Oracle® Identity Manager

Connector Guide for Oracle Retail Warehouse Management System

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Oracle Identity Manager Connector Guide for Oracle Retail Warehouse Management System, Release 9.0.4

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Preface

Oracle Identity Manager Connector Guide for Oracle Retail Warehouse Management System provides information about integrating Oracle Identity Manager with Oracle Retail Warehouse Management Systems.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager connector for Oracle Retail Warehouse Management Systems.

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Related Documents

For more information, refer to the following documents in the Oracle Identity Manager documentation library:

- *Oracle Identity Manager Release Notes*

- *Oracle Identity Manager Concepts*

- *Oracle Identity Manager Installation and Configuration Guide for BEA WebLogic Server*

- *Oracle Identity Manager Installation and Configuration Guide for IBM WebSphere Application Server*

- *Oracle Identity Manager Installation and Configuration Guide for JBoss Application Server*

- *Oracle Identity Manager Installation and Configuration Guide for Oracle Application Server*

- *Oracle Identity Manager Administrative and User Console Guide*

- *Oracle Identity Manager Administrative and User Console Customization Guide*

- *Oracle Identity Manager Design Console Guide*

- *Oracle Identity Manager API Usage Guide*

- *Oracle Identity Manager Audit Report Developer's Guide*

- *Oracle Identity Manager Best Practices Guide*

- *Oracle Identity Manager Globalization Guide*

- *Oracle Identity Manager Integration Guide for Crystal Reports*

- *Oracle Identity Manager Tools Reference*

- *Oracle Identity Manager Reference*

The following document is available in the Oracle Identity Manager Connector Pack documentation library:

- *Oracle Identity Manager Connector Concepts Guide*

Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager Connector Pack documentation library, visit Oracle Technology Network at

http://www.oracle.com/technology/documentation/index.html

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New in the Oracle Identity Manager Connector for Oracle Retail Warehouse Management?

This chapter provides an overview of the updates made to the software and documentation for the Oracle Retail Warehouse Management connector in release 9.0.4.1 of the Oracle Identity Manager connector pack.

> **See Also:** The earlier release of this guide for information about updates that were new for that release

The updates discussed in this chapter are divided into the following categories:

- Software Updates

  These include updates made to the connector software.

- Documentation-Specific Updates

  These include major changes made to the connector documentation. These changes are not related to software updates.

  > **See Also:** *Oracle Identity Manager Release Notes*

Software Updates

This section will discuss updates to the Oracle Retail Warehouse Management connector from release 9.0.4.2 onward.

Documentation-Specific Updates

This section will discuss updates to the documentation from release 9.0.4.2 onward.

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About the Connector

Oracle Identity Manager automates access rights management, security, and provisioning of IT resources. Oracle Identity Manager connectors are used to integrate Oracle Identity Manager with third-party applications. This guide discusses the procedure to deploy the connector that is used to integrate Oracle Identity Manager with Oracle Retail Warehouse Management System.

This chapter contains the following sections:

- Reconciliation Module
- Provisioning Module
- Supported Functionality
- Supported Languages
- Files and Directories That Comprise the Connector
- Determining the Release Number of the Connector

> **Note:** In this guide, the term *Oracle Identity Manager server* refers to the computer on which Oracle Identity Manager is installed.
>
> At some places in this guide, Oracle Retail Warehouse Management System has been referred to as the *target system.*

1.1 Reconciliation Module

Reconciliation involves duplicating in Oracle Identity Manager the creation of and modifications to user accounts on the target system. It is an automated process initiated by a scheduled task that you configure.

The reconciliation module handles the reconciliation of new, updated, and deleted user profiles in Oracle Identity Manager. A reconciliation event is created for each user profile to be reconciled.

> **See Also:** The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about reconciliation configurations

Based on the type of data reconciled from the target system, reconciliation can be divided into the following types:

- Lookup Fields Reconciliation
- User Reconciliation

1.1.1 Lookup Fields Reconciliation

Lookup fields reconciliation involves reconciling the following lookup fields:

- FacilityID

- LanguageCode

- Department

- UserClass

1.1.2 User Reconciliation

User reconciliation involves reconciling the following fields:

- FacilityID

- UserID

- Department

- UserName

- User Privilege

- User LogDate

- Language Code

- Picking Percent QA

- Packing Percent QA

- DCDept

- User Class

- Equipment

1.2 Provisioning Module

Provisioning involves creating or modifying a user's account on the target system through Oracle Identity Manager. You use the Oracle Identity Manager Administrative and User Console to perform provisioning operations.

> **See Also:** The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about provisioning

In provisioning, you can specify values for the following fields:

- FacilityID

- UserID

- UserName

- User Privilege

- Language Code

- Picking Percent QA

- Packing Percent QA

- DCDept

- User Class

- Equipment

- User Password

Provisioning of a user in Oracle Retail Warehouse Management System depends on the FacilityID value. During provisioning, depending on the value that you select from the FacilityID lookup field, you must select corresponding values from the DCDept and UserClass lookup fields.

For example:

Suppose you select AY as the FacilityID value. The description of this FacilityID value is ANUSRINI Customer Support LR=Y. Based on this description, you must select the following values in the DCDept and UserClass lookup fields:

DCDept:

```
ACCOUNTING (ANUSRINI Customer Support LR=Y)
```

UserClass:

```
DEFAULT (ANUSRINI Customer Support LR=Y)
```

> **Caution:** If you do not select corresponding values from the DCDept and UserClass lookup fields, then the provisioning operation would fail. However, Oracle Identity Manager does not display an error message if you do not select the correct DCDept and UserClass values.
>
> This point is also mentioned in the "Known Issues" chapter.

1.3 Supported Functionality

The following table lists the functions that are available with this connector.

