Oracle Waveset Installation

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Contents

Preface

Oracle Waveset Installation describes how to install Oracle Waveset software. Note, however, that Oracle Waveset 8.1.1 cannot be installed using the procedures in this *Installation* guide. Instead, you must first upgrade to or install Sun Identity Manager 8.1, and then upgrade to Oracle Waveset 8.1.1 using the steps in *Oracle Waveset 8.1.1 Upgrade*.

Who Should Use This Book

This guide is for system deployers and system administrators. This guide *is not* for administrators who are upgrading Sun Identity Manager to Oracle Waveset 8.1.1. Please see *Oracle Waveset 8.1.1 Upgrade* if you need to upgrade an existing Sun Identity Manager installation to Oracle Waveset.

Before You Read This Book

Before reading this book, you should be familiar with the *Oracle Waveset 8.1.1 Overview*.

How This Book Is Organized

This guide is organized into five parts:

Part I contains the steps to complete before you install Waveset.

Part II contains the Waveset installation steps.

Part III includes information on installing optional components.

Part IV describes how to start the Administrator interface and verify that the installation was successful.

Part V contains miscellaneous information that you might need during the installation process. It also includes information on how to uninstall Waveset.

Related Books

The Waveset 8.1.1 documentation set includes the following books.

Primary Audience	Title	Description
All Audiences	*Oracle Waveset 8.1.1 Overview*	Provides an overview of Waveset features and functionality and provides product architecture information.
	Oracle Waveset 8.1.1 Release Notes	Describes known issues, fixed issues, and late-breaking information not already provided in the Waveset documentation set.
System Administrators	*Installation Guide*	Describes how to install Waveset and optional components such as the Waveset Gateway and PasswordSync.
	Upgrade Guide	Provides instructions on how to upgrade from an older version of Sun Identity Manager to Oracle Waveset.
	System Administrator's Guide	Contains information and instructions to help system administrators manage, tune, and troubleshoot their Waveset installation.
Business Administrators	*Business Administrator's Guide*	Describes how to use Waveset provisioning and auditing features. Contains information about the user interfaces, user and account management, reporting, and more.

Primary Audience	Title	Description
System Integrators	*Deployment Guide*	Describes how to deploy Waveset in complex IT environments. Topics covered include working with identity attributes, data loading and synchronization, configuring user actions, applying custom branding, and so on.
	Deployment Reference	Contains information about workflows, forms, views, and rules, as well as the XPRESS language.
	Resources Reference	Provides information about installing, configuring, and using resource adapters.
	Service Provider 8.1 Deployment	Describes how to deploy Waveset Service Provider, and how views, forms, and resources differ from the standard Waveset product.
	Web Services Guide	Describes how to configure SPML support, which SPML features are supported (and why), and how to extend support in the field.

Documentation Updates

Corrections and updates to this and other Oracle Waveset and Sun Identity Manager publications are posted to a documentation updates website:

`http://blogs.sun.com/idmdocupdates/`

An RSS feed reader can be used to periodically check the website and notify you when updates are available. To subscribe, download a feed reader and click a link under Feeds on the right side of the page. Starting with version 8.0, separate feeds are available for each major release.

Related Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

Note – Oracle is not responsible for the availability of third-party web sites mentioned in this document. Oracle does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Oracle will not be responsible or liable for any actual or alleged damage or loss caused or alleged to be caused by or in connection with use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- Documentation (`http://docs.sun.com`)
- Support (`http://www.sun.com/support/`)
- Training (`http://education.oracle.com`) – Click the Sun link in the left navigation bar.

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to `http://docs.sun.com` and click Feedback.

Typographic Conventions

The following table describes the typographic conventions that are used in this book.

TABLE P–1 Typographic Conventions

Typeface	Meaning	Example
`AaBbCc123`	The names of commands, files, and directories, and onscreen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
`AaBbCc123`	What you type, contrasted with onscreen computer output	`machine_name%` **`su`** `Password:`
aabbcc123	Placeholder: replace with a real name or value	The command to remove a file is `rm` *filename.*

TABLE P–1 Typographic Conventions *(Continued)*

Typeface	Meaning	Example
AaBbCc123	Book titles, new terms, and terms to be emphasized	Read Chapter 6 in the *User's Guide*. A *cache* is a copy that is stored locally. Do *not* save the file. **Note:** Some emphasized items appear bold online.

Shell Prompts in Command Examples

The following table shows the default UNIX system prompt and superuser prompt for shells that are included in the Solaris OS. Note that the default system prompt that is displayed in command examples varies, depending on the Solaris release.

TABLE P–2 Shell Prompts

Shell	Prompt
Bash shell, Korn shell, and Bourne shell	`$`
Bash shell, Korn shell, and Bourne shell for superuser	`#`
C shell	`machine_name%`
C shell for superuser	`machine_name#`

PART I

Preparing to Install Waveset

Complete the steps in this part of the Installation guide prior to installing Oracle Waveset.

Chapters in this part include:

◆ ◆ ◆ CHAPTER 1

Planning Your Installation

The following sections describe the Waveset installation process and provide information on how to plan your installation.

Note – For information about upgrading to Waveset 8.1.1, refer to the *Oracle Waveset 8.1.1 Upgrade* guide.

Installation Task Flow

This guide is organized into parts to help guide you through the installation process. For example, you only need to read the chapters that apply to your choice of application server and database.

Part I, "Preparing to Install Waveset"

- Install and configure an application server
- Install the JDK (if necessary)
- Install and configure a database

Part II, "Installing Waveset"

- Install the Waveset software using the installer application and deploy it to your application server

Part III, "Installing Optional Components"

- Optionally install the Waveset Gateway
- Optionally install PasswordSync

Part IV, "Starting, Configuring, and Registering Waveset"

- Start Waveset and log on to the Administrator interface using a web browser
- Verify that Waveset is working properly and perform some simple configuration tasks

- Register Waveset with Oracle

Part V, "Appendices"

- Manually install Waveset and configure the database connection (if you did not use the installer application in Part II)
- Uninstall the Waveset software (if necessary)
- Other topics

Supported Software and Environments

Refer to "Supported Software and Environments" in *Oracle Waveset 8.1.1 Release Notes* for detailed information about software and environments that are compatible with Waveset.

Installing in a Cluster Configuration

Refer to Chapter 3, "Clustering and High Availability," in *Oracle Waveset 8.1.1 Overview* for information on clustering.

Installing Waveset Service Provider

These installation instructions apply to Waveset and Waveset Service Provider.

◆ ◆ ◆ CHAPTER 2

Install and Ready Your Application Server

Follow the steps in this chapter to prepare your application server for Waveset.

This chapter includes the following sections:

General Requirements

When installing Waveset on UNIX or Linux systems, the `/var/opt/sun/install` directory must exist and be writable by the user running the installer.

When running Waveset on multiple physical servers, the servers' system clocks must be synchronized. Each Waveset server regularly issues a timestamped "heartbeat" to the Waveset repository. If any server observes that another server's heartbeat is too old (by default five minutes), then it will mark that server as "recovered" and mark all tasks currently executing on that server as terminated. Proper Waveset operation requires that all server clocks be synchronized to within five minutes of each other, and preferably within one minute.

Install an Application Server

For a list of supported application server versions, see "Application Servers" in *Oracle Waveset 8.1.1 Release Notes*

Oracle Glassfish Server Installation Notes

You may need to perform one or more of these general steps when installing the software:

- Use the Oracle GlassFish Server typical installation.
- Specify the location for the Installation directory.
- Specify the administrator name and password for Application Server administration.

Tomcat Installation Notes

Install the Tomcat software according to the instructions included with Tomcat. You may find helpful information at the Jakarta Project site: `http://tomcat.apache.org/`

▼ To Install Tomcat on Windows

1. **Specify the Tomcat installation location.**
2. **Select to start Tomcat as a service, and then select the port to run on. The default port is 8080.**

▼ To Install Tomcat on UNIX

1. **After downloading and unpacking the Tomcat installation bundle, modify the Tomcat startup script by using this procedure:**

   In the `setclasspath.sh` file in the `$TOMCAT_HOME/bin` directory, add these lines to the top of the file:

   ```
   JAVA_HOME=Location of a JDK
   BASEDIR=Location of your unpacked Tomcat
   export JAVA_HOME BASEDIR
   ```

2. **When configuring Tomcat to support UTF-8, add the `URIEncoding="UTF-8"` attribute to the `connector` element in the *TomcatDir*`/conf/server.xml` file, for example:**

   ```
   <!-- Define a non-SSL Coyote HTTP/1.1 Connector on the
   port specified during installation -->
    <Connector port="8080"
       maxThreads="150"
       minSpareThreads="25"
       maxSpareThreads="75"
   ```

```
 enableLookups="false" redirectPort="8443"
 acceptCount="100" debug="0" connectionTimeout="20000"
disableUploadTimeout="true"
 URIEncoding="UTF-8" />
```

3 **When configuring Tomcat to support UTF-8, also add `-Dfile.encoding=UTF-8` in your Java VM options.**

WebLogic Installation Notes

Install WebLogic using the instructions provided with the software. To configure WebLogic before installing Waveset, see "Step 1: Configure the WebLogic Software" on page 49.

WebSphere Installation Notes

Install WebSphere using the instructions provided with the software. To configure WebSphere before installing Waveset, see "Step 1: Configure WebSphere" on page 55.

JBoss Installation Notes

Install JBoss using the instructions provided with the software. You may find helpful information at the JBoss Project site, at `http://www.jboss.org/jbossas` .

You may need to perform one or more of these general steps when installing the software:

- Install the full JBoss application server.
- Ensure that the JBoss installation path does not contain spaces.
- Specify the administrator name and password for Application Server administration.
- When configuring JBoss to support UTF-8, add the `URIEncoding="UTF-8"` attribute to the `Connector` element in the *InstallDir*`\server\default\deploy\jbossweb-tomcat55.sar\server.xml` file, for example:

  ```
  <!-- A HTTP/1.1 Connector on port 8080 -->
  <Connector port="17001" address="${jboss.bind.address}"
     maxThreads="250" strategy="ms" maxHttpHeaderSize="8192"
     emptySessionPath="true" enableLookups="false" redirectPort="8443"
     acceptCount="100" connectionTimeout="20000"
     disableUploadTimeout="true" URIEncoding="UTF-8" />
  ```

- When configuring JBoss to support UTF-8, also add `-Dfile.encoding=UTF-8` in your Java VM options.
- Increase the JBoss PermGen space to avoid out-of-memory errors. For example, add the following arguments in your `JAVA_OPTS` environment variable to increase the space to 128 MB:

```
-XX:PermSize=128m -XX:MaxPermSize=128m
```

Oracle Application Server Installation Notes

Follow these general steps when installing the software. For details, see the documentation provided by Oracle.

- Use the Oracle Enterprise Manager 10g Application Server typical installation.
- Specify the location for the installation directory.
- Specify the administrator name and password for Application Server administration.

Configure the Locale

The application server should be configured to use the same locale or encoding as the database and the Java Virtual Machine (JVM).

Inconsistent encodings may introduce certain globalization issues, such as incorrect handlings of multibyte characters. In globalized environments, UTF-8 should be implemented on all products.

Refer to your application server documentation for information about setting the locale/encoding. Also, when loading or unloading data using CSV or XML files, ensure that their encodings are consistent with Waveset's deployment environment encoding to retain data integrity. For enabling localization support see "Enabling Language Support" on page 86.

Decide Where to Store Application Files

You must create the directory where you will store application files before launching the installation program. You can store application files in a staging directory, or you can install into your application server's Web application directory.

Using a Staging Directory

Because Waveset applications are based on J2EE Web, you can store them in a staging directory. This staging directory is used to deploy the application into your specific application server. Typically, a Web Application Archive (`.war`) file is created for use in the deployment steps.

Using a Web Application Directory

You may choose to install directly into an application server's Web application directory. In this case, you will specify the Web application directory during installation. The installation program will place the Waveset files in a folder named idm in that location by default.

Note – If you use a localfiles repository instead of a database, set the localfiles repository to a location outside of the Waveset directory on the application server. See "If You Are Not Using a Database" on page 25 for more information.

Set Up a Java Virtual Machine and Java Compiler

The application server requires a Java compiler and a Java Virtual Machine (JVM) to run the Java classes that perform actions within Waveset. Both of these can be found in a Java SDK. (The JRE packages do not include a Java compiler.)

Note –

- Many application servers include a JDK bundled with their installation. The JDK version that is shipped with the application server is always preferred to any other JDK installed on your server.
- You can run Waveset on BEA WebLogic application servers with all WebLogic-supported 1.5 JVMs.
- You should add `JAVA_HOME` to your list of system environment variables and to your system path. To do this, add `JAVA_HOME` to your system environment and `JAVA_HOME\bin` to your path, making sure to list it before any other Java variables. While adding `JAVA_HOME` to your list of system environment variables is helpful for Waveset, it may affect other applications.
- The JVM should be configured to use the same locale or encoding as the application server and the database.

Memory Requirements

You should determine your memory needs and set values in your application server's JVM. Do this by adding maximum and minimum heap size to the Java command line; for example:

```
java -Xmx512M -Xms512M
```

Note – For best performance, set these values to the same size. Depending on your specific implementation, you may need to increase these recommended values if you run reconciliation.

For performance tuning purposes, you may also set the following in the `waveset.property` file:

```
max.post.memory.size value
```

Note – The property `max.post.memory.size` specifies the maximum number of bytes that a posted file may contain without being spooled to the disk. For cases where you do not have permission to write to temp files, you should increase `max.post.memory.size` to avoid having to spool to the disk. The default value is 8 Kbytes.

For additional system requirements and information, refer to the *Oracle Waveset 8.1.1 Release Notes*.

◆ ◆ ◆ CHAPTER 3

Install and Ready Your Database

Follow the steps in this chapter to prepare a database for use with Waveset. A database is required for production environments and QA/test environments. If you are installing Waveset in a development environment, or if you are simply evaluating Waveset, you can use regular files to store Waveset data. See "If You Are Not Using a Database" on page 25 for more information.

This chapter is organized into the following sections:

If You Are Not Using a Database

If you plan to use your local file system to store Waveset data, select a location outside of the application or Web server directory structure. The dynamic directories created for Waveset data cannot be protected from intruders who might use a Web browser to scan directories serviced by the Web server. Note that a database is required for production environments and QA/test environments.

Preparing a Database

For a list of supported database versions, see "Repository Database Servers" in *Oracle Waveset 8.1.1 Release Notes*.

You should use an approved third-party relational database to store system data. Do not host the Waveset repository on a virtual platform such as a VMware virtual machine because performance (transactions per second) will be adversely affected.

Use the general procedures in this section when setting up the database. Your database administrator may choose to customize the provided scripts to suit your site-specific configuration and standards. Later, during the installation of Waveset on your application server, you may need to install a JAR file that contains either a JDCB driver or a JNDI InitialContextFactory for your database.

Note – You must configure your database with a character set that will support the characters that you want to store. If you need to store multi-byte characters, you should use a character set (such as UTF-8) that supports Unicode.

About the Sample Database Scripts

Waveset provides sample database scripts that you can modify and use to create tables and indexes. You may choose to use an alternate method to create equivalent tables and indexes, but these requirements must be met:

- Tables (or views) must exist with the names specified in the sample DDL
- Each named table (or view) must be owned by (or aliased to) the proxy user that is represented as "waveset" in the sample DDL
- Each named table (or view) must contain all the columns specified for that table in the sample DDL
- Each named column must have a data type that is consistent with the data type specified for that column in the sample DDL

You can modify the sample scripts to suit your environment.

