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Connector Guide for BMC Remedy Ticket Management

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Oracle Identity Manager Connector Guide for BMC Remedy Ticket Management, Release 9.0.4

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Primary Author: Debapriya Datta

Contributing Authors: Devanshi Mohan, Alankrita Prakash, Lyju Vadassery

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Preface

This guide provides information about Oracle Identity Manager Connector for BMC Remedy Ticket Management.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager Connector for BMC Remedy Ticket Management.

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Related Documents

For information about installing and using Oracle Identity Manager, see the Oracle Identity Manager documentation library.

For generic information about connectors, see *Oracle Identity Manager Connector Concepts*.

The following Oracle Technology Network page provides links to Oracle Identity Manager documentation:

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

Documentation Updates

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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.
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 BMC Remedy Ticket Management?

This chapter provides an overview of the updates made to the software and documentation for the BMC Remedy Ticket Management connector in release 9.0.4.4 of the Oracle Identity Manager connector pack.

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.

Software Updates

The following sections discuss updates made to the connector software:

- Software Updates in Release 9.0.4 and 9.0.4.1
- Software Updates in Release 9.0.4.2
- Software Updates in Release 9.0.4.3
- Software Updates in Release 9.0.4.4

Software Updates in Release 9.0.4 and 9.0.4.1

The following are software updates in release 9.0.4 and 9.0.4.1:

- Changes in IT Resource Parameters
- Additions to the Known Issues List
- Changes in the Directory Structure for the Connector Installation Files
- Changes in Adapter Names

Changes in IT Resource Parameters

In this release of the connector, the `Host`, `TimeStamp`, `Max_Retry`, and `Delay` BMC IT resource parameters have been removed. The `ServerName`, `LastReconTime`, `NoOfTrials`, `DelayBetweenTrials`, and `FullNameOfUser` IT resource

parameters have been added. For more information about parameters of the `BMCTicket` IT resource, refer to the "Defining IT Resources" section on page 2-7.

Additions to the Known Issues List

In the Known Issues list in Chapter 5, the following item has been added:

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

Changes in the Directory Structure for the Connector Installation Files

Some changes have been made in the directory structure for the connector installation files. These changes are reflected in the following sections:

- Files and Directories That Comprise the Connector on page 1-5

- Copying the External Code Files on page 2-1

Changes in Adapter Names

In the "Compiling Adapters" section on page 3-5, the names of the adapters have been modified.

Software Updates in Release 9.0.4.2

The following are software updates in release 9.0.4.2:

- Support for the Connector Installer

- Support for BMC Remedy AR System 7.1

- Extended Multilanguage Support

- Resolved Issues in Release 9.0.4.2

Support for the Connector Installer

From Oracle Identity Manager release 9.1.0 onward, the Administrative and User Console provides the Connector Installer feature. This feature can be used to automate the connector installation procedure.

See "Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later" for more information.

Support for BMC Remedy AR System 7.1

From this release onward, the connector supports BMC Remedy AR System 7.1. Changes related to this software update have been made in the following sections:

> **Note:**   BMC Remedy AR System 6.0 is desupported from this release onward.

- Lookup Fields Reconciliation

- Ticket Reconciliation

- Provisioning Module

- Supported Functionality

- Verifying Deployment Requirements

- Customizing the HPD:IncidentInterface_Create and HPD:Help Desk Forms for Each Target Application

- Defining IT Resources
- Attribute Mappings Between Oracle Identity Manager and BMC Remedy Ticket Management

Extended Multilanguage Support

From this release onward, the connector supports the 12 languages listed in the "Multilanguage Support" section.

Resolved Issues in Release 9.0.4.2

The following is a resolved issue in release 9.0.4.2:

Bug Number	Issue	Resolution
7646231	The connector could be used only on an Oracle Identity Manager installation running on Microsoft Windows.	This issue has been resolved. The connector can now be used on Oracle Identity Manager installations running on Microsoft Windows, Linux, and Solaris. See "Copying the External Code Files" for information about the required code files on each of the supported operating systems.

Software Updates in Release 9.0.4.3

The following is a resolved issue in release 9.0.4.3:

Bug Number	Issue	Resolution
8325232	The connector did not work if you used a BMC Remedy server port other than port 0 for connector operations.	This issue has been resolved. You can now use any BMC Remedy server port (including port 0) for connector operations.

Software Updates in Release 9.0.4.4

The following is a resolved issue in release 9.0.4.4:

Bug Number	Issue	Resolution
8469308	The connector does not reconcile the ticket if the submitter is different from the UserName passed in the BMCTicket IT resource parameter.	This issue has been resolved. Earlier tickets were reconciled based on submitter, username, and status. But from this release onward, tickets will be reconciled based on the status only. Therefore, if the ticket has a submitter different from the UserName passed in the BMCTicket IT resource parameter, it will be reconciled.

Documentation-Specific Updates

The following sections discuss documentation-specific updates in the guide:

- Documentation-Specific Updates in Releases 9.0.4.1 and 9.0.4.2
- Documentation-Specific Updates in Release 9.0.4.3
- Documentation-Specific Updates in Release 9.0.4.4

Documentation-Specific Updates in Releases 9.0.4.1 and 9.0.4.2

The following documentation-specific updates have been made from release 9.0.4.1 through 9.0.4.2:

- In the "Customizing the HPD:IncidentInterface_Create and HPD:Help Desk Forms for Each Target Application" section on page 2-11, the instructions have been revised.