Function	Type
Create User	Provisioning
Reset User's Password	Provisioning
Update User's Name	Provisioning
Update User's Privilege	Provisioning
Update User's Department	Provisioning
Update User's Language Code	Provisioning
Update User's Picking Percent QA	Provisioning
Update User's Packing Percent QA	Provisioning
Update User's User Class	Provisioning
Update User's Equipment	Provisioning
Delete User	Provisioning
Create User (Account Discovery)	Reconciliation
Update User's Name	Reconciliation
Update User's Department	Reconciliation

Function	Type
Update User's Language Code	Reconciliation
Update User's Picking Percent QA	Reconciliation
Update User's Packing Percent QA	Reconciliation
Update User's User Class	Reconciliation
Update User's Equipment	Reconciliation

1.4 Supported Languages

This release of the connector supports only the English language. This limitation is also mentioned in the "Known Issues" chapter.

1.5 Files and Directories That Comprise the Connector

The files and directories that comprise this connector are in the following directory on the installation media:

```
Enterprise Applications/Oracle Retail Applications/Oracle Retail Warehouse Mgmt
```

These files and directories are listed and described in Table 1–1.

Table 1–1   Files and Directories on the Installation Media

File in the Installation Media Directory	Description
config/attributemapping_prov.properties	This file contains the parameters required for provisioning.
config/attributemapping_recon.properties	This file contains the parameters required for reconciliation.
lib/rwmsadapter.jar	This JAR file contains the class files that are used to implement provisioning and reconciliation.
File in the resources directory	This resource bundle contains English language-specific information that is used by the connector.
	Note: A **resource bundle** is a file containing localized versions of the text strings that are displayed on the user interface of Oracle Identity Manager. These text strings include GUI element labels and messages displayed on the Administrative and User Console.
scripts/DB Schema XML/xdb_app_map.xsd	This XML file contains information about the validation rules to which the RWMS.xml file conforms.
scripts/RWMS.xml	This XML file contains the configuration information of Oracle Retail Warehouse Management System users.
scripts/RWMSTrigger/TriggerRWMS.sql	This file contains the SQL code for creating a temporary table and the trigger that is used to implement the reconciliation of user account deletion on the target system.
test/config/config.properties	This file is used to specify the parameters and settings required to connect to the target system by using the testing utility.
test/config/log.properties	This file is used for storing log information.

Table 1–1   (Cont.) Files and Directories on the Installation Media

File in the Installation Media Directory	Description
`test/scripts/rwms.bat` `test/scripts/rwms.sh`	This file is used to run the test utility.
`xml/xlRWMSNonTrusted.xml`	This file contains definitions for the following components of the connector: ■ IT resource type ■ IT resource ■ Resource object ■ Process form ■ Process definition ■ Process tasks ■ Adapters
`xml/xlRWMSTrusted.xml`	This XML file contains the configuration for the Xellerate User. You must import this file only if you plan to use the connector for trusted source reconciliation.

> **Note:** The files in the `test` directory are used only to run tests on the connector.

The "Step 3: Copying the Connector Files and External Code Files" section on page 2-2 provides instructions to copy these files into the required directories.

1.6 Determining the Release Number of the Connector

You can use the following method to determine the release number of the connector:

1. Extract the contents of the `rwmsadapter.jar` file. This file is in the following directory on the installation media:

   `Enterprise Applications/Oracle Retail Applications/Oracle Retail Warehouse Mgmt`

2. Open the `manifest.mf` file in a text editor. The `manifest.mf` file is one of the files bundled inside the `rwmsadapter.jar` file.

   In the `manifest.mf` file, the release number of the connector is displayed as the value of the `Version` property.

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Deploying the Connector

Deploying the connector involves the following steps:

2.1 Step 1: Verifying Deployment Requirements

The following table lists the deployment requirements for the connector.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3.1 or later
Target systems	Oracle Retail Warehouse Management System release 12.0

An Oracle Database user can create users in Oracle Retail Warehouse Management System. The `CONNECT` and `RESOURCE` privileges must be granted to this Oracle Database user from the system administrator:

The following table specifies the privileges that the user must have on some of the Oracle Retail Warehouse Management System tables.

Table Name	Select	Insert	Delete	Update
DMS_USER	Yes	Yes	Yes	Yes
FACILITY	Yes			
SUPPORTED_LANGUAGE	Yes			
DC_DEPARTMENT	Yes			
USER_CLASS	Yes			

In addition to the requirements mentioned in the preceding table, you must ensure that the following requirements are addressed:

- JDBC connectivity is available to the target database.

- The JDBC driver and `xerces` class files are included in the `CLASSPATH` environment variable on the Oracle Identity Manager server.

- For secure connectivity to the target system database, the required configuration has been performed on the target server.

  You can establish secure JDBC connectivity with the target system database by adding the following parameters in the *ORACLE_ HOME*/network/admin/sqlnet.ora file:

  ```
  SQLNET.CRYPTO_CHECKSUM_TYPES_SERVER= (MD5)
  SQLNET.AUTHENTICATION_SERVICES= (NTS)
  SQLNET.ENCRYPTION_TYPES_SERVER= (DES40C)
  SQLNET.CRYPTO_SEED = xelsysadmin_seed
  ```

2.2 Step 2: Configuring the Target System

Configuring the target system involves the following steps:

1. Copy the `scripts/RWMSTrigger/TriggerRWMS.sql` file from the installation media directory to a temporary directory on the target system.

   > **Note:** This file is mentioned in the "Files and Directories That Comprise the Connector" section on page 1-4.

2. Open the `TriggerRWMS.sql` file in a text editor, and change the following line in the file:

   ```
   ALTER SESSION SET CURRENT_SCHEMA=<SchemaOwnerName>
   ```

   In this line, replace <SchemaOwnerName> with the name of the schema owner of the Oracle Retail Warehouse Management System database tables.