Common changes include:

- Specifying a different proxy user
- Specifying different tablespaces, or separate tablespaces for tables and indexes
- Changing a data type. This is acceptable if a view or the JDBC driver makes the change transparent.
- Adding columns. This is acceptable if each column is nullable or defaulted.
- Removing or renaming columns. This is acceptable if a view makes this transparent.
- Renaming indexes

Note – If you make changes to the sample scripts, then you must make equivalent changes to any sample database upgrade scripts that you receive in the future.

Preparing MySQL

Note – See the *Oracle Waveset 8.1.1 Release Notes* for supported database server versions.

▼ To Prepare MySQL for Use with Waveset

1. **Install the MySQL software. Start the MySQL process (if it does not start automatically).**
2. **Create the database. To do this:**
   a. **Copy the `create_waveset_tables.mysql` script to a temporary location. This script is located in the `db_scripts` directory in the Waveset installation package, and also in the `idm\sample` directory if Waveset is already installed.**
   b. **Modify the `create_waveset_tables.mysql` script to change the database user password.**
   c. **Create the new tables by using one of the following commands:**

      On Windows

      ```
      c:\mysql\bin\mysql -u root < create_waveset_tables.mysql
      ```

      On UNIX

      ```
      $MYSQL/bin/mysql -u root < create_waveset_tables.mysql
      ```

3. **Download a version of MySQL Connector/J to use with MySQL.**

   See "Notes on Configuring Databases and Downloading Supporting JAR Files" on page 103 for more information.

   Later, during the Waveset installation process, you will install the MySQL Connector/J driver to the `$WSHOME/WEB-INF/lib` directory on your application server.

Preparing Oracle

Note – See the *Oracle Waveset 8.1.1 Release Notes* for supported database server versions.

▼ To Prepare Oracle for Use with Waveset

1. **Install Oracle or confirm the connection to an Oracle database.**
2. **Connect to the Oracle instance as a user with privileges to create users and tables.**

3 **Create the database. To do this:**

   a. **Copy the** `create_waveset_tables.oracle` **script to a temporary location. This script is located in the** `db_scripts` **directory in the Waveset installation package, and also in the** `idm\sample` **directory if Waveset is already installed.**

   b. **Modify the** `create_waveset_tables.oracle` **script:**

      i. **Change the user password.**

      ii. **Change the path for DATAFILE to point to the location for your** `waveset.dbf` **data file.**

      Your database administrator may want to modify the script to meet site-specific requirements for backup, replications, disk allocation, distribution, or other considerations.

   c. **Create the new tables by using the following command:**

      On Windows

      ```
      sqlplus dbausername/dbapassword @create_waveset_tables.oracle
      ```

      On UNIX

      ```
      sqlplus dbausername/dbapassword @create_waveset_tables.oracle
      ```

4 **Download the JDBC driver to use with your version of Oracle.**

See "Notes on Configuring Databases and Downloading Supporting JAR Files" on page 103 for more information.

Later, during the Waveset installation process, you will install the JDBC driver to the `$WSHOME/WEB-INF/lib` directory on your application server.

Configuring `lh` setup for Oracle RAC

If you are using Oracle RAC as your Waveset repository and you are connecting with the thin driver, use the following URL parameter format in `lh` setup:

```
jdbc:oracle:thin:@(DESCRIPTION=(LOAD_BALANCE=OFF)
(ADDRESS=(PROTOCOL=TCP)(HOST=host01)(PORT=1521))(
ADDRESS=(PROTOCOL=TCP)(HOST=host02)(PORT=1521))
(ADDRESS=(PROTOCOL=TCP)(HOST=host03)(PORT=1521))
(CONNECT_DATA=(SERVICE_NAME=PROD)))
```

Preparing DB2

Before setting up DB2, you should decide how DB2 will provide JDBC access.

JDBC Access Considerations

DB2 offers two types of JDBC access, each of which requires a different URL format. The setup process allows you to select a preferred driver and automatically displays the corresponding URL template.

The application driver (`COM.ibm.db2.jdbc.app.DB2Driver`) requires local client software and a local database instance. Since DB2 runs on a separate (often dedicated) host in most production environments, the local database instance usually contains an alias to the remote database instance. In this configuration, the local database instance uses a DB2-specific protocol to communicate with the remote database instance.

The Type 2 network driver (`COM.ibm.db2.jdbc.net.DB2Driver`) does not require local client software or a local database. It does require that the DB2 Java daemon (`db2jd`) be running on the target server. (In most production environments, the target server is a separate host, but the network driver works as well with a local database instance.) This daemon is not started by default, but the database administrator can start it manually or configure it to start automatically when the database instance starts.

The Type 4 network driver (`COM.ibm.db2.jcc.DB2Driver`) connects directly to the DB2 database.

Note – When using the type 4 driver (in a direct connection) with at least DB2 8.1.2, download the following driver:

```
com.ibm.db2.jcc.DB2Driver
```

Later, during the Waveset installation process, you will need to copy the following files to the `$WSHOME/WEB-INF/lib` directory on your application server:

```
db2jcc

db2jcc_license_cisuz.jar or db2jcc_license_cu.jar
```

See "Notes on Configuring Databases and Downloading Supporting JAR Files" on page 103 for more information.

Preparing DB2 for Use with Waveset

Follow these steps to set up DB2.

Note – See the *Oracle Waveset 8.1.1 Release Notes* for supported database server versions.

▼ To Prepare DB2 for Use with Waveset

1. **Install DB2 or confirm the connection to a DB2 database.**
2. **Connect to the DB2 instance as a user with privileges to create users and tables.**
3. **Create the database. To do this:**

   a. **Copy the** `create_waveset_tables.db2` **script to a temporary location. This script is located in the** `db_scripts` **directory in the Waveset installation package, and also in the** `idm\sample` **directory if Waveset is already installed.**

   b. **Modify the** `create_waveset_tables.db2` **script:**

      - Change the user password.
      - Change the path for the `CREATE_TABLESPACE` command to a location appropriate for your environment.

      Your database administrator may want to modify the script to meet site-specific requirements for backup, replications, disk allocation, distribution, or other considerations.

      Create the new tables by using the following command:

      On Windows

      ```
      db2 -tvf create_waveset_tables.db2
      ```

      On UNIX

      ```
      db2 -tvf create_waveset_tables.db2
      ```

Preparing SQL Server

Note – See the *Oracle Waveset 8.1.1 Release Notes* for supported database server versions.

▼ To Prepare SQL Server for Use with Waveset

1. **Install Microsoft SQL Server or confirm the connection to a SQL Server installation.**
2. **Create the database. To do this:**

   a. **Copy the** `create_waveset_tables.sqlserver` **script to a temporary location. This script is located in the** `db_scripts` **directory in the Waveset installation package, and also in the** `idm\sample` **directory if Waveset is already installed.**

b. Modify the `create_waveset_tables.sqlserver` script to change the login password.

Note – Your database administrator may want to modify the script to meet site-specific requirements for backup, replications, disk allocation, distribution, or other considerations.

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c. Create the new tables by executing the `create_waveset_tables.sqlserver` script, located on the installation CD; for example:

```
osql -E -i PathToFile\create_waveset_tables.sqlserver
```

Note – You must have privileges to create databases and logins.

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3 Download the Microsoft SQL Server 2005 Driver for JDBC.

Note – Waveset version 8.1.1 supports SQL Server 2008 using the SQL Server 2005 JDBC drivers.

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a. Go to the Microsoft downloads website. `http://www.microsoft.com/downloads`

b. In the Search for a Download area, enter "SQL Server JDBC" in the keywords field, and then click Go.

c. Download the correct version of the driver for your installation.

Later, during the Waveset installation process, you will install the SQL Server driver to the `$WSHOME/WEB-INF/lib` directory on your application server.

See "Notes on Configuring Databases and Downloading Supporting JAR Files" on page 103 for more information.

Set Up an Waveset Service Provider Transaction Database

If you are installing Waveset Service Provider, then you must set up a database in which to store transaction data.

Use one of the following sample scripts as a starting point for creating your transaction database:

- `create_spe_tables.oracle`
- `create_spe_tables.db2`

Use the procedures outlined in "Preparing a Database" on page 25 to guide you through the process of creating a transaction database.

Note – You must configure your database with a character set that supports the characters that you want to store. If you need to store multi-byte characters, you should use a character set (such as UTF-8) that supports Unicode.

Configure the Database Locale

The database should be configured to use the same locale or encoding as the application server and the Java Virtual Machine (JVM).

Inconsistent encodings may introduce certain globalization issues, such as incorrect handlings of multibyte characters. In globalized environments, UTF-8 should be implemented on all products.

Refer to your database documentation for information about setting the locale/encoding. Also, when loading or unloading data using CSV or XML files, ensure that their encodings are consistent with Waveset's deployment environment encoding to retain data integrity. For enabling localization support see "Enabling Language Support" on page 86.

PART II

Installing Waveset

This part of the installation guide contain instructions on how to install Waveset.

Complete the instructions in the chapter for your application server.

◆ ◆ ◆ CHAPTER 4

Installing Waveset on Oracle Glassfish Server

These instructions are divided into the following steps. During installation, you will need to know the password you selected when you set up the database.

Step 1: Install the Waveset Software

▼ To Install the Waveset Software

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. By default, the `waveset.serverId` Java system property is the name of the machine the application server is installed on. To set this property to another value, add the following command to the startup script for your application server.

```
-Dwaveset.serverId=Name
```

1 You may install the software using one of two methods:

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  If you copy the files from the installation media to your own location, note that the `idm.war` and `install.class` files must be in the same directory.

  The installer displays the Welcome panel.

- Using the nodisplay option (UNIX only)

  On UNIX systems, open the directory where the software is located. Enter the following command to activate the installer in nodisplay mode:

  ```
  install -nodisplay
  ```

  The installer displays the Welcome text. The installer then presents a list of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

2 Click Next.

The installer displays the Install or Upgrade? panel.

3 Leave the New Installation option selected, and then click Next.

The installer displays the Select Installation Directory panel.

4 Replace the displayed directory location with the location where you want to install Waveset. This could be a staging location or a specific folder. Enter the location (or click Browse to locate it), and then click Next.

Note – If the directory you enter does not exist, Waveset prompts for confirmation, and then creates the directory.

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5 Click Next to begin installation.

After installing the files, Waveset displays the Launch Setup panel.

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm\WEB-INF\lib` directory. For example, you may need to place into `idm/WEB-INF/lib` a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps. If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, quit the installation program, and then use the `lh setup` command to restart the setup portion of the installation process.

---

6 Click Next on the Setup Wizard panel.

The installer displays the Locate the Repository panel.

7 **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

See Appendix C, "Database Reference," for selections and setup instructions.

8 **Click Next.**

The Continue Waveset Demo Setup? panel appears.

9 **If this is a non-demo installation click No, I will configure Waveset myself.**

Otherwise, if appropriate, click **Yes, I would like to continue setting up a demonstration environment**. This option allows you to quickly configure users and enter environment and server information.

10 **Enter the following personal information:**

- First name
- Last name
- Email address

This personal information is used to create the Approver user (with configurator privileges.)

11 **Enter the following Approver information:**

- Approver name
- Approver password

12 **Click Next.**

13 **Select the Server Type from the list.**

Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

14 **If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.**

15 **If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.**

16 **Click Next.**

The installer displays the Import Save Configuration panel.

17 **Click Execute to perform all the listed functions. If desired, click Hide Details.**

18 **When all functions complete, click Done in the setup panel.**

19 **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

```
chmod -R +x *
```

Getting More Information

When installation completes, the installer displays the Installation Summary panel. For detailed information about the installation, click **Details**.

Not all messages may not be displayed here. View the log file (identified in details) for more information.

When finished, click **Close** to exit the installer.

After completing installation, continue by optionally installing the Waveset Gateway.

Step 2. Deploy Waveset on Oracle Glassfish Server

▼ To Deploy Waveset on Oracle Glassfish Server

1 **Open a command prompt, then change to the staging directory where you installed the Waveset files. (This is the directory you specified in "Step 1: Install the Waveset Software" on page 35.)**

2 **Create a `.war` file with the Waveset files by using the `jar.exe` (on Windows) or `jar` (on UNIX) command:**

```
c:\java1.5\bin\jar.exe cvf ..\idm.war * /usr/bin/jar cvf ../idm.war *
```

3 **Launch your application server and log in to the Java System Application Server Admin Console.**

4 **Navigate to and expand the Applications folder in the left panel.**

5 **Click the Web Applications folder.**

6 **Click Deploy in the right panel.**

7 **Enter the file path for the `idm.war` file, and then click Next.**

8 **When prompted, set the Application Name to `idm`. Set the Context Root to `/idm`, and then click Finish.**

9 **If you are deploying on Platform Edition 9, perform the following steps to ensure that you can create resources in Waveset.**

   a. **Click on the Application Server link in the left pane of the Admin Console**

   b. **Select the JVM Settings tab, then select the JVM Options tab.**

   c. **Click Add JVM Option.**

   d. **Add the the following to the blank box in the Value column:**

      ```
      -Dcom.sun.enterprise.server.ss.ASQuickStartup=false
      ```

   e. **Click Save.**

10 **Do NOT restart the application server. Continue to "Step 3: Edit the server.policy File on the Application Server" on page 39.**

Step 3: Edit the server.policy File on the Application Server

Waveset must be given permissions to perform certain actions.

▼ To Set Permissions on the Application Server

1 **Add the following lines to the server.policy file for the domain in which Waveset is installed (located in ApplicationServerHome/domains/domainName/config). Note that the ${waveset.home} variable must be expanded in the server.policy file.**

```
grant {
permission java.lang.RuntimePermission "accessClassInPackage.sun.io";
permission java.lang.RuntimePermission "getClassLoader";
permission java.lang.RuntimePermission "createClassLoader";
permission java.lang.RuntimePermission "accessDeclaredMembers";
permission com.waveset.repository.test.testConcurrentLocking "read";
permission java.net.SocketPermission "*", "connect,resolve";
permission java.io.FilePermission "*", "read";
permission java.util.PropertyPermission "*", "read,write";
};
grant codeBase "file:${waveset.home}/-" {
permission java.util.PropertyPermission "waveset.home", "read,write";
permission java.util.PropertyPermission "security.provider", "read,write";
permission java.io.FilePermission "${waveset.home}${/} *", "read,write,execute";
permission java.io.FilePermission "${waveset.home}/help/index/-",
"read,write,execute,delete";
permission java.io.FilePermission "$(java.io.tmpdir)$(/)*", "read,write,delete";
permission java.util.PropertyPermission "*", "read,write";
permission java.lang.RuntimePermission "accessClassInPackage.sun.io";
permission java.net.SocketPermission "*", "connect,resolve";
```

```
permission javax.management.MBeanServerPermission "*";
permission javax.management.MBeanPermission "*", "*";
permission javax.management.MBeanTrustPermission "*";
};
```

If you want to deploy Waveset Service Provider, add the following permissions to the above server.policy file entries.

```
grant {
permission java.lang.RuntimePermission "shutdownHooks";
permission java.io.FilePermission "${waveset.home}/WEB-INF/spe/config/spe.tld", "read";
};
```

Note – If you fail to update the old server.policy file with the above, and try to use the search engine, lock files may be created in the index directory that cannot be removed by the container. This *always* causes queries to hang, even if the server.policy file is subsequently updated.

For example, the contents of the help/index/docs directory should contain these five files:

```
AL
MF
p1.dict
p1.fields
p1.post
```

In addition to the above, there may be two lock files:

```
AL.lock
MF.lock
```

These must be deleted manually. Once these are removed (and the server.policy file updated correctly), search queries will work as expected.