- The limitation that the target system does not support SSL communication has been moved from the "Known Issues" chapter to the "Verifying Deployment Requirements" section.

Documentation-Specific Updates in Release 9.0.4.3

The following are documentation-specific updates in release 9.0.4.3:

- In the Configuring Connector Functionality chapter, the "Configuring the Connector for Multiple Installations of the Target System" section has been removed. This feature is not supported by default.

- In the "Verifying Deployment Requirements" section, changes have been made in the "Target systems" row.

Documentation-Specific Updates in Release 9.0.4.4

In the "Connector Architecture" section, the overview of the connector architecture has been modified.

1

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 BMC Remedy Ticket Management.

This chapter contains the following sections:

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

> **Note:** At some places in this guide, ARS Remedy System is also referred to as the *target system.*
>
> For this connector, BMC Remedy is treated as a provisioning tool or medium.
>
> In this connector, *target application* refers to the application provisioned indirectly via Remedy's Help desk-based manual/automated processes.

1.1 Connector Architecture

The architecture of the connector is the blueprint for the functionality of the connector.

The primary function of the connector is to create tickets on the target system through Oracle Identity Manager. In other words, ARS Remedy System can be configured to run as a target resource of Oracle Identity Manager. In addition, the connector enables provisioning operations through which ticket data changes are propagated from Oracle Identity Manager to ARS Remedy System.

During reconciliation, the connector fetches into Oracle Identity Manager data about tickets created or modified directly on the target system. It reconciles only records that have been provisioned from Oracle Identity Manager. To achieve this, the OIMUserId custom field is added on the target system HPD:Help Desk Forms.

Tickets are created during provisioning in the HPD:Help Desk Forms of the target system. The connector uses Remedy APIs to connect to the target system and provision tickets.

Figure 1–1 shows the architecture of the BMC Remedy Ticket Management connector.

Figure 1–1   Architecture of the BMC Remedy Ticket Management Connector
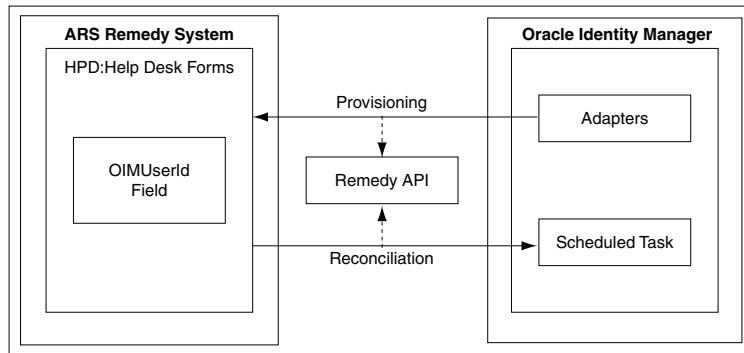
Tickets are created during provisioning in the People form of the BMC Remedy target system. The connector makes use of Remedy APIs to connect to the Remedy Server, and in turn provision the account.

During reconciliation, ticket records are retrieved from the People form.

1.2 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.

> **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

- Ticket Reconciliation

1.2.1 Lookup Fields Reconciliation

Lookup fields reconciliation involves reconciling the following lookup fields:

- Category (Operational Categorization Tier 1)

- Item (Operational Categorization Tier 2)

- Type (Operational Categorization Tier 3)

1.2.2 Ticket Reconciliation

Ticket reconciliation involves reconciling the following fields:

- Summary

- Notes

- Category (Operational Categorization Tier 1)

- Type (Operational Categorization Tier 2)

- Item (Operational Categorization Tier 3)

- ServiceType

- FirstName

- LastName

- ReportedSource

- StatusReason

- OIMUserId

> **Note:** While deploying the connector, you create the OIMUserId field on the target system. During the Create Ticket provisioning operation, this field is populated with the User ID of the OIM User for whom you are creating the ticket. During reconciliation, the value in the OIMUserId field is brought to Oracle Identity Manager and is used for user matching purposes.

- IncidentId

- Impact

- Urgency

1.3 Provisioning Module

Provisioning involves creating or modifying a Ticket in the Remedy Helpdesk system through Oracle Identity Manager. You use the Oracle Identity Manager Administrative and User Console to perform provisioning operations.

Oracle Identity Manager sends basic provisioning information to Remedy for provisioning a ticket. The provisioning connector invokes Remedy to generate a ticket. Provisioning information includes:

- Target application

- Access information for target application modules

- Ticket provisioning information

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:

- Summary

- Notes

- Category

- Type

- Item

- FirstName

- LastName

- ServiceType

- Impact

- Urgency

- ReportedSource

1.4 Supported Functionality

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

Function	Type	Description
Create Ticket	Provisioning	Creates a ticket
Update Summary	Provisioning	Updates the Summary of a ticket
Update Category	Provisioning	Updates the Category of a ticket
Update Type	Provisioning	Updates the Type of a ticket
Update Item	Provisioning	Updates the Item of a ticket
Update ServiceType	Provisioning	Updates the ServiceType of a ticket
Update ReportedSource	Provisioning	Updates the ReportedSource of a ticket
Update Impact	Provisioning	Updates the Impact of a ticket
Reconcile Lookup Field	Reconciliation	Reconciles the lookup fields
Reconcile Ticket Data	Reconciliation	Reconciles ticket data from BMC Remedy Ticket Management to Oracle Identity Manager

