

openCRX Installation Guide for WebSphere 5

Version 1.5.0

www.opencrx.org

openCRX Installation Guide for WebSphere 5: Version 1.5.0

by www.opencrx.org

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Chapter 1. About this Book

openCRX is the leading open source CRM tool. *openCRX* is based on the *openMDX [02]* application framework, an open source application framework based on the OMG's model driven architecture (MDA) standards. This guarantees maximum openness, standards compliance and a state-of-the-art component-based architecture.

Who this book is for

This book describes the installation of *openCRX* for *WebSphere 5.x*. The intended audience are *openCRX* and application server system administrators.

What do you need to understand this book

The book assumes that you are familiar with *WebSphere* deployment concepts and administration.

Chapter 2. Prerequisites

As a first step select the *openCRX* version you want to install. Based on the published *version compatibility information* (<http://www.opencrx.org/faq.htm#versioncompatibility>) you can determine the appropriate versions of *openMDX* and *WebSphere*.

- Purchase/Install **WebSphere 5.x** (we have tested openCRX on WebSphere 5.0 and 5.1)
- Download **openMDX** from *here* (http://sourceforge.net/project/showfiles.php?group_id=75132).
- Download **openCRX** from *here* (http://sourceforge.net/project/showfiles.php?group_id=95219).



Important *WebSphere 5.0* comes with *JRE-1.3*, whereas *WebSphere 5.1* with *JRE-1.4*. Download the appropriate version of *openCRX* and *openMDX*. E.g. for *WebSphere v5.0* you must download the *openCRX* distribution for *jre-1.3* (e.g. *opencrx-1.4.0-core.CRX.jre-1.3.zip*), for *WebSphere 5.1* you must download the version for *jre-1.4* (e.g. *opencrx-1.5.0-core.CRX.jre-1.4.zip*).

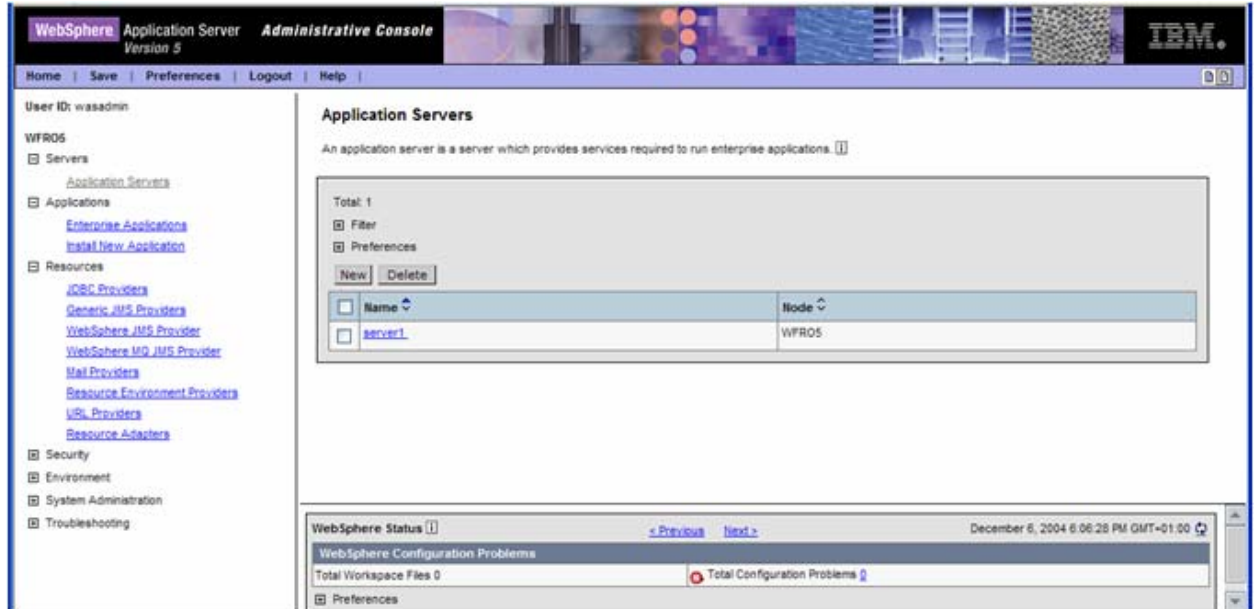


Important As a first step you must install the database as described in the database distribution. If you have successfully installed the database you are ready to continue with the *WebSphere* setup.

Chapter 3. Installing openCRX for WebSphere

In a first step you must install *WebSphere*. You should be able to start and stop *WebSphere* and launch the *WebSphere Administrative Console* as shown in *Figure 3-1*.

Figure 3-1. Launch the WebSphere Administrative Console.



The *openCRX* installation requires the following steps:

