Oracle® Identity Manager

Connector Guide for RSA Authentication Manager

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Oracle Identity Manager Connector Guide for RSA Authentication Manager, Release 9.0.4

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Contents

Preface

This guide provides information about Oracle Identity Manager Connector for RSA Authentication Manager.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager connector for RSA Authentication Manager.

Documentation Accessibility

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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

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager Connectors documentation, 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.
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 RSA Authentication Manager?

This chapter provides an overview of the updates made to the software and documentation for the RSA Authentication Manager connector in release 9.0.4.3.

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

The following sections discuss updates made in the connector:

- Software Updates Up To Release 9.0.4.1
- Software Updates in Release 9.0.4.2
- Software Updates in Release 9.0.4.3

Software Updates Up To Release 9.0.4.1

The following software updates have been made up to release 9.0.4.1 of the connector:

- In this release, you can reconcile new target system resource object fields. The fields are mentioned in the "Reconciled Resource Object Fields" section on page 1-2.

- In this release, the list of fields for which you can specify values RSA Authentication Manager user provisioning is updated. The updated list of fields is in the "RSA Authentication Manager User Provisioning" section on page 1-3.

- In this release, you can indicate the status of the users that need to be deleted while performing delete reconciliation in trusted mode. This is done by specifying the value of the `TrustedDeleteReconObjectStatusList` scheduled task attribute.

  The `TrustedDeleteReconObjectStatusList` scheduled task attribute is described in the "Configuring the Reconciliation Scheduled Tasks" section on page 3-4.

- The CustomReconQuery reconciliation query condition is moved from IT resources to Task Scheduler. For information about CustomReconQuery, see the "Limited Reconciliation" section on page 3-1.

- In this release, you can configure the separator while specifying multiple group names as the value of `CustomReconQuery`. This is done by specifying the value of the `GroupTokenizerForCustomReconQuery` scheduled task attribute, which is discussed in the following sections:

  - "Limited Reconciliation" section on page 3-1

  - "Configuring the Reconciliation Scheduled Tasks" section on page 3-4

- New scheduled task attributes are defined in this release of the connector that are discussed in the "Configuring the Reconciliation Scheduled Tasks" section on page 3-4.

- In this release, the list of adapters that are imported into Oracle Identity Manager when you import the connector XML file is updated. See the "Compiling Adapters" section on page 3-8.

- In the "Running Connector Tests" section on page 4-1, the following default attribute values are added:

  - `isTemporaryUserstartDate`

  - `startTime`

  - `endDate`

  - `endTime`

- In Chapter 5, "Known Issues" on page 5-1, the following known issues are added:

  - When creating a temporary user during provisioning, you can specify start time or end time in hours, but you can not provide the start time or end time in hours and minutes. This is because the target system API accepts these values in hours (0-23) only. If you specify the time in hours and minutes, the API will throw the error. To avoid providing the time in hours and minutes format from the UI, a lookup is provided that has values from 0 through 23 for start time and end time.

  - To synchronize reconciliation of start time or end time with provisioning, if the target system start time or end time as 0-0:59, then it is rounded off to 0. The reconciliation of start time or end time is matched with the start time and end time of provisioning. If the target system start time or end time is in hour and minute, then the start time or end time value is rounded off. For example, 1 hour and 59 minutes is rounded off to 1 hour.

  - RSA Authentication Manager connector cannot be configured with multiple schedulers to reconcile users from RSA Authentication Manager because RSA ACE API is not thread safe. This means that the fields of an object or class do not maintain a valid state if multiple threads are running.

Software Updates in Release 9.0.4.2

The following are software updates in release 9.0.4.2:

- Support for New Target System Version

- Resolved Issues in Release 9.0.4.2

Support for New Target System Version

RSA Authentication Manager 6.1.2 running on Solaris 9 has been added to the list of certified target system versions. See "Step 1: Verifying Deployment Requirements" for information about the full list of certified target system versions.

Resolved Issues in Release 9.0.4.2

The following is an issue resolved in release 9.0.4.2:

Bug Number	Issue	Resolution
8317806	During target resource reconciliation, even user records that had not been modified were fetched into Oracle Identity Manager.	This issue has been resolved. During target resource reconciliation, only newly created and modified user records are fetched into Oracle Identity Manager.

Software Updates in Release 9.0.4.3

The following are software updates in release 9.0.4.3:

- Using the Connector Installer
- Resolved Issues in Release 9.0.4.3

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

Resolved Issues in Release 9.0.4.3

The following issues are resolved in release 9.0.4.3:

Bug Number	Issue	Resolution
5554933	During trusted source reconciliation, two reconciliation events were created for each user record fetched from the target system.	This issue has been resolved. Only a single reconciliation event is created for each user record fetched from the target system.
8517925	Delete user task was rejected in delete user reconciliation.	This issue has been resolved. The delete user task is working as expected.
5180636	Null response received after resetting the Pin.	This issue has been resolved.
8525566	Delete reconciliation fetched records that were not deleted.	This issue has been resolved.

Documentation-Specific Updates

The following documentation-specific updates have been made in releases 9.0.4.1 through the current release:

- Instructions for installing the connector on Oracle Identity Manager Release 9.1.0 or Later have been added. See the "Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later" section for more information.

- Microsoft Windows 2000 Server is no longer a supported host for the target system. All occurrences of "Microsoft Windows 2000" have been removed from this guide.'

- In the "Multilanguage Support" section, Arabic has been added to the list of languages that the connector supports.

- In the "Step 1: Verifying Deployment Requirements" section, changes have been made in the "Target system and target system host platforms" row.

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. The connector for RSA Authentication Manager is used to integrate Oracle Identity Manager with RSA Authentication Manager.

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:** 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, RSA Authentication Manager has been referred to as the *target system.*

1.1 Reconciliation Module

Reconciliation involves duplicating in Oracle Identity Manager additions 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

This section discusses the following topics:

- Reconciled Resource Object Fields
- Reconciled Xellerate User Fields
- Reconciliation of Multivalue Attribute Groups

1.1.1 Reconciled Resource Object Fields

The following target system fields are reconciled:

- Default Login
- First Name
- Last Name
- Temporary User
- Start Date
- Start Time
- End Date
- End Time
- Group Name
- Group Login
- Key Value
- Data Value
- Token Serial Number
- Type of Token

1.1.2 Reconciled Xellerate User Fields

The following target system fields are reconciled only if trusted source reconciliation is implemented:

- User ID
- First Name
- Last Name
- Employee Type
- User Type
- Organization

1.1.3 Reconciliation of Multivalue Attribute Groups

The following are features related to the reconciliation of multivalue attribute groups:

- Group names that include the names of sites are entered in the *group_name@domain_name* format. In Oracle Identity Manager 9.0.3, you can choose not to include the domain name while creating or updating the name of a group. Similarly, regardless of whether or not the name of a group in the target system includes a domain name, it is reconciled in Oracle Identity Manager.

    > **Note:** The term "domain name" in the Oracle Identity Manager context is the same as "site name" in RSA Authentication Manager.

- When a user is deleted from a group in ACE, the group is also deleted from the user's ACE process child table.

1.2 Provisioning Module

Provisioning involves creating or modifying a user's account information on the target system through Oracle Identity Manager. You use the 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

For this target system, provisioning is divided into the following types:

- RSA Authentication Manager User Provisioning
- RSA Authentication Manager Token Provisioning

1.2.1 RSA Authentication Manager User Provisioning

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

- Default Login
- First Name
- Last Name
- Temporary User
- Start Date
- Start Time
- End Date
- End Time
- Group Login
- Group Name
- Key Value
- Data Value

1.2.2 RSA Authentication Manager Token Provisioning

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

- Token Serial Number
- PIN
- Current Token Code
- Lifetime (hours)
- Number of Digits
- Type of Token
- Copy Protection Flag
- Password
- Password Usage and Interpretation Method
- Software Token File Name

- Encryption Key Type

- Type of Algorithm

1.3 Supported Functionality

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

Function	Type	Description
Create User	Provisioning	Creates a user
Update User	Provisioning	Updates the identity attributes of a provisioned user
Delete User	Provisioning	Deletes a user This function would not run if the user to be deleted is an administrator.
Enable Token	Provisioning	Enables a disabled token
Disable Token	Provisioning	Disables an existing token
Assign SecurID Tokens to Users	Provisioning	Assigns a token to a user While assigning a software token to the user, the **Type of Algorithm** field must be filled in the process form. ■ If SID is selected in the Type of Algorithm field, then values must be specified for the following fields in the process form: - Software Token File Name: This is the name of the RSA SecurID software token file in which user and token information is saved. You must enter the file name with the full directory path and ensure that the extension is .sdtid. - Encryption Key Type - Copy Protection Flag - Password Usage and Interpretation Method - Password - Encryption Key Type - Password Usage and Interpretation Method - Password **Note:** If these combinations do not matter, then you can accept the default options. ■ If AES is specified in the Type of Algorithm field, then: You must enter a value in the Software Token File Name field of the process form. This is the name of the RSA SecurID software token file in which user and token information is saved. You must enter the file name with the full directory path and ensure that the extension is .sdtid. The Password field is optional. The following fields can be ignored: - Encryption Key Type - Copy Protection Flag - Password Usage and Interpretation Method