> **See Also:** Appendix A, "Attribute Mappings Between Oracle Identity Manager and BMC Remedy Ticket Management"

1.5 Multilanguage Support

This release of the connector supports the following languages:

> **See Also:** Bug 8203695 in the "Known Issues" chapter

- Arabic

- Chinese Simplified

- Chinese Traditional

- Danish

- English

- French

- German

- Italian

- Japanese

- Korean

- Portuguese (Brazilian)

- Spanish

> **See Also:** *Oracle Identity Manager Globalization Guide* for information about supported special characters

1.6 Files and Directories That Comprise the Connector

The files and directories on the installation media are listed in Table 1–1.

Table 1–1 Files and Directories On the Installation Media

File in the Installation Media Directory	Description
`configuration/BMC RemedyTicket Reconciliation-CI.xml`	This XML file contains configuration information that is used during connector installation.
`config/attributemapping_prov.properties`	This file contains the attributes required for provisioning.
`config/attributemapping_recon.properties`	This file contains the attributes required for reconciliation.
`lib/xlBMCRemedyTicket.jar`	This file contains the class files that are required for provisioning. During connector installation, this file is copied into the following directory: *OIM_HOME*/xellerate/JavaTasks
`lib/xlBMCRemedyTicketRecon.jar`	This file contains the class files that are required for reconciliation. During connector installation, this file is copied into the following directory: *OIM_HOME*/xellerate/ScheduleTask
File in the `resources` directory	Each of these resource bundle files contains 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.
`test/config/config.properties`	This file contains the parameters required to connect to the target system and test connector operations.

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

File in the Installation Media Directory	Description
test/config/log.properties	This file is used to store log information from tests that you run.
test/scripts/BMCRemedyTicket.bat test/scripts/BMCRemedyTicket.sh	This file is used to run the test utility.
xml/BMCTicketConnector_DM.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 ■ Adapter tasks ■ Lookup definitions ■ Scheduled tasks

File in the Installation Media Directory	Description
configuration/BMC RemedyTicket Reconciliation-CI.xml	This XML file contains configuration information that is used during connector installation.
config/attributemapping_prov.properties	This file contains the attributes required for provisioning.
config/attributemapping_recon.properties	This file contains the attributes required for reconciliation.
lib/xlBMCRemedyTicket.jar	This file contains the class files that are required for provisioning.
lib/xlBMCRemedyTicketRecon.jar	This file contains the class files that are required for reconciliation.
File in the resources directory	Each of these resource bundle files contains 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.
test/config/config.properties	This file contains the parameters required to connect to the target system and test connector operations.
test/config/log.properties	This file is used to store log information from tests that you run.
test/scripts/BMCRemedyTicket.bat test/scripts/BMCRemedyTicket.sh	This file is used to run the test utility.

File in the Installation Media Directory	Description
xml/BMCTicketConnector_DM.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 ■ Adapter tasks ■ Lookup definitions ■ Scheduled tasks

The "Copying the External Code Files" section on page 2-1 provides instructions to copy these files into the required directories.

1.7 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 xlBMCRemedyTicket.jar file. This file is in the following directory on the installation media:

   OIM_HOME/xellerate/JavaTasks/xlBMCRemedyTicket.jar

2. Open the Manifest.mf file in a text editor. The Manifest.mf file is one of the files bundled inside the xlBMCRemedyTicket.jar file.

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

2

Deploying the Connector

Deploying the connector involves the following steps:

- Verifying Deployment Requirements
- Copying the External Code Files
- Depending on the release of Oracle Identity Manager that you use, perform the procedures described in one of the following sections:
  - Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later
  - Installing the Connector on Oracle Identity Manager Release 8.5.3.1 Through 9.0.3.1
- Configuring the Target System
- Configuring the Oracle Identity Manager Server

2.1 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	BMC Remedy AR System 7.x
	Note: The target system does not support SSL communication.
External code files	The set of required files depends on the operating system on which Oracle Identity Manager is running. See "Copying the External Code Files" for more information.
Target system user account	Create a user in BMC Remedy with all the privileges assigned to the Demo user.
	You provide the credentials of this user account while performing the procedure in the "Defining IT Resources" section on page 2-7.

2.2 Copying the External Code Files

Depending on the operating system on which Oracle Identity Manager is running, perform the procedure described in one of the following sections:

> **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.