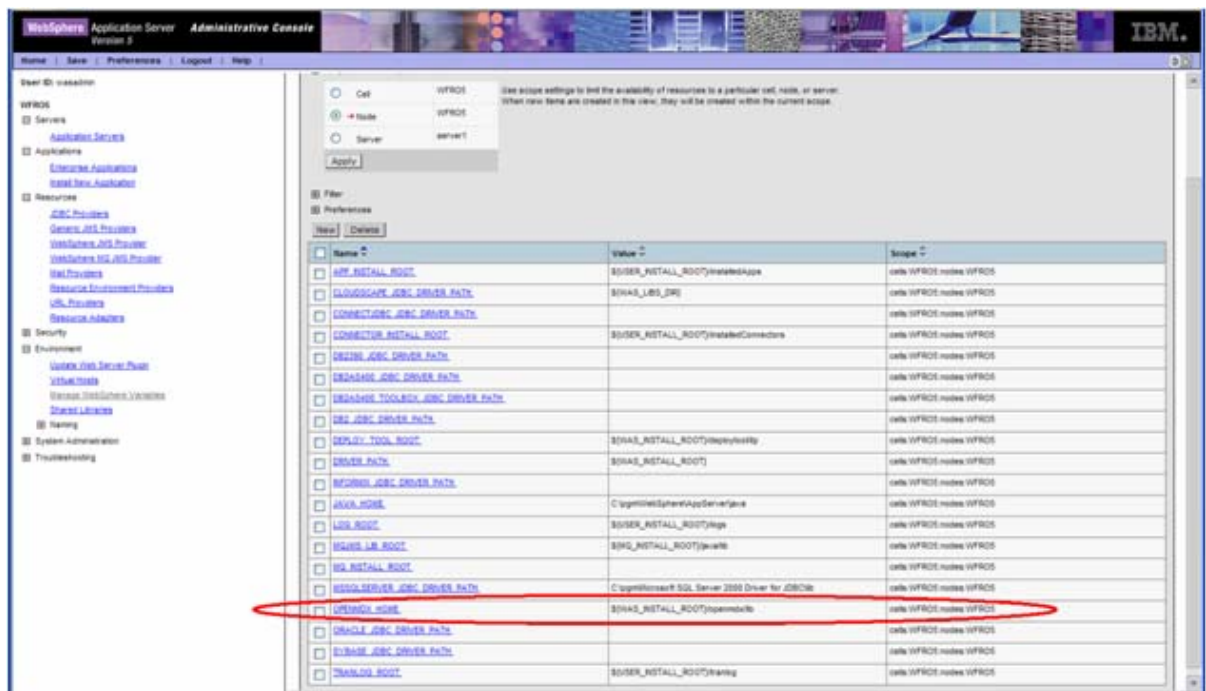
- Configure properties for the Java Virtual Machine required by *openCRX* and *openMDX*.
- Create and configure the datasource to access the *openCRX* database.
- Enable *WebSphere* security.
- Deploy the *openCRX* application enterprise archives.
- Start and test *openCRX*

Chapter 4. Installing Libraries

As a first step you must install the *openMDX* and the database libraries and make them available to *WebSphere*. You can do this by navigating to *Environment > Manage WebSphere Variables*.

- **openMDX.** Add a new variable by clicking new and add the entry with name *OPENMDX_HOME* and value *\${WAS_INSTALL_ROOT}/openmdx/lib* as shown in *Figure 4-1*
- **Database.** For most databases there already exist corresponding environment variables. However, the value must be adapted to your environment. E.g. the *Jdbc driver for Microsoft SQL Server 2000* should have the name *MSSQLSERVER_JDBC_DRIVER_PATH* and e.g. the value *C:\pgm\Microsoft SQL Server 2000 Driver for JDBC\lib*.

Figure 4-1. Add *OPENMDX_HOME* as *WebSphere* variable.



So far you only have created the environment variables. You now must copy the required libraries to the directories that you have configured, e.g.

- **openMDX – Step 1.** Copy the libraries *openmdx-kernel.jar*, *openmdx-base.jar* and *openmdx-application.jar* to the directory *OPENMDX_HOME*, e.g. *C:\pgm\WebSphere\AppServer\openmdx\lib*. Create the directory if it does not exist.
- **openMDX – Step 2.** Copy the library *openmdx-kernel.jar* to the directory *WebSphere\AppServer\lib\ext*. The library is required by the *WebSphere* RMIC compiler when you deploy the EARs.
- **Database.** Copy the libraries *msbase.jar*, *mssqlserver.jar*, *msutil.jar* to the directory *MSSQLSERVER_JDBC_DRIVER_PATH*, e.g. *C:\pgm\Microsoft SQL Server 2000 Driver for JDBC\lib*.

Save the changes you have made so far.

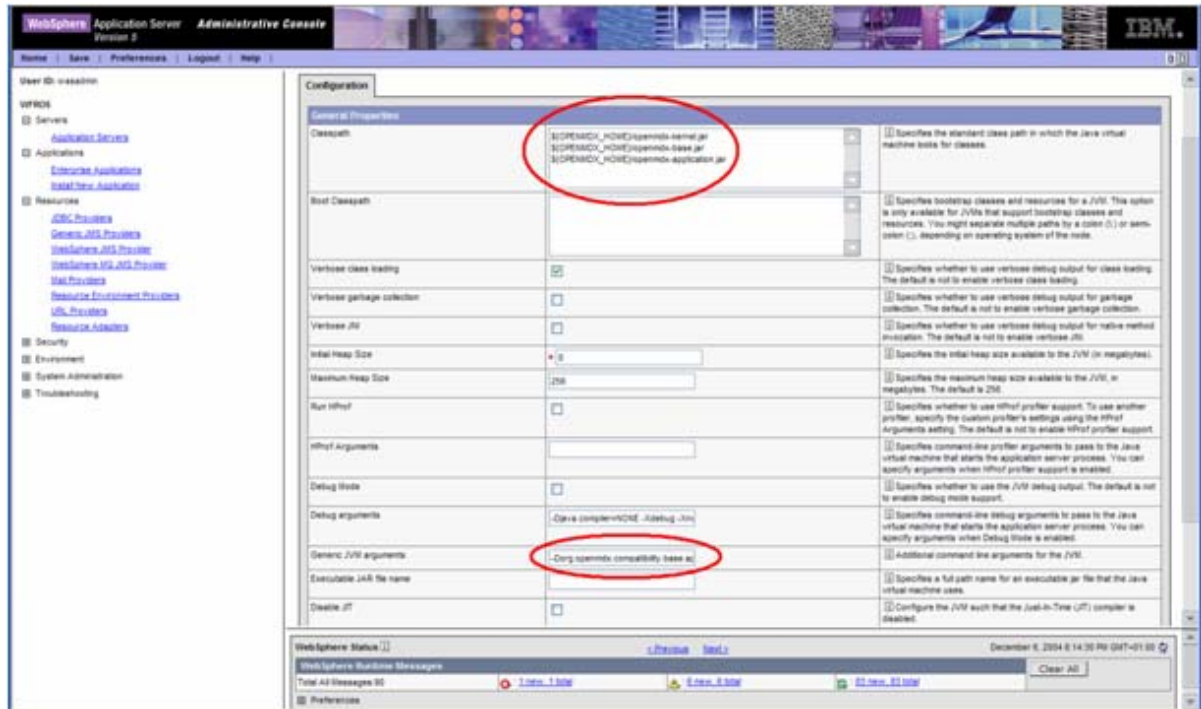


Important Make sure that you copy the library *openmdx-kernel.jar* to the directory *WebSphere\AppServer\lib\ext*. Otherwise the deployment of the *openCRX* applications will fail.