Function	Type	Description
Revoke SecurID Tokens from Users	Provisioning	Revokes a token from a user
Assign Users to RSA Authentication Manager Groups	Provisioning	Assigns a user to a group
		You must ensure that the following prerequisites are met before you use this function:
		■ Valid groups exist in RSA Authentication Manager.
		■ The required lookup codes (corresponding to valid group names) are added in the UD_Lookup.ACE_Group lookup definition. For example, for a group called Managers defined in ACE DB, the following entry must be added as the lookup code:
		Code Key: Managers
		Decode: Managers
		Lang: en
		Country: US
Remove Users from RSA Authentication Manager Groups	Provisioning	Removes a user from a group
		You must ensure that the following prerequisites are met before you use this function:
		■ Valid groups exist in ACE DB.
		■ This function is run only after the Assign Users to RSA Authentication Manager Groups function has been run.
Set Token PIN	Provisioning	Updates the configuration of a token according to a change in the PIN attribute
Set PIN to Next Token Code Mode	Provisioning	Sets the PIN to the next token code mode in RSA Authentication Manager
Track Lost Tokens	Provisioning	Updates the configuration of a token according to a change in the Track Lost attribute
Test Login	Provisioning	Verifies the login for a new user to whom a token has been assigned
		You must ensure that the following prerequisites are met before you use this function:
		■ An agent host is defined in the RSA Authentication Manager database.
		■ The user for whom the Test Login function is to be implemented is enabled on this agent host. After this is done, the RSA Authentication Manager is restarted (Broker as well as Authentication Server).
		For software token types, you must enter the passcode, instead of the token code, in the Current Token Code field in the process form.
		The passcode can be viewed by using the software token application, which is installed on the Oracle Identity Manager server.
		See Also: The "Installing Software Tokens" section on page 3-9 for more information

Function	Type	Description
Add key-data pairs to user extension data	Provisioning	Adds a key-data pair to user extension data
		Before you use this function, you must ensure that the following prerequisite is met:
		User must not have user extension data with the same key before provisioning to the target system.
Update key-data pairs in user extension data	Provisioning	Update a key-data pair in user extension data
		Before you use this function, you must ensure that the following prerequisites are met:
		■ User must have user extension data with the same key value before provision to the target system.
		■ You must not change the key value. Only the data value needs to be change before provisioning.
Delete key-data pairs from user extension data	Provisioning	Delete a key-data pair user extension data
		Before you use this function, you must ensure that the following prerequisite is met:
		User must have user extension data with the same key value before provisioning to the target system.

> **See Also:** Appendix A, "Attribute Mappings Between Oracle Identity Manager and RSA Authentication Manager"

1.4 Multilanguage Support

The connector supports the following languages:

- 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

1.5 Files and Directories That Comprise the Connector

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

```
Security Applications/RSA Authentication Manager
```

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
`lib/xliACE.jar`	This file contains the Java classes that are required for provisioning in RSA Authentication Manager.
`lib/xliACERecon.jar`	This file contains the Java classes that are required for reconciliation in RSA Authentication Manager.
`remotePackage/config/xl.policy`	This file contains the security configuration that is required for the RMI server codebase for running calls on RSA Authentication Manager for reconciliation.
`remotePackage/lib/ACE52/ACEUser.dll`	This file contains the shared library that is required to support provisioning in RSA ACE Server 5.2.
`remotePackage/lib/ACE52Sol/libACEUser.so`	This file contains the shared library that is required to support provisioning in RSA Authentication Manager.
`remotePackage/lib/AuthMgr60/ACEUser.dll`	This file contains the shared library that is required to support provisioning in RSA Authentication Manager 6.0.
`remotePackage/lib/AuthMgr61/ACEUser.dll`	This file contains the shared library that is required to support provisioning in RSA Authentication Manager 6.1, on Microsoft Windows.
`remotePackage/lib/xliACERemote.jar`	This file contains the Java classes that are required for provisioning to RSA Authentication Manager and reconciliation from RSA Authentication Manager to Oracle Identity Manager.
`remotePackage/scripts/AuthMgrImportXLCert.bat`	This file contains the script for importing the required security certificate into the remote manager keystore (`.xlkeystore`).
`remotePackage/scripts/AuthMgrImportXLCert.sh`	This file contains the script for importing the required security certificate into the remote manager keystore (`.xlkeystore`) on Solaris.
`remotePackage/tests/config/xl.policy`	This file contains the security configuration required for the RMI server codebase to run test calls on RSA Authentication Manager.
`remotePackage/tests/lib/xliACETestServer.jar`	This file contains the Java classes that are required to run the RMI server for running test calls on RSA Authentication Manager.
`remotePackage/tests/scripts/runTestServer.bat`	This file contains the script that is required to run the RMI server for running test calls on RSA Authentication Manager.
`remotePackage/tests/scripts/runTestServer.sh`	This file contains the script that is required to run the RMI server for running test calls on RSA Authentication Manager, on Solaris.
Files in the `resources` directory	Each of these resource bundles 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.
`scripts/AuthMgrImportRMCert.bat`	This file contains the script for importing the required security certificate in the Oracle Identity Manager server keystore (`.xlkeystore`).

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

File in the Installation Media Directory	Description
scripts/AuthMgrImportRMCert.sh	This file contains the script for importing the required security certificate in the Oracle Identity Manager server keystore (.xlkeystore) on Solaris.
tests/config/config.properties	This file contains the properties required by the RMI client for running test calls from the Oracle Identity Manager server.
tests/lib/xliACETestClient.jar	This file contains the Java classes required to run the RMI client for running test calls from the Oracle Identity Manager server.
tests/scripts/runTestClient.bat	This file contains the script required to run the RMI client for running test calls from the Oracle Identity Manager Server, for Microsoft Windows.
tests/scripts/runTestClient.sh	This file contains the script required to run the RMI client for running test calls from the Oracle Identity Manager Server, for Solaris.
xml/RSAAuthManagerResourceObject.xml	This file contains definitions for the following ACE User and ACE Token components of the connector: ■ IT Resource definition ■ IT Resource ■ Process forms ■ Process task and rule-generator adapters (along with their mappings) ■ Resource objects ■ Provisioning process ■ Pre-populate rules that are used with this connector ■ Reconciliation scheduled tasks
xml/RSAAuthManagerXLResourceObject.xml	This file contains configuration parameters for the Xellerate User. You must import this file only if you plan to use the connector in trusted source reconciliation mode.

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

The "Step 3: Copying the Connector Files" section 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 xliACE.jar file. This file is in the following directory on the installation media:

    ```
    Security Applications/RSA Authentication Manager
    ```

2. Open the manifest.mf file in a text editor. The manifest.mf file is one of the files bundled inside the xliACE.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:

- Step 1: Verifying Deployment Requirements
- Step 2: Configuring the Target System
- Step 3: Copying the Connector Files
- Step 4: Configuring the Oracle Identity Manager Server
- Step 5: Importing the Connector XML Files

Depending on the release of Oracle Identity Manager that you use, perform the procedure:

Installing the Connector on Oracle Identity Manager Release 9.1.0 or Later

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 system and target system host platforms	The target system can be any one of the following: - RSA ACE/Server 5.2 on Windows Server 2003, Solaris 8, Solaris 9, Solaris 10 - RSA Authentication Manager 6.0 on Windows Server 2003 - RSA Authentication Manager 6.1 on Windows Server 2003 - RSA Authentication Manager 6.1.2 on Solaris 9
Other systems	- JDK The version of JDK on which Oracle Identity Manager server is running must be installed on the ACE server. - RSA SecurID software token application **See Also:** The "Installing Software Tokens" section on page 3-9 for more information about the RSA SecurID software token