- Oracle Identity Manager Running on Microsoft Windows
- Oracle Identity Manager Running on Linux or Solaris

2.2.1 Oracle Identity Manager Running on Microsoft Windows

To copy external code files on Oracle Identity Manager running on Microsoft Windows:

1. Copy the following files from the BMC Remedy Admin Client installation directory (for example, `C:/Program Files/AR System`) to the *OIM_HOME*`/xellerate/ThirdParty` directory:

> **Note:** If you do not have these files in your target system installation directory, then check with your vendor.

arapi70.jar

arutil70.jar

arapi70.dll

arjni70.dll

arrpc70.dll

arutl70.dll

icudt32.dll

icuin32.dll

icuuc32.dll

2. Include *OIM_HOME*`/xellerate/ThirdParty` in the `PATH` environment variable.

2.2.2 Oracle Identity Manager Running on Linux or Solaris

To copy external code files on Oracle Identity Manager running on Linux or Solaris:

1. Copy the following files from the BMC Remedy Admin Client installation directory (for example, *BMC_HOME*`/ar/mid-tier/WEB-INF/lib/`) to the *OIM_HOME*`/xellerate/ThirdParty` directory:

> **Note:** If you do not have these files in your target system installation directory, then check with your vendor.
>
> These `.so` files are different for different (for example, x86 and SPARC) platforms. Ensure that you use the `.so` files that are specific to the type of platform on which Oracle Identity Manager is running.

libarjni70.so

libarutiljni70.so

libicudatabmc.so

libicudatabmc.so.32

libicui18nbmc.so

libicui18nbmc.so.32

libicuiobmc.so

libicuiobmc.so.32

libicuucbmc.so

libicuucbmc.so.32

arapi70.jar

arutil70.jar

2. Add the following lines at the end of the system profile file:

    ```
    LD_LIBRARY_PATH=OIM_HOME/xellerate/ThirdParty
    export LD_LIBRARY_PATH
    ```

2.3 Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later

> **Note:** In this guide, the term **Connector Installer** has been used to refer to the Connector Installer feature of the Oracle Identity Manager Administrative and User Console.

Installing the connector on Oracle Identity Manager release 9.1.0 or later involves the following procedures:

- Running the Connector Installer
- Configuring the IT Resource

2.3.1 Running the Connector Installer

To run the Connector Installer:

1. Copy the contents of the connector installation media into the following directory:

    ```
    OIM_HOME/xellerate/ConnectorDefaultDirectory
    ```

2. Log in to the Administrative and User Console by using the user account described in the "Creating the User Account for Installing Connectors" section of *Oracle Identity Manager Administrative and User Console Guide*.

3. Click **Deployment Management**, and then click **Install Connector**.

4. From the Connector List list, select **BMC Remedy Ticket Management** *RELEASE_NUMBER*. This list displays the names and release numbers of connectors whose installation files you copy into the default connector installation directory:

    ```
    OIM_HOME/xellerate/ConnectorDefaultDirectory
    ```

If you have copied the installation files into a different directory, then:

a. In the **Alternative Directory** field, enter the full path and name of that directory.

b. To repopulate the list of connectors in the Connector List list, click **Refresh**.

c. From the Connector List list, select **BMC Remedy Ticket Management** *RELEASE_NUMBER.*

5. Click **Load**.

6. To start the installation process, click **Continue**.

The following tasks are performed in sequence:

a. Configuration of connector libraries

b. Import of the connector XML files (by using the Deployment Manager)

c. Compilation of adapters

On successful completion of a task, a check mark is displayed for the task. If a task fails, then an X mark and a message stating the reason for failure are displayed. Depending on the reason for the failure, make the required correction and then perform one of the following steps:

■ Retry the installation by clicking **Retry.**

■ Cancel the installation and begin again from Step 1.

7. If all three tasks of the connector installation process are successful, then a message indicating successful installation is displayed. In addition, a list of the steps that you must perform after the installation is displayed. These steps are as follows:

a. Ensuring that the prerequisites for using the connector are addressed

---

Note: At this stage, run the `PurgeCache` utility to load the server cache with content from the connector resource bundle in order to view the list of prerequisites. Refer to "Clearing Content Related to Connector Resource Bundles from the Server Cache" on page 2-9 for information about running the `PurgeCache` utility.

There are no prerequisites for some predefined connectors.

---

b. Configuring the IT resource for the connector

Record the name of the IT resource displayed on this page. The procedure to configure the IT resource is described later in this guide.

c. Configuring the scheduled tasks that are created when you installed the connector

Record the names of the scheduled tasks displayed on this page. The procedure to configure these scheduled tasks is described later in this guide.

When you run the Connector Installer, it copies the connector files and external code files to destination directories on the Oracle Identity Manager host computer. These files are listed in Table 1–1.

You must manually copy the following files to the specified destination directories:

File in the Installation Media Directory	Destination Directory
Files in the `config` directory Files in the `test/config` directory	*OIM_HOME*/xellerate/XLIntegrations/BMCTICKET/config
Files in the `test/scripts` directory	*OIM_HOME*/xellerate/XLIntegrations/BMCTICKET/scripts

Installing the Connector in an Oracle Identity Manager Cluster

While installing Oracle Identity Manager in a clustered environment, you must copy all the JAR files and the contents of the connectorResources directory into the corresponding directories on each node of the cluster. See Table 1–1 for information about the files that you must copy and their destination locations on the Oracle Identity Manager server.

2.3.2 Configuring the IT Resource

> **Note:** Perform this procedure if you are installing the connector on Oracle Identity Manager release 9.1.0 or later.