Chapter 5. Configuring the Java Virtual Machine

Now you must add some options to the Java Virtual Machine configuration. Navigate to *Application Servers > server1 > Process Definition > Java Virtual Machine* as shown in *Figure 5-1*.

Figure 5-1. Configure the Java Virtual Machine.



You must configure the following options:

- **Classpath.** All *openMDX* libraries must be added to the classpath. You can use the environment variables you have configured in the previous step. Add the entries
 - `${OPENMDX_HOME}/openmdx-kernel.jar`
 - `${OPENMDX_HOME}/openmdx-base.jar`
 - `${OPENMDX_HOME}/openmdx-application.jar`
- **Generic JVM arguments.** Add the following options:
 - `-Dorg.openmdx.compatibility.base.application.j2ee.domain=apps`
 - `-Dorg.openmdx.compatibility.base.application.j2ee.server=server1`
 - `-Djava.protocol.handler.pkgs=org.openmdx.kernel.url.protocol`
 - `-Dorg.openmdx.log.config.filename=C:\pgm\WebSphere\AppServer\server1.log.properties`
 - `-Dmail.SSLSocketFactory.class=org.openmxcx.kernel.mail.SendMailSSLSocketFactory`
- Create the file `C:\pgm\WebSphere\AppServer\server1.log.properties` using a text editor with the following content.

Example 5-1. listing of server.log.properties.

```
ApplicationId = openmxcx-server1
LogFileExtension = log
LogFilePath = C:/pgm/WebSphere/AppServer/logs/
LogLevel = warning
java.LoggingMechanism = SharedDatedFileLoggingMechanism
```



Important Adapt `C:/pgm/WebSphere/AppServer` to your environment!

Save the modifications you have made so far.



Important Before you continue you must restart (stop and start) *WebSphere*. The newly configured libraries and environment variables only become active after restarting *WebSphere*.



Important *WebSphere 5.1* requires an additional step: the Java security policy must be extended. Open the file `C:/pgm/WebSphere/AppServer/java/jre/lib/security/java.policy` with a text editor and add the lines listed below:

Example 5-2. extend the Java security policy

```
grant codeBase "file:/C:/pgm/WebSphere/AppServer/openmdx/lib/*" {  
    permission java.security.AllPermission;  
};
```

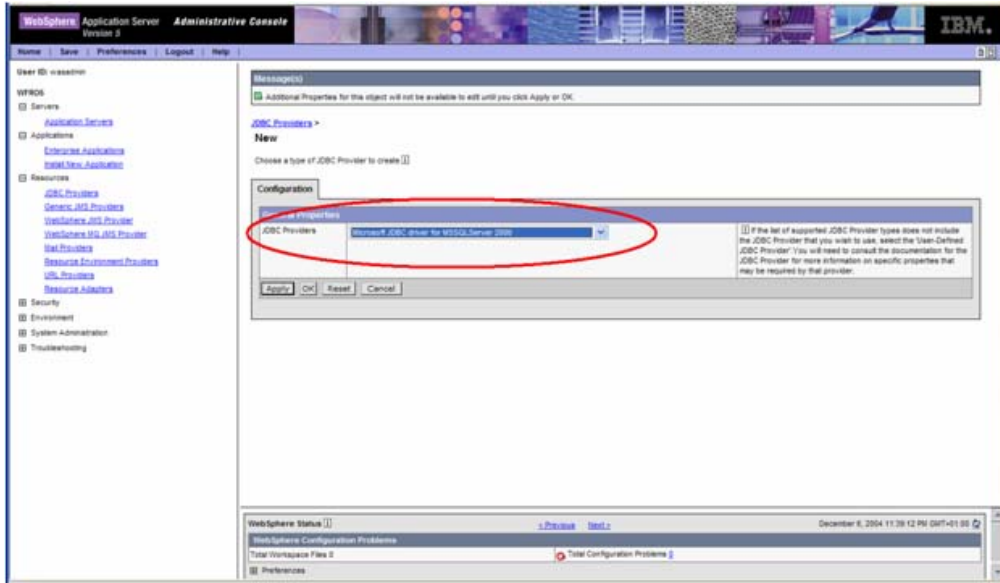
This allows the openMDX libraries to access Java system properties.

Chapter 6. Configuring the Datasource

The *openCRX* application requires the configuration of a Jdbc datasource to connect to the *openCRX* database. You can do this as follows:

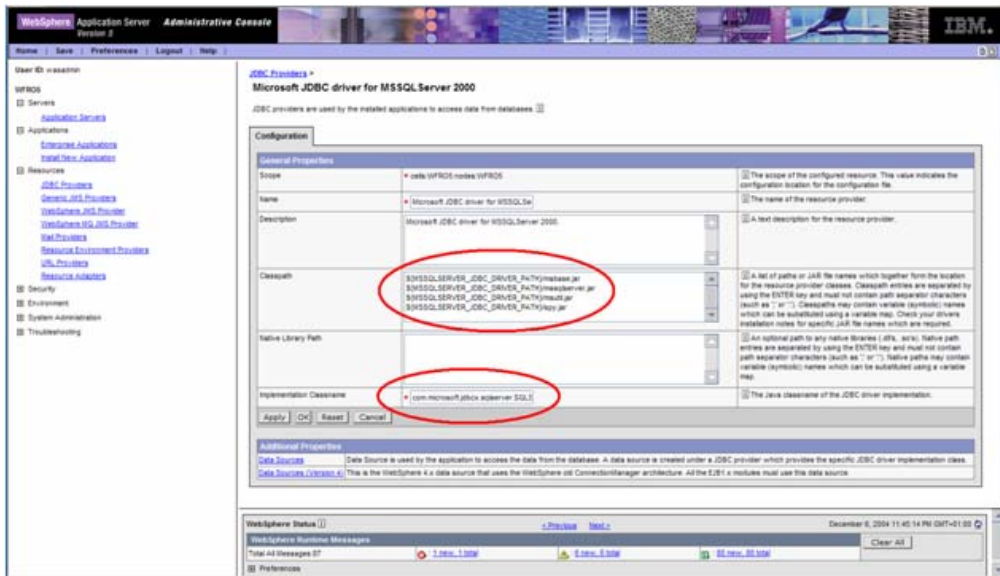
Navigate to *Resources > Jdbc Providers* and select the Jdbc driver which matches the database where you installed the *openCRX* database schema, e.g. *Microsoft JDBC Driver for MSSQL Server 2000* as shown in *Figure 6-1*.