If you want to run with trace set to write to a file, you will need to add the following additional permissions to the server.policy file.

```
grant {
  permission java.io.FilePermission "/var/opt/SUNWappserver/domains/domain1/applications/j2ee-modules/
idm/config/trace1.log", "read,write";
  permission java.io.FilePermission "$(java.io.tmpdir)$(/)*", "read,write,delete";
  permission java.util.PropertyPermission "trace.file", "read";
  permission java.util.PropertyPermission "trace.destination", "read";
   permission java.util.PropertyPermission "trace.enabled", "read";
};
```

where FilePermission is the actual path of the trace file. Adjust the path to the output file as needed.

2 Restart the application server.

3 **To verify setup, log in to Waveset. You can do this within the Admin Console by clicking the Launch button on the "idm" line of the Web Applications folder.**

Step 4. Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ CHAPTER 5

Installing Waveset on Tomcat

Follow these steps to install Waveset on the Apache Tomcat application server.

Step 1: Install the Waveset Software

▼ To Install Waveset on Tomcat

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. See "Setting the `waveset.serverId` System Property" on page 46 for more information.

1 You may install the software using one of two methods:

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  If you copy the files from the installation media to your own location, note that the `idm.war` and `install.class` files must be in the same directory.

  The installer displays the Welcome panel.

- Using the `nodisplay` option (UNIX only)

  Change to the directory where the Waveset software is located. Enter the following command to activate the installer in nodisplay mode:

  ```
  install -nodisplay
  ```

The installer displays the Welcome text. The installer then presents a list of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

2 **Click Next.**

The Install or Upgrade? panel opens.

3 **Leave the New Installation option selected, and then click Next.**

The installer displays the Select Installation Directory panel.

4 **Replace the displayed directory location with the location where you want to install Waveset. This could be a staging location or a specific folder. Enter the location (or click Browse to locate it), and then click Next.**

Note –

- Unless you plan to create a new context (virtual directory) in Tomcat's `server.xml` directory, Oracle recommends installing to `%TOMCAT_HOME%/webapps/idm`.
- If the directory you enter does not exist, the installer prompts for confirmation, and then creates the directory.

---

5 **Click Next to begin installation.**

After installing files, the installer displays the Launch Setup panel.

6 **Add the Java `mail.jar`, `activation.jar`, and `jms.jar` files to the `$WSHOME/WEB-INF/lib` directory (UNIX), or the `%WSHOME%\WEB-INF\lib` directory (Windows). These files can be found at:**

`http://java.sun.com/products/javamail`

`http://java.sun.com/javase/technologies/desktop/javabeans/glasgow/jaf.html`

`http://www.oracle.com/technetwork/java/index-jsp-142945.html`

To get the latest `jms.jar` file, download and install Sun GlassFish Message Queue. The `jms.jar` file is located in the `MessageQueue/lib` folder in the base Message Queue directory.

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm/WEB-INF/lib` directory. For example, you may need to place into `idm/WEB-INF/lib` a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference."

When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps. If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, uninstall Waveset and repeat these installation steps.

7 **Click Next on the Setup Wizard panel.**

The product displays the Locate the Repository panel.

8 **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

See Appendix C, "Database Reference," for selections and setup instructions.

9 **Click Next.**

The Continue Waveset Demo Setup? panel appears.

10 **If this is a non-demo installation, click No, I will configure Waveset myself. Go to "Step 1: Install the Waveset Software" on page 43.**

11 **If appropriate, click Yes, I would like to continue setting up a demonstration environment.**

This allows you to quickly configure users and enter environment and server information.

12 **Enter the following personal information:**

- First name
- Last name
- Email address

This personal information is used to create the Approver user (with configurator privileges.)

13 **Enter the following Approver information:**

- Approver name
- Approver password

14 **Click Next.**

15 **Select the Server Type from the list.**

Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

16 **If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.**

17 **If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.**

18 **Click Next.**

The installer displays the Import Save Configuration panel.

19 **Click Execute to perform all the listed functions. If desired, click Hide Details.**

20 **When all functions complete, click Done in the setup panel.**

21 **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

```
chmod -R +x *
```

Getting More Information

When installation completes, the installer displays the Installation Summary panel. For detailed information about the installation, click **Details**.

Some messages may not be displayed here. View the log file (identified in details) for more information.

When finished, click **Close** to exit the installer.

Setting the `waveset.serverId` System Property

If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. You do not need to update the `waveset.serverId` property otherwise.

By default, the `waveset.serverId` property is set to the name of the machine the application server is installed on.

▼ To Configure the `waveset.serverId` Property on Tomcat

1 **Add `JAVA_OPTS` to `catalina.bat`**

```
set JAVA_OPTS=%JAVA_OPTS% -Dwaveset.serverId=node1
```

2 **Restart Tomcat.**

▼ To Verify That the `waveset.serverId` Property is Correct

1 **Log on to the Administrator user interface. See "To Start Waveset and Log in to the User Interface" on page 85 for instructions.**

2 **In the menu click Configure > Servers.**

3 **Verify that the host names that you configured for your instances appear and are listed as active.**

Step 2: Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ CHAPTER 6

Installing Waveset on WebLogic

Follow these steps to install Waveset on the BEA WebLogic application server.

Step 1: Configure the WebLogic Software

▼ To Configure WebLogic for Waveset

1 **Select the domain that will be referenced when installing the software.**

2 **Set the environment variables JAVA_HOME and WSHOME:**

`set JAVA_HOME=/`*`PathTo`*`/java`

`set WSHOME=`*`Path To IDMDirectory`*

Note – Make sure the value of the WSHOME environment variable does NOT contain the following:

- Quotation marks (“ ”)
- A slash or backslash at the end of the path (/ or \)

Do not use quotation marks, even if the path to the application deployment directory contains spaces.

3 **If using at least WebLogic 9.1, add the Java `mail.jar` and `activation.jar` files to the `$WSHOME/WEB-INF/lib` directory (UNIX), or the `%WSHOME%\WEB-INF\lib` directory (Windows). These files can be found at:**

`http://java.sun.com/products/javamail`

`http://java.sun.com/javase/technologies/desktop/javabeans/glasgow/jaf.html`

Step 2: Install the Waveset Software

▼ To Install Waveset on WebLogic

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. By default, the `waveset.serverId` Java system property is the name of the machine the application server is installed on. To set this property to another value, add the following command to the startup script for your application server.

```
-Dwaveset.serverId=Name
```

1 **You may install the software using one of two methods:**

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  If you copy the files from the installation media to your own location, note that the `idm.war` and `install.class` files must be in the same directory.

  The installer displays the Welcome panel.

- Using the `nodisplay` option (UNIX only)

  On UNIX systems, change directory to the Waveset software location. Enter the following command to activate the installer in nodisplay mode:

  ```
  install -nodisplay
  ```

The installer displays the Welcome text. The installer then presents a list of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

2 **Click Next. The installer displays the Install or Upgrade? panel.**

3 **Leave the New Installation option selected, and then click Next.**

The installer displays the Select Installation Directory panel.

4 **Replace the displayed directory location with the location where you want to install Waveset. This could be a staging location or a specific folder. Enter the location (or click Browse to locate it), and then click Next.**

Note –

- If the directory you enter does not exist, the installer prompts for confirmation, and then creates the directory.
- The WebLogic Web application home directory is *ServerHome*`/user_projects/domains/`*DomainName*`/autodeploy`

---

5 **Click Next to begin installation.**

After installing the files, the installer displays the Launch Setup panel.

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm/WEB-INF/lib` directory. For example, you may need to place into `idm/WEB-INF/lib` a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps. If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, quit the installation program, and then use the `lh setup` command to restart the setup portion of the installation process.

---

6 **Click Next on the Setup Wizard panel.**

The installer displays the Locate the Repository panel.

7 **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

See Appendix C, "Database Reference," for selections and setup instructions.

8. **Click Next.**

   The Continue Waveset Demo Setup? panel appears.

9. **If this is a non-demo installation click No, I will configure Waveset myself.**

   Otherwise, if appropriate, click **Yes, I would like to continue setting up a demonstration environment**. This option allows you to quickly configure users and enter environment and server information.

10. **Enter the following personal information:**

    - First name
    - Last name
    - Email address

    This personal information is used to create the Approver user (with configurator privileges.)

11. **Enter the following Approver information:**

    - Approver name
    - Approver password

12. **Click Next.**

13. **Select the Server Type from the list.**

    Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

14. **If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.**

15. **If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.**

16. **Click Next.**

    The installer displays the Import Save Configuration panel.

17. **Click Execute to perform all the listed functions. If desired, click Hide Details.**

18. **When all functions complete, click Done in the setup panel.**

19. **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

    ```
    chmod -R +x *
    ```

20 **Remove the Cryptix JAR files (`cryptix-jce-api.jar` and `cryptix-jce-provider.jar`) from the `$WSHOME/WEB-INF/lib` directory (UNIX), or the `%WSHOME%\WEB-INF\lib` directory (Windows).**

Note – The Cryptix JAR files are no longer included and no longer supported. You need to remove them if you haven't already. If you have customized your `Waveset.properties` file, please make sure that `security.jce.workaround` property is set to `false` or removed. An exception will be thrown if this property is set to `true` because the intention of this property will not be fulfilled.

Getting More Information

When installation completes, the installer displays the Installation Summary panel. For detailed information about the installation, click **Details**.

Not all messages may not be displayed here. View the log file (identified in details) for more information.

When finished, click **Close** to exit the installer.

After successfully completing, the installer installation, continue setup by configuring the WebLogic server.

Step 3: Deploy the Application

By default, WebLogic automatically deploys Waveset from the `applications` or `autodeploy` directory. Use the WebLogic Console to deploy Waveset if automatic deployment is not enabled.

Step 4: Add the Application Main Page to Default Documents for IIS (optional)

If you are using Internet Information Server (IIS) as your Web server, you must add `index.html` to the list of Default Documents (under Properties) on the Waveset virtual directory in IIS. Otherwise, the Waveset main page will not resolve correctly when accessing the Waveset server.

Step 5: Install the Metro Libraries (optional)

If you are integrating Waveset with Oracle Identity Analytics (previously Sun Role Manager), or if you are using the SAP Web Services adapter, you need to install the Metro libraries. Metro is a web service stack that you can download from Java.net.

▼ To Install the Metro Libraries

1 **Prior to installing the Metro libraries, remove all `saaj` directories from `webservices-rt.jar`.**

   a. **Unjar (expand) the `webservices-rt.jar` file.**

   b. **Remove all of the `saaj` directories.**

      For UNIX, use the following command:

      ```
      find . -name saaj -exec rm -rf {} \; -print
      ```

   c. **Rejar the `webservices-rt.jar` file.**

2 **Download Metro 2.0 and expand the zip file:**

   `https://metro.dev.java.net`

3 **Install the Metro libraries into the Waveset `WEB-INF/lib` directory.**

Step 6: Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ CHAPTER 7

Installing Waveset on WebSphere

Follow these steps to install Waveset on the IBM WebSphere Application Server.

Step 1: Configure WebSphere

Use the following procedure to prepare the application server for Waveset:

▼ To Configure WebSphere for Waveset

Before You Begin You should have a WebSphere application server and servlet engine installed.

1. **Create a staging directory and name it** `idm_staging`**.**

2. **Copy the** `idm.war` **file from the base directory of the installation media to the** `idm_staging` **directory.**

3. **Unjar the** `idm.war` **file in the** `idm_staging` **directory:**

   ```
   jar -xvf idm.war
   ```

4. **Set the environment variables** `JAVA_HOME` **and** `WSHOME`**. For example, in Windows do the following:**

   ```
   set JAVA_HOME=c:\Program Files\WebSphere\AppServer\java
   ```

   `set WSHOME=`*Path To IDMStaging Directory*

Note – Make sure the value of the WSHOME environment variable does NOT contain the following:

- Quotation marks (" ")
- A slash or backslash at the end of the path (/ or \)

Do not use quotation marks, even if the path to the application deployment directory contains spaces.

5 **If you plan to use a database, you may need to copy one or more files to the `idm\WEB-INF\lib` directory. To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." When finished, launch setup to continue with installation.**

Note – If you launch setup before copying your database files, setup will not proceed correctly. Copy the files, and then use the `lh setup` command to restart the setup portion of the installation process.

6 **If you plan to use the Waveset Service Provider feature and you are using the IBM 1.5 JDK (or later), set the following properties:**

a. **In the *was-install*`/java/jre/lib` directory, rename the `jaxb.properties.sample` to `jax.properties` and uncomment these two lines:**

```
javax.xml.parsers,SAXParserFactory=org.apache.xerces.jaxp.SAXParserFactoryImpl

javax.xml.parsers.DocumentBuilderFactory=org.apache.xerces.jaxp.DocumentBuilderFactoryI
```

b. **Save the file and restart the application server.**

Step 2: Install the Waveset Software

▼ To Install Waveset on WebSphere

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. By default, the `waveset.serverId` Java system property is the name of the machine the application server is installed on. To set this property to another value, add the following command to the startup script for your application server.

```
-Dwaveset.serverId=Name
```

1 **You may install the software using one of two methods:**

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  If you copy the files from the installation media to your own location, note that the `idm.war` and `install.class` files must be in the same directory.

  The installer displays the Welcome panel.

- Using the `nodisplay` option (UNIX only)

  Change directory to the Waveset software location. Enter the following command to activate the installer in nodisplay mode:

  ```
  install -nodisplay
  ```

  The installer displays the Welcome text. The installer then presents a list of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

2 Click Next to display the Install or Upgrade? panel.

3 Leave the New Installation option selected, and then click Next.

The installer displays the Select Installation Directory panel.

4 Replace the displayed directory location with the location where you want to install Waveset. This could be a staging location or a specific folder. Enter the location (or click Browse to locate it), and then click Next.

5 Click Next to begin installation.

After installing files, the installer displays the Launch Setup panel.

6 Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm/WEB-INF/lib` directory. For example, you may need to place a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." If you are planning to use a Data Source as your repository location, see the special instructions in Appendix D, "Configuring Data Sources for Waveset."

When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps. If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, quit the installation program, and then use the `lh setup` command to restart the setup portion of the installation process.

---

7 Click Next on the Setup Wizard panel.

The product displays the Locate the Repository panel.

8 Select a database from the list of displayed options.

Depending on your selection, setup prompts for additional setup information.

Note – See Appendix C, "Database Reference," for selections and setup instructions.

---

9 Click Next.

The Continue Waveset Demo Setup? panel appears.

10 If this is a non-demo installation, click No, I will configure Waveset myself and go to "Step 3: Deploy the Application" on page 59.

Otherwise, if appropriate, click **Yes, I would like to continue setting up a demonstration environment**. This option allows you to quickly configure users and enter environment and server information.

11 Enter the following personal information:

- First name
- Last name
- Email address

This personal information is used to create the Approver user (with configurator privileges).

12 Enter the following Approver information:

- Approver name
- Approver password

13 **Click Next.**

14 **Select the Server Type from the list.**

Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

15 **If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.**

16 **If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.**

17 **Click Next.**

The installer displays the Import Save Configuration panel.

18 **Click Execute to perform all the listed functions. If desired, click Hide Details.**

19 **When all functions complete, click Done in the setup panel.**

20 **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

```
chmod -R +x *
```

Step 3: Deploy the Application

Note – The following procedure uses the Integrated Solutions Console, Version 6.1. The configuration procedure may vary for other versions of the Integrated Solutions Console.