You must specify values for the parameters of the BMCTicket IT resource as follows:

1. Log in to the Administrative and User Console.

2. Expand **Resource Management.**

3. Click **Manage IT Resource**.

4. In the IT Resource Name field on the Manage IT Resource page, enter BMCTicket and then click **Search**.

5. Click the edit icon for the IT resource.

6. From the list at the top of the page, select **Details and Parameters**.

7. Specify values for the parameters of the IT resource. The following table describes each parameter:

Parameter	Description
UserName	User ID that is used to connect to the target system The default value is Demo.
Password	Password for the user ID that is used to connect to the target system
SeverName	IP address or computer name of the BMC Remedy server.
Port	TCP/IP port at which the BMC Remedy server is listening The default value is 0.
LastReconTime	Starting with the first reconciliation run, this parameter stores the time-stamp value at which the reconciliation run ends. The default value is None.
IsSecure	Specifies whether or not the encryption feature is enabled The value can be YES or NO. The default value is NO.
FormNameHelpDesk	Name of the form/view in the target system from which details of newly created and updated Ticket can be obtained The default value is HPD:Help Desk.

Parameter	Description
FormNameInterface	Name of the form/view in the target system from which details of newly created tickets can be obtained
	The default value is `HPD:IncidentInterface_Create`.
NoOfTrials	The maximum number of times the connector tries to connect to the target system.
	The default value is 2.
DelayBetweenTrials	The time gap to connect to Target system when timeout occurs.
	The default value is 2000.
FullNameOfUser	Full name of the user who is trying to connect to the target system.

8. To save the values, click **Update**.

2.4 Installing the Connector on Oracle Identity Manager Release 8.5.3.1 Through 9.0.3.1

Installing the connector on any Oracle Identity Manager release between releases 8.5.3.1 and 9.0.3.1 involves the following procedures:

- Copying the External Code Files
- Importing the Connector XML File

2.4.1 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:

`Help Desk/BMC Remedy/BMC Remedy Ticket Management`

Refer to the "Files and Directories That Comprise the Connector" section on page 1-5 for more information about these files.

File in the Installation Media Directory	Destination Directory
Files in the `config` directory	*OIM_HOME*/xellerate/XLIntegrations/BMCTICKET/config
Files in the `test/config` directory	
`lib/xlBMCRemedyTicket.jar`	*OIM_HOME*/xellerate/JavaTasks
`lib/xlBMCRemedyTicketRecon.jar`	*OIM_HOME*/xellerate/ScheduleTask
File in the `resources` directory	*OIM_HOME*/xellerate/connectorResources
Files in the `test/scripts` directory	*OIM_HOME*/xellerate/XLIntegrations/BMCTICKET/scripts
`xml/BMCTicketConnector_DM.xml`	*OIM_HOME*/xlclient

2.4.2 Importing the Connector XML File

As mentioned in the "Files and Directories That Comprise the Connector" section on page 1-5, 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 `BMCTicketConnector_DM.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 `BMCTicket` IT resource is displayed.

8. Specify values for the parameters of the `BMCTicket` 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 `BMCRemedyTicket` 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.

2.4.2.1 Defining IT Resources

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

Parameter	Description
UserName	User ID that is used to connect to the target system
	The default value is `Demo`.

Parameter	Description
Password	Password for the user ID that is used to connect to the target system Default value is blank.
SeverName	IP address or computer name of the BMC Remedy server.
Port	TCP/IP port at which the BMC Remedy server is listening The default value is 0.
LastReconTime	Starting with the first reconciliation run, this parameter stores the time-stamp value at which the reconciliation run ends. The default value is None.
IsSecure	Specifies whether or not the encryption feature is enabled The value can be YES or NO. The default value is NO.
FormNameHelpDesk	Name of the form/view in the target system from which details of newly created and updated Ticket can be obtained The default value is HPD:Help Desk.
FormNameInterface	Name of the form/view in the target system from which details of newly created tickets can be obtained The default value is HPD:IncidentInterface_Create.
NoOfTrials	The maximum number of times the connector tries to connect to the target system. The default value is 2.
DelayBetweenTrials	The time gap to connect to Target system when timeout occurs. The default value is 2000.
FullNameOfUser	Full name of the user who is trying to connect to the target system.

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

2.5 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

2.5.1 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.

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

While performing the instructions described in the "Copying the External Code Files" section on page 2-1, 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`

2.5.3 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 informational messages that highlight the progress of the application at 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 still 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.BMCTicket=`*log_level*

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

     For example:

     `log4j.logger.Adapter.BMCTicket=INFO`

  After you enable logging, 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.BMCTicket=`*log_level*

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

     For example:

     `log4j.logger.Adapter.BMCTicket=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.BMCTicket">
        <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.BMCTicket">
    <priority value="INFO"/>
</category>
```

After you enable logging, the 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.BMCTicket=*log_level*

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

  For example:

  log4j.logger.Adapter.BMCTicket=INFO

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

  OC4J_home/opmn/logs/default_group~home~default_group~1.log

2.6 Configuring the Target System

Configuring the target system involves the following steps:

- Customizing the HPD:IncidentInterface_Create and HPD:Help Desk Forms for Each Target Application
- Enabling Encryption

2.6.1 Customizing the HPD:IncidentInterface_Create and HPD:Help Desk Forms for Each Target Application

Each target application must have a custom ticket form in BMC Remedy. To create a custom ticket form for a target application, you can use one of the following methods:

- Create a copy of the HPD:IncidentInterface_Create and HPD:Help Desk forms.
- Create a view that is based on the HPD:IncidentInterface_Create and HPD:Help Desk forms.

Before you create a copy or view of the HPD:IncidentInterface_Create or HPD:Help Desk form, you must perform the following steps:

> **See Also:** *Action request system 7.1 Developing ARSystem Application:Basic* for more information about adding fields on forms and to create views

1. Add the OIMUserId field on the HPD:IncidentInterface_Create or HPD:Help Desk form as follows:

  a. Log in to BMC Remedy Administrator.

    b. Click **Filters**.

    c. Open the form.

    d. If you are adding the field on the `HPD:Help Desk` form, then click the **Contact** tab.

    e. Create a Character field and place the field as required.

    f. Open the Field Properties dialog box for the character field that you create.

    g. Click the **Display** tab.

    h. In the **Label** field, enter `OIMUserID`.

    i. Click the **Permissions** tab, and then assign the **Public** permission.

    j. Close the Field Properties page.

    k. Save the changes made to the form.

2. Update the `HPD:HII:CreateIncident_100'!` filter as follows so that it pushes values from the `HPD: IncidentInerface_Create` form to the `HPD:Help Desk` form:

    a. Log in to BMC Remedy Administrator.

    b. Click **Filters**.

    c. Open the **HPD:HII:CreateIncident_100`!** filter.

    d. Click the If-Action(1) tab.

    e. In the Fields region:

       – From the **Name** menu, select **OIMUserID**.

       – From the **Value** menu, select **OIMUserID**.

    f. Save the filter, and then close it.

3. Update the value of the `OIMUserId` field in the `attributemapping_prov.properties` and `attributemapping_recon.properties` files.

These files are in the following directory:

`OIM_HOME/xellerate/XLIntegrations/BMCTICKET/config`

In the `attributemapping_prov.properties` file, search for the following line:

`OIMUserId=<database ID>`

In this line, replace `<database ID>` with the database ID. For example:

`OIMUserId=536870915`

In the `attributemapping_recon.properties` file, search for the following line:

`Ticket.OIMUserId=<database ID>`

In this line, replace `<database ID>` with the database ID. For example:

`Ticket.OIMUserId=536870915`

After you make these changes, create a copy or view of the form for each target system. In each view or copy, add fields to provide information about the following:

- Target application name

- Access information for target application modules

- User-specific details

2.6.2 Enabling Encryption

This section discusses the following topics related to Remedy encryption:

- Enabling Remedy Encryption

- AR System Encryption Error Messages

2.6.2.1 Enabling Remedy Encryption

To enable encryption and set encryption options, you must include server encryption options in the `ar.conf` file (UNIX) or the `ar.cfg` file (Microsoft Windows). You can do this by using a text editor.

You can set the `Encrypt-Security-Policy` encryption option. This is an integer value that indicates whether or not encryption is enabled. If this option is not in the `ar.cfg` (or `ar.conf`) file, then encryption is disabled by default. If encryption is enabled, then you can set encryption to any one of the following values to this option:

- **0:** Encryption is allowed. Clients and servers with or without encryption enabled on them can connect to this AR System server.

- **1:** Encryption is required. Only clients and servers that have encryption enabled on them can connect to this AR System server.

- **2:** Encryption is disallowed. Regardless of whether or not encryption is enabled, clients and servers can communicate without encryption.

Sample Encryption Product Settings in the Configuration File

The following table explains sample settings for the options that you can add in the `ar.conf` (or `ar.cfg`) file.

Option Settings	Significance
Encrypt-Security-Policy: 1	Encryption is required.
Encrypt-Public-Key-Expire: 86400	Public key duration is 1 day (86400 seconds).
Encrypt-Symmetric-Data-Key-Expire: 2700	Symmetric data encryption key duration is 45 minutes (2700 seconds).
Encrypt-Public-Key-Algorithm: 5	Public key encryption key strength is RSA-1024 (Performance Security).
Encrypt-Data-Encryption-Algorithm: 2	Symmetric data encryption key strength is RC4 128-bit (Performance Security).

If you do not set these options, then the default values are used. Defaults for the level of encryption depend on the encryption product that you are using.

To enable Remedy encryption:

1. Exit or stop all AR System processes that are running.

   To do this, open **Control Panel**, **Administrator Tools**, and **Services**. Stop each AR System process that is running.

2. In the `ar.conf` file (for UNIX) or the `ar.cfg` file (for Microsoft Windows), add the `Encrypt-Security-Policy` option with a setting of `0` (encryption is allowed) or `1` (encryption is required). Add other options in the file as required.

The default UNIX directory for the `ar.conf` file is *ar_install_dir*/conf. In Microsoft Windows, the `ar.cfg` file is stored in the *ar_install_dir*\conf directory. Here, *ar_install_dir* is the installation directory for ARSystem on the AR server.

> **Caution:** If you set the `Encrypt-Security-Policy` option to `1` (encryption is required), then communication is not allowed for any server or client that has not been upgraded to use encryption.

---

3. Restart the AR System server.

2.6.2.2 AR System Encryption Error Messages

When the AR System server is started, it checks encryption licensing and encryption configuration settings, if encryption is enabled. If the appropriate Remedy Encryption product licenses are not detected or if invalid configuration settings are detected, then one or more of the following error messages are displayed.

Error Number	Error Message and Description
9010	Encryption is enabled, but the encryption library is not found.
	Install the Remedy Encryption product.
9012	No encryption license.
	Add the encryption license for the Remedy Encryption product that you are using.
