously, if you chose a different password when you created the file `tomcat-users.xml` you have to enter that password...):

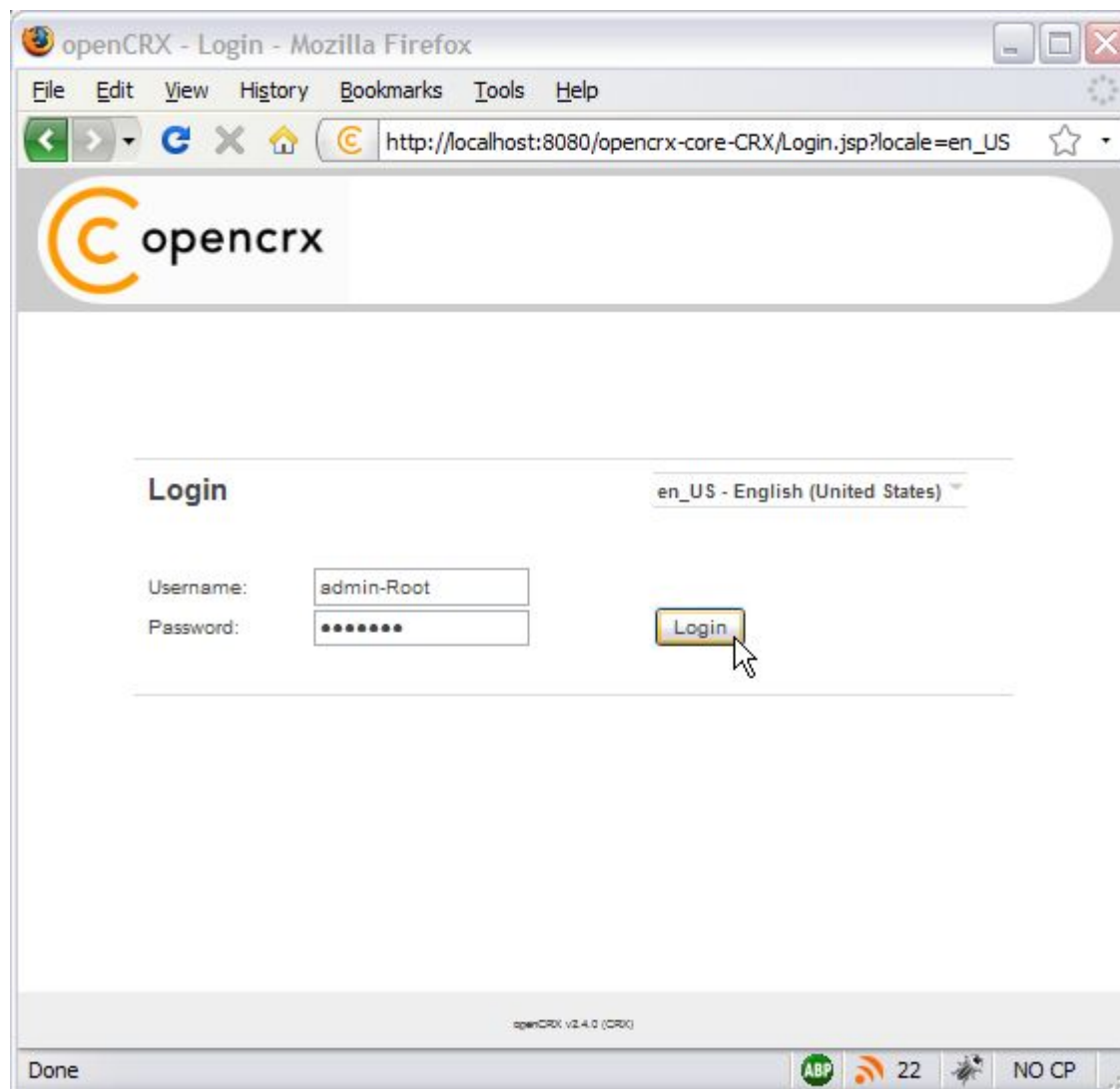


Figure 2: First login as admin-Root with password admin-Root

Click the button  to start the initialization process.