▼ To deploy Waveset on WebSphere

1 **Delete the following files, if they exist:**

- `WEB-INF/lib/log.jar`
- `WEB-INF/lib/j2ee.jar`
- `WEB-INF/lib/ldap.jar`

2 **Create a `.war` file from WSHOME:**

```
jar -cvf idm.war *
```

3. **Start the application server. You must use WebSphere's script to do this. For example, if WebSphere's binary files are installed in `c:\Program Files\WebSphere\AppServer\bin` and the application server is named server1:**

```
cd c:\Program Files\WebSphere\AppServer\bin
startServer.bat server1
```

4. **Start the WebSphere Integrated Solutions Console, and then select Applications—>Install New Application.**

   The **Preparing for the application installation** panel displays.

   a. **Add the full path to the `idm.war` file in the Local or Remote file system field.**

   b. **Add the path to the Context Root for the Waveset installation (for example, `/idm`).**

   c. **Select the Show me all installation options and parameters option, then click Next. A new panel is displayed.**

5. **Select the Generate Default Bindings option. (Use the default selections for Override and Virtual Host.) Click Next.**

6. **Accept the `was.policy` file that is displayed under the heading Application Security Warnings. Scroll down to the bottom of this file and click the Continue button.**

7. **Configure the Step 1: Select installation options page as needed.**

   - If you want to install the application to a different location than WebSphere's default location, enter the path to install the application in the **Directory to Install Application** field. For example:

     `c:\Program Files\WebSphere\AppServer\installedApps\`*Hostname*
   - Make sure the **Distribute Application** and **Use Binary Configuration** options are selected.
   - Make sure that the **Create Mbeans for Resources** and **Deploy Enterprise Beans** options are not selected.
   - Enter the name of the application in the **Application Name** field (the default is `idm`).
   - If desired, select the Enable class reloading option.

     Click **Next** after configuring this dialog.

8. **Make sure the *Step 2: Map modules to servers* panel displays a line for the current release of Waveset and that it maps to the appropriate server. Click *Step 6: Map virtual hosts for Web modules*.**

9. **Make sure the *Step 6: Map virtual hosts for Web modules* panel displays a line for the current release of Waveset and that it maps to the appropriate virtual host, and then click *Step 8: Summary*.**

10. **Review the summary of options, then click Finish.**

11 **After Waveset has been installed, click Save to Master Configuration to save the configuration.**

12 **Click Save, and then wait for the page to clear.**

13 **Stop the Waveset application.**

14 **Add the following line to your** `WAS_ROOT/profiles/`*ProfileName*`/installedApps/`*nodename*`/`*EnterpriseAppName*`/idm.war/WEB-INF/i` **file**

```
<jspAttributes xmi:id="JSPAttribute_1" name="jdkSourceLevel" value="15"/>
```

This line causes the application server to compile JSP files in Java 5.

15 **Restart Waveset.**

Step 4: Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ CHAPTER 8

Installing Waveset on JBoss

Follow these steps to install Waveset on the JBoss application server:

Step 1: Install the Waveset Software

▼ To Install Waveset on JBoss

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. By default, the `waveset.serverId` Java system property is the name of the machine the application server is installed on. To set this property to another value, add the following command to the startup script for your application server.

```
-Dwaveset.serverId=Name
```

1 **Set the environment variables `JAVA_HOME` and `WSHOME`:**

`set JAVA_HOME=/`PathTo`/java set WSHOME=`*Path To IDM Directory*

Note – Make sure the value of the `WSHOME` environment variable does NOT contain the following:

- Quotation marks (" ")
- A slash or backslash at the end of the path (/ or \)

Do not use quotation marks, even if the path to the application deployment directory contains spaces.

---

2 **You may install the software using one of two methods:**

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  The installer displays the Welcome panel.

- Using the nodisplay option (UNIX only)

  Change directory to the Waveset software location. Enter the following command to activate the installer in nodisplay mode:

  ```
  install -nodisplay
  ```

  The installer displays the Welcome text. The installer then presents a list of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

3 Click Next to display the Install or Upgrade? panel.

4 Leave the New Installation option selected, and then click Next.

The installer displays the Select Installation Directory panel.

5 Replace the displayed directory location with a staging directory. Enter the location (or click Browse to locate it), and then click Next.

Note – If the directory you enter does not exist, the installer prompts for confirmation, and then creates the directory.

---

6 Click Next to begin installation.

After installing files, the installer displays the Launch Setup panel.

7 Add the Java `mail.jar` and `activation.jar` files to the `$WSHOME/WEB-INF/lib` directory (UNIX), or the `%WSHOME%\WEB-INF\lib` directory (Windows). These files can be found at:

`http://java.sun.com/products/javamail`

`http://java.sun.com/javase/technologies/desktop/javabeans/glasgow/jaf.html`

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm\WEB-INF\lib` directory. For example, you may need to place into `idm/WEB-INF/lib` a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." If you are planning to use a Data Source as your repository location, see the special instructions in Appendix D, "Configuring Data Sources for Waveset."

When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps. If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, quit the installation program, and then use the `lh setup` command to restart the setup portion of the installation process.

8 **Click Next on the Setup Wizard panel.**

The product displays the Locate the Repository panel.

9 **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

See Appendix C, "Database Reference," for selections and setup instructions.

10 **Click Next.**

The Continue Waveset Demo Setup? panel appears.

11 **If this is a non-demo installation, click No, I will configure Waveset myself. Go to "Step 2: Install Optional Components" on page 67.**

Otherwise, if appropriate, click **Yes, I would like to continue setting up a demonstration environment**. This option allows you to quickly configure users and enter environment and server information.

12 **Enter the following personal information:**

- First name
- Last name
- Email address

This personal information is used to create the Approver user (with configurator privileges.)

13 **Enter the following Approver information:**

- Approver name
- Approver password

14 **Click Next.**

15 Select the Server Type from the list.

Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

16 If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.

17 If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.

18 Click Next.

The installer displays the Import Save Configuration panel.

19 Click Execute to perform all the listed functions. If desired, click Hide Details.

20 When all functions complete, click Done in the setup panel.

When installation completes, the installer displays the Installation Summary panel. For detailed information about the installation, click **Details**.

Not all messages may not be displayed here. View the log file (identified in details) for more information.

When finished, click **Close** to exit the installer.

21 Remove the `j2ee.jar` file from `WEB-INF\lib`.

22 Do one of the following:

- **Remove (or comment out) `WarClassLoaderDeployer` from the following file:**

  jboss`/server/default/deployers/jbossweb.deployer/META-INF/war-deployers-jboss-beans.xml`

- **Add `WEB-INF/jboss-classloading.xml` to the WAR. The `jboss-classloading.xml` file should contain the following XML:**

```
<?xml version="1.0" encoding="UTF-8"?>
  <classloading xmlns="urn:jboss:classloading:1.0"
     name="idm.war"
     domain="DefaultDomain"
     export-all="NON_EMPTY"
     import-all="true">
  </classloading>
```

23 Create a `.war` file from WSHOME:

```
jar -cvf idm.war *
```

24 **Copy the `idm.war` file to the JBoss `deploy` directory. (For example, *InstallDir*`\server\default\deploy`)**

25 **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

```
chmod -R +x *
```

Step 2: Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ CHAPTER 9

Installing Waveset on Oracle Application Server 10g

Follow these steps to install Waveset on Oracle Application Server 10g Release 3.

Step 1: Install the Waveset Software

▼ To Install Waveset on Oracle Application Server

Before You Begin If you are installing multiple instances of Waveset on a single application server, change the `waveset.serverId` system property to a unique name for each Waveset instance. By default, the `waveset.serverId` Java system property is the name of the machine the application server is installed on. To set this property to another value, add the following command to the startup script for your application server.

```
-Dwaveset.serverId=Name
```

1 You may install the software using one of two methods:

- Using the installer Graphic User Interface

  Run the `install.bat` (for Windows) or `install` (for UNIX) command to launch the installation process.

  If you copy the files from the installation media to your own location, note that the `idm.war` and `install.class` files must be in the same directory.

  The installer displays the Welcome panel.
- Using the nodisplay option (UNIX only)

On UNIX systems, change directory to the software location. Enter the following command to activate the installer in nodisplay mode:

```
install -nodisplay
```

The installer displays the Welcome text. Click **Next**. The installer then presents a series of questions to gather installation information in the same order as the Graphic User Interface installer in these procedures.

If no display is present, the installer defaults to the `nodisplay` option. The DISPLAY environment variable must be set to a valid X server or the installation may fail.

2 **Click Next. The installer displays the Software License Agreement page. Read the agreement, then if you accept, click the Yes (Accept License) button. The installer displays the Install or Upgrade? panel.**

3 **Leave the New Installation option selected, and then click Next.**

The installer displays the Select Installation Directory panel.

4 **Replace the displayed directory location with the location where you want to install Waveset. This could be a staging location or a specific folder. Enter the location (or click Browse to locate it), and then click Next.**

Note – If the directory you enter does not exist, Waveset prompts for confirmation, and then creates the directory.

---

5 **On the Ready to Install page, click Install Now to begin installation.**

After installing the files, Waveset displays the Launch Setup panel.

Note – Before you continue, if you plan to use a database, you may need to copy one or more files to the `idm\WEB-INF\lib` directory. For example, you may need to place into `idm/WEB-INF/lib` a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see Appendix C, "Database Reference." When finished, click **Launch Setup** to launch the Setup Wizard and continue with setup steps.

A pop-up window will ask if you have copied all JAR files. If you have, click **Yes, Continue**.

If you click **Launch Setup** before copying your database files, setup will not proceed correctly. If this happens, quit the installation program, and then use the `lh setup` command to restart the setup portion of the installation process.

---

6 **Click Next on the Setup Wizard panel.**

The installer displays the Locate the Repository panel.

7 **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

See Appendix C, "Database Reference," for selections and setup instructions.

8 **Click Next.**

The Continue Waveset Demo Setup? panel appears.

9 **If this is a non-demo installation, click No, I will configure Waveset myself.**

Otherwise, if appropriate, click **Yes, I would like to continue setting up a demonstration environment**. This allows you to quickly configure users and enter environment and server information.

10 **Enter the following personal information:**

- First name
- Last name
- Email address

This personal information is used to create the Approver user (with configurator privileges.)

11 **Enter the following Approver information:**

- Approver name
- Approver password

12 **Click Next.**

13 **Select the Server Type from the list.**

Select **None** if your environment has no server to manage. If there is a server you wish to manage, select the appropriate server type. You will be prompted for further server information as appropriate.

14 **If you have an email SMTP server, click SMTP Host and enter the server address. If desired, click Test Server to verify communication to the SMTP server.**

15 **If you would like email notifications to be written to a file, click Notification File. Click Browse to select another notification file.**

16 **Click Next.**

The installer displays the Import Save Configuration panel.

17 **Click Execute to perform all the listed functions. If desired, click Hide Details.**

18 **When all functions complete, click Done in the setup panel.**

19 **If the application server is installed on a UNIX machine, change directories to the `$WSHOME/bin` directory and run the following command to allow the scripts in this directory to be executed.**

```
chmod -R +x *
```

Getting More Information

When installation completes, the installer displays the Installation Summary panel. For detailed information about the installation, click **Details**.

Not all messages may not be displayed here. View the log file (identified in details) for more information.

When finished, click **Close** to exit the installer.

After completing installation, continue by optionally installing the Waveset Gateway.

Step 2. Deploy Waveset on Oracle Application Server

▼ To Deploy Waveset on Oracle Application Server

1 **Open a command prompt, then change to the staging directory where you installed the Waveset files. (This is the directory you specified in "Step 1: Install the Waveset Software" on page 69 in the procedure "Step 1: Install the Waveset Software" on page 69)**

2 **Create a `.war` file with the Waveset files by using the `jar.exe` (on Windows) or `jar` (on UNIX) command:**

```
c:\java1.5\bin\jar.exe cvf ..\idm.war * /usr/bin/jar cvf ../idm.war *
```

3 **Launch your application server and log in to the Oracle Application Server Control Console.**

4 **Navigate to the Cluster Topology page. Select View by Application Servers. Then select the OC4J name link.**

5 **On the OC4J Home page, click the Applications link.**

6 **Click the Deploy... button.**

7 **In the Archive text box, enter the file path for the `idm.war` file.**

8 **In the Deployment Plan section, select Automatically create a new deployment plan. Then click Next.**

9. **When the Deploy: Application Attributes page displays, set the Application Name to `idm`. Set the Context Root to `/idm`, and then click Next.**

10. **Set any Deployment Settings as necessary for your site.**

11. **Click the Deploy button. The console displays a confirmation page when Waveset has been deployed.**

Step 3. Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

PART III

Installing Optional Components

Waveset optional components are installed on machines other than the machine(s) hosting your application server(s). These components may be necessary if you plan to set up certain resource adapters such as Domino or Novell NetWare, or if you operate a Windows Active Directory domain.

Note – Resource adapters are not the same as optional components and are not documented in this installation guide. Resource adapter documentation can be found in the *Oracle Waveset 8.1.1 Resources Reference*.

Chapters in this part include:

◆ ◆ ◆ CHAPTER 10

Installing the Waveset Gateway

Waveset requires a lightweight gateway to manage resources that cannot be directly accessed from the server. If you plan to set up any of the following resource adapters, you must install the Waveset Gateway.

- Windows Active Directory
- Domino
- Novell NetWare, including GroupWise
- Remedy
- RSA ACE/Server
- Scripted Gateway

These resources include systems that require API calls that are platform specific. With the Gateway installed on the target platform, Waveset can make the API calls that are needed to interact with the resource.

Prerequisites

You must ensure that the Waveset Gateway is made highly available and that Gateway machines are properly configured. Please review the following prerequisites.

- The Gateway may be installed on at least Windows 2000 SP3 and Windows 2003 platforms.
- You should run an instance of the Gateway on multiple machines to prevent the Gateway from becoming a single point of failure. Configure your network to provide failover if the main Gateway instance dies.
- Placing the Gateways behind a device that load balances is not a supported configuration and will cause certain Waveset functions to fail.
- All Windows domains managed by a Gateway must be part of the same forest. Managing domains across forest boundaries is unsupported. If you have multiple forests, install at least one Gateway in each forest.

- Systems that are running the Waveset Gateway should be configured so that Dr. xWatson does not produce visual notifications. If this feature is set and the Gateway encounters an error, the process will hang until the pop-up window is closed.
- The Gateway system should also be configured to use a default ANSI codepage that is compatible with all data that Waveset manages.
- If you need to access resources that use different code pages, install a separate Gateway for each code page. The Gateway and resource should implement the same code page.
- You should use UTF-8 whenever possible, and if multiple resources are to be accessed from a single Gateway, the Gateway and all resources should all be configured to use UTF-8.
- Refer to the following web page for information about setting international support on Windows XP and Server 2003 systems:

  `http://www.microsoft.com/globaldev/handson/user/xpintlsupp.mspx`

Installation

▼ To Install the Waveset Gateway

Before You Begin Select the Windows machine on which to install the Gateway. It must be a member of the domain in which the accounts and other objects will be managed (the managed domain) or a member of a domain that is trusted by the managed domain. The Gateway does not need to run on a domain controller.

Note – For better performance, the Gateway should be located near (from a network connectivity perspective) the domain controllers of the managed domain.

