

## **Oracle® Identity Manager**

Connector Guide for SAP CUA,

Release 9.0.1

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# Preface

*Oracle Identity Manager Connector Guide for SAP CUA* provides information about integrating Oracle Identity Manager with SAP CUA.

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**Note:** This is a transitional release following Oracle's acquisition of Thor Technologies. Some parts of the product and documentation still refer to the original Thor company name and Xellerate product name and will be rebranded in future releases.

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## Audience

This guide is intended for users who want to deploy the Oracle Identity Manager SAP CUA Connector.

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

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## Related Documents

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

- *Oracle Identity Manager Release Notes*
- *Oracle Identity Manager Installation and Upgrade Guide for JBoss*
- *Oracle Identity Manager Installation and Upgrade Guide for WebLogic*
- *Oracle Identity Manager Installation and Upgrade Guide for WebSphere*
- *Oracle Identity Manager Administrative and User Console Guide*
- *Oracle Identity Manager Administrative and User Console Customization Guide*
- *Oracle Identity Manager Design Console Guide*
- *Oracle Identity Manager Tools Reference Guide*
- *Oracle Identity Manager Audit Report Developer Guide*
- *Oracle Identity Manager Best Practices Guide*
- *Oracle Identity Manager Connector Framework Guide*
- Connector guides for various third-party applications

## Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager 9.0.1 connector documentation set, 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
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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## About the Connector

Oracle Identity Manager automates access rights management, security, and provisioning of IT resources. Oracle Identity Manager connectors are used to integrate Oracle Identity Manager with third-party applications. The connector for SAP CUA is used to integrate Oracle Identity Manager with SAP CUA.

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**Note:** Oracle Identity Manager connectors were referred to as *resource adapters* prior to the acquisition of Thor Technologies by Oracle.

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This chapter contains the following sections:

- [Supported Functionality](#)
- [Reconciliation Module](#)
- [Provisioning Module](#)
- [Files and Directories That Comprise the Connector](#)

### Supported Functionality

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

Function	Type	Used For
Create User	Provisioning	Creating a user in the SAP CUA system
Delete User	Provisioning	Deleting a user in the SAP CUA system
Lock User	Provisioning	Locking a user in the SAP CUA system
Unlock User	Provisioning	Unlocking a user in the SAP CUA system
Reset User Password	Provisioning	Resetting a user password in the SAP CUA system
Edit User	Provisioning	Modifying user details in the SAP CUA system
Add User To Activity Group(Role)	Provisioning	Adding a user to Activity Group in the SAP CUA system
Remove User From Activity Group(Role)	Provisioning	Removing a user from Activity Group in the SAP CUA system
Assign Profile to User	Provisioning	Adding a profile to user in the SAP CUA system
Remove Profile from User	Provisioning	Removing a profile from user in the SAP CUA system
Create User	Reconciliation	Creating a user in Oracle Identity Manager

Function	Type	Used For
Delete User	Reconciliation	Deleting a user in Oracle Identity Manager
Lock User	Reconciliation	Locking a user in Oracle Identity Manager
Unlock User	Reconciliation	UnLocking a user in Oracle Identity Manager
Edit User	Reconciliation	Modifying user details in Oracle Identity Manager
Add User To Activity Group(Role)	Reconciliation	Assigning Activity Group to user in Oracle Identity Manager
Remove User From Activity Group(Role)	Reconciliation	Removing Activity Group from user in Oracle Identity Manager
Add profile to User	Reconciliation	Assigning profile to user in Oracle Identity Manager
Remove profile From User	Reconciliation	Removing profile to user in Oracle Identity Manager

## Reconciliation Module

This section describes the elements that the reconciliation class extracts from the target system for constructing a reconciliation event record.

The following types of reconciliation are discussed in this section:

- [Lookup Data Reconciliation](#)
- [User Reconciliation](#)

### Lookup Data Reconciliation

For the reconciliation scheduled task to work, the following attributes are reconciled. These attributes must be available in the lookup definition:

- Roles
- TimeZone
- LangComm
- UserTitle
- DecimalNotation
- DateFormat
- UserGroups
- CommType
- Profiles

The following lookup fields are not reconciled:

- `Lookup.SAP.CUA.UserType`
- `Lookup.SAP.CUA.LockUser`
- `Lookup.SAP.CUA.RoleProfileOption`

### User Reconciliation

This section discusses elements that are specific to user reconciliation between the SAP CUA and the Oracle Identity Manager systems.