If you can't get past the login screen (with the correct Username and Password, of course) and the Warning “**Browser must accept cookies**” keeps showing up need to **verify your browser settings related to cookies**. If you have installed a **personal firewall** (e.g. ZoneAlarm, Comodo, etc.) you also need to verify the cookie settings of your firewall. **Tomcat must be able to create/set a session cookie.**



The openCRX servlet is initialized during this first login, i.e. don't stop/kill the browser if it takes a while. The application console output will look similar to the following listing:

*Listing 8: Console Output – Initialization of the openCRX servlet*

```
Tue Apr 20 15:08:42 CEST 2010 Starting web application "/opencrx-core-CRX"
Tue Apr 20 15:08:42 CEST 2010 Driven by openMDX/Portal. Revision: $Revision: 1.110 $
Tue Apr 20 15:08:42 CEST 2010 For more information see http://www.openmdx.org
Tue Apr 20 15:08:42 CEST 2010 Loading... (see log for more information)
Tue Apr 20 15:08:42 CEST 2010 Loading ui configuration...
Tue Apr 20 15:08:42 CEST 2010 Loading 2 files for locale en_US
...
Tue Apr 20 15:08:42 CEST 2010 Loading 1 files for locale ro_RO
Tue Apr 20 15:08:42 CEST 2010 Storing 41 ui elements for segment org::openmdx::uil/provider/CRX/segment/Advanced
Tue Apr 20 15:08:42 CEST 2010 Loading 77 files for locale en_US
...
Tue Apr 20 15:08:42 CEST 2010 Loading 68 files for locale ro_RO
Tue Apr 20 15:08:42 CEST 2010 Storing 3242 ui elements for segment org::openmdx::uil/provider/CRX/segment/Root
Tue Apr 20 15:08:42 CEST 2010 Done (2 segments)
Tue Apr 20 15:09:01 CEST 2010 Loading texts
Tue Apr 20 15:09:01 CEST 2010 Done
Tue Apr 20 15:09:01 CEST 2010 Loading layouts
Tue Apr 20 15:09:01 CEST 2010 Done (25 layouts)
Tue Apr 20 15:09:01 CEST 2010 Loading reports
Tue Apr 20 15:09:01 CEST 2010 Done (17 reports)
Tue Apr 20 15:09:02 CEST 2010 Loading wizards
Tue Apr 20 15:09:02 CEST 2010 Done (17 wizards)
Tue Apr 20 15:09:03 CEST 2010 Loading data
Tue Apr 20 15:09:03 CEST 2010 Loading 5 objects from /WEB-INF/config/bootstrap/Root/100_security_policy.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 2 objects from /WEB-INF/config/bootstrap/Root/101_security_subjects.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 10 objects from /WEB-INF/config/bootstrap/Root/102_security_realms.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 1 objects from
/WEB-INF/config/bootstrap/Root/103_security_authentication.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 1 objects from /WEB-INF/config/bootstrap/Root/200_code_segment.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 1 objects from /WEB-INF/config/bootstrap/Root/300_admin_segment.xml
Tue Apr 20 15:09:03 CEST 2010 Loading 0 objects from /WEB-INF/config/bootstrap/Standard/dummy.xml
Tue Apr 20 15:09:03 CEST 2010 Done
Tue Apr 20 15:09:10 CEST 2010 Loading /WEB-INF/config/filters/
Tue Apr 20 15:09:10 CEST 2010 Done (2802 filters)
```



**Warning**

If you see lots of error messages on the console and/or your log files grow very fast (several hundred KB if not more) then it is quite likely that your **DB connection** is not configured correctly. If your log file contains errors like **MEDIA\_ACCESS\_FAILURE** there is definitely something wrong with your DB connection (or your DB). Please note that there is absolutely no sense in continuing before you have fixed your DB connection. You might want to verify

- the spelling of the name of your database (including capitalization), e.g. `crx-CRX` vs. `CRX_CRX`
- user name (e.g. `system`) and password (e.g. `manager`)
- permissions of the user, etc.

After the successful startup of openCRX you see a screen similar to the one shown in the figure below. You should see the root objects Administration, Codes, Security Realm, Security Policies, and Security Subjects:

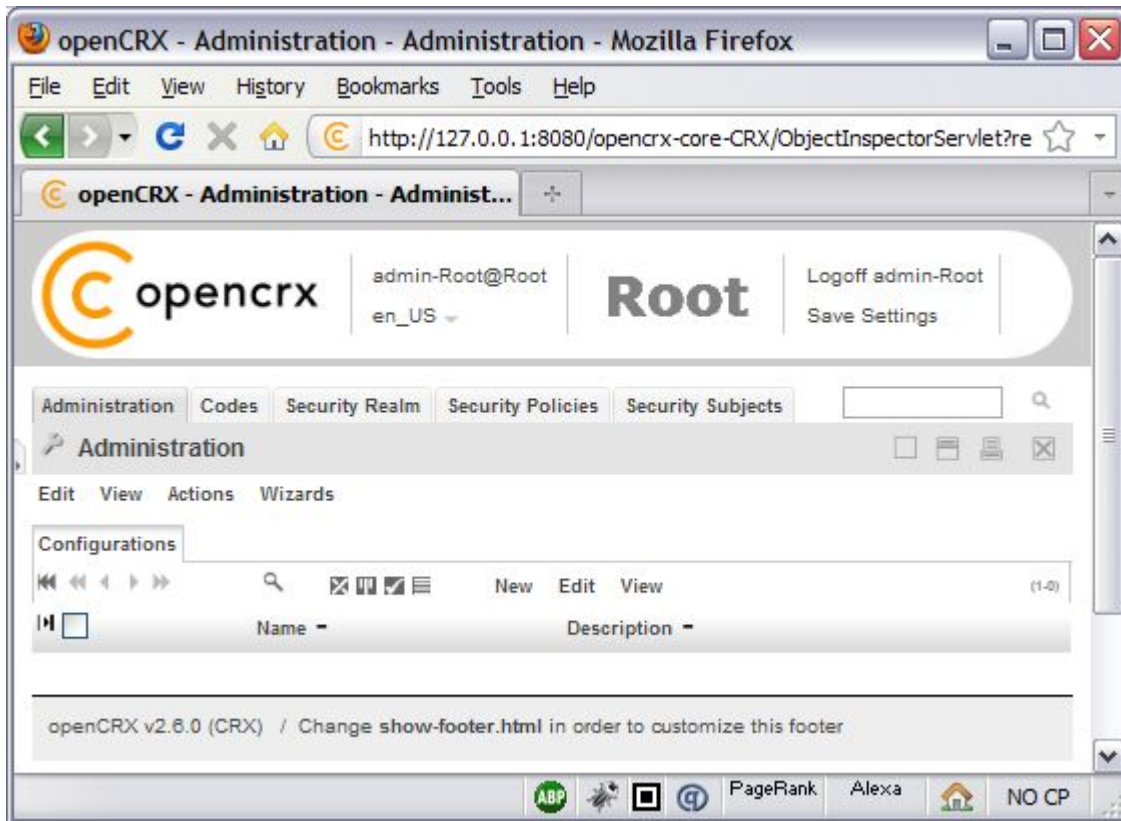


Figure 3: Start screen of admin-Root

## 4.1.2 Create Data Segment "Standard"

Execute the operation **Actions > Create Administrator** to create a new segment and selected default accounts (including an administrator's account which allows you to manage the newly created segment).

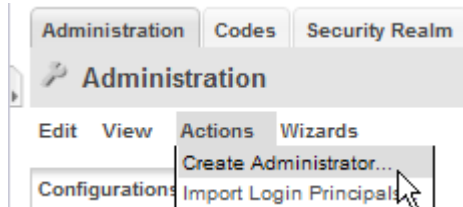


Figure 4: Create a new segment with Actions > Create Administrator

Set the field *Segment name* to **Standard**. Leave the field *Admin principal name* empty and set the fields *Initial password* and *Password again* to **admin-Standard** as shown in the figure below:

 A screenshot of a 'Create Administrator' dialog box. It has a title bar with a close button (X). Below the title bar is an 'Input' section with four text fields: 'Segment name:' containing 'Standard', 'Admin principal name:' which is empty, 'Initial password:' containing seven dots, and 'Password again:' containing seven dots. At the bottom right of the dialog are 'OK' and 'Cancel' buttons.

Figure 5: Create a new segment named Standard



Please verify the spelling/capitalization of the segment name: **Standard** (with a capital "S").

Next you click **OK** to create the segment **Standard** and the segment administrator **admin-Standard**. The result of executing this operation should look as follows (Status 0 indicates that there were no errors):



Figure 6: Result of operation Create Administrator

### 4.1.3 Import Codes and Data

openCRX is distributed with many code tables and several data files (e.g. unit of measurement information, activity management process). Code tables and data files must be imported from the provided XML files to make them available to openCRX. Execute the operation **View > Reload** and then click **OK** to start the import:

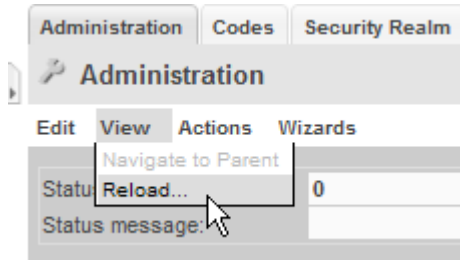


Figure 7: Load Code Tables and Data – Step 1

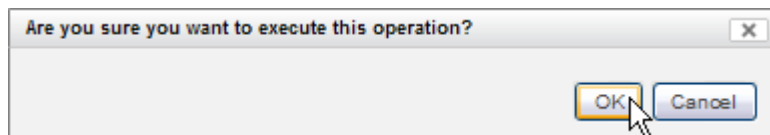


Figure 8: Load Code Tables and Data – Step 2

Please note that this operation takes some time to complete as thousands of objects are made persistent in your database during the import. The console output will look similar to the following listing:

Listing 9: Console Output – Importing Codes and Data

```

Wed Apr 21 15:04:25 CEST 2010 Loading codes
Wed Apr 21 15:04:25 CEST 2010 Storing 1708 code entries
...
Wed Apr 21 15:05:53 CEST 2010 Loading ui configuration...
Wed Apr 21 15:05:53 CEST 2010 Loading 2 files for locale en_US
...
Wed Apr 21 15:05:53 CEST 2010 Loading 1 files for locale ro_RO
Wed Apr 21 15:05:53 CEST 2010 Storing 41 ui elements for segment org::openmdx::uil/provider/CRX/segment/Advanced
Wed Apr 21 15:05:53 CEST 2010 Loading 77 files for locale en_US
...
Wed Apr 21 15:05:53 CEST 2010 Loading 68 files for locale ro_RO
Wed Apr 21 15:05:53 CEST 2010 Storing 3242 ui elements for segment org::openmdx::uil/provider/CRX/segment/Root
Wed Apr 21 15:05:53 CEST 2010 Done (2 segments)
  
```

### 4.1.4 Set Access Levels of Codes

Navigate to the package Codes by clicking on the tab **[Codes]**. Next we change the perspective from **Root** to **Advanced**:

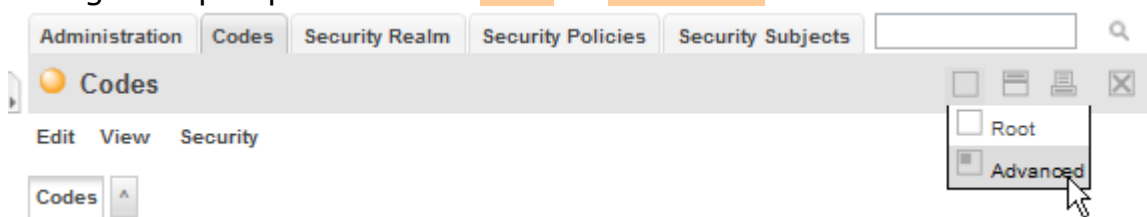


Figure 9: Change perspective from Root to Advanced

Execute the operation **Security > Set Access Level** as shown below:

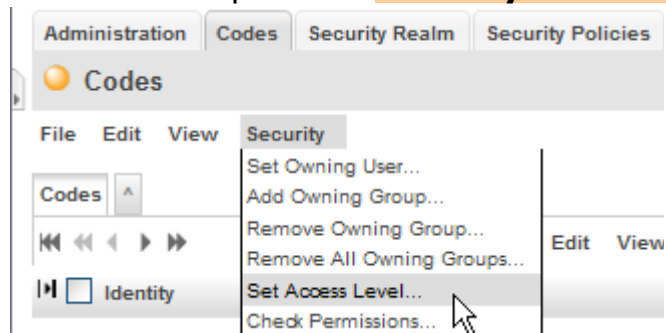


Figure 10: Execute Operation Security > Set Access Level

Set the parameters as shown below (i.e. 4, 3, 2, 1) and then click **OK**:

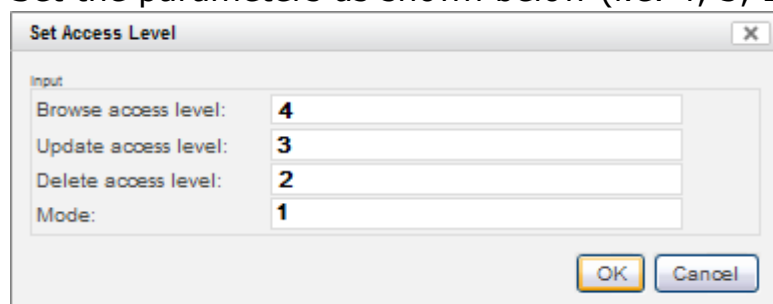


Figure 11: Parameters of Operation Set Access Level

Please note that this operation also takes a fair amount of time to complete:



Figure 12: Result of the Operation Set Access Level

The number in the status messages indicates the number of code values processed (you might get a different number, which is not a problem).

#### 4.1.5 Restarting Tomcat

Please stop Tomcat by typing <CTRL>-C into the command window.



In case you're starting Tomcat without the help of a batch file that cleans Tomcat's temp and work directories, it is strongly advised that you clean them by hand before you start Tomcat again!

On Windows you can start Tomcat by executing `TOMCAT_HOME\bin\run.bat`, on Linux you execute `TOMCAT_HOME\bin\run.sh`.

## 4.2 Initial Setup of Segment "Standard"

Once Tomcat is up and running again, we configure the new segment and create a new user **guest**.