---

1. **If you are selecting a system that is not the Waveset server, then:**

   a. **Create a directory called `idm` on the remote system.**

   b. **Copy the `gateway.zip` file from the Waveset installation package.**

   c. **Unpack and copy the contents of the `gateway.zip` file to the `idm` directory.**

2. **From the directory where the Gateway files are installed, run the following command to install the Gateway as a service:`gateway -i`**

3. **Run the following command to start the Gateway service:`gateway -s`**

Note –

- You can stop the Gateway service by running the command:`gateway -k`
- You can also start and stop the Gateway by following these steps:

  a. Open the Windows Control Panel.
  b. Open Services. (In Windows, Services is located in Administrative Tools.)
  c. Select Waveset Gateway.
  d. Click **Start** or **Stop**.

Failure Messages

Two common messages and their likely causes when working with the Gateway are as follows:

- '`Overlapped I/O operation is in progress`'

  The most common cause of this message is that you have asked for the service to be installed or removed before a prior installation or removal has fully completed. Check the state of the service.

- '`Input/output error`'

  The most common cause of this is that you do not have rights to work with this service.

◆ ◆ ◆ CHAPTER 11

Installing PasswordSync

This chapter briefly describes PasswordSync, which is an Waveset optional component. For full instructions on installing and configuring PasswordSync, see Chapter 11, "PasswordSync," in *Oracle Waveset 8.1.1 Business Administrator's Guide*

About PasswordSync

The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset. Plan on installing PasswordSync on each domain controller and backup domain controller in the domains that will be synchronized with Waveset.

After installing PasswordSync, you will need to configure Waveset to accept PasswordSync change notifications. Depending on the complexity of your environment, PasswordSync can take some time to configure. For this reason, and because PasswordSync is not essential in order to start using Waveset, the PasswordSync installation and configuration steps are located together in Chapter 11, "PasswordSync," in *Oracle Waveset 8.1.1 Business Administrator's Guide*.

PART IV

Starting, Configuring, and Registering Waveset

In this part of the installation guide you start Waveset, log on to the Administrator interface, perform some basic configuration tasks, and register your installation with Oracle.

Chapters in this part include:

◆ ◆ ◆ CHAPTER 12

Starting Waveset

Follow these steps to begin using Waveset or Waveset Service Provider.

Starting Waveset

▼ To Start Waveset and Log in to the User Interface

1 **Start your application server.**

2 **In a Web browser, enter the URL for your application server, including port, and append the URL for the Waveset Web application (typically, this is `/idm`).**

For example: `http://appserver.example.com:8080/idm`

Note – If you are using Internet Information Server (IIS) as your Web server, you must add `index.html` to the list of Default Documents under Properties for the Waveset virtual directory. Otherwise, the application's main page will not resolve correctly when accessing the Waveset server.

---

3 **Enter a user ID and password to log in. You can log in with one of the default account IDs and passwords:**

ID	**`Configurator`**
Password	**`configurator`**
or	
ID	**`Administrator`**
Password	**`administrator`**

Note – It is strongly recommended that you reset the default administrator account passwords after installation.

Note – For security reasons, we additionally recommend that you access the applications through a secure web server using HTTPS. Read the chapter titled Waveset Security in the *Oracle Waveset 8.1.1 System Administrator's Guide* for additional security recommendations.

Enabling Language Support

The Waveset applications support multiple languages, including French, Spanish, German, Italian, Brazilian Portuguese, Japanese, Simplified Chinese, Traditional Chinese, Korean, and English. Use the following steps to install localized files on your application server.

▼ To Install a Language Pack

1. **In a browser, go to the Oracle download page:**`http://www.oracle.com/technetwork/indexes/downloads/index.html`**.**
2. **Download Waveset for All Supported Platforms, Multi-language. The language pack (L10N file) is available as a separate download.**
3. **Unpack the downloaded language pack to a temporary location.**
4. **Copy the JAR file from the temporary location to the** `$WSHOME/WEB-INF/lib` **directory (UNIX) or the** `%WSHOME%\WEB-INF\lib` **directory (Windows).**
5. **Restart the application server instance.**

Setting the `lh` Environment

Some deployments require added environment variables and other settings to the shell environment (or command environment in Windows) for `lh` to function. For example, when using a WebSphere datasource for the repository, extra environment variables are required.

You may create an environment file that `lh` uses to load deployment-specific environment settings. This file must be named and placed in the following location:

UNIX	`$WSHOME/bin/idm-env.sh`
Windows	`%WSHOME%\bin\idm-env.bat`

An environment file is not provided. You can, however, use the following files as a starting point for your own environment file:

UNIX	`sample/other/idm-env.sh-ws5`
Windows	`sample\other\idm-env.bat-ws5`

◆ ◆ ◆ CHAPTER 13

Registering Waveset with Oracle

You are encouraged to register your installation of Waveset.

Registering Waveset

To register, you will need a Sun Online Account and password. If you do not have a Sun Online Account, you can register for one by completing the form at this address:

`https://reg.sun.com/register`

Waveset can be registered from the console or by using the Administrator interface.

Registering from the console allows you to also create a local service tag, which can be used with Sun Service Tag software to track your inventory of Sun systems, software, and services. The service tags client package should be installed before you create a local service tag. This package can be downloaded by clicking the Download Service Tags button at the following address:

`http://inventory.sun.com/inventory`

In order to register Waveset, you should be logged on with an administrator account that allows you to configure Waveset objects. This account should have the Product Registration capability. For information about capabilities, see "Assigning Capabilities to Users" in *Oracle Waveset 8.1.1 Business Administrator's Guide*.

Note – Java on your Waveset application servers must be properly configured for SSL in order for the product registration feature to work. All JARs referenced in your `java.security` file (or equivalent) need to be present.

Registering Waveset from the Console

▼ To Create a Local Service Tag or Register Waveset over the Internet with Oracle

1 **Go to the following directory:**

%WSHOME%\bin\lh (Windows)

$WSHOME/bin/lh (UNIX)

2 **To create a local service tag, use the following command:**

```
lh register -local
```

To register Waveset over the Internet with Oracle, use the following command:

lh register -remote -u <*userid*> **-p** <*password*> **-userSOA** <*soaUserid*> **-passSOA** <*soaPassword*> **-domain** <*domain*> **-proxy** <*proxyHost*> **-port** <*proxyPortNumber*>

where:

- **userid** is the Waveset userID of the Waveset administrator who is authorized to do the registration
- **password** is the Waveset password of the Waveset administrator who is authorized to do the registration
- **soaUserid** is the user ID of the Sun Online Account that will be used for registration.
- **soaPassword** is the password of the Sun Online Account that will be used for registration.
- **domain** is the domain (or team) that the Sun Online Account user belongs to and wishes to use for the registration.
- **proxyHost** is the network proxy to use for access to the Sun online registration service. Only required if your network is configured to use a proxy to reach external Internet addresses.
- **proxyPortNumber** is the port on the network proxy to use for access to the Sun online registration service. Only required if your network is configured to use a proxy to reach external Internet addresses

The `register` Command

Usage

```
register -local
register -remote [-u <userid> [-p <password>]] [-prompt] -userSOA <userid> -passSOA <password>
-domain <domain>  [-proxy <proxyHost> [-port <proxyPortNumber>]] register [-help | -?]
```

Options

Use these options with the register command:

TABLE 13–1 Syslog Command Options

Option	Description
`-local`	Create a service tag on this host.
`-remote`	Register this installation of Waveset over the network directly with Oracle.
`-u <userid>`	The Waveset user ID of the Waveset administrator who is authorized to do the registration.
`-p <password>`	The Waveset password of the Waveset administrator who is authorized to do the registration.
`-prompt`	Interactively prompt for the password if missing.
`-userSOA <userid>`	The user ID of the Sun Online Account that will be used for registration. Required if registering with the `-remote` option.
`-passSOA <password>`	The password of the Sun Online Account that will be used for registration. Required if registering with the `-remote` option.
`-domain <domain>`	The domain (or team) that the Sun Online Account user belongs to and wishes to use for the registration. Required if the user belongs to multiple domains.
`-proxy <proxyHost>`	The network proxy to use for access to the Sun Online registration service. Required if registering with the `-remote` option and your network is configured to use a proxy to reach external Internet addresses.
`-port <proxyPortNumber>`	The port on the network proxy to use for access to the Sun Online registration service. Required if registering with the `-remote` option and your network is configured to use a proxy to reach external Internet addresses.
`-help | -?`	Print help for this command to the console.

Registering Waveset from the Administrator Interface

If you do not need to create a local service tag, register Waveset from the Administrator interface.

▼ To Register Waveset from the Administrator Interface

1 **In the Administrator interface, click Configure.**

2 **In the secondary menu, click Product Registration.**

The Product Registration page opens.

3 **Complete the form and click Register Now. Click the i-Helps for information about individual form fields.**

Note – If your application server is not configured to allow outgoing SSL connections, you may receive the following error message:

```
Failed to register on Sun Connection server due to invalid Sun Online Account
user/password.
```

To resolve this issue, add the appropriate trusted root certificates to your application server's keystore. Consult your application server's documentation for details.

Note – If old versions of `xml-apis.jar` and `xercesImpl.jar` are present in your application server's classpath, you may receive the following error message:

```
java.lang.NoSuchMethodError:org.w3c.dom.Node.getTextContent()Ljava/lang/String;
```

To resolve this problem, modify the classpath so that only the most recent versions of `xml-apis.jar` and `xercesImpl.jar` are present.

PART V

Appendices

This last part of the installation guide documents miscellaneous topics such as installing Waveset manually and uninstalling Waveset.

The appendices are presented in the following order:

- Appendix A, "Installing Waveset Manually"
- Appendix B, "Uninstalling Waveset"
- Appendix C, "Database Reference"
- Appendix D, "Configuring Data Sources for Waveset"
- Appendix E, "Changing the Database Repository Password"
- Appendix F, "`setRepo` Reference"
- Appendix G, "DBMS Recovery and the Repository"
- Appendix H, "Working with Firewalls or Proxy Servers"

◆ ◆ ◆ APPENDIX A

Installing Waveset Manually

If you do not want to install Waveset through the installation interface, use these alternate, manual installation procedures.

Installation Steps

Follow these general installation and configuration steps:

Step 1: Install the Application Server software

Refer to the installation chapters in Part II, "Installing Waveset," for information on installing and configuring specific application servers.

Step 2: Install the Application Software

Follow these steps to install the software.

On Windows

Enter the following series of commands:

```
set JAVA_HOME=Path to JDK
cd ApplicationDeploymentDirectory
```

where ApplicationDeploymentDirectory is the directory where your application server is deployed. For example, for a Tomcat installation, change directory to `c:\tomcat-5.5.3\webapps`.

```
mkdir idm       (or any other directory name)
cd idm
set WSHOME=ApplicationDeploymentDirectory\idm
jar xvf %CDPATH%\idm.war
```

Note – Make sure the value of the `WSHOME` environment variable does NOT contain the following:

- Quotation marks (“ “)
- A backslash at the end of the path (\)

Do not use quotation marks, even if the path to the application deployment directory contains spaces.

ON UNIX

Enter the following series of commands:

```
PATH=$JAVA_HOME/bin:$PATH
cd $TOMCAT_HOME/webapps
cd ApplicationDeploymentDirectory
```

where `ApplicationDeploymentDirectory` is the directory where your application server is deployed. For example, for a Tomcat installation, change directory to `/tomcat-5.5.3/webapps`.

```
mkdir idm       (or any other directory name)
cd idm
WSHOME=ApplicationDeploymentDirectory/idm;export WSHOME
jar xvf /cdrom/cdrom0/idm.war
```

Change directory to `$WSHOME/bin` then set permissions on the files in the directory so that they are executable.

Step 3: Configure the Waveset Database Connection

Note – If you plan to use a database, you may need to copy one or more files to the `idm/WEB-INF/lib` directory. For example, you may need to place a JAR file containing a JDBC driver (for a DriverManager connection) or a JAR file containing a JNDI InitialContextFactory (for a DataSource connection). To determine the steps you may need to perform before you go on, see the Appendix C, “Database Reference.”

The `ServerRepository.xml` file is an encrypted file that defines how to connect to the repository. Use one of the following procedures to configure the repository XML file.

To Configure the Repository XML file in Windows or Xwindows (UNIX) Environments

1. **Enter one of the following commands to launch the setup interface.**

   On Windows

   ```
   cd %WSHOME%\bin
   lh setup
   ```

   On UNIX

   ```
   cd $WSHOME/bin
   lh setup
   ```

   The installer displays a welcome page. Click Next to display the Locate the Repository panel.

2. **Select a database from the list provided. Depending on your selection, setup prompts for additional setup information.**

   Depending on your selection, setup prompts for additional setup information.

   Note – See Appendix C, "Database Reference," for selections and setup instructions.

3. **Click Next to display the Continue Waveset Demo Setup? panel. Follow all subsequent prompts as directed.**

To Configure the Repository XML file in Non-Xwindows Environments

1. **Set your repository with the following series of commands:**

   ```
   cd $WSHOME/bin
   chmod 755 *
   ```

2. **Run the `setRepo` command, using the appropriate location flags required to connect to the database.**

   Note – For complete `setRepo` usage and options, see Appendix F, "`setRepo` Reference."

3. **Start the application server.**

4. **Load the initial database values. Follow these general steps:**

   a. **Log in to the Administrator Interface.**

b. **From the menu bar, select Configure > Import Exchange File.**

c. **Enter or browse for the `init.xml` file (located in the `idm/sample` directory), and then click Import.**

Step 4: Install Optional Components

If your IT environment has Windows Active Directory, Novell NetWare, Domino, Remedy, or RSA ACE/Server resources, you should install the Waveset Gateway.

If your IT environment has Windows Active Directory domains, you should also install PasswordSync. The Waveset PasswordSync feature keeps user password changes made on Windows Active Directory domains synchronized with other resources defined in Waveset.

See Part III, "Installing Optional Components," for installation information.

◆ ◆ ◆ APPENDIX B

Uninstalling Waveset

This chapter has two sections:

Uninstalling the Waveset Software

Use these instructions to remove the software from a Windows or UNIX installation.

▼ To Uninstall Waveset on Windows

1. **Stop your application server.**
2. **If you are using a Windows server to run the Waveset Gateway, stop the gateway service with the command** `gateway –k`**.**

   Note – You can later remove the gateway service with the command: `gateway –r`
3. **Remove configuration database files. To do this:**

   a. **Log in to your database server.**

   b. **Run the** `drop_waveset_tables.DatabaseType` **script for your database type.**
4. **From the Windows Control Panel, open** *Add or Remove Programs*.
5. **Click to highlight Waveset, and then click** *Change/Remove*. **Your system displays an Uninstaller panel.**

6 **Click *Uninstall Now* to remove the application files and registry entries. After reading the Unistall Summary, click Finish.**

7 **Remove links and references to the application software from your application server.**

▼ To Uninstall Waveset on UNIX

1 **Stop your application server.**

2 **Go to the location where you installed the Waveset application.**

3 **Remove configuration database files. To do this:**

   a. **Log in to your database server.**

   b. **Run the** `drop_waveset_tables.DatabaseType` **script for your database type.**

4 **Enter the following command:**

```
java -cp . uninstall_Sun_System_Identity_Manager
```

Note –

- Do not include the `.class` extension of this file to the command.
- If `$WSHOME` is in your class path, then you may omit the `-cp .` argument.

Removing the Waveset Database

Use one of the following commands to remove the Waveset database.