9013	The encryption license does not match the type of Remedy Encryption product that is installed.
	Obtain the license for the type of Remedy Encryption product that is installed.
9006	The encryption library does not support the specified public key encryption algorithm.
	Set the `Encryption-Public-Key-Algorithm` option in the `ar.cfg` (or `ar.conf`) file to a value that is supported by the type of AR System Encryption product that is installed.
9007	The encryption library does not support the specified data encryption algorithm.
	Set the `Encrypt-Data-Encryption-Algorithm` option in the `ar.cfg` (or `ar.conf`) file to a value that is supported by the type of AR System Encryption product that is installed.

If encryption is disabled, then encryption error checking does not occur and encryption errors are bypassed. Error messages are listed in the order in which they are detected.

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 Target Applications

> **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 the Reconciliation Scheduled Tasks
- Adding Custom Attributes for Reconciliation

3.1.1 Configuring the Reconciliation Scheduled Tasks

When you perform the procedure described in the "Importing the Connector XML File" section on page 2-7, the scheduled tasks for lookup fields and Ticket 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. 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 3-2 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 and third scheduled tasks.

After you configure all three scheduled tasks, proceed to the "Adding Custom Attributes for Reconciliation" section on page 3-3.

3.1.1.1 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

   This section describes attributes of the lookup fields reconciliation scheduled task.

■ BMC Ticket Reconciliation Scheduled Task

   This section describes attributes of the BMC Ticket reconciliation scheduled task.

3.1.1.1.1 Lookup Fields Reconciliation Scheduled Task You must specify values for the following attributes of the BMCTicket Lookup Reconciliation 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	BMCTicket
LookUpCode	Name of the lookup code	The value can be any one of the following: ■ Lookup.BMCTKT.Category ■ Lookup.BMCTKT.Type ■ Lookup.BMCTKT.Item

Attribute	Description	Value
LookUpName	Name of the lookup field	The value can be any one of the following: ■ Category ■ Type ■ Item

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

3.1.1.1.2 BMC Ticket Reconciliation Scheduled Task You must specify values for the following attributes of the BMCTicket Reconciliation 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	BMCTicket
TargetRO	Name of the resource object	BMCTicketRO
BatchSize	Use this attribute to specify the number of records that must be included in each batch.	The default value is 1000.
NoOfBatches	Use this attribute to specify the total number of batches that must be reconciled. The number of records in each batch is specified by the BatchSize attribute	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.
Status	Use this attribute to specify the Ticket status for which you want to reconcile Tickets.	5 (closed) **Note:** You must not change this value.

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

3.1.2 Adding Custom Attributes for Reconciliation

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

By default, the attributes listed in the "Reconciliation Module" section on page 1-2 are mapped for reconciliation between Oracle Identity Manager and the target system. User is required to add custom attributes specific to the target application. These fields will provide information on Target Application Name, Access information for target application modules, and Ticket specific details. 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.

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

1. Determine the Database ID for the attribute that you want to add:

   a. Open the Remedy Administrator Console.

   b. Expand **Servers**.

   c. Double-click **Forms**.

   d. Double-click the **HPD:Help Desk** form.

   e. Double-click the field whose Database ID you want to determine.

   f. On the Database tab, the Database ID of the field is displayed as the value of the ID field.

2. Modify the `attributemapping_recon.properties` file, which is in the `OIM_HOME/xellerate/XLIntegrations/BMCTICKET/config` directory.

   Add the new attribute in this file. The format that you must use is as follows:

   `OimAttributeName=Database_ID_in_BMC_Remedy`

   For example:

   `Ticket.EmailAddress=260000002`

   In this example, `EmailAddress` is the reconciliation field and `20000002` is the equivalent Database ID in BMC Remedy System.

3. Log in to the Design Console.

4. 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. Search for and open the `BMCTicketRO` resource object.

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

   d. 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 add while performing Step 2.

   For example, if you add `Ticket.EmailAddress=260000002` line in Step 2, then you must specify `Ticket.EmailAddress` as the attribute name.

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

   For example: `String`

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

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

5. Add a new field on the process form as follows:

    a. Open the Process Forms form. This form is in the Development Tools folder.

    b. Search for and open the UD_BMCTKT process form.

    c. Click **Create New Version**.

    d. In the **Label** field of the Create a New Version dialog box, specify a version for the form.

    e. Save the changes, and then close the dialog box.

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

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

    h. Specify a name and other values for the field.

    i. Click the Save icon.

6. 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. Search for and open the BMCTicketProcess process definition.

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

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

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

3.2 Configuring Provisioning

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

As mentioned earlier in this guide, provisioning involves creating or modifying a Ticket information on the target system through Oracle Identity Manager.

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 the procedure described in this section if you want to use the provisioning features of Oracle Identity Manager for this target system.
>
> You need not perform the procedure to compile adapters if you have performed the procedure described in "Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later" on page 2-3.

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 1-4 for a listing of the provisioning functions that are available with this connector

- adpBMCCreateTicket
- adpBMCUpdateTicket
- adpBMCTKTUserId
- adpBMCUpdateLookupTicket

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