3. Log in to the Oracle Retail Warehouse Management System database by using Oracle SQL*Plus.

4. At the SQL prompt, copy the SQL code from the `TriggerRWMS.sql` file.

5. Run the SQL code to create the table and trigger that is used to implement reconciliation of deleted user accounts.

2.3 Step 3: Copying the Connector Files and External Code Files

The connector files to be copied and the directories to which you must copy them are given in the following table.

> **Note:** The directory paths given in the first column of this table correspond to the location of the connector files in the following directory on the installation media:
>
> ```
> Enterprise Applications/Oracle Retail Applications/Oracle Retail
> Warehouse Mgmt
> ```
>
> Refer to the "Files and Directories That Comprise the Connector" section on page 1-4 for more information about these files.

File in the Installation Media Directory	Destination Directory
Files in the `config` directory	*OIM_HOME*/xellerate/XLIntegrations/RWMS/config
`lib/rwmsadapter.jar`	*OIM_HOME*/xellerate/JavaTasks *OIM_HOME*/xellerate/ScheduleTask
File in the `resources` directory	*OIM_HOME*/xellerate/connectorResources
`scripts/RWMS.xml`	*OIM_HOME*/xellerate/XLIntegrations/RWMS/Config
`scripts/DB Schema XML/xdb_app_map.xsd`	*OIM_HOME*/xellerate/XLIntegrations/RWMS
Files in the `scripts/RWMSTrigger` directory	*OIM_HOME*/xellerate/RWMSTrigger
Files in the `test/config` directory	*OIM_HOME*/xellerate/XLIntegrations/RWMS/config
Files in the `test/scripts` directory	*OIM_HOME*/xellerate/XLIntegrations/RWMS/scripts
`xml/xlRWMSNonTrusted.xml` `xml/xlRWMSTrusted.xml`	*OIM_HOME*/xlclient

Copy the JDBC class library (`ojdbc14.jar`) from the *ORACLE_HOME*/ora92/jdbc/lib/ directory to the *OIM_HOME*/xellerate/ThirdParty directory. In this source directory path, *ORACLE_HOME* is the directory in which Oracle Database is installed. For example, `C:\Oracle`. The actual source directory path would depend on the release of Oracle Database that you are using.

Include the following file path in the `CLASSPATH` environment variable:

OIM_HOME/xellerate/ThirdParty/ojdbc14.jar

> **Note:** While installing Oracle Identity Manager in a clustered environment, you copy the contents of the installation directory to each node of the cluster. Similarly, you must copy the contents of the `connectorResources` directory and the JAR files to the corresponding directories on each node of the cluster.

2.4 Step 4: Configuring the Oracle Identity Manager Server

Configuring the Oracle Identity Manager server involves the following procedures:

> **Note:** In a clustered environment, you must perform this step on each node of the cluster.

- Changing to the Required Input Locale
- Clearing Content Related to Connector Resource Bundles from the Server Cache
- Enabling Logging

2.4.1 Changing to the Required Input Locale

Changing to the required input locale (language and country setting) involves installing the required fonts and setting the required input locale.

You may require the assistance of the system administrator to change to the required input locale.

2.4.2 Clearing Content Related to Connector Resource Bundles from the Server Cache

While performing the instructions described in the "Step 3: Copying the Connector Files and External Code Files" section on page 2-2, you copy files from the `resources` directory on the installation media into the *OIM_HOME*/xellerate/connectorResources directory. Whenever you add a new resource bundle in the connectorResources directory or make a change in an existing resource bundle, you must clear content related to connector resource bundles from the server cache.

To clear content related to connector resource bundles from the server cache:

1. In a command window, change to the *OIM_HOME*/xellerate/bin directory.

> **Note:** You must perform Step 1 before you perform Step 2. An exception is thrown if you run the command described in Step 2 as follows:
>
> *OIM_HOME*/xellerate/bin/*batch_file_name*

2. Enter one of the following commands:

    *   On Microsoft Windows:

        `PurgeCache.bat ConnectorResourceBundle`

    *   On UNIX:

        `PurgeCache.sh ConnectorResourceBundle`

> **Note:** You can ignore the exception that is thrown when you perform Step 2.

In this command, `ConnectorResourceBundle` is one of the content categories that you can remove from the server cache. Refer to the following file for information about the other content categories:

OIM_HOME/xellerate/config/xlConfig.xml

2.4.3 Enabling Logging

When you enable logging, Oracle Identity Manager automatically stores in a log file information about events that occur during the course of provisioning and reconciliation operations. To specify the type of event for which you want logging to take place, you can set the log level to one of the following:

*   `ALL`

    This level enables logging for all events.

*   `DEBUG`

    This level enables logging of information about fine-grained events that are useful for debugging.

*   `INFO`

    This level enables logging of messages that highlight the progress of the application at a coarse-grained level.

*   `WARN`

This level enables logging of information about potentially harmful situations.

- ERROR

  This level enables logging of information about error events that may allow the application to continue running.

- FATAL

  This level enables logging of information about very severe error events that could cause the application to stop functioning.

- OFF

  This level disables logging for all events.