If your database is:	On this platform:	Run this command:
MySQL	Windows	`c:\mysql\bin\mysql < drop_waveset_tables.mysql`
MySQL	UNIX	`$MYSQL/bin/mysql < drop_waveset_tables.mysql`
Oracle	Windows	`sqlplus` *dbausername/dbapassword* `@drop_waveset_tables.oracle`
Oracle	UNIX	`sqlplus` *dbausername/dbapassword* `@drop_waveset_tables.oracle`
DB2	Windows and UNIX	`db2– tvf drop_waveset_tables.db2`

If your database is:	On this platform:	Run this command:
SQL Server	Windows	`isql -S` *Server* `-U` *User* `-P` *Password* `-i` *PathToFile*`\drop_waveset_tables.sqlserver`

◆ ◆ ◆ APPENDIX C

Database Reference

If you plan to use a database, you may need to copy one or more files to the `idm/WEB-INF/lib` directory on your application server during the Waveset installation process. The following table shows the download or installed product location of one or more `.jar` files that you need to copy for your database type.

Notes on Configuring Databases and Downloading Supporting JAR Files

Note – For any given database, there should only be one JAR file with JDBC drivers installed at any given time. When installing JAR files, inspect `WEB-INF/lib` and remove any JAR files that contain conflicting JDBC drivers. For example, if installing a JAR file containing Oracle JDBC drivers, remove the Oracle JAR file that you are replacing before starting Waveset.

Databases that are managed resources also utilize JDBC driver JAR files located in the `WEB-INF/lib` directory. The same JAR file that supports your repository will also support any managed database resources from the same vendor.

Tip – To help avoid conflicts when installing JDBC driver JAR files, Oracle recommends renaming JAR files using the format *dbName*`jdbc.jar`. The name of the JAR file does not matter, but renaming a `.jar` file to include the name of the database followed by `jdbc` is recommended to help administrators avoid JAR file collisions in the future.

Database	Download or Product Location	Configuration Notes

DB2	`Db2/java/db2java.zip`
	—OR—
	If you are using the Type 4 network driver, use this file instead:
	`db2jcc.jar`
	If you are using at least DB2 8.1.2, you will also need the following files:
	`db2jcc_license_cisuz.jar`
	`db2jcc_license_cu.jar`
		1. Unzip the `db2java.zip` file. *Note:* On Windows systems rename the `db2java.zip` to `db2java.jar`.
		2. Copy the appropriate JAR files to the `WEB-INF\lib` directory.
		3. Optional: Rename the `.jar` file to `db2jdbc.jar`.
		4. Start the JDBC driver:
		■ On UNIX systems, enter: `db2jstrt port#` (default 6789) running under instant owner
		■ On Windows systems, start from services

MySQL	`http://dev.mysql.com/downloads/` Select a version of MySQL Connector/J to download.	1. Unpack the connector package. 2. Copy the `mysql-connector-`*Version*`-bin.jar` file to the `WEB-INF\lib` directory. 3. Optional: Rename the `.jar` file to `mysqljdbc.jar`.
Oracle	`Oracle/jdbc/lib/ojdbc14.jar` *or* Oracle Database 11*g* release JDBC drivers *Note:* A JDBC Type 4 driver should be downloaded. Type 2 OCI drivers are not supported.	1. Copy the `.jar` file to the `idm\WEB-INF\lib` directory. 2. Optional: Rename the `.jar` file to `oraclejdbc.jar`.
SQL Server	`Microsoft SQL Server 2005 Driver for JDBC/lib`	1. Copy the `sqljdbc.jar` file to the `WEB-INF\lib` directory. 2. Optional: Rename `sqljdbc.jar` to `mssqlserver.jar`.
JDBC 2.0 Data Source	Depends on the directory service. Consult the documentation for your application server or other directory service to locate an appropriate JAR that contains the InitialContextFactory class.	Copy the appropriate JAR (or JARs) to the `WEB-INF/lib` directory.

Note – For a DataSource connection, you must copy or download (and place into `WEB-INF/lib`) a JAR that contains the `InitialContextFactory` class.

Refer to the following table when installing the Waveset software and completing database selections on the Locate Waveset Repository panel.

If your selection is:	Enter
JDBC 2.0 Data Source ■ **Initial Context Factory:** `com.sun.jndi.fscontext.RefFSContextFactory` ■ **DataSource Name/Path:** `jdbc/SampleDB`	Enter the database location. Optionally enter the password you selected when you set up the database.
MySQL ■ **URL:** `jdbc:mysql://localhost/waveset` ■ **JDBC Driver:** `org.gjt.mm.mysql.Driver` ■ **Connect as User:** `waveset`	Enter the database location and the password you selected when you set up the database.
Oracle ■ **URL:** `java:oracle:thin:@host.your.com:1521:dbname` ■ **JDBC Driver:** `oracle.jdbc.driver.OracleDriver` ■ **Connect as User:** `waveset`	Enter the database location and the password you selected when you set up the database.
DB2 ■ **URL:** `jdbc:db2://host.your.com:6789/dbname` ■ **JDBC Driver:** `COM.ibm.db2.jdbc.net.DB2Driver–OR–com.ibm.db2.jcc.DB2Driver` ■ **Connect as User:** `Waveset`	Enter the database location and the password you selected when you set up the database.

If your selection is:	Enter
SQLServer **Default values, to be used with the Microsoft SQL Server 2005 JDBC Driver:** ■ **URL:** "`jdbc:sqlserver://host.your.com:1433;DatabaseName=dbname`" ■ **JDBC Driver:** `com.microsoft.sqlserver.jdbc.SQLServerDriver` ■ **Connect as User:** `waveset` **Use the following values with the Microsoft SQL Server 2000 JDBC Driver:** ■ **URL:** "`jdbc:microsoft:sqlserver://host.your.com:1433;DatabaseName=dbname;SelectMethod=Cursor`" ■ **JDBC Driver:** `com.microsoft.jdbc.sqlserver.SQLServerDriver` ■ **Connect as User:** `waveset`	Enter the database location and the password you selected when you set up the database. **Note:** All connections to SQL Server must be performed using the same version of the JDBC driver. This includes the repository as well as all resource adapters that manage or require SQL Server accounts or tables, including the Microsoft SQL adapter, Microsoft Identity Integration Server adapter, Database Table adapter, Scripted JDBC adapter, and any custom adapter based on these adapters. Conflict errors occur if you attempt use different versions of the driver.
LocalFiles ■ **Path:** `c:\jakarta-tomcat\webapps\idm\config`	Enter the directory location, or click Browse to locate it.
Directory Server (Sun Java System Directory Server) ■ **Initial Context Factory:** `com.sun.jndi.ldap.LdapCtxFactory` ■ **URL:** `ldap://host.your.com/dc=myDomain,dc=your,dc=com` ■ **User:** `waveset`	Enter the database location. Optionally enter the password you selected when you set up the database.

◆ ◆ ◆ APPENDIX D

Configuring Data Sources for Waveset

This appendix provides procedures for creating data sources for Waveset.

It contains the following sections:

Configuring a Tomcat Data Source for Waveset

Background on how Tomcat 6 data sources are configured can be found at
`http://tomcat.apache.org/tomcat-6.0-doc/jndi-datasource-examples-howto.html`

▼ To Create the Data Source

These instructions are for Tomcat 6. They will not work with Tomcat 4.*x* or 5.*x*.

1 **Verify that the environment variable `TOMCAT_HOME` is set correctly.**

2 **Copy the JDBC driver JAR for your database type to Tomcat's `lib` directory (`$TOMCAT_HOME/lib`).**

3 **Define the data source for Tomcat by editing `$TOMCAT_HOME/conf/web.xml` and adding a resource reference as follows:**

```
<resource-ref>
  <res-ref-name>jdbc/IDM_database</res-ref-name>
```

```
  <res-type>javax.sql.DataSource</res-type>
  <res-auth>Container</res-auth>
</resource-ref>
```

4 **Define the data source for the Waveset webapp by editing the webapp deployment context (for example,** `$TOMCAT_HOME/conf/Catalina/localhost/idm.xml`**) and adding the data source resource as follows:**

```
<Resource
  auth="Container"
  name="jdbc/IDM_database"
  type="javax.sql.DataSource"
  driverClassName="org.gjt.mm.mysql.Driver"
  password="waveset"
  maxIdle="5"
  maxWait="5000"
  username="waveset"
  url="jdbc:mysql://mysqlhost:3306/waveset"
  maxActive="150"/>
```

Note – In the `<resource-ref>` element, the value of the `<resource-ref name>` element must be the same as the `name` attribute in the `<Resource>` element.

Be sure to change the attributes in the `<Resource>` element to match your environment.

▼ To Point Waveset to the Data Source

1 **Verify that the** `WSHOME` **and** `JAVA_HOME` **environment variables are set correctly.**

2 **Create a Waveset** `ServerRepository.xml` **file that points to the Tomcat data source:**

```
lh setRepo -v -tDatastore -iorg.apache.naming.java.javaURLContextFactory
-fjava:/comp/env/jdbc/IDM_database -n -o ServerRepository-datasource.xml
```

Note – Change the `-f` location flag to the value you specified for the Resource `name` attribute, above. The prefix `java:/com/env` is specific to `javaURLContextFactory` and Tomcat. This is the JNDI prefix that the data source name is appended to.

---

3 **Configure the Waveset webapp to use the data source by copying the new** `ServerRepository` **file in place. For example:**

```
cp ServerRepository-datasource.xml $WSHOME/WEB-INF/ServerRepository.xml
```

Note –

- When you copy the data-source-enabled `ServerRepository.xml` to `$WSHOME/WEB-INF`, the `lh` command will stop working. This is expected because `lh` uses `ServerRepository.xml` to connect to the Waveset repository. Since `lh` is not running in the Tomcat container, it cannot look up the data source in Tomcat's JNDI.
- When a Tomcat data source is used by Waveset, the data source will typically be responsible for connection pooling. In this case Waveset connection pooling needs to be disabled. Edit the `RepositoryConfiguration` configuration object and set the `disableConnectionPool` attribute to `true` to allow the Tomcat data source to manage the connection pool.
- The concurrent use of the `lh` utility and Tomcat data sources can be problematic because of the connection pool issue mentioned above. Tomcat data sources will want to control the connection pool, but the `lh` utility cannot use the Tomcat data source, so the value of the `RepositoryConfiguration disableConnectionPool` attribute will depend on the type of access, either JDBC or data source.

Configuring a WebSphere Data Source for Waveset

Use the following information to configure a WebSphere Data Source for Waveset.

This section includes:

Servlet 2.3 Data Sources

As of the Waveset 6.0 release, the deployment descriptor in the `WEB-INF/web.xml` file refers to Servlet 2.3. Because of this, the Waveset web application can no longer be used with a WebSphere application server version 4 data source.

Note – Due to interoperability issues between WebSphere data sources and Oracle JDBC drivers, Oracle customers who want to use a WebSphere data source with Waveset must use Oracle 10g R2 and the corresponding JDBC driver. (The Oracle 9 JDBC driver will not work with a WebSphere data source and Waveset.) If you have a version of Oracle prior to 10g R2 and cannot upgrade Oracle to 10g R2, then configure the Waveset repository so that it connects to the Oracle database using Oracle's JDBC Driver Manager (and not a WebSphere data source).

▼ To Configure a WebSphere Data Source for Waveset

1. **Configure a JDBC provider.**
2. **Configure a WebSphere JDBC Data Source.**
3. **Point the repository to the data source.**

   These steps are discussed next.

Configuring a JDBC Provider

▼ To Configure a JDBC Provider

Before You Begin Use WebSphere's administration console to configure a new JDBC Provider.

1. **Click the Resources tab in the left pane to display a list of resource types.**
2. **Click JDBC then JDBC Providers to display a table of configured JDBC providers.**
3. **Click the New button above the table of configured JDBC providers.**
4. **Select from the list of JDBC database types, provider types, and implementation types. Optionally modify the Name and Description fields.**

   Oracle, Oracle JDBC Drive, and Connection pool Data Source will be used for this example.

   Click **Next**.

5. **Enter database classpath information. The contents of the Enter database class path information page may vary, depending on what you selected in the previous step.**

   - Specify the path to the JAR that contains the JDBC driver. For example, to specify the Oracle thin driver, specify a path similar to the following:

     ```
     /usr/WebSphere/AppServer/installedApps/idm/idm.ear/idm.war/WEB-INF/lib/oraclejdbc.jar
     ```

     Click **Next**.

- Complete any other fields as required. The selected database, provider, and implementation types determine which fields are displayed. Click **Next** when you have completed the dialog.
- A summary page is displayed. When you are finished reviewing your selections, click the **Finish** button at the bottom of the table. Click the **Save** link to keep your definition. The right pane should display the provider you added.

  To configure a data source that uses this JDBC provider, see "Point the Waveset Repository to the Data Source" on page 113.

Configuring a WebSphere JDBC Data Source

Use WebSphere's Administrative Console to define a data source with an existing JDBC Provider.

Before you can finish configuring the data source, you must configure authentication data. These aliases contain credentials that are used to connect to the DBMS.

▼ To Configure the Authentication Data

1 **Click Security > Secure administration, applications, and infrastructure.**

2 **Under Authentication, click Java Authentiation and Authorization Service configuration > J2C authentication data. The JAAS - J2C authentication data panel is displayed.**

3 **Click New.**

4 **Enter a unique alias, a valid user ID, a valid password, and a short description (optional). The user ID must be valid on the target database.**

5 **Click OK or Apply. No validation for the user ID and password is required.**

6 **Click Save.**

Note – The newly created entry is visible without restarting the application server process to use in the data source definition. But the entry is only in effect after the server is restarted.

▼ To Configure the Data Source

1 **Click Resources > JDBC Providers >** *Your_JDBC_Provider_Name* **> Data Sources tab in the left pane to display the Data sources page. The right pane displays a table of data sources configured for use with this JDBC provider. Click the New button above the table of data sources.**

2 **Use the wizard provided to configure the general properties for the new data source. Note the following on the Enter basic data source information page:**

- The **JNDI Name** is the path to the DataSource object in the directory service. You must specify this same value as the `-f` argument in `setRepo -t`*dbms* `-i`*initCtxFac* `-f`*filepath*.
- Select the **Component-managed Authentication Alias** that you created in "Configuring a JDBC Provider" on page 110. These are the credentials that will be used to access the DBMS (to which this DataSource points).

  Click **Next** when you have configured this panel. The Create New JDBC provider page is displayed.

3 **Configure the database-specific properties for this data source as needed. Refer to the online help for information about the available properties.**

Make sure **Use this data source in container-managed persistence (CMP)** is unchecked. Waveset does not use Enterprise Java Beans (EJBs). Click Next to go to the summary page.

4 **Click Finish to save your data source.**

Configure the Data Source in a WebSphere Cluster

When configuring the data source in clustered WebSphere environments, configure it at the cell level. This allows the data source to be accessed from all nodes in the cell.

To configure this use the `-D` *$propertiesFilePath* option where `$propertiesFilePath` contains:

```
java.naming.provider.url=iiop://localhost:jndi_port/
```

or:

```
-u iiop://localhost:jndi_port/
```

▼ To Determine the JNDI Port to Specify

Examine the WebSphere configuration to determine the JNDI port to specify.

1 **In the WebSphere administration console, navigate to Servers > Application Servers >** *Your_Server* **> Ports.**

2 **Look at the BOOTSTRAP_ADDRESS property. Use the specified port in the** `java.naming.provider.url` **property.**

Note – The `java.naming.provider.url` uses `localhost` as the hostname. WebSphere replicates a JNDI server on each node in the cluster so that each application server has its own JNDI server to query. Specify **localhost** for the host so that each application server in the cluster is used as the JNDI server that Waveset queries when the **DataSource** is being located.