Figure 6-1. Select the JDBC database driver.



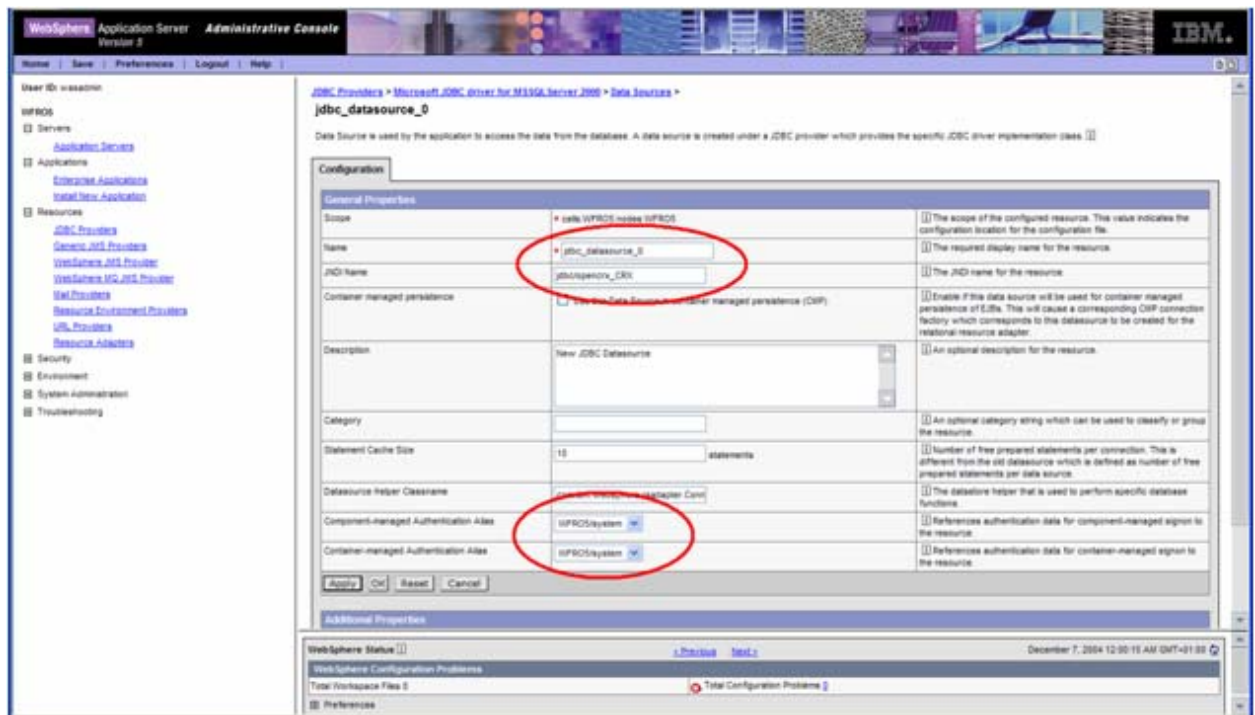
Verify whether the default values match the environment variables and library names which you have configured in *Installing Libraries*. E.g. for *SQL Server 2000* the library files are *msbase.jar*, *mssqlserver.jar*, *msutil.jar* and the implementation class name is *com.microsoft.jdbc.sqlserver.SQLServerDataSource*. Also verify the values with your Jdbc driver documentation.

Figure 6-2. Configure the libraries of the JDBC database driver.



As next step you must create a datasource. Select *Additional Properties > DataSources* and then select *New*. Enter the values as shown on *Figure 6-3*.

Figure 6-3. Configure the datasource.



You must at least set the values for the following fields:

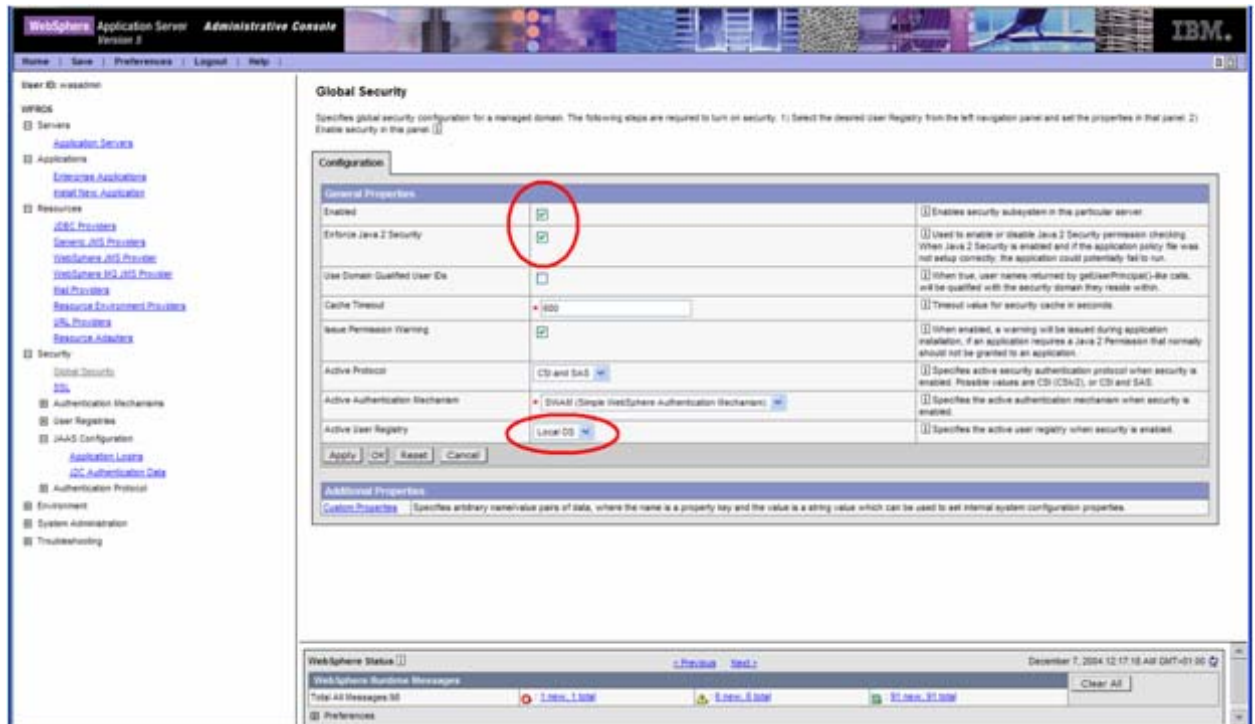
- **Name.** *jdbc_datasource_0*.
- **JNDI Name.** *jdbc/opencrx_CRX*.
- **Component-managed Authentication Alias.** Select a principal from the drop down which allows you to login to the database. You can add *J2C Authentication Principals* under *Security > JAAS Configuration > J2C Authentication Data*. Make sure that you enter a valid *UserId* and *Password*, otherwise *WebSphere* is not able to establish a connection to the *openCRX* database and the startup of *openCRX* will fail.
- **Container-managed Authentication Alias.** Select a principal from the drop down which allows you to login to the database. You can add *J2C Authentication Principals* under *Security > JAAS Configuration > J2C Authentication Data*. Make sure that you enter a valid *UserId* and *Password*, otherwise *WebSphere* is not able to establish a connection to the *openCRX* database.

Chapter 7. Enabling WebSphere Security

openCRX requires that each user is properly authenticated. This allows *openCRX* to correlate a session to user-specific application data and to perform access control. *openCRX* does not support non-authenticated sessions. User authentication must be activated in WebSphere as follows:

- Select *Security > Global Security* and check the boxes *Enabled* and *Enforce Java 2 Security* as shown in *Figure 7-1*.
- Set *Active User Registry* to *Local OS* or to another registry listed in the drop down. *Local OS* makes the all users and groups defined by the operating systems available as *WebSphere* users and groups.
- After clicking OK *WebSphere* requires that you enter a *Server User ID* and *Server User Password* under *Security > User Registries > Local OS*. When security is turned on, the *WebSphere* process will run under this operating system user. Typical values are *wasadmin*, *<wasadmin password>*. Under *Windows* the user must be in the *Administrator's* group.

Figure 7-1. Enable WebSphere security.



Save the changes you have made so far. Shut down and restart *WebSphere*.



Important Because security is now turned on you must provide the *startServer* command with the configured server user and password, e.g. *startServer server1 -username wasadmin -password <wasadmin password>*. Otherwise *WebSphere* will not start.

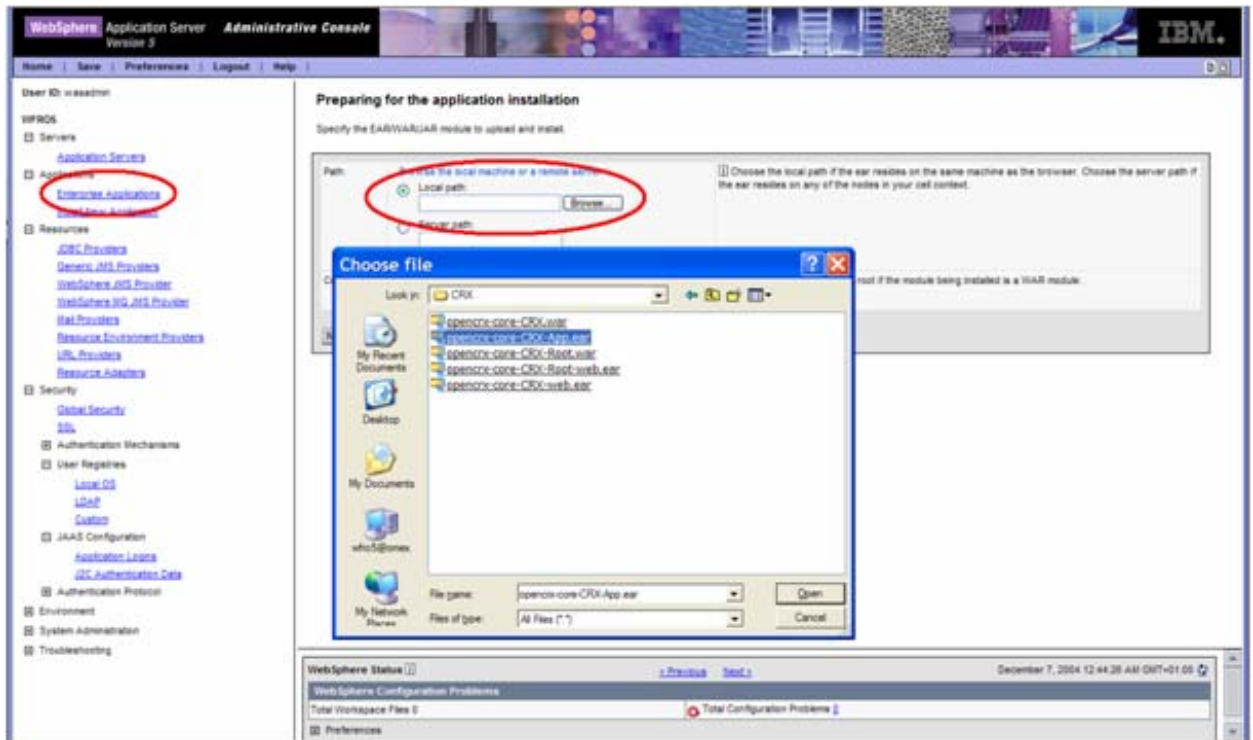
Chapter 8. Deploying openCRX

openCRX comes with three enterprise application archives (EAR):

- **opencrx-core-CRX-App.ear**. contains the *openCRX* server components, i.e. Enterprise Java Beans.
- **opencrx-core-CRX-web.ear**. contains the web application for standard *openCRX* users.
- **opencrx-core-CRX-Root-web.ear**. Contains the web application for root *openCRX* users.