The file in which you set the log level and the log file path depend on the application server that you use:

- **BEA WebLogic Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.Adapter.RWMSAdapterLogger=log_level
     ```

  2. In this line, replace *log_level* with the log level that you want to set.

     For example:

     ```
     log4j.logger.Adapter.RWMSAdapterLogger=INFO
     ```

  After you enable logging, the log information is written to the following file:

  WEBLOGIC_HOME/user_projects/domains/*domain_name*/*server_name*/*server_name*.log

- **IBM WebSphere Application Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.Adapter.RWMSAdapterLogger=log_level
     ```

  2. In this line, replace *log_level* with the log level that you want to set.

     For example:

     ```
     log4j.logger.Adapter.RWMSAdapterLogger=INFO
     ```

  After you enable logging, log information is written to the following file:

  WEBSPHERE_HOME/AppServer/logs/*server_name*/startServer.log

- **JBoss Application Server**

  To enable logging:

  1. In the *JBOSS_HOME*/server/default/conf/log4j.xml file, locate the following lines:

     ```
     <category name="Adapter.RWMSAdapterLogger">
        <priority value="log_level"/>
     </category>
     ```

2. In the second XML code line, replace *log_level* with the log level that you want to set. For example:

```
<category name="Adapter.RWMSAdapterLogger">
    <priority value="INFO"/>
</category>
```

After you enable logging, log information is written to the following file:

JBOSS_HOME/server/default/log/server.log

- **Oracle Application Server**

    To enable logging:

    1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

    ```
    log4j.logger.Adapter.RWMSAdapterLogger=log_level
    ```

    2. In this line, replace *log_level* with the log level that you want to set.

    For example:

    ```
    log4j.logger.Adapter.RWMSAdapterLogger=INFO
    ```

    After you enable logging, log information is written to the following file:

    OAS_HOME/opmn/logs/default_group~home~default_group~1.log

2.5 Step 5: Importing the Connector XML File

As mentioned in the "Files and Directories That Comprise the Connector" section on page 1-4, the connector XML file contains definitions of the components of the connector. By importing the connector XML file, you create these components in Oracle Identity Manager.

To import the connector XML file into Oracle Identity Manager:

1. Open the Oracle Identity Manager Administrative and User Console.

2. Click the **Deployment Management** link on the left navigation bar.

3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.

4. Locate and open the xlRWMSNonTrusted.xml file, which is in the *OIM_HOME*\xlclient directory. Details of this XML file are shown on the File Preview page.

5. Click **Add File.** The Substitutions page is displayed.

6. Click **Next**. The Confirmation page is displayed.

7. Click **Next.** The Provide IT Resource Instance Data page for the RWMS IT resource is displayed.

8. Specify values for the parameters of the IT resource. Refer to the table in the "Defining IT Resources" section on page 2-7 for information about the values to be specified.

9. Click **Next.** The Provide IT Resource Instance Data page for a new instance of the RWMS IT resource type is displayed.

10. Click **Skip** to specify that you do not want to define another IT resource. The Confirmation page is displayed.

> **See Also:** If you want to define another IT resource, then refer to *Oracle Identity Manager Administrative and User Console Guide* for instructions.

11. Click **View Selections**.

    The contents of the XML file are displayed on the Import page. You *may* see a cross-shaped icon along with some nodes. These nodes represent Oracle Identity Manager entities that are redundant. Before you import the connector XML file, you must remove these entities by right-clicking each node and then selecting **Remove**.

12. Click **Import**. The connector XML file is imported into Oracle Identity Manager.

After you import the connector XML file, proceed to the next chapter.

2.5.1 Defining IT Resources

You must specify values for the IT resource parameters listed in the following table.

Parameter	Description
Host	Host name or IP address of the Oracle Retail Warehouse Management System server
Port	TCP/IP port at which the Oracle Retail Warehouse Management System server is listening
	The default value is 0.
Admin	User ID to connect to the Oracle Retail Warehouse Management System database
Admin Credential	Password of the administrator
SID	SID for the Oracle Retail Warehouse Management System database
IsSecure	Specifies whether or not the SSL feature is enabled
	The value can be YES or NO. The default value is YES.
Schema Name	Name of the schema owner of the Oracle Retail Warehouse Management System

After you specify values for these IT resource parameters, proceed to Step 9 of the procedure to import connector XML files.

3

Configuring Connector Functionality

After you deploy the connector, you must configure it to meet your requirements. This chapter discusses the following connector configuration procedures:

- Configuring Reconciliation
- Configuring Provisioning
- Configuring the Connector for Multiple Installations of the Target System

> **Note:** This chapter provides both conceptual and procedural information about configuring the connector. It is recommended that you read the conceptual information before you perform the procedures.

3.1 Configuring Reconciliation

As mentioned earlier in this guide, reconciliation involves duplicating in Oracle Identity Manager the creation of and modifications to user accounts on the target system. This section discusses the following topics related to configuring reconciliation:

- Configuring Trusted Source Reconciliation
- Partial Reconciliation
- Batched Reconciliation
- Configuring the Reconciliation Scheduled Tasks
- Adding Custom Attributes for Reconciliation

3.1.1 Configuring Trusted Source Reconciliation

While configuring the connector, the target system can be designated as a trusted source or a target resource. If you designate the target system as a **trusted source**, then both newly created and modified user accounts are reconciled in Oracle Identity Manager. If you designate the target system as a **target resource**, then only modified user accounts are reconciled in Oracle Identity Manager.

> **Note:** You can skip this section if you do not want to designate the target system as a trusted source for reconciliation.

To configure trusted source reconciliation:

1. Open the Oracle Identity Manager Administrative and User Console.

2. Click the **Deployment Management** link on the left navigation bar.

3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.

4. Locate and open the `xlRWMSTrusted.xml` file, which is in the *OIM_HOME*/`xlclient` directory. Details of this XML file are shown on the File Preview page.

5. Click **Add File**. The Substitutions page is displayed.

6. Click **Next**. The Confirmation page is displayed.

7. Click **Import**.

8. In the message that is displayed, click **Import** to confirm that you want to import the **XML** file and then click **OK**.

After you import the XML file for trusted source reconciliation, you must set the value of the `IsTrusted` reconciliation scheduled task attribute to `Yes`. This procedure is described in the "Configuring the Reconciliation Scheduled Tasks" section on page 3-3.