Point the Waveset Repository to the Data Source

▼ To Point the repository to a Newly Created Data Source

1. **Set the WSHOME environment variable to point to your Waveset installation; for example:**

   ```
   export WSHOME=$WAS_HOME/installedApps/idm.ear/idm.war
   ```

   where `$WAS_HOME` is the WebSphere home directory, such as `/usr/WebSphere/AppServer`

2. **Make sure that the JAVA_HOME environment variable is set correctly; for example:**

   ```
   export JAVA_HOME=$WAS_HOME/java
   ```

3. **Make sure that the Java executable is in your path; for example:**

   ```
   export PATH=$JAVA_HOME/bin;$PATH
   ```

4. **Make sure the classpath is pointing to the WebSphere properties directory. For example**

   ```
   export CLASSPATH=$WAS_HOME/properties
   ```

5. **Change to the `$WSHOME/bin` directory.**

6. **(For SQLServer only): Install JTA support:**

   a. **Copy the `sqljdbc.dll` file located in the `SQLServer JTA` directory to the `SQL_SERVER_ROOT/binn` directory of the SQLServer database server.**

   Note – The default location of the SQLServer JTA directory is `C:\Program Files\Microsoft SQL Server 2000 Driver for JDBC\SQLServer JTA`. The default location of `SQL_SERVER_ROOT/binn` is `C:\Program Files\Microsoft SQL Server\MSSQL\Binn`.

   b. **From the database server, use the ISQL or OSQL utility to run the `instjdbc.sql` script, which is also found in the SQLServer JTA directory. The following examples illustrate the use of these utilities:**

   ```
   isql -Usa -p sa-password -S server-name -i location \instjdbc.sqlosql -E -i location
   \instjdbc.sql
   ```

7 **Archive a copy of the existing `ServerRepository.xml` file, in case you need to revert. By default, this file is located in `$WSHOME/WEB-INF` (UNIX), or `%WSHOME%\WEB-INF` (Windows).**

8 **Point the repository to the new location. For example:**

```
lh -Djava.ext.dirs="$JAVA_HOME/jre/lib:$JAVA_HOME/jre/lib/ext:
   $WASHOME/lib:$WASHOME/:$WASHOME/runtimes" setRepo
 -Uusername
 -Ppassword
 -toracle -icom.ibm.websphere.naming.WsnInitialContextFactory -fDataSourcePath -n -o
```

In the above example the DataSourcePath might be `jdbc/jndiname`. The `-Djava.ext.dirs` option adds all of the JAR files in WebSphere's `lib/` and `java/jre/lib/ext/` directories to the `CLASSPATH`. This is necessary in order for the `setRepo` command to run normally.

Change the `-f` location flag to match the value you specified for the **JNDI Name** field when configuring the data source. See Appendix F, "`setRepo` Reference," for more information about this command.

9 **In the RepositoryConfiguration configuration object, set the connectionPoolDisable attribute to true.**

```
<RepositoryConfiguration connectionPoolDisable='true'>
```

This setting prevents WebSphere from sending extraneous warnings to the `SystemOut.log` file. For more information, see http://www.ibm.com/support/docview.wss?uid=swg21121449

10 **Restart WebSphere to pick up changes. (This also restarts the system.)**

Specifying Additional JNDI Properties to the `setRepo` Command

The `setRepo` command provides an option that allows you to specify an arbitrary set of properties. The `-D $propertiesFilePath` option allows you to specify any number of settings, including vendor-specific properties not specified by JNDI, by including them in a properties file that you create.

For example, to specify a different JNDI port number, include a line like the following in your properties file:

```
java.naming.provider.url=iiop://localhost:2909
```

Configuring a WebLogic Data Source for Waveset

Use the following procedure to update the repository configuration in Waveset to point to a WebLogic Data Source.

This section is organized into the following steps:

Create a WebLogic Data Source

This example procedure describes configuration steps to use an Oracle database driver. Specific entries you make will differ, depending on your database type.

Note –

These steps assume that you have:

- Waveset installation running on WebLogic, Version 8.1
- A current working repository

Create a Connection Pool

▼ To Create a Connection Pool

1. **Log in to the WebLogic Administrator Web console (by default, `http://localhost:7001/console/`).**
2. **Expand the Services folder for the domain located in the navigation (left) pane.**
3. **Expand the JDBC folder.**
4. **Expand the Connection Pools folder.**
5. **In the right pane (JDBC Connection Pools), click Configure a new JDBC Connection Pool.**
6. **For Database Type select Oracle. You can use any of the applicable types. Note that drivers must be installed in order to use them.**
7. **Select an applicable drive in the Database Driver selection box. In this example, select Oracle's Driver (Thin).**

8 **Click Continue.**

9 **Configure the JDBC driver as follows:**

Value	Action
Name	Choose a unique name that identifies your connection pool. For example: myOraConnPool.
Database Name	Select the name of the Oracle database that you wish to connect to. In this example myOraDB.
Host Name	Specify the host name of the Oracle DB server.
Port	Specify the port (default is 1521) for the database server.
Database User Name	Specify the database account user's name used in the connection.
Password	Specify the password for the account user.

10 **Click Continue.**

11 **Test the database connection on this page or click Skip this step. You may need to add additional properties depending on your installation. See the administrator's guide for your target database.**

Note – The following **Connection Pool Settings** are dependent on the driver that you select. The following options are for the Oracle driver and may not be applicable if you choose another kind of driver.

The JDBC drivers must be installed for this to succeed. Follow the instructions provided with your target driver.

---

12 **Click Create and deploy.**

13 **Configure connection settings for this connection pool:**

```
Example Connection Settings:
Initial Capacity:20
Maximum Capacity:100
Capacity Increment: 10
Statement Cache Type: LRU
Statement Cache Size: 20
```

Create a JDBC Data Source

▼ To Create a JDBC Data Source

1 **Expand the Services folder for the domain located in the navigation (left) pane.**

2 **Expand the JDBC folder.**

3 **Expand the Data Source folder.**

4 **In the right pane (JDBC Data Sources), click Configure a new JDBC Data Source.**

5 **Configure the JDBC Data Source as follows:**

Value	Action
Name	Choose a unique name for this data source. This name is used as a reference throughout the WebLogic Console. For example, MyOraDataSource.
JNDI Name	Specify the JNDI name. This can be the same as the Data Source name. For example MyOraDataSource.
Honor Global Transactions	Select this check box (selected by default) if you want to enable global transactions using this data source (see WebLogic online help for more information concerning this option). In this example we keep the default.

6 **Click Continue.**

7 **Select the connection pool from part A. This allows an application to get a connection from the underlying connection pool.**

8 **Click Continue.**

9 **Select the servers on which you want deploy the new data source.**

10 **Click Create.**

Note – The configuration steps are saved in your WebLogic `config.xml` file for a given domain. Changes to the XML file appear as:

```
<JDBCConnectionPool DriverName="oracle.jdbc.driver.OracleDriver"
Name="myOraConnPool" Password="{3DES}7Ne5r7/NaLfLyXYQGBHoYg=="
Properties="user=myuser" Targets="myserver"
TestTableName="SQL SELECT 1 FROM DUAL" URL="jdbc:oracle:thin:@my.hostname:1521:mydatabasename"/>
<JDBCTxDataSource JNDIName="MyOraDataSource"
Name="MyOraDataSource" PoolName="MyOraConnPool" Targets="myserver"/>
```

Point the Waveset Repository to the Data Source

▼ To Point the Waveset Repository to the Data Source

1. **Set the `WSHOME` environment variable to point to your Waveset installation; for example:**

   ```
   set WSHOME=C:\bea\user_projects\domains\mydomain\applications\idm
   ```

2. **Make sure that the `JAVA_HOME` environment variable is set correctly; for example:**

   ```
   set JAVA_HOME=C:\j2sdk1.5
   ```

3. **Make sure that your chosen database drivers are installed for you Weblogic Server. See the WebLogic documentation for further information. In this example, the Oracle drivers and `classes12.jar` are installed in following directory:**

   ```
   WebLogicHome\server\lib
   ```

   a. **On Windows, set the class path to include these files:**

      ```
      set CLASSPATH=%CLASSPATH%;WeblogicHome\server\lib<MyDBLibrary>
      ```

      For Oracle, set the class path to include these files:

      ```
      set CLASSPATH=%CLASSPATH%;c:\bea\weblogic81\server\lib\classes12.zip
      ```

4. **Include `weblogic.jar` in your CLASSPATH. On Windows, enter:**

   ```
   set CLASSPATH=%CLASSPATH%;WeblogicHome\server\lib\weblogic.jar
   ```

   For example:

   ```
   set CLASSPATH=%CLASSPATH%;c:\bea\weblogic81\server\lib\weblogic.jar
   ```

5. **Change to the `%WSHOME%` directory (Windows), or `$WSHOME` (UNIX).**

6. **Remove the `j2ee.jar` file from `WEB-INF\lib\` after making a backup.**

7. **Change directory to the `%WSHOME%\bin` directory (Windows), or `$WSHOME/bin` directory (UNIX).**

8 **Point the repository to the new location. For example:**

```
lh setRepo -v -tOracle -iweblogic.jndi.WLInitialContextFactory -fDatasourceName
"-ut3:Server:Port" -U"Username" -P"Password"
```

For example:

```
lh setRepo -v -tOracle -iweblogic.jndi.WLInitialContextFactory -fMyOraDataSource
"-ut3://localhost:7001/" -Uweblogic -Pweblogic
```

Note – Change the `-f` location flag to match the value you selected for the JNDI Name field.

9 **If there are no reported errors, restart WebLogic to pick up the changes. (This also restarts the Waveset system.)**

Configuring a Oracle Glassfish Server Application Server Data Source for Waveset

Refer to the documentation for the Oracle Glassfish Server application server for information about creating and configuring a data source.

Note – In this procedure, the environment variable `WSHOME` (or the equivalent Java system property `waveset.home`) must contain the path to the location where the Waveset web application is deployed.

▼ To Point the Repository to an Application Server Data Source

1 **Remove the `j2ee.jar` file from the `$WSHOME/WEB-INF/lib` directory. This file causes conflicts with the `j2ee.jar` that ships with Application Server.**

2 **If you are not using default host name and port, then you must add the following flags to your `JAVA_OPTS` environment variable:**

```
-Dorg.omg.CORBA.ORBInitialHost=Hostname -Dorg.omg.CORBA.ORBInitialPort=Port
```

The default values for Hostname and Port are `localhost` and `3700`, respectively.

3 **Set your `CLASSPATH` to include the following application server JAR files (in order):**

```
SAS_INSTALL_DIR/lib/appserv-admin.jar
SAS_INSTALL_DIR/lib/appserv-rt.jar
SAS_IMQ_DIR/lib/imq.jar
SAS_INSTALL_DIR/lib/j2ee.jar
```

4 **Set your** `CLASSPATH` **to include the JAR file or files required for your JDBC connection. For example:**

DataDirect JDBC Driver for Oracle

- SAS_INSTALL_DIR/lib/jdbcdrivers/smoracle.jar
- SAS_INSTALL_DIR/lib/jdbcdrivers/smbase.jar
- SAS_INSTALL_DIR/lib/jdbcdrivers/smutil.jar

MySQL

- `MYSQL_DIR/lib/mysql-connector-java-3.0.9-stable-bin.jar`

5 **Change directories to** `$WSHOME/WEB-INF`**.**

6 **If you are using any driver other than Data Direct JDBC Driver for Oracle that ships with Oracle Glassfish Server, connect to the data source with the following command:**

`lh setRepo -v -t`*Type* `-i`*InitContextFactory* `-f`*DataSourcePath* `-u`*iiop://hostname*`:`*port*

For example:

```
lh setRepo -v -tOracle -icom.sun.enterprise.naming.SerialInitContextFactory -fjdbc/idm
-uiiop://localhost:3700
```

Note – If you enter this command when using the Data Direct JDBC Driver for Oracle, the operation will fail with following exception:

```
java.sql.SQLException: [sunm][Oracle JDBC Driver]This driver is locked for use
with embedded applications.
```

---

7 **The Data Direct JDBC Driver for Oracle that ships with Oracle Glassfish Server is "locked" so that it works only with embedded applications. That is, the driver works only within the web container. As a result, to use the** `lh` **command, you must create a separate connection.**

a. **Archive the existing** `$WSHOME/WEB-INF/ServerRepository.xml` **file.**

b. **Use the following command to force the connection and create a new** `ServerRepository.xml` **file:**

```
lh setRepo -tOracle -icom.sun.enterprise.naming.SerialInitContextFactory
-fjdbc/IdMgr "-uiiop://Hostname:Port" -n -o ServerRepository.xml
```

Configuring a JBoss Data Source for Waveset

Refer to the documentation provided with the JBoss application server for detailed information about creating and configuring a data source.

▼ To Create the Data Source

1. **Copy the JDBC driver classes for your database type to the `lib` directory of your server configuration, for example *JBossInstallDir*`\server\default\lib`.**
2. **Create a data source configuration file. These end in `-ds.xml`. Example files can be found in *JBossInstallDir*`\docs\examples\jca`. The file should configure a local transaction data source.**
3. **Copy the configuration file to the deploy directory on your server configuration, for example *JBossInstallDir*`\server\default\deploy`.**

▼ To Point Waveset to the Data Source

1. **Make sure that the `WSHOME` and `JAVA_HOME` environment variables are set correctly.**
2. **Set the repository using the `lh` command and the no check option:**

   ```
   lh setRepo -n -ofile -ttype -iInitContextFactory -fDataSourcePath
   ```

   For example:

   ```
   lh setRepo -n -oServerRepository.xml -tOracle
   -iorg.jnp.interfaces.NamingContextFactory -fjava:DatasourceName
   ```

   Note – The `lh setRepo` command is documented in Appendix F, "`setRepo` Reference."

3. **Make a backup copy of the `ServerRepository.xml` file located in `%WSHOME%\WEB-INF` (Windows) or `$WSHOME/WEB-INF` (UNIX).**
4. **Copy the new `ServerRepository.xml` config file to `%WSHOME%\WEB-INF` (Windows) or `$WSHOME/WEB-INF` (UNIX).**
5. **Create a `.war` file from `WSHOME`**
6. **Copy the `idm.war` file to your server configuration.**
7. **Start the JBoss server.**

Configuring an Oracle Application Server Data Source for Waveset

Data source configuration can be performed entirely in the Oracle Enterprise Manager 10g Application Server Control Console. The online help in the Application Server Control Console provides useful information on data source settings.

Use the following procedure to update the repository configuration in Waveset to point to an Oracle Application Server Data Source.

This section is organized into the following sections:

Create an Oracle Application Server Data Source

This example procedure describes configuration steps to use an Oracle database driver. Specific entries you make will differ, depending on your database type.

▼ To Create a Connection Pool

1. **Log in to the Oracle 10g Application Server Control console (by default, `http://localhost:`*port*`/me`).**
2. **On the Cluster Topology page select View By Application Servers.**
3. **Click the OC4J `home` link, then on the OC4J:home page click the `Administration` link.**
4. **Click the Go to Task icon for Services -> JDBC Resources (Create/delete/view data sources and connection pools).**
5. **Under Connection Pools, click the Create button.**
   a. **Select `idm` from Application drop-down list**
   b. **Select the New Connection Pool radio button, then click Continue.**
   c. **On the Create Connection Pool page, configure the new connection pool as follows:**

Value	Action
Name	Choose a unique name that identifies your connection pool. For example, IdmOraConnPool.
Connection Factory Class	Use default value of `oracle.jdbc.pool.OracleDataSource`.
JDBC URL	Specify `jdbc:oracle:thin:@//hostname:1521/orcl` (or fill in the Connection Information to have a URL generated for you)
Hostname	Specify the host name of Oracle DB server.
Port	Specify the port (default is 1521) for the database server.
Username	Specify the database account users name used in the connection.
Password	Specify the cleartext password for the account user.

d. Click the Test Connection button to ensure connectivity.

e. You may need to add additional properties on the Attributes and Properties pages depending on your installation. See the administrator's guide for your target database.