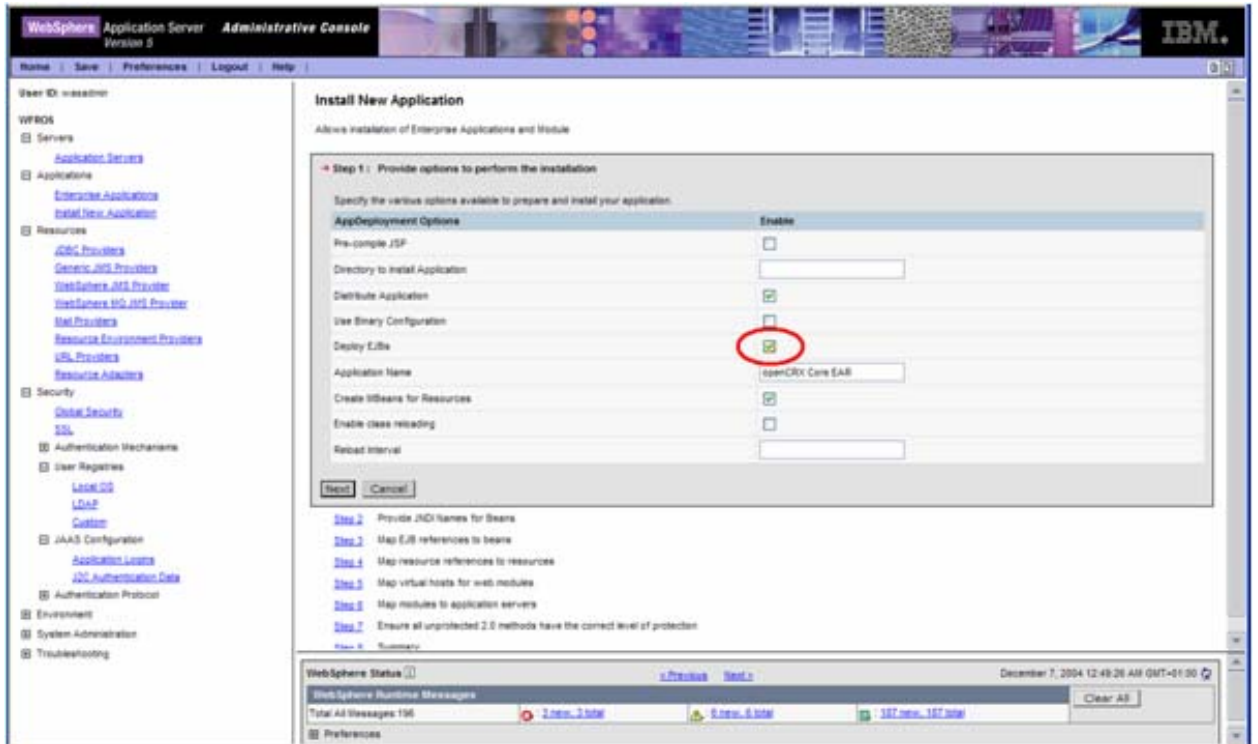
In a first step you deploy *opencrx-core-CRX-App.ear*. Select *Applications > Enterprise Applications* and then click the Browse button to select the EAR file as shown in *Figure 8-1*.

Figure 8-1. Deploy the opencrx-core-CRX-App application enterprise archive.



You can skip all screens and leave the default values until you reach *Step 1: Provide options to perform the installation* as shown in *Figure 8-2*. Check the box *Deploy EJBs*. This generates the RMI stubs for all EJBs contained in the EAR.