By default, the attributes listed in the "Provisioning Module" section on page 1-3 are mapped for provisioning between Oracle Identity Manager and the target system. You needs to map additional target application specific 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/BMCTICKET/config directory. You must add target application specific attributes in this file. The format that you must use is as follows:

   OimAttributeName=BMCFieldID

   > **Note:** `BMCFieldID` is the Database ID for the field on the BMC Server.

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 **adpBMCCREATETICKET** adapter from the list.

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

   e. In the Add a Variable dialog box, specify the required values (for example, `Status`) and then save and close the dialog box.

4. Define an additional adapter task for the newly added variable in the `adpBMCCREATETICKET`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 **New Object 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 **Adapter variables**.

   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 the field that you added in the `attributemapping_prov.properties` file. For example, 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 the field that you added in the `attributemapping_prov.properties` file. For example, 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 **BMCTicketProcess** process.

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

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

    f. On the Integration tab of the Editing Task Columns Create Ticket 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 Target Applications

You can create tickets for multiple target applications on BMC Remedy Ticket Management. To extend this feature to provisioning operations performed through Oracle Identity Manager, you can apply one of the following approaches:

To configure the connector for a specific target application of BMC Remedy Ticket Management:

> **See Also:** *Oracle Identity Manager Design Console Guide* for detailed information about each step of the following procedure

1. Create and configure one resource object for the target application. The Resource Objects form is in the Resource Management folder.

   The `BMCTicketRO` resource object is created when you import the connector XML file. You can use this resource object as the template for creating the remaining resource objects. For example, if Lotus Notes is the target application, then you can create a resource object for with the name `BMCTicketLotusRO`.

2. Create and configure one IT resource for each resource object. The IT Resources form is in the Resource Management folder. The `BMCTicket` IT resource is created when you import the connector XML file. You can use this IT resource as the template for creating a new IT resource, of the `BMCRemedyTicket` IT resource type.

3. Design one process form for each resource object. The Form Designer form is in the Development Tools folder. The `UD_BMCTKT` process form is created when you import the connector XML file. You can use this process form as the template for creating a new form for adding target application specific attributes.

4. Create and configure one process definition for each resource object. The Process Definition form is in the Process Management folder. The `BMCTicketProcess` process definition is created when you import the connector XML file. You can use this process definition as the template for creating for a new process definition.

   While creating process definitions for each target system installation, the following steps that you must perform are specific to the creation of each process definition:

   ■ From the Object Name lookup field, select the resource object that you create in Step 1.

   ■ From the Table Name lookup field, select the process form that you create in Step 3.

5. To add custom attributes for provisioning, perform the procedure described in the "Adding Custom Attributes for Provisioning" section on page 3-6.

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/BMCTICKET/test/config` directory.

    > **See Also:** The "Defining IT Resources" section on page 2-7 for information about the parameters in the `config.properties` file

2. Run one of the following files:

    For UNIX:

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

    For Microsoft Windows

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

4.1.1 Testing Partial and Batched Reconciliation

You can test both filter-based and batched reconciliation by specifying values for the following Ticket reconciliation attributes:

- BatchSize
- NoOfBatches

These attributes are described in the "BMC Ticket Reconciliation Scheduled Task" section on page 3-3:

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

- `BatchSize`: 4

■ `NoOfBatches:` 2

Suppose you specify these values in the BMC Ticket reconciliation scheduled task. After that task is run, all target system records 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 BMC server.	■ Ensure that the BMC 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.
The following error is encountered when you perform provisioning or reconciliation: `java.lang.UnsatisfiedLinkError - wrong ELF data format:ELFDATA2MSB`	Ensure that the `.so` files are compatible to the system where Oracle Identity Manager is deployed. These files are platform dependent. For example, the .so files for SPARC systems cannot work on x86 systems. See "Copying the External Code Files" on page 2-1 for more information.

5

Known Issues

The following is a known issue associated with this release of the connector:

■ Bug 8203695

In a non-English environment, some of the text on the Administrative and User Console might appear in English because entries for these text items have not been added in the resource bundles.

To work around this issue, you can create and add entries for these items in the resource bundle that you want to use. See *Oracle Identity Manager Globalization Guide* for more information. When you create entries, you must copy the key for each entry from the resource bundle for English.

A

Attribute Mappings Between Oracle Identity Manager and BMC Remedy Ticket Management

The following table discusses attribute mappings between Oracle Identity Manager and BMC Remedy Ticket Management.

Oracle Identity Manager Attribute	BMC Remedy Ticketing Attribute	Description
Lookup Fields		
Category	HPD:Help Desk.Categorization Tier 1	All categories
Item	HPD:Help Desk.Categorization Tier 2	All items
Type	HPD:Help Desk.Categorization Tier 3	All types
ServiceType	HPD:Help Desk.ServiceType	All service types
ReportedSource	HPD:Help Desk.ReportedSource	All reported sources
Impact	HPD:Help Desk.Impact	Impact
Urgency	HPD:Help Desk.Urgency	Urgency
Ticket Attributes		
Summary	HPD:Help Desk.Summary	Summary
FirstName	HPD:Help Desk.FirstName	Firs name
LastName	HPD:Help Desk.LastName	Last name
Notes	HPD:Help Desk.Notes	Notes
IncidentID	HPD:Help Desk.IncidentID	Incident ID
OIMUserId	HPD:Help Desk.OIMUserId	Oracle Identity Manager User ID
StatusReason	HPD:Help Desk.Resolution	Status reason of the ticket

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