3.1.2 Partial Reconciliation

By default, all target system records that are added or modified after the last reconciliation run are reconciled during the current reconciliation run. You can customize this process by specifying the subset of added or modified target system records that must be reconciled. You do this by creating filters for the reconciliation module.

Creating a filter involves specifying a value for a target system attribute, which will be used in the query SELECT criteria to retrieve the records to be reconciled. You can specify values for any one or a combination of the following target system attributes:

Filter Attribute	Oracle Identity Manager Attribute
FacilityID Sample value: 'AY'	Facility ID
DCDept Sample value: 'Accounting'	Department

If you want to use multiple target system attributes to filter records, then you must also specify the logical operator (AND or OR) that you want to apply to the combination of target system attributes that you select.

Suppose you specify the following values for these attributes:

- FacilityID: `AY`

- DCDept: `Accounting`

- Operator: `OR`

Because you are using the `OR` operator, during reconciliation, user records for which any one of these criteria is met are reconciled. Therefore, users with either `FacilityID` as `AY` or `DCDept` as `Accounting` are reconciled. If you were to use the `AND` operator, then only user records for which all of these criteria are met are reconciled.

While deploying the connector, follow the instructions in the "Specifying Values for the Scheduled Task Attributes" section on page 3-4 to specify values for these attributes and the logical operator that you want to apply.

3.1.3 Batched Reconciliation

During a reconciliation run, all changes in the target system records are reconciled into Oracle Identity Manager. Depending on the number of records to be reconciled, this process may require a large amount of time. In addition, if the connection breaks during reconciliation, then the process would take longer to complete.

You can configure batched reconciliation to avoid these problems.

To configure batched reconciliation, you must specify values for the following user reconciliation scheduled task attributes:

- `BatchSize`: Use this attribute to specify the number of records that must be included in each batch. The default value is 1000.

- `NumberOfBatches`: Use this attribute to specify the total number of batches that must be reconciled. The default value is `All`.

If you specify a value other than `All`, then some of the newly added or modified user records may not get modified during the current reconciliation run. The following example illustrates this:

Suppose you specify the following values while configuring the scheduled tasks:

- `BatchSize`: 20

- `NumberOfBatches`: 10

Suppose that 314 user records were created or modified after the last reconciliation run. Of these 314 records, only 200 records would be reconciled during the current reconciliation run. The remaining 114 records would be reconciled during the next reconciliation run.

You specify values for the `BatchSize` and `NumberOfBatches` attributes by following the instructions described in the "Specifying Values for the Scheduled Task Attributes" section on page 3-4.

3.1.4 Configuring the Reconciliation Scheduled Tasks

When you perform the procedure described in the "Step 5: Importing the Connector XML File" section on page 2-6, the scheduled tasks for lookup fields, trusted source user, and target resource user reconciliations are automatically created in Oracle Identity Manager. To configure these scheduled tasks:

1. Open the Oracle Identity Manager Design Console.

2. Expand the **Xellerate Administration** folder.

3. Select **Task Scheduler.**

4. Click **Find**. The details of the predefined scheduled tasks are displayed on two different tabs.

5. For the first scheduled task, enter a number in the **Max Retries** field. This number represents the number of times Oracle Identity Manager must attempt to complete the task before assigning the `FAILED` status to the task.

6. Ensure that the **Disabled** and **Stop Execution** check boxes are not selected.

7. In the Start region, double-click the **Start Time** field. From the date-time editor that is displayed, select the date and time at which you want the task to run.

8. In the Interval region, set the following schedule parameters:

- To set the task to run on a recurring basis, select the **Daily**, **Weekly**, **Recurring Intervals**, **Monthly**, or **Yearly** option.

    If you select the **Recurring Intervals** option, then you must also specify the time interval at which you want the task to run on a recurring basis.

- To set the task to run only once, select the **Once** option.

9. Provide values for the attributes of the scheduled task. Refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-4 for information about the values to be specified.

> **See Also:** *Oracle Identity Manager Design Console Guide* for information about adding and removing task attributes

10. Click **Save**. The scheduled task is created. The INACTIVE status is displayed in the **Status** field, because the task is not currently running. The task is run at the date and time that you set in Step 7.

11. Repeat Steps 5 through 10 to configure the second scheduled task.

After you configure both scheduled tasks, proceed to the "Configuring Provisioning" section on page 3-8.

3.1.4.1 Specifying Values for the Scheduled Task Attributes

Refer to the following sections for information about the attribute values to be specified for the scheduled tasks:

- Lookup Fields Reconciliation Scheduled Task

- User Reconciliation Scheduled Task

3.1.4.1.1 Lookup Fields Reconciliation Scheduled Task You must specify values for the following attributes of the lookup fields reconciliation scheduled task.

> **Note:** Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.

Attribute	Description	Value
ServerName	Name of the IT resource	RWMS
LookUpName	The type of data that is being looked up in the target system	The value can be any one of the following: - FacilityID - LanguageCode - Department - UserClass

Attribute	Description	Value
LookUpCode	Name of the lookup definition configured in Oracle Identity Manager	The value can be any one of the following: ■ `Lookup.RWMS.FacilityID` ■ `Lookup.RWMS.LanguageCode` ■ `Lookup.RWMS.Department` ■ `Lookup.RWMS.UserClass`

After you specify values for these scheduled task attributes, proceed to Step 10 of the procedure to create scheduled tasks.

3.1.4.1.2 User Reconciliation Scheduled Task Depending on whether you want to implement trusted source or target resource reconciliation, you must specify values for the attributes of one of the following user reconciliation scheduled tasks:

■ `RWMS User Reconciliation` (Scheduled task for trusted source reconciliation)

■ `RWMS User Reconciliation-Non Trusted` (Scheduled task for target resource reconciliation)

The following table describes the attributes of both scheduled tasks.