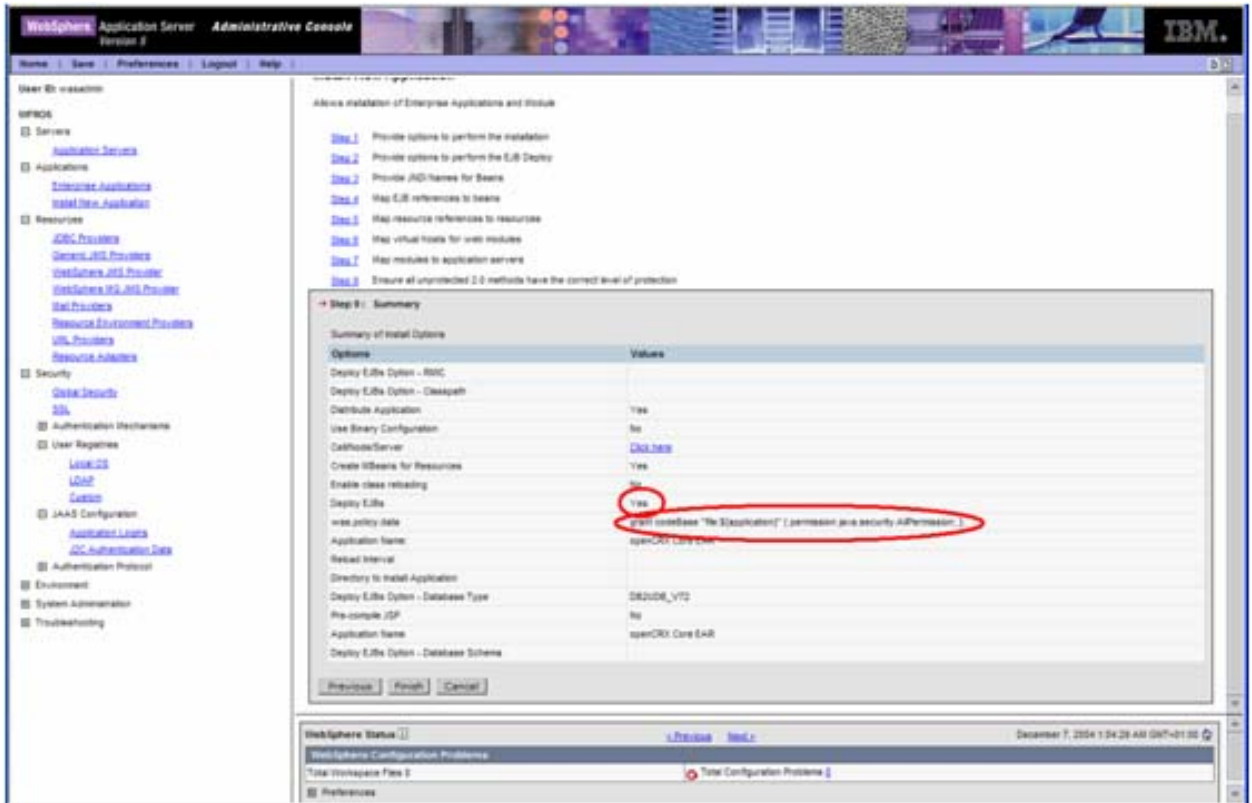
Figure 8-2. Select Deploy EJBs.



Important If you do not check *Deploy EJBs*, *WebSphere* will not find the stubs in the EAR and will not be able to start *openCRX*.

You can skip all steps and leave the default values until you reach the final step *Step 9: Summary* as shown in *Figure 8-3*. Verify the values and then click finish.

Figure 8-3. Verify the deployment settings.



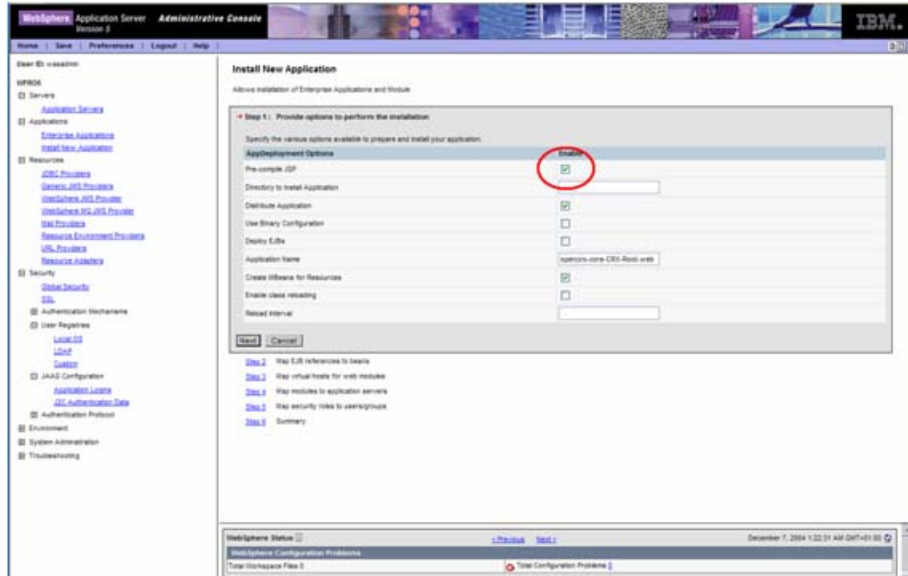
Important The deployment process should pass without any errors and warnings. If the deployment process fails you have probably not copied *openmdx-kernel.jar* to the directory *WebSphere\AppServer\lib\ext* as described in *Installing Libraries*.

The installed application should now appear in *Applications > Enterprise Applications* as *openCRX Core EAR*. Check the application and click *Start*.

As next step you must install the web applications *openCRX-core-CRX-web.ear* and *openCRX-core-CRX-Root-web.ear*. The process is the same as described previously for the *openCRX-core-CRX-App.ear*. However, there are a few differences in *Step 1* and *Step 5*.

In *Step 1* you must select the option *Pre-compile JSP* as shown in *Figure 8-4*. The web application contains Java Server Pages which must be precompiled during deployment.

Figure 8-4. Deploy the openCRX web application. Select Pre-compile JSP.

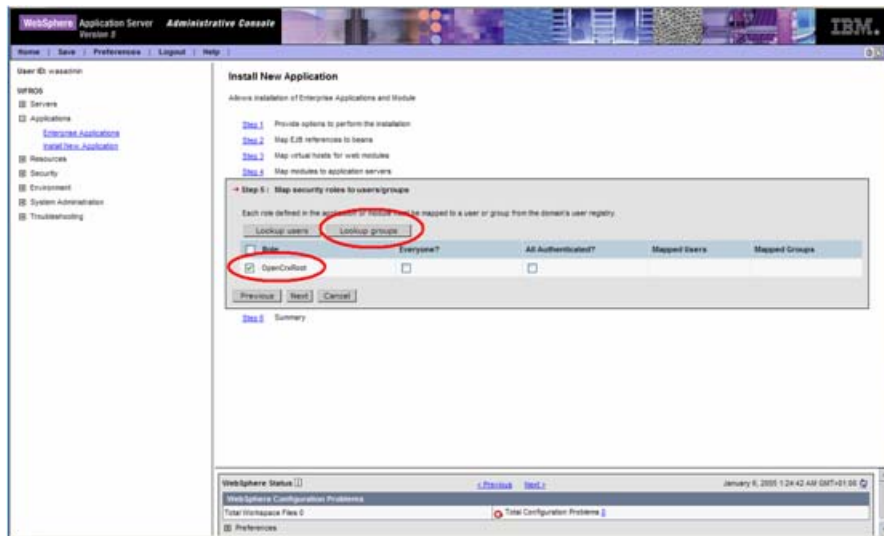


The web applications define the following security roles:

- **opencrx-core-CRX-web.ear**. This application is used by *openCRX standard* users and defines the roles *OpenCrxUser* and *OpenCrxAdministrator*. Only users who are member of *OpenCrxUser* or *OpenCrxAdministrator* are able to login to the web application.
- **opencrx-core-CRX-Root-web.ear**. This application is used by *openCRX root* users and defines the role *OpenCrxRoot*. Only root users who are member of *OpenCrxRoot* are able to login to the web application.