Item	Requirement
Remote manager node user account	In Host mode, no credentials are required.
	In Remote mode, any remote node user account would suffice.
	Refer to the "Defining IT Resources" section for details.
	If the specified type of user account is not used, then the following error message is displayed when connector operations are attempted:
| | ```
Access denied, check administrator
credentials
``` |

2.2 Step 2: Configuring the Target System

Configuring the target system involves the following steps:

- Setting Up the Remote Manager
- Configuring Strong Authentication Between Oracle Identity Manager and the Remote Manager
- Configuring SSL Client (Oracle Identity Manager Server) Authentication

2.2.1 Setting Up the Remote Manager

To set up the remote manager on the RSA Authentication Manager server:

Note: For Solaris, you must create an ACE administrator as a preinstallation requirement for RSA Authentication Manager. This administrator is the file owner of the RSA Authentication Manager installation. Use this ACE administrator account to install the remote manager.

---

1. Create the `AuthManager` directory on the RSA Authentication Manager server.

2. From the installation media directory, copy the `remotePackage` directory into the `AuthManager` directory.

    For Solaris

    Log in to the Solaris server by using the user credentials of the RSA Authentication Manager File Owner that was created as a preinstallation requirement for RSA Authentication Manager. Then, create the directory into which you copy the `remotePackage` directory.

    Note: If you copy files from Microsoft Windows to Solaris, all data transfer from the FTP client must be performed in binary mode. In addition, after copying files to the Solaris server, you must check the files for the `^M` character pattern.

    You must also perform required operations, such as `dos2unix.` As described earlier, copy all the files while using the ACE administrator credentials.

    ---

3. To update the class files, copy the `authmgr_home/lib/xliACERemote.jar` file from the installation media directory to the `xl_remote/xlremote/JavaTasks` directory.

> **Note:** From this point onward in the guide, the full path of the `remotePackage` directory on the RSA Authentication Manager server is referred to as `authmgr_home`.

4. Update the library files as follows:

   On Microsoft Windows:

   Use a text editor to open the following file:

   `xl_remote/xlremote/remotemanager.bat`

   In this file, depending on the version of Authentication Manager that you are using, set one of the following as the first line of the file:

   For ACE 5.2:

   ```
   set PATH=authmgr_home/lib/ACE52;%PATH%
   ```

   For RSA Authentication Manager 6.0:

   ```
   set PATH=authmgr_home/lib/AuthMgr60;%PATH%
   ```

   For RSA Authentication Manager 6.1:

   ```
   set PATH=authmgr_home/lib/AuthMgr61;%PATH%
   ```

   On Solaris:

   For RSA ACE 5.2, add the following lines:

   ```
   LD_LIBRARY_PATH=$ACE_INSTALL/prog:$AUTHMGR_HOME/lib/ACE52Sol
   export LD_LIBRARY_PATH
   ```

2.2.2 Configuring Strong Authentication Between Oracle Identity Manager and the Remote Manager

To configure strong authentication between Oracle Identity Manager and the remote manager, you must import the required certificate from the remote manager keystore to the Oracle Identity Manager server keystore as follows:

1. From the Oracle Identity Manager server, copy the `OIM_HOME/xellerate/config/xlserver.cert` file to the `AuthManager_home/scripts/config` directory on the RSA Authentication Manager server.

2. Use a text editor to open the `authmgr_home/scripts/AuthMgrImportXLCert.bat` file.

   In this file, set the following parameters:

   ```
   set JAVA_HOME=jdk_home
   set XL_REMOTE=xl_remote
   ```

   For Solaris, set the following parameters in the `authmgr_home/scripts/AuthMgrImportXLCert.sh` file:

   ```
   XL_REMOTE=xl_remote
   export XL_REMOTE
   ```

```
JAVA_HOME=jdk_home
export JAVA_HOME
```

3. Run the `AuthMgrImportXLCert.bat` file.

   For Solaris, run the `AuthMgrImportXLCert.sh` file.

2.2.3 Configuring SSL Client (Oracle Identity Manager Server) Authentication

To configure SSL client (Oracle Identity Manager server) authentication:

1. Open the `xl_remote/xlremote/config/xlconfig.xml` file.

2. In the `<RMSecurity>` section of this file, change the value of the `<ClientAuth>` element to `true`.

   The following is a code block from the `xlconfig.xml` file:

```
<RMSecurity>
  <RMIOverSSL>true</RMIOverSSL>
  <SSLPort>12345</SSLPort>
  <SSLContextAlgorithm>TLS</SSLContextAlgorithm>
  <KeyManagerFactory>SunX509</KeyManagerFactory>
  <BindingPort>12346</BindingPort>
  <ServiceName>RManager</ServiceName>
  <LoggerConfigFilePath>log.conf</LoggerConfigFilePath>
  <ClientAuth>true</ClientAuth>
</RMSecurity>
```

Multiple Oracle Identity Manager Servers Communicating with a Single Remote Manager

If a setup involves more than one Oracle Identity Manager server communicating with a single remote manager, then you must address the considerations described in this section.

The `OIM_HOME/xellerate/config/xlserver.cert` certificate for any Oracle Identity Manager installation would have the same `dname` value. If you import this certificate from one Oracle Identity Manager installation into the target system remote manager keystore, then you cannot directly use the same certificate from another installation for the same purpose and in the same manner.

Therefore, if one Oracle Identity Manager installation is already configured with a particular remote manager and the same is needed for another Oracle Identity Manager installation, then you must first create a certificate with a different DN for the second installation before you can use this new certificate with the remote manager.

Enter the following commands in the specified order.

1. Generate a new key pair by entering the following command:

```
jdk_home/jre/bin/keytool -genkey -alias xell2 -keyalg DSA -keysize 1024 -dname
"CN=Customer1, OU=Customer, O=Customer, L=City, ST=NY, C=US" -validity 3650
-keypass xellerate -keystore OIM_HOME/xellerate/config/.xlkeystore -storepass
xellerate -storetype jks -provider sun.security.provider.Sun
```

   When you run this command, ensure that the `dname` value specified in the preceding command, is not the same as the default value of `dname`, for the existing certificates in the Oracle Identity Manager keystore:

```
OIM_HOME/xellerate/config/.xlkeystore
```

The default value is as follows:

```
CN=Customer, OU=Customer, O=Customer, L=City, ST=NY, C=US
```

2. Create a certificate request by entering the following command:

jdk_home/jre/bin/keytool -certreq -alias *xell2* -file *OIM_
HOME/xellerate/config/xell1.csr* -keypass *xellerate* -keystore *OIM_
HOME\/ellerate/config/.xlkeystore* -storepass *xellerate* -storetype *jks* -provider
sun.security.provider.Sun

3. Export the certificate to a file by entering the following command:

jdk_home/jre/bin/keytool -export -alias *xell2* -file *OIM_
HOME/xellerate/config/xlserver1.cert* -keypass *xellerate* -keystore *OIM_
HOME/xellerate/config/.xlkeystore* -storepass *xellerate* -storetype *jks* -provider
sun.security.provider.Sun

This command creates the following security certificate:

OIM_HOME/xellerate/config/xlserver1.cert

This is the certificate that you must use for configuration purposes.

4. Import the certificate into the remote manager keystore by entering the following command:

jdk_home/jre/bin/keytool -import -trustcacerts -alias *xel2trusted* -noprompt
-keystore *OIM_HOME/xellerate/config/.xlkeystore* -file *OIM_
HOME/xellerate/config/xlserver1.cert* -storepass *xellerate*

For configuring strong authentication between another Oracle Identity Manager Server installation and the remote manager, use the *OIM_
HOME*/xellerate/config/xlserver1.cert file instead of the xlserver.cert file.

2.2.4 Configuring Strong Authentication Between the Remote Manager and the Oracle Identity Manager Server

To set up the remote manager as a trusted source for Oracle Identity Manager:

1. On the RSA Authentication Manager server, copy the *x1_
remote*/xlremote/config/xlserver.cert file into the following directory:

OIM_HOME/xellerate/XLIntegrations/AuthManager/scripts/config

2. Use a text editor to open the following file:

OIM_HOME/xellerate/XLIntegrations/AuthManager/scripts/AuthMgrImportRMCert.bat

In this file, edit the following lines to specify the path to the JDK and Oracle Identity Manager installation directories:

set JAVA_HOME = *jdk_home*
set XELLERATE_HOME = *OIM_HOME*

For Oracle Identity Manager installed on Solaris, open the following file in a text editor:

OIM_HOME/xellerate/XLIntegrations/AuthManager/scripts/AuthMgrImportRMCert.sh

In this file, edit the following lines to specify the path to the JDK and Oracle Identity Manager installation directories:

```
JAVA_HOME = jdk_home
export JAVA_HOME
XELLERATE_HOME = OIM_HOME
export XELLERATE_HOME
```

3. Run the `AuthMgrImportRMCert.bat` file.

For Oracle Identity Manager installed on Solaris, run the `AuthMgrImportRMCert.sh` file.

2.3 Step 3: Copying the Connector 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:

`Security Applications/RSA Authentication Manager`

Refer to the "Files and Directories That Comprise the Connector" section on page 1-6 for more information about these files.

File in the Installation Media Directory	Destination Directory
`lib/xliACE.jar`	`OIM_HOME`/xellerate/JavaTasks
`lib/xliACERecon.jar`	`OIM_HOME`/xellerate/ScheduleTask
Directories and files in the `remotePackage` directory	`OIM_HOME`/xellerate/XLIntegrations/AuthManager/remotePackage **Note:** You do not need to copy this directory if you already performed the procedure described in the "Setting Up the Remote Manager" section on page 2-2.
Files in the `resources` directory	`OIM_HOME`/xellerate/connectorResources
Directories and files in the `scripts` directory	`OIM_HOME`/xellerate/XLIntegrations/AuthManager/scripts
Directories and files in the `tests` directory	`OIM_HOME`/xellerate/XLIntegrations/AuthManager/tests
Files in the `xml` directory	`OIM_HOME`/xellerate/XLIntegrations/AuthManager/xml

---

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 `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 performing 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" section on page 2-6, 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. If you run the command described in Step 2 as follows, then an exception is thrown:
>
> *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 lines in the *OIM_HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.XELLERATE=log_level
     log4j.logger.XL_INTG.RSA_ACE=log_level
     ```

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

     For example:

     ```
     log4j.logger.XELLERATE=INFO
     log4j.logger.XL_INTG.RSA_ACE=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 lines in the *OIM_
   HOME*/xellerate/config/log.properties file:

   ```
   log4j.logger.XELLERATE=log_level
   log4j.logger.XL_INTG.RSA_ACE=log_level
   ```

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

   For example:

   ```
   log4j.logger.XELLERATE=INFO
   log4j.logger.XL_INTG.RSA_ACE=INFO
   ```

After you enable logging, the 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 or add the following lines:

     ```
     <category name="XELLERATE">
        <priority value="log_level"/>
     </category>

     <category name="XL_INTG.RSA_ACE">
        <priority value="log_level"/>
     </category>
     ```

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

     ```
     <category name="XELLERATE">
        <priority value="INFO"/>
     </category>

     <category name="XL_INTG.RSA_ACE">
        <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 lines in the *OIM_
     HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.XELLERATE=log_level
     log4j.logger.XL_INTG.RSA_ACE=log_level
     ```

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

     For example:

     ```
     log4j.logger.XELLERATE=INFO
     log4j.logger.XL_INTG.RSA_ACE=INFO
     ```

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

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

2.4.3.1 Enabling Logging for the Remote Manager

To enable logging for the Remote Manager:

1. Add the following lines in the *RemoteManager_home*/xlremote/config/log.properties file:

```
log4j.rootLogger=WARN,stdout,logfile
log4j.appender.logfile.File=log_file_path_and_name
log4j.logger.XELLERATE=log_level
log4j.logger.XL_INTG.RSA_ACE=log_level
```

2. In these lines, replace *log_file_path_and_name* with the full path and name of the log file and *log_level* with the log level that you want to set.

   For example:

```
log4j.rootLogger=WARN,stdout,logfile
log4j.appender.logfile.File=c:/rm_rsa_ace_connector.log
log4j.logger.XELLERATE=INFO
log4j.logger.XL_INTG.RSA_ACE=INFO
```

After you enable logging, log information is written to the file that you specify as the value of the log4j.appender.logfile.File attribute.

2.5 Step 5: Importing the Connector XML Files

As mentioned in the "Files and Directories That Comprise the Connector" section on page 1-6, 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 files 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 locating files is displayed.

4. Locate and open the RSAAuthManagerResourceObject.xml file, which is in the *OIM_HOME*/xellerate/XLIntegrations/AuthManager/xml 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 ACE Remote Manager IT resource is displayed.

8. Specify values for the parameters of the ACE Remote Manager IT resource. Refer to the table in the "IT Resource: ACE Remote Manager" section for information about the values to be specified.

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

10. Click **Skip** to specify that you do not want to define another IT resource. The Provide IT Resource Instance Data page for the `ACE Server Remote` IT resource 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. Specify values for the parameters of the `ACE Server Remote` IT resource. Refer to the table in the "IT Resource: ACE Server Remote" section for information about the values to be specified.

12. Click **Next.** The Provide IT Resource Instance Data page for a new instance of the `ACE Server` IT resource type is displayed.

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

14. 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**.

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

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

2.5.1 Configuring RSA Authentication Manager Connector in Remote Mode

The RSA Authentication Manager connector can be configured in remote mode by setting the IT Resource parameter ACEAdminPassCode with one of the following values:

- Dynamic Passcode
- Static Password

2.5.1.1 Configuring Using Dynamic Passcode

To configure using Dynamic Passcode:

1. Create a user in ACE server. For example, remoteAdminUser in host mode.

2. From the User menu in RSA Authentication Manager, click **Edit User** and select the user created in Step 1.

3. Click **Administrative Role**.

4. In the Change Administrative Role pop-up window, select **Administrator** as user type and click **OK**.

5. From the System menu, click **Edit System Configuration**, and then click **Edit System Parameter.**

6. In the Administration Authentication Methods of the System Parameters window, select **Secure ID Software Tokens** and click **OK**.

7. Assign the token to remoteAdminUser by performing the following steps:

    a. From the token menu, select **Issue Software Tokens.**

      b. Select the appropriate algorithm. For example, SID SDTID Algorithm.

      c. In the Password Protect field, select **Static Password** and enter the password.

      d. Enter the target directory path and file name where SDTID file has to be generated and click **Next**. The file name extension should be .sdtid.

      e. In the RSA SecureID Software Token Selection Users pop-up window, select the user and click **Next**.

      f. In the Select User window, select **remoteAdminUser** and click **OK**.

      g. In the Verify RSA SecureID Software Token Issuing List window, click **Next**.

      h. In the RSA SecureID Software Token window, select **User authenticate with passcode** and click **Next**.

      i. In the Continue Issuing RSA SecureID Software Tokens pop-up window, click **Yes**.

      j. In the Save Software Token pop-up window, click **Yes** and provide the path to save. If you do not want to save, click **No**.

8. Launch the SecureID Software Tokens by clicking **Start**, **All Programs**, **SecureID Software Token**.

9. From the SecureID Software Token, select **File Menu** and then click **Import Tokens**.

10. Locate the stdid file that you created in step D of step 7.

11. Enter the password that you provided in step C of step 7 and click **OK**.

12. Select the token and click **Transfer Selected Token to Hardware Drive**.

13. In the Software Token API pop-up window, click **Yes**.

14. In the Token List Box of Select Token popup window, select software token of remoteAdminUser and click **OK**. An eight digit token codes that changes every 60 seconds in RSA SecureID is displayed.

15. From the View menu, select **Advance View** in RSA SecureID.

16. From RSA SecureID, copy the current Tokencode.

17. In the user menu of RSA Authentication Manager, click **Edit User**.

18. Select **remoteAdminUser** and click **OK**.

19. In the Tokens textbox, double-click on the token assigned to the user.

20. In the Edit Token window, click **Set PIN to Next Tokencode**.

21. Enter the token code that you copied in step 16 and click **OK**.

22. Note the first four digits of the next token code as this is the PIN of RSA SecureID.

23. Enter the PIN value that you noted in RSA SecureID and click **Apply Pin**. SecureID Software Token starts generating the passcode values.

24. Copy the current **PASSCODE**.

25. Launch the RSA Authentication Manager in the Database Administrator Remote Mode by clicking **Start**, **All Programs**, **RSA Authentication Manager**.

26. In the Select Server to Administer window, click **Ok**.

27. Enter **remoteAdminUser** as user login ID.

28. Enter the passcode value that is copied in the step 24 and click **OK**. A user authentication successful message is displayed.

2.5.1.2 Configuring RSA Authentication Manager Connector in remote mode by using Static Password

To configure using Static Password:

1. Create a user in ACE server. For example, remoteAdminUser in host mode.

2. From the User menu in RSA Authentication Manager, click **Edit User** and select the user created in Step 1.

3. Click **Administrative Role**.

4. In the Change Administrative Role pop-up window, select **Administrator** as user type and click **OK**.

5. From the System menu, click **Edit System Configuration**, and then click **Edit System Parameter.**

6. In the Administration Authentication Methods of the System Parameters window, select **User Password** and click **OK**.

7. In the Confirmation pop-up window, click **Yes**.

8. In the User menu, click **Edit User** and then select **remoteAdminUser**.

9. In the **Edit User** window, click **Set/Change User Password**.

10. In the Enter New User Password popup window, enter the password and click **OK**.

11. In the Enter New User Password pop-up window, click **Ok**.

12. In the Edit User window, click **Ok**.

13. Open RSA Auth Manager in the Database Administrator Remote Mode.

14. In the Select Server to Administrator window, click **Ok**.

15. In the Administrator Authentication pop-up window, enter user login and passcode that you created in step 11 and click **OK**.

16. In the Do you want the system to generate your new PIN? [y/n] dialog box, enter **n** and click **OK**.

17. Enter the new PIN between 4 to 8 digits and click on **Ok**.

18. In the Confirm PIN field, reenter the new PIN and **Ok**. A user authentication successful message is displayed.

2.5.2 Providing Minimum Access Rights to RSA Authentication User in Remote Mode

To provide minimum access rights to RSA authentication user:

1. Create a user in ACE server. For example, remoteAdminUser in host mode.

2. From the User menu in RSA Authentication Manager, click **Edit User** and select the user created in Step 1.

3. Click **Administrative Role**.

4. In the Change Administrative Role pop-up window, select **Administrator** as user type and click **OK**.

5. Go to Define Task List tab and click **New**.

6. In the **Task List** field, enter the name of the task.

7. From **Available Tasks** list on the left tab, select privileges, which you want to assign the user and click on right arrow to add and left arrow to remove the tasks.

8. Click **OK**.

9. Select the task that you have created from the list.

10. In the ChangeAdministrativeRole window, click **OK**.

11. In the **Edit User** window, click **Set/Change User Password**.

12. In the Enter New User Password popup window, enter the password and click **OK**.

13. In the Edit User window, click **OK**.

14. Go to System menu of ACE Server, select **Edit System Configuration**, **Edit System Parameter**.

15. Check the User Password under Administration Authentication Methods and click **OK** in the System Parameters window.

> **Note:** To reconcile/provision a user, provide this static Passcode in IT Resource (ACE Server Remote) attribute "ACEAdminPassCode" and perform operations such as Create User, Reconciliation, through connector.

16. In the **Confirmation** popup window, click **Yes**.

17. From the User menu click **Edit user**, and then select **remoteAdminUser**.

18. Open the RSA ACE Server in Database Administrator-Remote Mode (RSA Authentication Manager RemoteMode).

19. In the Select Server to Administer window, click **OK**.

20. Enter user Login and passcode created in Step 12 and click **OK** in the Administrator Authentication popup window. The system will prompt whether you want to generate a new PIN. Enter "n" and then click **OK**.

21. Enter a new PIN between four to eight digits and click **OK**.

22. Re-enter the new PIN to confirm and click **OK**.

23. Enter same pin given in previous step and click **OK**.

24. A user authentication successful message is displayed.

2.5.3 Defining IT Resources

This section provides information about defining the following IT resources.

2.5.3.1 IT Resource: ACE Remote Manager

You must specify values for the `ACE Remote Manager` IT resource parameters listed in the following table.

Parameter	Description
service name	Remote manager service name
	RManager

Parameter	Description
url	Remote manager URL
	For example: `rmi://10.1.1.114:12346`

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

2.5.3.2 IT Resource: ACE Server Remote

You must specify values for the `ACE Server Remote` IT resource parameters listed in the following table.

Parameter	Description
ACEAdminMode	Admin mode through which the connector connects to RSA Authentication Manager for provisioning and reconciliation
	The value can be `Host` or `Remote`.
	Note: If the value is Remote, then remote manager service will login to RSA Authentication Manager using the user credentials ACEAdminPassCode and `ACEAdminUserId`.
	If `ACEAdminMode` is in Host mode and if Remote Manager is started as Windows service, then that service has to be run under OS user who has installed RSA Authentication Manager.
	If `ACEAdminMode` is in Host mode, then Remote Manager starts with OS user who has installed RSA Authentication Manager.
ACEAdminPassCode	Admin passcode, which is required only when the admin mode is `Remote`
	This value is encrypted after it is saved.
	Sample value: `123456`
	This value is encrypted after it is saved.
ACEAdminUserId	Admin user ID, which is required when the admin mode is either `Remote` or `Host`.
Target Locale: Country	Country code
	Default value: `US`
	Note: You must specify the value in uppercase.
Target Locale: Language	Language code
	You can select one of the following:
	■ English: `en`
	■ Japanese: `jp`
	■ French: `fr`
	Note: You must specify the value in lowercase.

After you specify values for these IT resource parameters, proceed to Step 12 of the procedure to import connector XML files.

2.6 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 procedure described in the following section. See Running the Connector Installer for more information.

2.6.1 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 **RSA Authentication Manager** *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 **RSA Authentication Manager** *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 Target Resource user configuration XML file (by using the Deployment Manager). If you want to import the target system as a trusted source for reconciliation, then see "Configuring Trusted Source Reconciliation" for more information.

   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 2-7 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.

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.

3

Configuring the Connector

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

> **Note:** These sections provide both conceptual and procedural information about configuring the connector. It is recommended that you read the conceptual information before you perform the 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 customizing 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 additions of and modifications to user accounts on the target system. This section discusses the following topics related to configuring reconciliation:

- Limited Reconciliation
- Configuring Trusted Source Reconciliation
- Configuring the Reconciliation Scheduled Tasks

3.1.1 Limited 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.

For this connector, you create a filter by specifying values for the `CustomReconQuery`, `CompareType`, and `GroupTokenizerForCustomReconQuery` of Scheduled Task attributes while

performing the procedure described in the "Configuring the Reconciliation Scheduled Tasks" section on page 3-4.

You can use the following attributes to build the query condition:

- Last Name
- First Name
- Default Login
- Permanent or Temporary
- By Token
- By User Extension
- Group

The following table lists sample query conditions:

CustomReconQuery	CompareType	Description
[none]	**Note:** You can specify any value, but it must not be an empty value because scheduler does not allow empty values attributes.	Gets all users that are available in the target system
Last Name=D	Begins With	Gets all users whose last name starts with D
Last Name=Doe	Equals To	Gets all users with Doe as their last name
Last Name=oe	Contains	Gets all users whose last name contains oe
First Name=J	Begins With	Gets all users whose first name starts with J
First Name=John	Equals To	Gets all users with John as their first name
First Name=oh	Contains	Gets all user whose first name contains oh