## Reconciled SAP CUA Resource Object Fields

The following fields are reconciled for the SAP system:

- Extension
- Telephone
- Time Zone
- Lang Logon
- User Group
- Department
- Lang Comm
- Last Name
- First Name
- User Title
- Password
- User ID (Required Field)
- Start Menu
- User Type
- Alias
- Lock User
- Communication Type
- Code
- Building
- Floor
- Room No
- Function
- Decimal Notation
- Date Format
- Email Address
- Fax Number
- IT Resource Type
- User Profile
  - User Profile
  - System Name
- User Role
  - User Role
  - System Name

### Reconciled Xellerate User Fields

The following attributes are reconciled between the SAP CUA system and Oracle Identity Manager for the Xellerate User:

- UserID
- Password
- Organization
- FirstName
- LastName
- Xellerate
- Role

## Provisioning Module

The following fields are mandatory for provisioning to work for resource objects:

- User ID
- Password
- Last Name
- User Group

The following fields are mandatory for the Create User provisioning task to work:

- User Role or Profile
- Role or Profile Option

## Files and Directories That Comprise the Connector

The files and directories that comprise this connector are compressed in the SAP CUA Rev 3.1.0.zip file, which is in the following directory on the installation media:

Enterprise Applications\SAP Enterprise Applications\

These files and directories are listed in the following table.

Files in the Installation Media Directory	Description
xml\SAPCUAResourceObject.xml	<p>This XML file contains all the components of the connector. These components include the following:</p> <ul style="list-style-type: none"><li>■ Resource asset type</li><li>■ Custom process form</li><li>■ Process task and adapters (along with their mappings)</li><li>■ Resource object</li><li>■ Provisioning process</li><li>■ Pre-populate rules</li><li>■ Reconciliation process</li><li>■ Lookup definitions</li></ul>

Files in the Installation Media Directory	Description
xml\SAPCUAXLResourceObject.xml	The SAPCUAXLResourceObject.xml file contains only the Oracle Identity Manager resource objects and dependent values. This file is used only if the connector is configured as a trusted source.
lib\xliSAPCUA.jar	This JAR file contains the class files that are required for provisioning and reconciliation.
BAPI\xlsapcuacar.sar	SAP adapter file that is deployed on the SAP CUA system.
Troubleshoot\log.properties Troubleshoot\troubleshoot.properties	These are configuration files that contain logging, connection, and troubleshooting parameters for various connector tasks.
Troubleshoot\troubleShootingUtility.class	Troubleshooting utility used to test connector functionality.
doc\B31134_01.pdf doc\html	Oracle Identity Manager Connector Guide for SAP CUA.

Instructions to copy these files into the appropriate directories are given in [Chapter 2, "Deploying the Connector"](#).



## Deploying the Connector

Deploying the connector involves the following steps:

- [Step 1: Verifying Deployment Requirements](#)
- [Step 2: Copying the Connector Files and External Code](#)
- [Step 3: Configuring the Target System](#)
- [Step 4: Importing the Connector XML File](#)
- [Step 5: Configuring Reconciliation](#)
- [Step 6: Compiling Adapters](#)
- [Step 7: Configuring the Connector to Use SNC](#)

### 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 or later
Target master systems host platforms	SAP R3 4.7, SAP R3 4.6c
Target child systems host platforms	SAP R3 4.7, SAP R3 4.6c, CRM
External code	sapjco.jar, librfccm.dll, libsapjcorfc.dll, librfccm.so, libsapjcorfc.so, Sapcrypto.dll, and libsapcrypto.so

### Step 2: Copying the Connector Files and External Code

Create the sapcua, xml, lib, and docs, and XLSAPCUACAR directories in the paths indicated, and then copy the files to the destinations specified in the following table:

File to Be Copied	Destination
xml\SAPCUAResourceObject.xml	<i>OIM_HOME</i> \Xellerate\sapcua\xml\
xml\SAPCUAXLResourceObject.xml	
lib\xliSAPCUA.jar	<i>OIM_HOME</i> \Xellerate\JavaTasks\
BAPI\xlsapcuacar.sar	C:\xlsapcuacar\

File to Be Copied	Destination
troubleshoot\log.properties troubleshoot\troubleshoot.properties troubleshoot\TroubleShootingUtility.class	Any location where you want to test the connector from, for example: C:\test
docs\B31134_01.pdf docs\html	OIM_HOME\Xellerate\sapcua\docs\

**See Also:** [Files and Directories That Comprise the Connector](#)

To copy the external code into the correct location:

1. Download the SAP Java connectors file from the SAP Web site. To do this:
  - a. Open the following page in a Web browser:  
<https://websmp104.sap-ag.de/connectors>
  - b. Open the SAP JAVA Connector page by selecting **Application Platform, Connectivity, Connectors, SAP Java Connector**, and **Tools & Services**.
  - c. On the SAP JAVA Connector page, links for files that you can download are displayed on the right pane. Click the link for the SAP JCO release that you want to download.
  - d. In the dialog box that is displayed, specify that you want to save the file with the following name and path:

`OIM_HOME\Xellerate\sapcua\lib\SAP_JCO.zip`

2. Extract the `SAP_JCO.zip` file in the directory in which you downloaded it.
3. On Solaris and Linux, copy the `librfccm.so` and `libsapjcorfc.so` files into the `/usr/local/jco` directory, and set the path to `LD_LIBRARY_PATH`.

On Microsoft Windows, copy the `librfccm.dll` and `libsapjcorfc.dll` files into the `winnt\system32` directory.

## Step 3: Configuring the Target System

This section provides instructions for configuring the target system. You need the following information to configure the target system to deploy the SAP connector:

- Login ID (administration user) having the full authorizations to import the request.
- Client Number on which connector to be deployed
- System number
- System IP address
- Server name
- Login ID of the application server
- Password for the application server login

## Manual Entry in SAP

This section discusses tasks that need to be performed manually in the SAP system.

### Table Maintenance for BAPIF4T

The following entry is required on the SAP system for viewing F4 values of User Groups. F4 values are applicable values of a field that you can view as a drop-down list and select from. User Group is one of the fields available in the login data of user. To view the valid User Groups for a user, follow these instructions:

1. Run transaction code SM30 on the SAP system.
2. Enter BAPIF4T as the table name and click **Maintain**. Ignore any warnings or messages.
3. Click **New Entries**.
4. On the following screen, enter XUCLASS as the **Data element** and ZXL\_PARTNER\_BAPI\_F4\_AUTHORITY as the **Function name**.
5. Save and exit.

---

**Note:** If an entry already exists for the XUCLASS Data element, then do not change this value.

---

## Transport System Method

This section discusses the transport system method.

### SAP Transport Request

The SAP deployment is done by SAP transport request (PACK) with the help of the SAP Basis consultant (administrator).

The connector files are compressed using the SAPCAR utility. The two files, Data and Cofile, of the SAP connector transport request are compressed into a single file named `xlsapcuacar.sar`.

To download the SAPCAR utility from the SAP Help Web site:

1. Log on to the SAP Web site at  
<https://service.sap.com/swdc>
2. Select a digital certificate.
3. Enter your SAP user name and password to connect to the SAP service marketplace.
4. Click **Downloads, SAP Support Packages, Entry by Application Group, and Additional Components**.
5. Select **SAPCAR, SAPCAR 6.20**, and the operating system. This displays the download object.
6. Select the **Object** check box, and then click **Add to Download Basket**.

To install the SAPCAR utility and extract the SAP connector files:

1. On the local computer, create the `C:\xlsapcuacar\` directory.
2. Copy the `sapcar.exe` and `xlsapcuacar.sar` files on the local computer in the `C:\xlsapcuacar\` directory from the connector installation media.
3. Run the `sapcar` utility to extract the `xlsapcuacar.sar` file. To do this:
  - a. Click **Start**, and then run the `cmd` command.
  - b. In the command window, open the `c:\xlsapcuacar` directory.

- c. Use the `dir` command to verify that the two downloaded files, `sapcar.exe` and `xlsapcuacar.sar`, are in the directory.
- d. Enter the following command to extract the `xlsapcuacar` file:

```
sapcar -xvf xlsapcuacar.sar
```

This command extracts the `K900208.I46` (Cofile) and `R900208.I46` (Data file) files into this directory.

4. The SAP Basis administrator must copy these files to the SAP server in their respective locations, and then import these requests in SAP like other transport requests.
5. Check the log file to determine whether or not the transport was successful by clicking on the request number in transaction code `STMS`. Check the error codes in the log file. If the return code is 4, then the import ended with warnings. This usually happens if the object is overwritten or already exists in SAP system. If the return code is 8 or greater then it means that there are errors in the imports. To view error details, click the detail log. This log is useful for analyzing any issues related to transport.

Alternatively, you can confirm the transport of objects by using SAP transaction code `SE80` and checking Package `ZXLC` in the ABAP objects.

After the successful import of the transport request, the SAP system is ready for use.