### 4.2.1 First Login as "admin-Standard"

Connect to the login page of openCRX. The exact URL depends on your deployment details. For a standard openCRX deployment to JBoss running on your local machine and listening at port 8080 the URL is

**<http://localhost:8080/opencrx-core-CRX/Login.jsp>**

You should see the openCRX Login page. Enter **admin-Standard** into the field *Username* and then enter **admin-Standard** into the field *Password* (you may have chosen a different password, i.e. enter the password you chose when you created the segment):

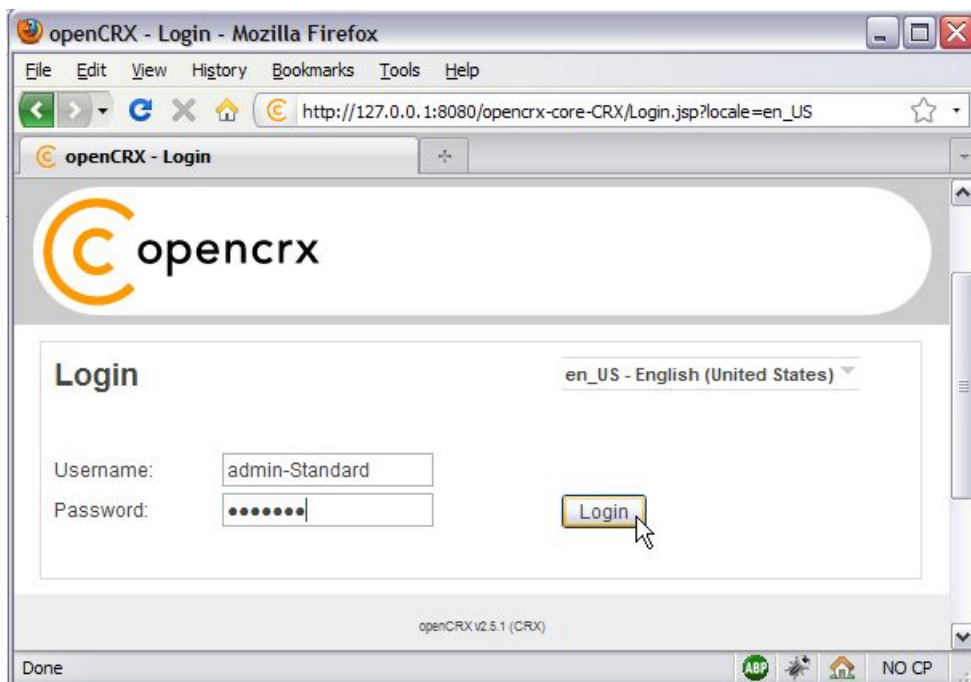


Figure 13: First login with admin-Standard / opencrx

Click the button **Login** to start the login process.

The ObjectInspectorServlet is initialized during this first login after restarting Tomcat, i.e. don't stop/kill the browser if it takes a while.

## 4.2.2 Configure Segment "Standard"

Once the admin-Standard's homepage is displayed, start the wizard Segment Setup. Select the menu **Wizards > Segment Setup** as shown below:

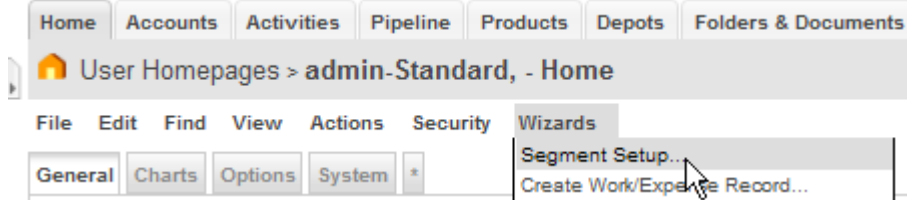


Figure 14: As admin-Standard start the wizard Segment Setup

This wizard verifies all the default objects of a segment. Running it on a newly created segments results in a lot of red crosses. Click the button **[Setup]** and the wizard will create all the missing objects (the red crosses will change to green check marks as shown below):