First Name	With Empty Value	Gets all users with empty values as first name
First Name	With Non Empty Value	Gets all users with nonempty values as first name
Default Login=j	Begins With	Gets all users whose default login starts with j
Default Login=john	Equals To	Gets all users with john as their default login
Default Login=oh	Contains	Gets all users whose default login contains oh
By Token	Lost Tokens	Gets all users with token status as Lost
By Token	All With Passwords	Gets all users who have a password
By Token	All With Expired Tokens	Gets all users with token status as Expired
By User Extension	All With Extension	Gets all users that have extension data
By User Extension	All Without Extension	Gets all users that do not have extension data

CustomReconQuery	CompareType	Description
`By User Extension=key1`	`All With Extension Keys`	Gets all users that have extension data with key as `key1`
`By User Extension=key1`	`All Without Extension Keys`	Gets all users that do not have extension data with key containing `key1`
`Permanent or Temporary`	`All Permanent`	Gets all permanent users
`Permanent or Temporary`	`All Temporary`	Gets all temporary users

If you want to reconcile users with more than one group, then you can specify multiple groups as the value of `CustomReconQuery`, for example, `CustomReconQuery=grp1,grp2,grp3`. In this example, the group names are separated by commas. You can specify the separator by specifying the value of `GroupTokenizerForCustomReconQuery`, as shown:

`GroupTokenizerForCustomReconQuery=,`

The following table lists sample query conditions with values for `GroupTokenizerForCustomReconQuery`:

CustomReconQuery	CompareType	GroupTokenizerFor CustomReconQuery	Description
`Group=grpParent,grpChild1` **Note:** If the group name consists of comma, you can specify any other separator, such as $.	**Note:** You can specify any value, but it must not be an empty value because scheduler does not allow empty value for attributes.	$	Gets all users who belong to the `grpParent,grpChild1` group
`Group=grpParent,grpChild1$grpParent,grpChild2`	Any value	$	Gets all users who belong to the `grpParent,grpChild1` group or the `grpParent,grpChild2` group

3.1.2 Configuring Trusted Source Reconciliation

While configuring the connector, the target system can be designated as a trusted source or 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.

Configuring trusted source reconciliation involves the following steps:

1. Import the XML file for trusted source reconciliation, `RSAAuthManagerXLResourceObject.xml`, by using the Deployment Manager. This section describes the procedure to import the XML file.

> **Note:** Only one target system can be designated as a trusted source. If you import the `RSAAuthManagerXLResourceObject.xml` file while you have another trusted source configured, then both connector reconciliations would stop working.

2. Set the `IsTrusted` scheduled task attribute to `True`. You specify a value for this attribute while configuring the user reconciliation scheduled task, which is described later in this guide.

To import the XML file for 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 locating files is displayed.

4. Locate and open the `RSAAuthManagerXLResourceObject.xml` file, which is in the *OIM_HOME*`/xellerate/XLIntegrations/AuthManager/xml` 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 `True`. This procedure is described in the "Configuring the Reconciliation Scheduled Tasks" section on page 3-4.

3.1.3 Configuring the Reconciliation Scheduled Tasks

When you perform the procedure described in the "Step 5: Importing the Connector XML Files" section, the scheduled tasks for lookup fields and user reconciliations are automatically created in Oracle Identity Manager. To configure the scheduled task:

1. Open the Oracle Identity Design Console.

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

3. Select **Task Scheduler.**

4. Click **Find**. The details of the predefined scheduled task are displayed.

5. 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, set 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 to run the task on a recurring basis.

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

9. Provide values for the user-configurable attributes of the scheduled task. Refer to the following table for information about the values to be specified.

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

Attribute	Description	Sample Value
IsTrusted	Specifies whether or not reconciliation must be performed in trusted mode.	True or False
Server	Name of the IT resource.	ACE Server Remote
Target System Recon – Resource Object name	Name of the target system resource object corresponding to the RSA Authentication Manager User.	Auth Manager User
Target System Recon – Token Resource Object name	Name of the target system resource object corresponding to the RSA Authentication Manager User Token, which was assigned to user.	Auth Manager Token
Trusted Source Recon – Resource Object name	Name of the trusted source Resource Object.	Xellerate User
IsDeleteAllowed	Specifies whether or not the users who have been deleted in the target system should be deleted in Oracle Identity Manager.	True or False
Start Record	Specifies the record number from which the reconciliation for CustomReconQuery and CompareType must begin. If Scheduler Task fails after reconciling 10000 records, then you can specify the value of StartRecord as 10000 so that reconciliation starts from the record where it failed. You do not have to reconcile the records that have already been reconciled.	1
BatchSize	Specifies the number of records to be reconciled in a batch. **Caution:** If you specify a very high value for BatchSize, for example 50000, then out memory exception may occur in the Remote Manager.	1000
FieldMapForCustomQuery	Specifies the lookup defintion name that contains the mapping between the CustomReconQuery field name and the target system equivalent number for that field name. RSA ACE Server API accepts numbers to indicate the field name in the target system.	UD_ Lookup.Ace.CustomR econ.FieldMap
CompareTypeMapForCustomQ uery	Specifies the lookup definition name, which contains the mapping between CompareType and its equivalent number in the target system. The CompareType is mentioned in the task scheduler. RSA ACE Server accepts numbers to indicate the operator on field to search for the mapping.	UD_ Lookup.Ace.CustomR econ.CompareTypeMa p

Attribute	Description	Sample Value
CustomReconQuery	Query condition on which reconciliation must be based.	[None]
	If you specify a query condition for this attribute, then the target system records are searched based on the query condition.	
	If you want to reconcile all the target system records, then specify [None] as the value for this attribute.	
	For more information about this parameter, refer to the "Limited Reconciliation" section on page 3-1.	
CompareType	Specifies the type of comparison used in the query condition of CustomReconQuery.	Equals To
NumberOfCharactersInEach User	Indicates the memory allocated for each user in C code.	500
	Caution: If you specify a very low value for NumberOfCharactersInEachUser, for example 10, then the Remote Manager's JVM may terminate.	
Organization	Specifies the name of the organization under which users are created during trusted source reconciliation.	Xellerate Users
Xellerate Type	Specifies the user type created during trusted source reconciliation.	End-User
	If you reconcile users in trusted mode, then you must specify a value for this attribute.	
Role	Specifies the type of employment of a user in trusted source reconciliation.	Full-Time
TrustedDeleteReconObject StatusList	Indicates the status of the list of users that need to be deleted while performing delete reconciliation in trusted mode.	Enabled, Disabled, Active
	f you perform delete reconciliation in trusted mode, then you must specify the statuses, separated by a comma.	
TargetDeleteReconObjectS tatusList	Indicates the status of the list of users that needs to be deleted during target resource reconciliation.	Enabled, Disabled, Provisioned
	If you delete users during target resource reconciliation, then you must specify the statuses, separated by a comma.	
TrustedDeleteReconExempt edUserIDs	Specifies the list of user IDs that must be excluded from trusted delete reconciliation.	XELOPERATOR, XELSELFREG, XELSYSADM
GroupTokenizerForCustomR econQuery	Specifies the token for the groups provided in CustomReconQuery.	$
	For more information about GroupTokenizerForCustomReconQuery, see "Limited Reconciliation" on page 3-1.	

Attribute	Description	Sample Value
IsEnableLog	Specifies whether or not to generate a log file when performing reconciliation.	Yes or No
	The default value for the IsEnableLog attribute is No. It means that a log file is not generated.	
	Note: The log file always appends the existing log file. As a result, the file size may exceed disk space. Therefore, set the value of IsEnableLog to Yes only if the user wants to debug.	
	When the value is set to Yes, the OIM_ACE_ INTG.log file is generated.	
LogFileLocationInRemoteManager	Specifies the location in the Remote Manager where the log file is to be generated.	D:\RM\log
	The default value is None. It means that the log file is generated in the Remote Manager absolute path.	
	Note: The Remote Manager absolute path is the location in which Remote Manager's .batch and .sh files are stored.	

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.

Stopping Reconciliation

Suppose the User Reconciliation Scheduled Task for the connector is running and user records are being reconciled. If you want to stop the reconciliation process:

1. Perform Steps 1 through 4 of the procedure to configure reconciliation scheduled tasks.

2. Select the **Stop Execution** check box in the task scheduler.

3. Click **Save**.

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

This section discusses the following topics related to configuring provisioning:

> **Note:** You must perform these procedures if you want to use the provisioning features of Oracle Identity Manager for this target system.

- Compiling Adapters
- Installing Software Tokens

3.2.1 Compiling Adapters

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

- `ACE ASSIGN TO GROUP`
- `ACE DELETE USER`
- `ACE CREATE USER`
- `SetRSAUserAttribute`
- `ACE PrePop DefLogin`
- `ACE PrePop FirstName`
- `ACE PrePop GrpLogin`
- `ACE PrePop LastName`
- `ACE ASSIGN TOKEN`
- `ACE REMOVE TOKEN`
- `ACE DISABLE TOKEN`
- `ACE SET PIN`
- `ACE SET PIN TO NTC`
- `ACE TRACK LOST TOKEN`
- `ACE ENABLE TOKEN`
- `ACE TEST LOGIN`
- `ACE ADD USER EXTENSION DATA TO USER`
- `ACE UPDATE USER EXTENSION DATA FOR USER`
- `ACE DEL USER EXTENSION DATA TO USER`
- `Set Temporary User`

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 Installing Software Tokens

When you use this connector to run provisioning functions that are specific to software tokens, you must provide the required input parameters, such as the Token Code.

You can determine the values of these token-specific parameters only after the RSA Software Token application is installed on the Oracle Identity Manager server or on a user computer other than the Oracle Identity Manager server.

If you are using RSA SecurID software tokens, then:

1. Download RSA SecurID Token for Windows Desktops 3.0.5 from

   http://www.rsasecurity.com/node.asp?id=1162

2. Install the file on the Oracle Identity Manager server.

3. Copy the RSA SecurID software token file to an appropriate location on the Oracle Identity Manager server. The file to be copied is in the RSA Authentication Manager installation directory. The format of the directory path where you copy this file can be as follows:

   target_dir_location/Token1File/

   > **Note:** While assigning a software token to an ACE user, you must specify the name and complete location of this file (in the *db_file_ location*/*file_name*.sdtid format) in the Software Token File Name process form field.

   ---

4. Import the .sdtid file into the RSA SecurID Token software application as follows:

   a. Click **Start,** and then select **Programs.**

   b. Click **RSA SecurID Software Token,** and select the subcategory **RSA SecurID Software Token.**

      The token screen is displayed.

   c. Click the **File** menu, and then select **Import Tokens.** In the dialog box that is displayed, select the .sdtid file mentioned in Step 3.

      For example:

      target_dir_location/Token1File/*file_name*.sdtid

      d. Select the token serial number, and click **Transfer Selected Tokens to Hard Drive.** The software token is imported.

      e. On the screen that is displayed, click **View** and then select **Advanced View.**

      f. On the screen that is displayed, click **View** and then select **Token View** to view the software token number.

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 RSA Authentication Manager.

You may want to configure the connector for multiple installations of RSA Authentication Manager. The following example illustrates this requirement:

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

To meet the requirement posed by such a scenario, you must configure the connector for multiple installations of RSA Authentication Manager.

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 target system installation.

   The IT Resources form is in the Resource Management folder. An 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 resource type.

2. Configure reconciliation for each target system installation. Refer to the "Configuring Reconciliation" section on page 3-1 for instructions. Note that you need to modify only the attributes that are used to specify the IT resource and to specify whether or not the target system installation is to be set up as a trusted source.

   You can designate either a single or multiple installations of RSA Authentication Manager as the trusted source.

3. If required, modify the fields to be reconciled for the Xellerate User resource object.

When you use the Administrative and User Console to perform provisioning, you can specify the IT resource corresponding to the RSA Authentication Manager installation to which you want to provision the user.

4

Testing and Troubleshooting

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

- Running Connector Tests
- Troubleshooting

4.1 Running Connector Tests

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. For all supported versions of RSA ACE server, on the target server, add the following lines in the `authmgr_home/tests/scripts/runTestServer.bat` file:

```
set JAVA_HOME=jdk_home
set AUTHMGR_HOME=authmgr_home
set XL_REMOTE=xl_remote
```

   For RSA ACE 5.2, add the following line:

```
set PATH=authmgr_home/lib/ACE52;%PATH%
```

   For RSA Authentication Manager 6.0, add the following line:

```
set PATH=authmgr_home/lib/AuthMgr60;%PATH%
```

   For RSA Authentication Manager 6.1, add the following line:

```
set PATH=authmgr_home/lib/AuthMgr61;%PATH%
```

   For Solaris, update the following file:

```
authmgr_home/tests/scripts/runTestServer.sh
```

   In this file, change the values specified for the following variables:

```
AUTHMGR_HOME=authmgr_home
export AUTHMGR_HOME
ACE_INSTALL=ace_installation_home
export ACE_INSTALL
XL_REMOTE=xl_remote
export XL_REMOTE
```

2. Run the `runTestServer.bat` script.

The `runTestServer.bat` script runs an RMI server on the RSA Authentication Manager. Therefore, when you run this script, you must pass a port number as an argument as shown in the following example:

```
runTestServer 1001
```

For Solaris, run the `runTestServer.sh` script as follows:

```
./runTestServer.sh 1001
```

3. The properties file must be converted to ASCII format for multilanguage support using the `native2ascii` tool on command console as follows:

```
native2ascii src.properties dest.properties
```

For example:

```
native2ascii config1.properties config.properties
```

4. Use the information in the following table to change the default attribute values in the `config.properties` file.

   This file is in the *authmgr_home*/tests/config directory.

Attribute	Description	Sample Values
Computer name	Computer name or IP address of the computer on which RSA Authentication Manager is running	10.1.1.114
port	Port at which the RMI server is listening	1001
passwd	RMI password	yourpassword
	This password must be the same as the one provided in the RMI server. It is the value of the pw property set in *authmgr_home*/tests/scripts/ runTestServer. For example, -Dpw=yourpassword	
adminMode	Administration mode for RSA Authentication Manager (host or remote)	Host
admin	User ID part of the remote administrator credentials for RSA Authentication Manager	jdoe
passcode	Passcode part of the remote administrator credentials for RSA Authentication Manager	1234

Attribute	Description	Sample Values
action	Action to be tested The value can be any one of the following: ■ addUser ■ deleteUser ■ assignToken ■ revokeToken ■ enableToken ■ disableToken ■ setPin ■ assignUsertogroup ■ removeUserfromgroup ■ settoNextTokenMode ■ trackLostToken ■ testLogin ■ issueSoftwareToken ■ deploySoftwareToken ■ addUserExtensionData ■ updateUserExtensionData ■ removeUserExtensionData ■ aceRecon	createUser
userID	User ID	jdoe
firstName	First name	Jane
lastName	Last name	Doe
isTemporaryUser	New user created is temporary user or not	yes or no
startDate	If isTemporaryUser is yes, then the format of startDate of user must be "MM/dd/yyyy"	08/21/2010
startTime	If isTemporaryUser is yes, then the format of startTime of user must be an integer from 0 to 23 hours	9
endDate	If isTemporaryUser is yes, then the format of endDate of user must be "MM/dd/yyyy"	08/21/2010
endTime	If isTemporaryUser is yes, then the format of endTime of user must be an integer from 0 to 23 hours **Note:** If isTemporaryUser is no, then the values of startDate,endDate,startTime, and endTime can have any value.	18
group	Group name	John Doe and Sons
groupLogin	Group login	jdoeGrp
tokenSerialNumber	Token serial number	10473824
pin	Token PIN	1234
currentTokenCode	Token code	796563
number	Number of token codes to be generated	2
lifetime	Number of hours until emergency access mode expires	24

Attribute	Description	Sample Values
digits	Number of digits in the token code to be generated	6
loggerfile	Log file name with path	..\logs\Test_ACE.log
loggerlevel	Logger level: DEBUG, FATAL, WARN, INFO, or ERROR	DEBUG
RevokeFlag	Revoke token flag	1
fileName	Name of the software token file	C:\SoftToken\soft18.sdtid
key	Encryption key type	1
protect	Copy protection flag	0
method	Password usage and interpretation method	0
password	Password (maximum 8 characters)	welcome1
rangeMode	Criteria used to deploy AES type software tokens	2
endRange	Ending token serial number	The value must be the same as that in the **tokenSerialNumber** field
logFile	Name of the log file containing the status of the deployment operation	*filename*.log
overOption	Overwrites the output of a previously generated XML file	1
closeOption	Closing option of the XML file	Do not specify a value for this attribute
userExtensionData_KeyValue	Key value for user extension data	EMPID EMAIL
userExtensionData_DataValue	Data value for user extension data	416451 test123@nabd.com
customQuery	Custom reconciliation query to run partial user reconciliation	First Name=Test
StartRecord	Record number from which the reconciliation for CustomReconQuery and CompareType must begin	1
batchSize	Number of records to be reconciled in a batch	1000
CompareType	Type of comparison used in the query condition of CustomReconQuery	Equals To
NumberOfCharactersInEachUser	Memory allocated for each user in C code	500
TokenforGroup	Tokenizes the groups provided in the CustomReconQuery	$

5. Update the following file on the Oracle Identity Manager server:

OIM_HOME/xellerate/XLIntegrations/AuthManager/tests/scripts/runTestClient.bat

In this file, add the following lines:

```
XELLERATE_HOME/xellerate=OIM_HOME/xellerate
JAVA_HOME=jdk_home
```

Run the `runTestClient.bat` file.

For Solaris:

Update the following file:

OIM_HOME/xellerate/XLIntegrations/AuthManager/tests/scripts/runTestClient.sh

Add the following lines:

XELLERATE_HOME/xellerate=*OIM_HOME*/xellerate
JAVA_HOME=*jdk_home*

Run the `runTestClient.sh` file.

After the script is run, the output is written to a log file. The log file is located in the following directory:

OIM_HOME/xellerate/XLIntegrations/AuthManager/tests/logs

The following are sample contents of this log file:

```
03 Dec 2004 16:52:45 INFO Constructor: ../logs/Test_ACE.log DEBUG
03 Dec 2004 16:52:45 INFO You want to add a user!!
03 Dec 2004 16:52:45 INFO result-->ACE_USERCREATION_SUCCESS
```

4.1.1 Testing Limited Reconciliation

To test limited reconciliation, you can specify various types of query conditions as values for the `CustomReconQuery` parameter. To do this, refer to the "Limited Reconciliation" section on page 3-1.

4.2 Troubleshooting

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

Problem Description	Solution
Process definition: ACEUser Process task: Create User **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** `ACE_AUTHORIZED_ACCESS_FAIL`	Check the administrator credentials specified in the IT resource definition.
Process definition: ACEUser Process task: Create User **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** `ACE_AUTHORIZATION_ENGINE_FAIL`	Start the service for RSA ACE Authentication Server.

Problem Description	Solution
Process definition: ACEUser Process task: Create User **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACEUser Process task: Create User **Returned Error Message** User already exists in database **Returned Error Code** ACE_USERCREATION_ALREADYEXISTSINDB_FAIL	Check the user ID that you have specified. A user with this ID already exists in ACE.
Process definition: ACEUser Process task: Delete User **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACEUser Process task: Delete User **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACEUser Process task: Delete User **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACEUser Process task: Delete User **Returned Error Message:** User does not exist **Returned Error Code:** ACE_USERDELETIONINVALIDUSER_FAIL	Check the user ID that you have specified. A user with this ID does not exist in ACE.

Problem Description	Solution
Process definition: ACEUser Process task: Delete User **Returned Error Message:** User is an administrator **Returned Error Code:** ACE_USERDELETIONISADMIN_FAIL	Check the user ID that you have specified. The user with this ID is an administrator. If you still want to delete it, then you must first revoke the administrator role.
Process definition: ACEUser Process task: Assign users to ACE groups **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACEUser Process task: Assign users to ACE groups **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACEUser Process task: Assign users to ACE groups **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACEUser Process task: Assign users to ACE groups **Returned Error Message:** User does not exist **Returned Error Code:** ACE_ADDTOGRP_ ASSIGNGROUPSINVALIDUSER_FAIL	Check the user ID that you have specified. A user with this ID does not exist in ACE.
Process definition: ACEUser Process task: Assign users to ACE groups **Returned Error Message:** Group does not exist **Returned Error Code:** ACE_ADDTOGRP_ ASSIGNGROUPSINVALIDGROUP_FAIL	Check the group name that you have specified. A group with this name does not exist in ACE.

Problem Description	Solution
Process definition: ACEUser Process task: Remove users from ACE groups **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACEUser Process task: Remove users from ACE groups **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACEUser Process task: Remove users from ACE groups **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACEUser Process task: Remove users from ACE groups **Returned Error Message:** User does not exist **Returned Error Code:** ACE_REMFRMGRP_ ASSIGNGROUPSINVALIDUSER_FAIL	Check the user ID that you have specified. A user with this ID does not exist in ACE.
Process definition: ACEUser Process task: Remove users from ACE groups **Returned Error Message:** Group does not exist **Returned Error Code:** ACE_REMFRMGRP_ ASSIGNGROUPSINVALIDGROUP_FAIL	Check the group name that you have specified. A group with this name does not exist in ACE.
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.

Problem Description	Solution
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_ASSIGN_TOKENSNOINVALID_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Token is already assigned **Returned Error Code:** ACE_TOKENALREADYASSIGNED_FAIL	Check the token serial number that you have specified. A token with this serial number is already assigned to another user in ACE.
Process definition: ACE Token Process task: Assign SecurID tokens to users **Returned Error Message:** Maximum number of tokens already assigned to this user **Returned Error Code:** ACE_TOKENMAXALREADYASSIGNED_FAIL	Check the user to whom you have assigned the token. The maximum number (three) of SecurID tokens has already been assigned to this user in ACE.
Process definition: ACE Token0 Process task: Disable Token **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.

Problem Description	Solution
Process definition: ACE Token Process task: Disable Token **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Disable Token **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Disable Token **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_DISABLE_TOKENSNOINVALID	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process definition: ACE Token Process task: Disable Token **Returned Error Message:** Token is not assigned **Returned Error Code:** ACE_DISABLE_TOKENNOTASSIGNED_FAIL	Check the token serial number that you have specified. A token with this serial number is not assigned to any user in ACE.
Process definition: ACE Token Process task: Enable Token **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACE Token Process task: Enable Token **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.

Problem Description	Solution
Process definition: ACE Token	Start the service for RSA ACE Broker.
Process task: Enable Token	
Returned Error Message:	
Could not connect to RSA ACE database, RSA ACE Broker is not running	
Returned Error Code:	
ACE_SERVERDBCONNECT_FAIL	
Process definition: ACE Token	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process task: Enable Token	
Returned Error Message:	
Token Serial Number is invalid	
Returned Error Code:	
ACE_ENABLE_TOKENSNOINVALID_FAIL	
Process definition: ACE Token	Check the token serial number that you have specified. A token with this serial number is not assigned to any user in ACE.
Process task: Enable Token	
Returned Error Message:	
Token is not assigned	
Returned Error Code:	
ACE_ENABLE_TOKENNOTASSIGNED_FAIL	
Process definition: ACE Token	Check the administrator credentials specified in the IT resource definition.
Process task: Set PIN Updated	
Returned Error Message:	
Access denied, check administrator credentials	
Returned Error Code:	
ACE_AUTHORIZED_ACCESS_FAIL	
Process definition: ACE Token	Start the service for RSA ACE Authentication Server.
Process task: Set PIN Updated	
Returned Error Message:	
Could not communicate with authentication server, RSA ACE authentication server is not running	
Returned Error Code:	
ACE_AUTHORIZATION_ENGINE_FAIL	
Process definition: ACE Token	Start the service for RSA ACE Broker.
Process task: Set PIN Updated	
Returned Error Message:	
Could not connect to RSA ACE database, RSA ACE Broker is not running	
Returned Error Code:	
ACE_SERVERDBCONNECT_FAIL	

Problem Description	Solution
Process definition: ACE Token Process task: Set PIN Updated **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_SETPIN_TOKENSNOINVALID_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process definition: ACE Token Process task: Set PIN Updated **Returned Error Message:** PINS do not match **Returned Error Code:** ACE_PINMATCH_FAIL	Check the PIN that you have specified and then reentered. The PINs do not match.
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_SETPINTONTC_TOKENSNOINVALID_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.

Problem Description	Solution
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Current Token Code is invalid **Returned Error Code:** ACE_CURRENTTOKENCODEINVALID_FAIL	Check the token code that you have specified. It is invalid. Ensure that the token code does not change until the API call reaches RSA Authentication Manager.
Process definition: ACE Token Process task: Set PIN to NTC Updated **Returned Error Message:** Token is not assigned **Returned Error Code:** ACE_SETPINTONTC_TOKENNOTASSIGNED_ FAIL	Check the token serial number that you have specified. A token with this serial number is not assigned to any user in ACE.
Process definition: ACE Token Process task: Set Lost Updated **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACE Token Process task: Set Lost Updated **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Set Lost Updated **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Set Lost Updated **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_TRACKLOST_TOKENSNOINVALID_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.

Problem Description	Solution
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server is not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** User does not exist **Returned Error Code:** ACE_TESTLOGININVALIDUSER_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** Current token code is missing **Returned Error Code:** ACE_CURRENTTOKENCODEMISSING_FAIL	Check if you have entered the token code.
Process definition: ACE Token Process task: Test Login Updated **Returned Error Message:** Passcode is invalid **Returned Error Code:** ACE_INVALID_PASSCODE	Check the token code that you have specified. It is invalid. Ensure that the token code does not change until the API call reaches the RSA Authentication Manager.

Problem Description	Solution
Process definition: ACE Token Process task: Revoke SecurID tokens from users **Returned Error Message:** Access denied, check administrator credentials **Returned Error Code:** ACE_AUTHORIZED_ACCESS_FAIL	Check the administrator credentials specified in the IT resource definition.
Process definition: ACE Token Process task: Revoke SecurID tokens from users **Returned Error Message:** Could not communicate with authentication server, RSA ACE authentication server not running **Returned Error Code:** ACE_AUTHORIZATION_ENGINE_FAIL	Start the service for RSA ACE Authentication Server.
Process definition: ACE Token Process task: Revoke SecurID tokens from users **Returned Error Message:** Could not connect to RSA ACE database, RSA ACE Broker is not running **Returned Error Code:** ACE_SERVERDBCONNECT_FAIL	Start the service for RSA ACE Broker.
Process definition: ACE Token Process task: Revoke SecurID tokens from users **Returned Error Message:** Token Serial Number is invalid **Returned Error Code:** ACE_RESCIND_TOKENSNOINVALID_FAIL	Check the token serial number that you have specified. A token with this serial number does not exist in ACE.
Process definition: ACE Token Process task: Revoke SecurID tokens from users **Returned Error Message:** Token is not assigned **Returned Error Code:** ACE_UNASSIGN_TOKENNOTASSIGNED_FAIL	Check the token serial number that you have specified. A token with this serial number is not assigned to any user in ACE.

5

Known Issues

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

- While creating a user in RSA Authentication Manager, you must not enter special characters in the Default Login field. If you enter special characters in this field, then reconciliation would not work because Oracle Identity Manager does not support special characters in the User ID field.

- The connector does not support the use of security certificates that contain non-English characters.

- The following limitation applies to the use of the Japanese, Simplified Chinese, Traditional Chinese, Korean, and French languages:

  RSA APIs do not support certain characters of the character sets of these languages. The provisioning or reconciliation operation fails if any of the field values submitted during the operation contains any one of the unsupported characters at the start of the field value. However, the operation does not fail if unsupported characters appear at any place other than the start of the field value.

  > **See Also:** For more information about the characters not supported in provisioning and reconciliation, refer to Note 421232.1 on My Oracle Support at
  >
  > https://metalink.oracle.com

- When creating a temporary user during provisioning, you can specify start time or end time in hours, but you can not provide the start time or end time in hours and minutes. This is because the target system API accepts these values in hours (0-23) only. If you specify the time in hours and minutes, the API will throw the error. To avoid providing the time in hours and minutes format from the UI, a lookup is provided that has values from 0 through 23 for start time and end time.

- To synchronize reconciliation of start time or end time with provisioning, if the target system start time or end time is 0-0:59, then it is rounded off to 0. The reconciliation of start time or end time is matched with the start time and end time of provisioning. If the target system start time or end time is in hour and minute, then the start time or end time value is rounded off. For example, 1 hour and 59 minutes is rounded off to 1 hour.

- RSA Authentication Manager connector cannot be configured with multiple schedulers to reconcile users from RSA Authentication Manager because RSA ACE API is not thread safe. This means that the fields of an object or class do not maintain a valid state if multiple threads are running.

A

Attribute Mappings Between Oracle Identity Manager and RSA Authentication Manager

The following table discusses attribute mappings between Oracle Identity Manager and RSA Authentication Manager.

> **Note:** Some Asian languages use multibyte character sets. If the character limit for the fields in the target system is specified in bytes, then the number of Asian-language characters that you can enter in a particular field may be less than the number of English-language characters that you can enter in the same field. The following example illustrates this limitation:
>
> Suppose you can enter 50 characters of English in the User Last Name field of the target system. If you were using the Japanese language and if the character limit for the target system fields were specified in bytes, then you would not be able to enter more than 25 characters in the same field.

Oracle Identity Manager Attribute	RSA Authentication Manager Attribute	Description
Group Login	chLogin	Login ID of this user when logged in as a member of a specific group
		If a group login ID is not defined, the user's regular default login is used.
Group Name	chName	Name of the group
Token Serial Number	chSerialNum	Serial number
Pin	Pin	Sets a PIN for a specified token that is assigned to a user
Set Pin	bCreatePIN	Specifies whether or not users can create their own PINs
		The value can be `True` or `False`.
Curent Token Code	Not mapped to an attribute in RSA Authentication Manager DB	Token code that is displayed on the token device
		There is no designated field in the target to store it.
Set PIN to NTC	iNextTCodeStatus	Specifies that the next autogenerated token code must be taken as the PIN for the user

Oracle Identity Manager Attribute	RSA Authentication Manager Attribute	Description
Lifetime (Hours)	datePWExpires	Date on which the password expires
Number of Digits	iNumDigits	Number of digits returned in the password generated for emergency access after a token is set to the LOST state
Set Lost	bLost	Specifies whether or not the token device is lost The default is NOT LOST.
Type of Token	iType	Token type The token can be a hardware token device or a software token authenticator.
Copy Protection Flag	bSoftID_CopyProtected	Specifies whether or not copy protection is enabled The value can be True or False.
Password	chOTPasswordsSB	Password to be provided by the RSA Authentication Manager administrator in order to access an RSA SecurID software token XML file If there is no password associated with the file, then an empty string can be passed.
Password Usage and Interpretation Method	method	Password usage and interpretation method The value can be any one of the following: ■ 0: No password ■ 1: Static password ■ 2: Default login ■ 3: Default login appended to static password
Software Token File Name	Not mapped to an attribute in RSA Authentication Manager DB	Software token file name path There is no designated field in the target to store/represent it.
Encryption Key Type	iTokenVersion	Version of the token algorithm
Type of Algorithm	iSeedSizeType	Specifies the algorithm type The value can be any one of the following: ■ SID: For 64-bit encryption ■ AES: For 128-bit encryption
First Name	chFirstName	First name
Last Name	chLastName	Last name
Default Login	chDefaultLogin	Default login ID

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