## Step 4: Importing the Connector XML File

To import the connector XML file into Oracle Identity Manager:

1. Open the Oracle Identity Manager Administrative and User Console.
2. Click the **Deployment Management** link on the left navigation bar.
3. Click the **Import** link under Deployment Management. A dialog box for locating files is displayed.
4. Locate and open the `SAPCUAResourceObject.xml` file, which is in the `OIM_HOME\Xellerate\sapcua\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 SAP CUA IT resource is displayed.
8. Specify values for the parameters of the SAP CUA IT resource. Refer to the table in the [Defining IT Resources](#) 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 SAP CUA IT resource type is displayed.
10. Click **Skip** to specify that you do not want to define another IT resource. The Confirmation page is displayed.

**See Also:** If you want to define another IT resource, then refer to *Oracle Identity Manager Tools Reference Guide* for instructions.

11. Click **View Selections**.



The contents of the XML file are displayed on the Import page. You may see a cross-shaped icon along with some nodes. You must remove these nodes. To do this, right-click each such node and then select **Remove**.

12. Click **Import**. The connector file is imported into Oracle Identity Manager.
13. If you plan to use the connector in trusted source reconciliation mode, then perform the same procedure to import the `SAPCUAXLResourceObject.xml` file. This file is in the `OIM_HOME\Xellerate\sapcua\xml` directory.

After importing the XML file, proceed to [Step 5: Configuring Reconciliation](#).

---

**Caution:** Only one connector can be configured as a trusted source. If you import the `SAPCUAXLResourceObject.xml` file while you have another trusted source configured, then both connector reconciliations would stop working.

---

## Defining IT Resources

You need to specify values for the SAP CUA IT resource parameters listed in the following table.

Parameter	Sample Value	Description and Sample Values
SAPChangePasswordSystem	X	This is a flag that accepts the value X or ''. If the value is X, then the password is changed only in the master system. If the value is '', then the password is changed in both master and child systems. This parameter is used by the Reset Password function.
SAPClient	800	SAP client ID
SAPHost	172.20.70.204	SAP host IP address
SAPLanguage	EN	SAP language
SAPMasterSystem	CUA47	SAP CUA master system
SAPPassword	changethis	Password of SAP user
SAPsnc_lib	c:\usr\sap\sapcrypto.dll	Path where the crypto library is placed. This is required only if Secure Network Communication (SNC) is enabled.
SAPsnc_mode	0	If SNC is enabled on the SAP server, then set this field to 1. Otherwise, set it to 0.
SAPsnc_myname	p:CN=TST,OU=SAP,O=ORA,C=IN	SNC system name This is required only if SNC is enabled.
SAPsnc_partername	p:CN=I47,OU=SAP,O=ORA,C=IN	Domain name of the SAP server This is required only if SNC is enabled.
SAPsnc_qop	3	This parameter controls the protection level (quality of protection, QOP) at which data is transferred. The default value is 3. Valid values are: <ul style="list-style-type: none"> <li>■ 1: Secure authentication only</li> <li>■ 2: Data integrity protection</li> <li>■ 3: Data privacy protection</li> <li>■ 8: Use value from the parameter</li> <li>■ 9: Use maximum value available</li> </ul> This is required only if SNC is enabled.

Parameter	Sample Value	Description and Sample Values
SAPSystemNo	00	SAP system number
SAPType	CUA	Type of SAP system (CUA) This is optional.
SAPUser	Xellerate	SAP user
TimeStamp	Nov 16, 2004 at 11:35:00 IST	For the first reconciliation run, the timestamp value is not set. For subsequent rounds of reconciliation, the time at which the previous round of reconciliation was completed is stored in this parameter.

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

## Step 5: Configuring Reconciliation

Configuring reconciliation involves creating scheduled tasks for lookup fields and user reconciliations. To create these scheduled tasks:

1. Open the Oracle Identity Manager Design Console.
2. Expand the **Xellerate Administration** folder.
3. Select **Task Scheduler**.
4. Click **Find**. The details of the predefined scheduled tasks are displayed on two different tabs.
5. Enter a number in the **Max Retries** field. This number represents the number of times Oracle Identity Manager should attempt to complete the task before assigning the **ERROR** status to the task.
6. Ensure that the **Disabled** and **Stop Execution** check boxes are cleared.
7. In the Start region, double-click the **Start Time** field. From the date-time editor that is displayed, select the date and time at which you want the task to run.
8. In the Interval region, set the following schedule parameters:
  - To set the task to run on a recurring basis, select the **Daily, Weekly, Recurring Intervals, Monthly, or Yearly** option.  
If you select the **Recurring Intervals** option, then you must also specify the time interval at which you want the task to run on a recurring basis.
  - To set the task to run only once, select the **Once** option.
9. Provide values for the attributes of the scheduled task. Refer to the appropriate table in the [Specifying Values for the Scheduled Task Attributes](#) section for information about the values to be specified.