The roles are defined in the deployment descriptors of the application enterprise archives and must be mapped in *Step 5: Map security roles to users/groups* to *WebSphere* users and groups.

Figure 8-5. Assign users and groups to openCRX roles.



In a first step select the role, e.g. *OpenCrxRoot*, as shown in *Figure 8-5*. Then either click *Lookup users* or *Lookup groups*. *Lookup users* allows you to add *WebSphere* users to the groups *OpenCrxRoot*, *OpenCrxAdministrator* and

OpenCrxUser. *Lookup groups* allows you to add *WebSphere* groups. In order that a *WebSphere* user is able to login to the application he/she must be member of the configured *WebSphere* group.



Important Be careful that you add to the group *OpenCrxRoot* only users which should have *openCRX* root privileges. The *openCRX* standard configuration assumes that you configure the user *admin-Root* (member of role *OpenCrxRoot*) for the application *openctx-core-CRX-Root-web.ear* and the users *admin-Standard* (member of role *OpenCrxAdministrator*) and *guest* (member of role *OpenCrxUser*) for the application *openctx-core-CRX-web.ear*.

Figure 8-6 shows how to add the user *admin-Root* to the group *OpenCrxRoot*.

Figure 8-6. Assign users and groups to openCRX roles.

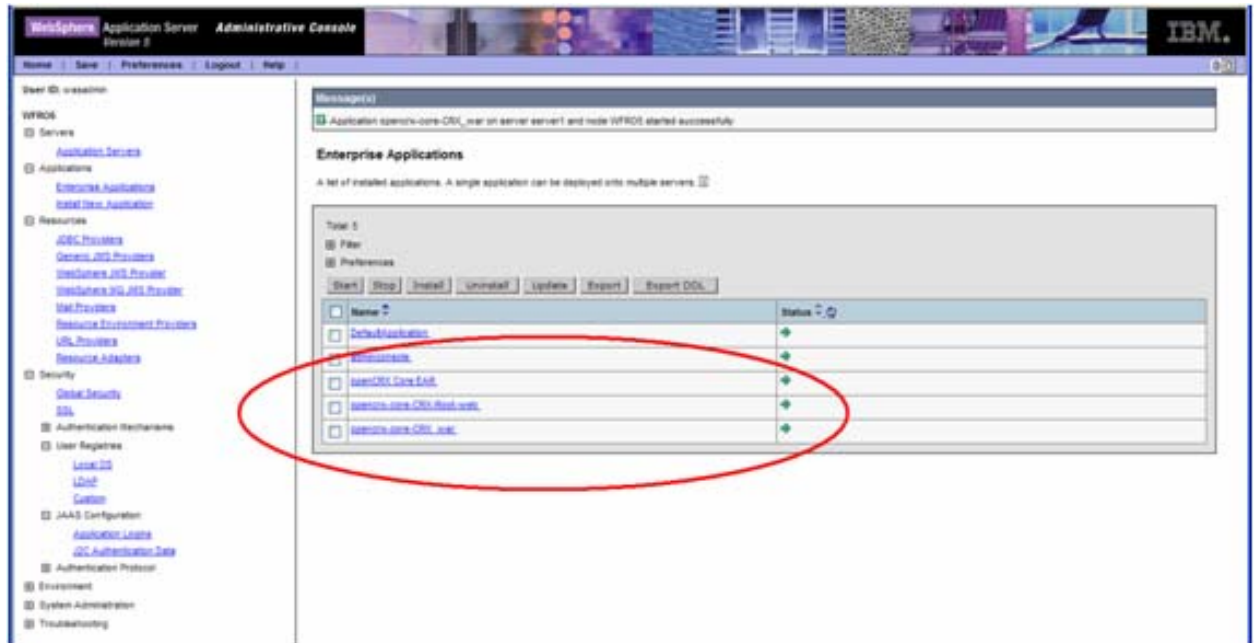


You can click *Next* on all the following steps and finally click *Finish*. If the application does not deploy without errors you cannot use *openCRX*; please review/correct your installation carefully until the application can be deployed without errors..

Chapter 9. Next Steps

Before you proceed to the *openCRX QuickStart guide* make sure that you have deployed and started all applications as shown in *Figure 9-1*.

Figure 9-1. All applications must be deployed and running.



The application is initialized the first time a user calls the login page. If the startup fails you should consult the following log files:

- **WebSphere startServer.log.** Located in *WebSphere\AppServer\logs\server1* and contains *WebSphere* startup information.
- **WebSphere SystemErr.log.** Located *WebSphere\AppServer\logs\server1* in and contains the stderr output of *WebSphere* and deployed applications.
- **WebSphere SystemOut.log.** Located in *WebSphere\AppServer\logs\server1* and contains the stdout output of *WebSphere* and deployed applications. This file contains the informational messages of the *openCRX* web application startup sequence.
- **openCRX opencrx-server1...log.** Located in *WebSphere\AppServer\logs\server1* and contains the *openCRX* application log files.

Appendix A. Appendix

Bibliography

[01] *openCRX - the leading open source CRM solution*, [opencrx.org](http://www.opencrx.org).

@ <http://www.opencrx.org> (<http://www.opencrx.org>)

[02] *openMDX - The leading open source MDA platform*, [openmdx.org](http://www.openmdx.org).

@ <http://www.openmdx.org> (<http://www.openmdx.org>)