> **Note:**
>
> ■ Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
>
> ■ Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description	Value
ServerName	Name of the IT resource	`RWMS`
IsTrusted	Specifies whether or not reconciliation is to be carried out in trusted mode	For the `RWMS User Reconciliation` scheduled task, the value of this attribute is set to `Yes`. For the `RWMS User Reconciliation-Non Trusted` scheduled task, the value of this attribute is set to `No`. This is the default value. **Caution:** For each scheduled task, you must not change the default value. If you change the default value, then the scheduled task would not run.
TargetRO	Name of the resource object	`RWMSRO`
XellerateOrganis ation	Default value for the Oracle Identity Manager Organization name This value is used to create the Xellerate User in trusted mode. **Note:** This attribute is specific to trusted source reconciliation.	`Xellerate Users`

Attribute	Description	Value
BatchSize	Number of records in each batch that is reconciled You must specify an integer value greater than zero. **See Also:** The "Batched Reconciliation" section on page 3-3	The default value is 1000.
NoOfBatches	Number of batches to be reconciled The number of records in each batch is specified by the BatchSize attribute. **See Also:** The "Batched Reconciliation" section on page 3-3	Specify All if you want to reconcile all the batches. This is the default value. Specify an integer value if you want to reconcile only a fixed number of batches.
Facility ID	This is a filter attribute. Use this attribute to specify the Facility ID of the user whose records you want to reconcile. If you do not want to use this filter attribute, then specify Nodata. **See Also:** The "Partial Reconciliation" section on page 3-2	The value can be either the Facility ID or Nodata. The default value is Nodata. Sample value: AY
DCDept	This is a filter attribute. Use this attribute to specify the user DCDept for which you want to reconcile user records. If you do not want to use this filter attribute, then specify Nodata. **See Also:** The "Partial Reconciliation" section on page 3-2	The value can be either the DCDept or Nodata. The default value is Nodata. Sample value: Accounting
Operator	Specifies the logical operator to be applied to the filter attribute If you do not want to use this filter attribute, then specify None. **See Also:** The "Partial Reconciliation" section on page 3-2	The value can be one of the following: ■ AND ■ OR ■ None The default value is None.

After you specify values for these scheduled task attributes, proceed to Step 10 of the procedure to create scheduled tasks.

3.1.5 Adding Custom Attributes for Reconciliation

By default, the attributes listed in the "Reconciliation Module" section on page 1-1 are mapped for reconciliation between Oracle Identity Manager and the target system. If required, you can map additional attributes for reconciliation as follows:

> **Note:** You need not perform this procedure if you do not want to add custom attributes for reconciliation.
>
> In this section, the term "attribute" refers to the identity data fields that store user data.

> **See Also:** *Oracle Identity Manager Design Console* for detailed instructions on performing the following steps

1. Modify the `attributemapping_recon.properties` file, which is in the *OIM_HOME*/xellerate/XLIntegrations/RWMS/config directory.

> **Note:** In this file, some of the attribute definitions are preceded by a comment saying that these attributes must not be changed. You must *not* change these attribute definitions.

At the end of this file, some of the attribute definitions are preceded by comment characters. You can uncomment the definition of an attribute to make it a part of the list of reconciliation attributes. If required, you can also add new attributes in this file. The format that you must use is as follows:

`OimAttributeName=TargetAttributeName`

For example:

`Users.LanguageCode=LANGUAGE_CODE`

In this example, `LanguageCode` is the reconciliation field and `LANGUAGE_CODE` is the equivalent target system attribute. As a standard, the prefix "`Users.`" is added at the start of all reconciliation field names.

2. In the resource object definition, add a reconciliation field corresponding to the new attribute as follows:

   a. Open the Resource Objects form. This form is in the Resource Management folder.

   b. Click **Query for Records**.

   c. On the Resource Objects Table tab, double-click the `RWMSRO` resource object to open it for editing.

   d. On the Object Reconciliation tab, click **Add Field** to open the Add Reconciliation Field dialog box.

   e. Specify a value for the field name.

      You must specify the name that is to the left of the equal sign in the line that you uncomment or add while performing Step 2.

      For example, if you uncomment the `Users.LanguageCode=LANGUAGE_CODE` line in Step 2, then you must specify `Users.LanguageCode` as the attribute name.

   f. From the **Field Type** list, select a data type for the field.

      For example: `String`

   g. Save the values that you enter, and then close the dialog box.

   h. If required, repeat Steps d through g to map more fields.

3. Modify the process definition to include the mapping between the newly added attribute and the corresponding reconciliation field as follows:

   a. Open the Process Definition form. This form is in the Process Management folder.

   b. On the Reconciliation Field Mappings tab, click **Add Field Map** to open the Add Reconciliation Field Mapping dialog box.

    c. Enter the required values, save the values that you enter, and then close the dialog box.

    d. If required, repeat Steps b and c to map more fields.

3.2 Configuring Provisioning

As mentioned earlier in this guide, provisioning involves creating or modifying a user's account information on the target system through Oracle Identity Manager. Refer to the "Supported Functionality" section on page 1-3 for a listing of the provisioning functions that are available with this connector.

This section discusses the following topics related to configuring provisioning:

- Compiling Adapters
- Adding Custom Attributes for Provisioning

3.2.1 Compiling Adapters

> **Note:** You must perform this procedure if you want to use the provisioning features of the connector.

Adapters are used to implement provisioning functions. The following adapters are imported into Oracle Identity Manager when you import the connector XML file:

> **See Also:** The "Supported Functionality" section on page 1-3 for a listing of the provisioning functions that are available with this connector

- RWMSCreateUser
- RWMSUpdateUser
- RWMSDeleteUser
- RWMSResetPassword
- RWMSPrePopulate User Name

You must compile these adapters before they can be used in provisioning operations.