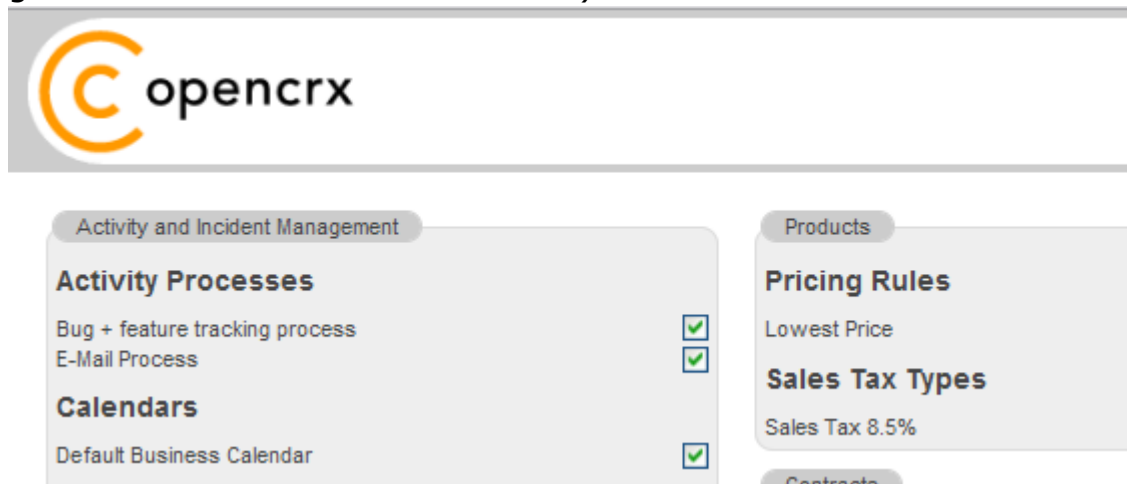


Figure 15: Wizard Segment Setup - properly configured Segment

Click on the button **[Cancel]** to leave the wizard and return to the homepage of the user admin-Standard.

## 4.2.3 Create a new Contact "guest"

Refresh the homepage of the user admin-Standard by clicking on the icon as show below:

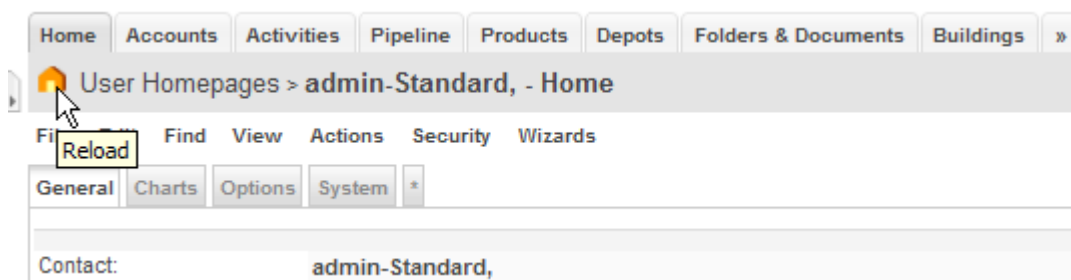


Figure 16: Refresh homepage of user admin-Standard

Hover your mouse over the fly-in tab to show the following menu:

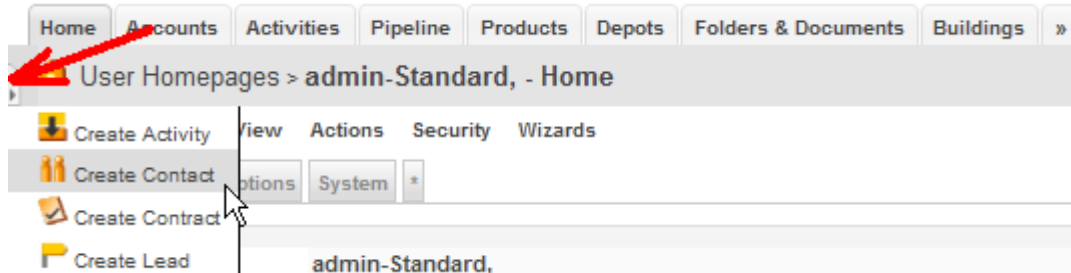


Figure 17: Fly-in menu

Choose the entry **Create Contact** and click on it.

You will see an empty form ready to be populated with the data of our new user guest. At a minimum you must provide a last name, e.g. **guest** as shown below:

Figure 18: New contact guest – step 1

Next you click on the button [**Search**]. openCRX will verify that you don't already have a user with the same last name (but as we are working with a new/empty database this search doesn't bring up anything, of course).

Now you can create the new contact by clicking on the button [**New Contact**]:

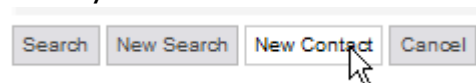


Figure 19: New contact guest – step 2

As we don't want to create activities, leads or any other objects for our new contact, we now click [**Cancel**] to leave the wizard:

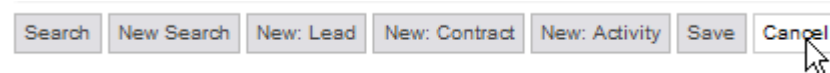


Figure 20: New contact guest – step 3

openCRX takes us first back to the Accounts grid and then right on to the newly created Contact guest:



The screenshot shows the 'Accounts > guest, - Contact' page. The 'General' tab is selected, displaying a form for a person's contact information. The 'Last Name' field is filled with 'guest' and the 'Alias name' field is filled with 'A00000000'. Other fields like 'Salutation code', 'First Name', 'Middle Name', 'Suffix', 'Nick Name', and 'Phone business' are empty or set to 'N/A'. There are also fields for 'Phone mobile', 'Phone home', 'Phone other', 'E-mail business', 'E-mail home', 'E-mail other', and 'Web page home'.