6 Click the Finish button.

▼ To Create a JDBC Data Source

1 On the JDBC Resources page, under Data Sources, click the Create button.

2 Select `idm` from Application drop-down list.

3 Select the Managed Data Source radio button.

4 Click the Continue button.

5 On the Create Data Source - Managed Data Source page, configure the JDBC Data Source as follows:

Value	Action
Name	Choose a unique name for this data source. For example, `IdmOraDataSource`
JNDI Name	Specify the JNDI name. For example, `jdbc/idmpool`
Transaction Level	Use the default value of Global & Local Transactions.
Connection Pool	The name of the Connection Pool just created (`IdmOraConnPool`) should be displayed already. In this example we keep the default value.
Login Timeout	Set as desired for your installation.

It is not necessary to enter Username and Cleartext Password information in the Credentials section unless you need to override the information already provided in the connection pool configuration.

6 **Click the Finish button.**

Note – The connection information is saved in your Oracle Application Server's `data-sources.xml` file located in the `$J2EE/home/application-deployments/idm` directory.

▼ To Point the Waveset Repository to the Data Source

1 **Set the `WSHOME` environment variable to point to your Waveset installation. For example:**

```
set WSHOME=OracleAppServerInstallationDirectory/j2ee/home/applications/idm/idm
```

2 **Make sure that the `JAVA_HOME` environment variable is set correctly. For example:**

```
set JAVA_HOME=/product/10.1.3.1/OracleAS_1/jdk
```

3 **Create a CLASSPATH environment variable and set it to include the location of the `oc4j-internal.jar` file. This file is part of the application server distribution and is located here:**

OracleAppServerInstallationDirectory`/j2ee/home/lib/oc4j-internal.jar`

4 **Change to the `%WSHOME%\WEB-INF` (Windows) or `$WSHome/WEB-INF` (UNIX) directory.**

5 **Make a backup of `WEB-INF/ServerRepository.xml` file and move it out of the directory. This is your direct connection setup from the original install of Waveset.**

6 **Point the repository to the new location using the Waveset `lh` command. For example:**

```
../bin/lh setRepo -v -tOracle -icom.evermind.server.ApplicationInitialContextFactory
-fjdbc/idmpool -n -oServerRepository.xml
```

Note – The `-f` location flag should match the value you selected for the JNDI Name field.

7 **If there are no reported errors, restart your Oracle Application Server to pick up the changes. (This also restarts the Waveset system.)**

◆ ◆ ◆ APPENDIX E

Changing the Database Repository Password

If you are using a DBMS (such as MySQL, Oracle, DB2, or SQL Server) as the location for the Waveset repository, it may be necessary to change the database connection password or username periodically. The procedure for changing these values depends on how Waveset connects to the database.

- If you connect with a JDBC Driver, follow the procedure described in "Changing a Repository Password Stored in a Database" on page 127.
- If you connect using a JDBC DataSource object as your IDM repository location, and the connection username and password are stored in the DataSource object, follow the procedure described in "Changing a Repository Password Stored in a Data Source" on page 129.
- If you connect using a JDBC DataSource object but do not store the connection username and password in the DataSource object, follow the procedure described in "Changing a Repository Password Stored in a Database" on page 127.

Changing a Repository Password Stored in a Database

Use the following procedure to:

- Change the repository password
- Update the application to use the modified repository information

---

Note – It is recommended that you perform each of these steps in the order presented. If you change the repository password at a time other than when directed in this sequence, problems can occur.

If Waveset connects to the repository with a JDBC driver, or if it connects to the repository using a Data Source that does not contain the connection user name and password, then use the following procedure to change the user or password:

▼ To Change a Repository Password Stored in a Database

Before You Begin The examples used in this procedure are for a MySQL repository. Some steps may vary depending on the specific repository used.

1. **Archive a copy of the existing `ServerRepository.xml` file, in case you need to revert to it. By default, this file is located in `$WSHOME/WEB-INF`.**

   If you have deployed Waveset in an application server cluster, you should operate on the main *source* folder for Waveset (*from* which the application server deploys the IDM web application), rather than on each *target* folder (*to* which the application server deploys the web application on a particular server or node within the cluster).

2. **Shut down Waveset. If you have deployed Waveset in a cluster, then you must stop all instances of the web application across the cluster.**

3. **Verify the existing repository:**

   ```
   lh setRepo -c
   ```

   Waveset responds with the current repository information; for example:

   ```
   MysqlDataStore:jdbc:mysql://localhost/waveset
   ```

4. **Create a temporary file system repository location:**

   ```
   mkdir c:\tempfs
   ```

5. **Set Waveset to use the temporary file system repository location:**

   ```
   lh setRepo -tLocalFiles -fc:\tempfs LocalFiles:c:\tempfs
   ```

6. **Change the password for your repository. This procedure depends on the mechanism provided by your repository provider. This example highlights steps for a MySQL database:**

   ```
   mysqladmin.exe -hlocalhost -uwaveset -poldpasswd password newpasswd
   ```

7. **Set the application to use the modified repository information:**

   ```
   lh setRepo -tMysql "-ujdbc:mysql://localhost/waveset" -Uwaveset -Pnewpasswd
   ```

   The application responds with this warning:

   ```
   WARNING: No UserUIConfig object in repository.
   MysqlDataStore:jdbc:mysql://localhost/waveset
   ```

Note – The warning message appears because the temporary file system that you pointed to has no contents. Ignore this message; after running the command, the temporary file system will no longer be needed.

8 **Verify the new repository value:**

```
lh setRepo -c
```

The application responds with the new value:

```
MysqlDataStore:jdbc:mysql://localhost/waveset
```

9 **Restart the server and verify that you can log in. If you have deployed Waveset in a cluster, then you must re-deploy Waveset across the cluster. This will distribute the updated web application (which includes the updated `ServerRepository.xml` file), to all nodes in the application server cluster.**

10 **Remove the `c:\tempfs` temporary directory, and the `ServerRepository.xml` file that you archived in "Changing a Repository Password Stored in a Database" on page 127.**

Changing a Repository Password Stored in a Data Source

If Waveset connects to the repository using a JDBC data source, and the data source contains the user name and password, then use the following procedure to change the username or password.

▼ To Change a Repository Password Stored in a Data Source

1 **Stop Waveset. If you have deployed Waveset in an application server cluster, stop the application on all hosts.**

2 **Change the password for the connection user name in the DBMS instance that you are using as your repository location. For example, on MySQL**

```
mysqladmin.exe -hlocalhost -uwaveset -poldpasswd password newpasswd
```

3 **Change the password that is stored on the DataSource object using the tools provided by the application server, directory server, or DBMS that manages your DataSource object.**

4 **Re-start the server and verify that you can login. If you have deployed Waveset in a cluster, then you must re-deploy Waveset across the cluster. This will distribute the updated web application (which includes the updated `ServerRepository.xml` file), to all nodes in the application server cluster.**

◆ ◆ ◆ APPENDIX F

setRepo Reference

The `lh setRepo` command sets the Waveset repository to the location specified.

Usage

```
setRepo [location_flags] [options]
```

location_flags

Flag	Description
`-d` *databaseName*	dbName in URL. The default name is `waveset`. Ignored if the `-u` flag is specified.
`-D` *propsPath*	Path to Properties file (JDBC/JNDI Connection Properties)
`-f` *filepath*	Filesystem path for LocalFiles (JNDI RDN for DataSource)
`-h` *hostName*	Host name URL. Ignored if the `-u` flag is specified.
`-i` *initCtxFac*	Name of the `InitialContextFactory` class for JNDI
`-j` *jdbcDriver*	JDBC Driver class. (The default is DBMS-specific.)
`-p` *portNumber*	Port number in URL. Ignored if the `-u` flag is specified.
`-P` *password*	Password for JDBC connection.
`-t` *type*	Oracle, MySQL, SQLServer, DB2, or LocalFiles

`-u "`*url*`"`
or
`"-u`*url*`"`
	URL for JDBC connection (overrides the `-d`, `-h`, and `-p` flags)

`-U` *username*	User name for JDBC connection.

Options

Option	Description
`-A` *administrator*	Administrator username. The default username is `configurator`.
`-C` *credentials*	Administrator password (if changed from default)
`-c`	Current (print current location to stdout)
`-v`	Verbose (print configuration to stdout)
`-n`	No checks. Use with the –o flag when the new location is unreachable, or with `-c` when current location is unreachable from the command line environment.
`-o` *outfile*	Output file path. Use this if the new location is unreachable. Write the config file, but DO NOT update the server and DO NOT check the new location.

Syntax

Note – If any parameters contain a shell escape or illegal characters, use double quotation marks around them to avoid failures. For example, the ";", "&", "&&", "|", and "||" characters cause these failures.

The following is an example containing arguments for a direct JDBC driver connection:

```
{-toracle { "-u$url" | -h$host [-p$port] [-d$dbname] } [-U$userid \
-P$pwd] [-D$propsPath]
| -tmysql [ "-u$url" | [-h$host] [-p$port] [-d$dbname] ] [-U$userid \
-P$pwd] [-D$propsPath]
| -tsqls { "-u$url" | -h$host [-p$port] [-d$dbname] } [-U$userid \
-P$pwd] [-D$propsPath]
| -tdb2 { "-u$url" | -h$host [-p$port] [-d$dbname] } [-U$userid \
 -P$pwd] [-D$propsPath]
}
```

The following is an example containing arguments that specify a direct DataSource connection:

```
| -toracle -i$initCtxFac -f$path ["-u$providerUrl"] [-U$userid \
 -P$pwd] [-D$propsPath]
| -tmysql -i$initCtxFac -f$path ["-u$providerUrl"] [-U$userid -P$pwd] \
```

```
[-D$propsPath]
| -tsqlserver -i$initCtxFac -f$path ["-u$providerUrl"] [-U$userid \
-P$pwd] [-D$propsPath]
| -tdb2 -i$initCtxFac -f$path ["-u$providerUrl"] [-U$userid -P$pwd] \
[-D$propsPath]
 }
```

Examples

```
setRepo
setRepo -c
setRepo -tLocalFiles -f$WSHOME
setRepo -tOracle -hhost.your.com -p1521 -ddbname -Uuser -Ppwd
setRepo -tOracle "-ujava:oracle:thin:@host.your.com:1521:dbname"  -Uuser -Ppwd
setRepo -tOracle -icom.sun.jndi.fscontext.RefFSContextFactory \
  -fjdbc/SampleDB
setRepo -tMysql -Uuser -Ppwd
setRepo -tMysql "-ujdbc:mysql://localhost/waveset" -Uuser -Ppwd
setRepo -tSQLServer "-ujdbc:microsoft:sqlserver://host.your.com:1433;Database\
  Name=dbname" -Uuser -Ppwd
setRepo -tDB2 "-ujdbc:db2://host.your.com:6789/dbname" -Uuser -Ppwd
setRepo -tDB2 "-ujdbc:db2:dbname" -jCOM.ibm.db2.jdbc.app.DB2Driver -Uuser -Ppwd
```

◆ ◆ ◆ APPENDIX G

DBMS Recovery and the Repository

This chapter discusses strategies for backing up and recovering the repository.

Recovering the Repository

Disaster recovery planning is an essential part of deploying any business-critical system. Each supported DBMS has multiple mechanisms for data backup and restoration. Any of these are appropriate. Waveset has no implicit requirements.

Typically, if a database fails, it would only be necessary to restore the repository to the point just before the database failure. However, if business requirements dictate that the repository be restored to any given point in time (through use of the appropriate vendor-specific methods such as ARCHIVELOG mode or Flashback in Oracle or FULL logging mode in SQL Server), this can be done as well. Regardless of the recovery method used, it is necessary to consider some implications of restoring a version of the repository that is not completely up-to-date.

While the state of the repository will be self-consistent after the data restoration, it will not necessarily be consistent (or even compatible) with external objects such as the resources. The following items demonstrate some possible inconsistencies that might arise:

- Restored resources might be configured incorrectly, if resource attributes were changed.
- Restored users might have pending attribute changes that are no longer desirable, because of more recent changes.
- Restored workflows and tasks might be in a state that no longer matches the environment. For instance, formerly completed tasks could attempt to run again, and approvals might re-appear, requesting action from an administrator.

Additionally, resources are themselves the repository of account attributes. Restoring the repository to a specific point in time may not aid in restoring resources to prior states, since the information required to do so may never have been stored in the repository.

redo Logs

Point-in-time recovery methods require the existence of an unbroken set of change records (typically referred to as “redo logs”). This can often present logistical challenges if the rate of change is high, generating a large volume of redo.

Waveset tries to minimize the need to write to the redo logs. However, database activity cannot be completely eliminated. Even when Waveset appears to be idle, each server polls the repository in order to detect changes to repository objects, tasks ready to run, tasks ready to clean up, and so forth.

The intervals on which these activities occur are configurable, and increasing these configured intervals will reduce the frequency of (but will not eliminate) database operations that Waveset executes against the repository when idle. To configure these intervals, define new values for the `cache.pollingInterval` and other properties that begin with `cache` and `ChangeNotifier` in the `Waveset.properties` file.

In addition, disable the `listcache.size` property on any application server in a cluster that does not serve the Waveset Graphic User Interface. Disabling this property reduces number of operations that Waveset executes against the repository when the application is idle.

◆ ◆ ◆ APPENDIX H

Working with Firewalls or Proxy Servers

This chapter describes how Waveset uses Uniform Resource Locators (URLs) and how to configure Waveset to obtain accurate URL data when firewalls or proxy servers are in place.

Servlet APIs

The Web-based Waveset user interface is highly dependent on Uniform Resource Locators (URLs) to specify the location of pages to be retrieved by the Web client.

Waveset depends on the Servlet APIs provided by an application server (such as Apache Tomcat, IBM WebSphere, or BEA WebLogic) to determine the fully qualified URL in the current HTTP request so that a valid URL can be placed in the generated HTML and HTTP response.

Some configurations prevent the application server from determining the URL the Web client uses for an HTTP request. Examples include:

- A port-forwarding or Network Address Translation (NAT) firewall placed between the Web client and Web server, or between the Web server and application server
- A proxy server (such as Tivoli Policy Director WebSEAL) placed between the Web client and Web server, or between the Web server and application server

For instances in which the Servlet APIs do not provide accurate URL data from an HTTP request, the correct data can be configured in the `Waveset.properties` file (located in your Waveset installation `config` directory).

The following attributes control Waveset's Web-based documentation root and whether Waveset uses the HTML BASE HREF tag:

- `ui.web.useBaseHref` (Default value: `true`)— Set this attribute to one of the following values:
- `true`— Waveset uses the HTML BASE HREF tag to indicate the root of all relative URL paths
- `false`— All URLs placed into HTML contain fully qualified paths; including scheme, host, and port
- `ui.web.baseHrefURL`— Set this attribute to a non-empty value to define the BASE HREF used in generated HTML, which overrides the value that is calculated using servlet APIs.

Overriding this calculated value can be useful when those APIs do not return the whole truth, which occurs when:

- The application server is behind a firewall using port forwarding or NAT
- The connector between the application server and Web server does not provide accurate information
- The application server is front-ended by a proxy server

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