To compile adapters by using the Adapter Manager form:

1. Open the Adapter Manager form.

2. To compile all the adapters that you import into the current database, select **Compile All**.

   To compile multiple (but not all) adapters, select the adapters you want to compile. Then, select **Compile Selected**.

   > **Note:** Click **Compile Previously Failed** to recompile only those adapters that were not compiled successfully. Such adapters do not have an OK compilation status.

3. Click **Start**. Oracle Identity Manager compiles the selected adapters.

4. If Oracle Identity Manager is installed in a clustered environment, then copy the compiled adapters from the *OIM_HOME*/xellerate/Adapter directory to the same directory on each of the other nodes of the cluster. If required, overwrite the adapter files on the other nodes.

If you want to compile one adapter at a time, then use the Adapter Factory form.

> **See Also:** *Oracle Identity Manager Tools Reference Guide* for information about using the Adapter Factory and Adapter Manager forms

To view detailed information about an adapter:

1. Highlight the adapter in the Adapter Manager form.

2. Double-click the row header of the adapter, or right-click the adapter.

3. Select **Launch Adapter** from the shortcut menu that is displayed. Details of the adapter are displayed.

3.2.2 Adding Custom Attributes for Provisioning

> **Note:** In this section, the term "attribute" refers to the identity data fields that store user data.

By default, the attributes listed in the "Provisioning Module" section on page 1-2 are mapped for provisioning between Oracle Identity Manager and the target system. If required, you can map additional attributes for provisioning as follows:

> **See Also:** *Oracle Identity Manager Design Console Guide*

1. Modify the attributemapping_prov.properties file, which is in the *OIM_ HOME*/xellerate/XLIntegrations/RWMS/config directory.

> **Note:** In this file, some of the attribute definitions are preceded by a comment saying that these attributes must not be changed. You must *not* change these attribute definitions.

At the end of this file, some of the attribute definitions are preceded by comment characters. You can uncomment the definition of an attribute to make it a part of the list of reconciliation attributes. If required, you can also add new attributes in this file. The format that you must use is as follows:

OimAttributeName=TargetAttributeName

For example:

LanguageCode=LANGUAGE_CODE

In this example, LanguageCode is the provisioning field and LANGUAGE_CODE is the target system field.

2. Add a new column in the process form.

   a. Open the process form. This form is in the Development Tools folder of the Oracle Identity Manager Design Console.

    b. Click **Create New Version**.

    c. In the Create a New Version dialog box, specify the version name in the **Label** field, save the changes, and then close the dialog box.

    d. From the **Current Version** list, select the newly created version.

    e. On the Additional Columns tab, click **Add**.

    f. Specify the new field name and other values.

3. Add a new variable in the variable list.

    a. Open the Adapter Factory form. This form is in the Development Tools folder of the Oracle Identity Manager Design Console.

    b. Click the **Query for Records** icon.

    c. On the Adapter Factory Table tab, double-click the **adpRWMSCreateUser** adapter from the list.

    d. On the Variable List tab, click **Add**.

    e. In the Add a Variable dialog box, specify the required values and then save and close the dialog box.

4. Define an additional adapter task for the newly added variable in the `adpRWMSCreateUser` adapter.

    a. On the Adapter Tasks tab of the Adapter Factory form, click **Add**.

    b. In the Adapter Task Selection dialog box, select **Functional Task**, select **Java** from the list of functional task types, and then click **Continue**.

    c. In the Object Instance Selection dialog box, select **Persistent Instance** and then click **Continue**.

    d. In the Add an Adapter Factory Task dialog box, specify the task name, select the **setProperty** method from the **Method** list, and then click **Save**.

    e. Map the application method parameters, and then save and close the dialog box. To map the application method parameters:

        For the "Output: String Return variable (Adapter Variable)" parameter:

        i. From the **Map to** list, select **Literal**.

        ii. From the **Name** list, select **Return variable**.

        For the "Input: String input (Adapter Variable)" parameter:

        i. From the **Map to** list, select **Adapter Variables**.

        ii. From the **Name** list, select **Input**.

        For the "Input: String Status (Literal)" parameter:

        i. From the **Map to** list, select **Literal**.

        ii. From the **Name** list, select **String**.

        iii. In the **Value** field, enter **Status**.

        For the "Input: String Status (Adapter Variable)" parameter:

        i. From the **Map to** list, select **Adapter Variables**.

        ii. From the **Name** list, select **Status**.

    f. Repeat Steps b through g to create more adapter tasks.

5. Create an additional adapter task to set the input variable.

   a. Open the Adapter Factory form. This form is in the Development Tools folder in the Oracle Identity Manager Design Console.

   b. On the Adapter Tasks tab, click **Add**.

   c. In the Adapter Task Selection dialog box, select **Logic Task**, select **SET VARIABLE** from the list, and then click **Continue**.

   d. In the Edit Set Variable Task Parameters dialog box, select **input** from the **Variable Name** list, select **Adapter Task** from the **Operand Type** list, and the Operand Qualifier as the Adapter Task that you have created in the previous step. Then, click **Save**.

6. Map the process form columns and adapter variables for the Create User process task as follows:

   a. Open the Process Definition form. This form is in the Process Management folder of the Design Console.

   b. Click the **Query for Records** icon.

   c. On the Process Definition Table tab, double-click the **RWMSProcess** process.

   d. On the Tasks tab, double-click the **Create User** task.

   e. In the Closing Form dialog box, click **Yes**.

   f. On the Integration tab of the Editing Task Columns Create User dialog box, map the unmapped variables, and then save and close the dialog box. To map an unmapped variable:

      i. Double-click the row in which **N** is displayed in the Status column. The value N signifies that the variable is not mapped.

      ii. From the **Map to** list in the Edit Data Mapping for Variables dialog box, select **Process Data**.

      iii. From the **Qualifier** list, select the name of the variable.