Figure 21: New contact guest – step 4

#### 4.2.4 Create a new User “guest”

Click on the (hidden) tab [**User Homepages**]:

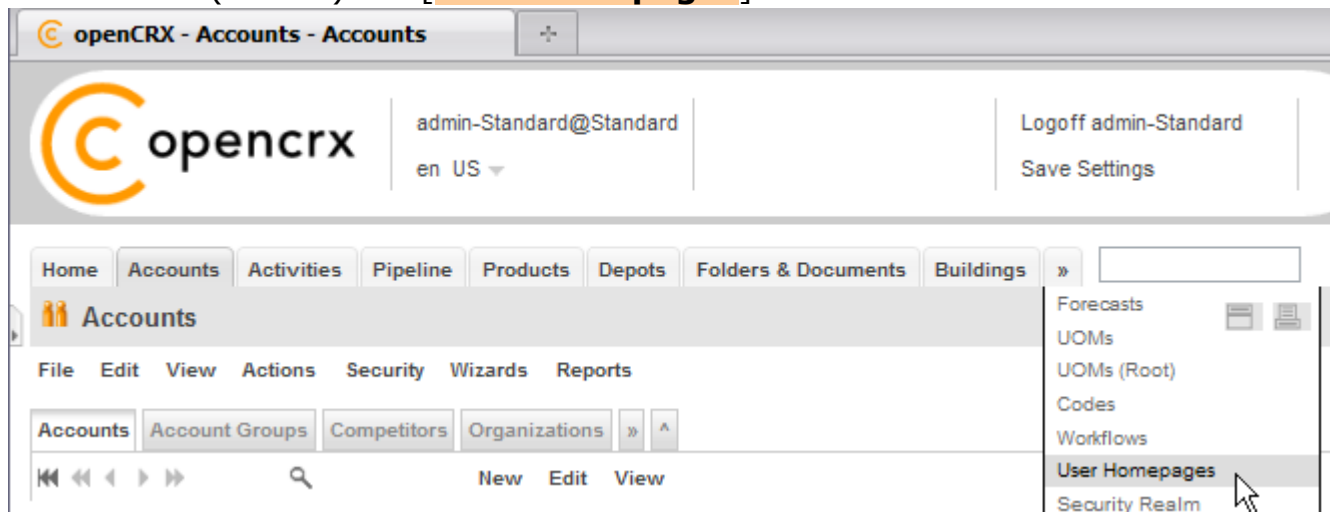


Figure 22: New user guest – step 1

Next you select the operation **Actions > Create User...** which allows you to create and initialize a new user:

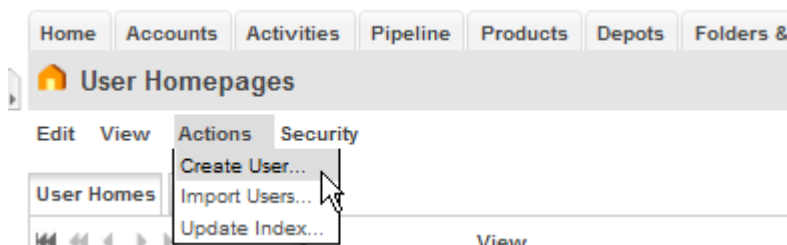


Figure 23: New user guest – step 2

Set the fields to the values as shown below – type **guest** into the field *Principal name*, use the Lookup Inspector or the auto-completer to fetch the *Contact guest*, leave and *Primary user group* empty and then type a password

(e.g. **guest**) into the fields *Initial password* and *Password again*. Note that you must either fetch values with the Lookup Inspector or select entries from the auto-completer's drop down menu for the fields *Contact* and *Primary user group*, i.e. it is not sufficient to just type some text into these fields):

Figure 24: New user guest – step 3

Status 0 indicates that the user guest was created without errors:

Status:	0
Status message:	
Created UserHome:	guest, [Edit]

Figure 25: New user guest – step 4

Next we navigate to the homepage of the newly created user guest by clicking on the icon as show below:

Contact	Primary User Group	E-mail subject prefix	Web access URL	Store
admin-Standard,		[CRX:Standard]		<input checked="" type="checkbox"/>
guest,	guest.Group	[CRX:Standard]		<input checked="" type="checkbox"/>

Figure 26: New user guest – step 5

Please note that we are still logged in as admin-Standard (as shown in the header of the application), but we are looking at the homepage of the user guest. Select the operation **Edit > User Settings** and click on it:

Figure 27: New user guest – step 6

This will start the wizard User Settings. You can configure various settings with this wizard. At a minimum you should probably set the **timezone** and enter the new user's **e-mail address**. Once you're done you can click the button

[**Apply**]. The wizard will then create a bunch of objects and finalize the initialization of the user guest from the administrators point of view:

User Home	
Timezone:	Europe/Zurich
Store settings on logoff:	<input checked="" type="checkbox"/>
Email:	guest@mycompany.com
Sendmail subject prefix:	[CRX:Standard]
Web access URL:	http://127.0.0.1:8080/open-crx-core-CRX

Root Menu	
	Is Active:
Accounts:	<input checked="" type="checkbox"/>
Activities:	<input checked="" type="checkbox"/>
Pipeline:	<input checked="" type="checkbox"/>
Products:	<input checked="" type="checkbox"/>
Depots:	<input type="checkbox"/>
Folders & Documents:	<input checked="" type="checkbox"/>
Buildings:	<input type="checkbox"/>
Forecasts:	<input type="checkbox"/>
UOMs:	<input type="checkbox"/>
UOMs (Root):	<input checked="" type="checkbox"/>
Codes:	<input type="checkbox"/>
Workflows:	<input type="checkbox"/>
User Homepages:	<input type="checkbox"/>
Security Realm:	<input type="checkbox"/>
Show max items in top navigation:	8
Show top navigation sub-levels:	<input checked="" type="checkbox"/>

Subscriptions				
	Is Active	Creation	Replacement	Removal
Account	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Follow Up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Booking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Booking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invoice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opportunity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Organization	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quote	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SalesOrder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Modifications:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply Cancel

Figure 28: New user guest – step 7

Click [**Cancel**] to leave the wizard and then logoff as admin-Standard.



The wizard User Settings created a user group **<username>.Group**, in our case **guest.Group**. The primary user group of our user guest was automatically set to this new user group guest.Group.

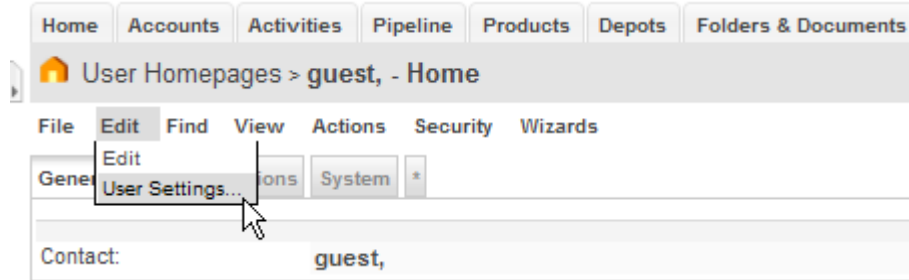
If you want to change the primary user group to anything else or if you ever must reset a user (lost password, etc.), you can re-execute the operation **Create User** as admin-Standard at any time.

If you want to reset a user without changing the user's password, you can simply leave the password fields empty when recreating the user.

#### 4.2.5 Login as "guest" / User Settings

Let's verify whether our new user guest can actually login. Enter **guest** into the field *username*, **guest** into the field *password*, and then click [**Login**].

Select the operation **Edit > User Settings** and click on it:



*Figure 29: New user guest – step 8*

This will start the wizard User Settings. You can configure various settings with this wizard. Adjust the settings as you like. Once you're done you can click the button [**Apply**]. The wizard will then create a bunch of objects and finalize the initialization of the user guest.

That's it – you have successfully completed the installation and initialization of openCRX and you have also created a user guest.

## 5 Next Steps

As a final step, you should remove the entries for admin-Standard and guest from tomcat-users.xml (authentication will then be based on the information stored in the database).

- open the file `TOMCAT_HOME\conf\tomcat-users.xml` and comment out users and roles as follows:

*Listing 10: The file tomcat-users.xml*

```
<?xml version='1.0' encoding='utf-8'?>
<tomcat-users>
  <role rolename="OpenCrxAdministrator"/>
  <role rolename="OpenCrxUser"/>
  <role rolename="OpenCrxRoot"/>
  <role rolename="manager"/>
  <user username="admin-Root" password="admin-Root" roles="OpenCrxRoot"/>
<!--
  <user username="admin-Standard" password="admin-Standard" roles="OpenCrxAdministrator,OpenCrxUser"/>
  <user username="guest" password="guest" roles="OpenCrxUser"/>
-->
  <user username="system" password="manager" roles="manager"/>
</tomcat-users>
```



It is recommended that you stay with the file-based authentication for the user **admin-Root**.

Now that you have successfully installed and configured openCRX you might want to have a look at some of the additional documentation published at <http://www.opencrx.org/documents.htm>.