      Repeat Steps i through iii for all unmapped variables.

Repeat Steps 1 through 6 if you want to add more attributes.

3.3 Configuring the Connector for Multiple Installations of the Target System

> **Note:** Perform this procedure only if you want to configure the connector for multiple installations of Oracle Retail Warehouse Management System.

You may want to configure the connector for multiple installations of Oracle Retail Warehouse Management System. The following example illustrates this requirement:

The Tokyo, London, and New York offices of Example Multinational Inc. have their own installations of Oracle Retail Warehouse Management System. The company has recently installed Oracle Identity Manager, and they want to configure Oracle Identity Manager to link all the installations of Oracle Retail Warehouse Management System.

To meet the requirement posed by such a scenario, you must configure the connector for multiple installations of Oracle Retail Warehouse Management System.

To configure the connector for multiple installations of the target system:

> **See Also:** *Oracle Identity Manager Design Console Guide* for detailed instructions on performing each step of this procedure

1. Create and configure one IT resource for each set of Oracle Retail Warehouse Management System.

   The IT Resources form is in the Resource Management folder. The RWMS IT resource is created when you import the connector XML file. You can use this IT resource as the template for creating the remaining IT resources, of the same IT resource type.

2. Configure reconciliation for each set of Oracle Retail Warehouse Management System. Refer to the "Configuring Reconciliation" section on page 3-1 for instructions.

When you use the Administrative and User Console to perform provisioning, you can specify the IT resource corresponding to the Oracle Retail Warehouse Management System installation to which you want to provision the user.

4

Testing and Troubleshooting

After you deploy and configure the connector, you must test it to ensure that it functions as expected. This chapter discusses the following topics related to connector testing:

- Testing the Connector
- Troubleshooting Connector Problems

4.1 Testing the Connector

You can use the testing utility to identify the cause of problems associated with connecting to the target system and performing basic operations on the target system.

To use the testing utility:

1. Specify values for the parameters in the `config.properties` file.

   This file is in the *OIM_HOME*`/xellerate/XLIntegrations/RWMS/test/config` directory.

2. Run one of the following files:

   For UNIX platforms:

   OIM_HOME`/xellerate/XLIntegrations/tests/scripts/rwms.sh`

   For Microsoft Windows platforms:

   OIM_HOME`\xellerate\XLIntegrations\tests\scripts\rwms.bat`

4.1.1 Testing Partial and Batched Reconciliation

You can test both partial and batched reconciliation, in either trusted source or target resource mode, by specifying values for the following user reconciliation attributes:

- BatchSize
- NoOfBatches
- FacilityID
- DCDept
- Operator

These attributes are described in the "User Reconciliation Scheduled Task" section on page 3-5.

The following is a sample set of values for these attributes:

- BatchSize: `4`

- NoOfBatches: `2`

- FacilityID: `AY`

- DCDept: `Accounts`

- Operator: `AND`

Suppose you specify these values in the target resource user reconciliation scheduled task. After that task is run, all target system records for which the FacilityID and DCDept values are `AY` and `Accounts` respectively, are divided into batches of four records each. Of these batches, the first two are reconciled during the current reconciliation run.

4.2 Troubleshooting Connector Problems

The following table lists solutions to some commonly encountered errors associated with the connector.

Problem Description	Solution
Oracle Identity Manager cannot establish a connection with the Oracle Retail Warehouse Management System server.	- Ensure that the Oracle Retail Warehouse Management System server is running. - Ensure that Oracle Identity Manager is running. - Ensure that all the adapters have been compiled. - Use the IT Resources form to examine the Oracle Identity Manager record. Ensure that values for all the IT resource parameters have been correctly specified.
The Operation Failed message is displayed on the Oracle Identity Manager Administrative and User Console.	- Ensure that the values for the various attributes do not contain delimiter characters (white space). - Ensure that the attribute values do not exceed the allowable length.

5

Known Issues

The following are known issues associated with this release of the connector:

- Provisioning of a user in Oracle Retail Warehouse Management System depends on the `FacilityID` value. During provisioning, depending on the value that you select from the `FacilityID` lookup field, you must select corresponding values from the `DCDept` and `UserClass` lookup fields.

  If you do not select corresponding values from the `DCDept` and `UserClass` lookup fields, then the provisioning operation would fail. However, Oracle Identity Manager does not display an error message if you do not select the correct `DCDept` and `UserClass` values.

- This release of the connector supports only the English language.

A

Attribute Mappings Between Oracle Identity Manager and Oracle Retail Warehouse Management System

The following table discusses attribute mappings between Oracle Identity Manager and Oracle Retail Warehouse Management System.

Oracle Identity Manager Attribute	Oracle Retail Warehouse Management System Attribute	Description
Facility ID	FACILITY_ID	Unique identifier for an operating facility
User ID	USER_ID	Unique identifier for a user of the WMS
User Name	USER_NAME	Name of a user of RDM
User Privilege	USER_PRIVILEGE	Privilege level for a user of WMS
User Password	USER_PASSWORD	User's password
Language Code	LANGUAGE_CODE	User's selected language
Picking Percent QA	PICKING_PERCENT_QA	Percentage at which QA is performed when this user performs picking
Packing Percent QA	PACKING_PERCENT_QA	Percentage at which QA is performed when this user performs packing
DC Dept	DC_DEPT	DC department name
User Class	USER_CLASS	User's User class
Equipment	EQUIPMENT	User's Equipment

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