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

10. Click **Save**. The scheduled task is created. The **INACTIVE** status is displayed in the **Status** field, because the task is not currently running. The task is run at the date and time that you set in Step 7.
11. Repeat Steps 5 through 10 to create the second scheduled task.

After you create both scheduled tasks, proceed to the [Step 6: Compiling Adapters](#) section.

## Specifying Values for the Scheduled Task Attributes

This section provides information about the values to be specified for the following scheduled tasks:

- [Lookup Fields Reconciliation Scheduled Task](#)
- [User Reconciliation Scheduled Task](#)

### Lookup Fields Reconciliation Scheduled Task

You must specify values for the following attributes of the lookup fields reconciliation scheduled task.

---

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

---

Parameter	Sample Value	Description
Password	Dummy	Default password, taken while creating the Xellerate User
Organization	Xellerate Users	Default organization assigned to a new user
Role	Consultant	Default role assigned to a new user
Xellerate Type	End-user administrator	Default type assigned to a new user
ITResource	SAP CUA IT Resource	Name of the IT resource for setting up the connection to SAP CUA
ResourceObject	SAP CUA Resource Object	Name of the resource object into which users need to be reconciled
Server	CUA	Name of the server. This is an optional parameter.

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

### User Reconciliation Scheduled Task

You must specify values for the following attributes of the user reconciliation scheduled task.

---

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

---

Parameter Name	Sample Value	Comments
Password	Dummy	Default password, taken while creating the Xellerate User

Parameter Name	Sample Value	Comments
Organization	Xellerate Users	Default organization assigned to a new user
Role	Consultant	Default role assigned to a new user
Xellerate Type	End-user administrator	Default type assigned to a new user
ITResource	SAP CUA IT resource name	Name of the IT Resource for setting up the connection to SAP CUA
ResourceObject	SAP CUA resource object name	Name of the resource object into which users need to be reconciled
Server	CUA	Optional

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

**See Also:** [Reconciliation Module](#)

## Step 6: Compiling Adapters

The following adapters are imported into Oracle Identity Manager when the connector XML file is deployed. You must compile these adapters before you can use them to provision accounts on the target system.

- PrePopulate SAP Form
- SAP CUA Delete User
- SAP CUA Modify User
- SAP CUA Add Role
- SAP CUA Password Change
- SAP CUA Create User
- SAP CUA Lock UnLock User
- SAP CUA Remove Role
- SAP CUA Add Profile
- SAP CUA Remove Profile
- SAP CUA Modify UserX

---

**Note:** To compile multiple adapters simultaneously, use the Adapter Manager form. To compile one adapter at a time, use the Adapter Factory form.

---

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 the **Compile All** option.

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

---

**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 all the adapters that you specify.

## Viewing Adapter Information

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.

## Step 7: Configuring the Connector to Use SNC

To connect to an SAP system application server, the Java Application Server uses the Java Connector and RFC. Optionally, you can use Secure Network Communication (SNC) to secure such connections.

## Prerequisites to Configuring the Connector to Use SNC

The following are the prerequisites for configuring the connector to use SNC:

- The external security product must be installed on the server.
- You should be familiar with the SNC infrastructure. You must know which Personal Security Environment (PSE) the application server uses for SNC. You must also know whether you are using the same PSE for both communication partners or individual ones.
- SNC must be activated on the SAP application server.

## Installing the Security Package

To install the security package on the Java Application Server:

1. Extract the contents of the SAP Cryptographic Library installation package.

The SAP Cryptographic Library installation package is available for authorized customers at the SAP Service Marketplace at

<http://service.sap.com/download>

This package contains the following files:

- SAP Cryptographic Library (`sapcrypto.dll` for Microsoft Windows NT or `libsapcrypto.ext` for UNIX)
  - A corresponding license ticket (ticket)
  - The configuration tool, `sapgenpse.exe`
2. Copy the library and the `sapgenpse.exe` configuration tool to a local directory. For example, the `C:\install_dir\SAPCryptolib` directory.
  3. Check the file permissions. The user under which the Java Application Server runs must be able to run the library functions in the `SAPCryptolib`.

4. Create the `sec` directory in the `SAPCryptolib` directory.
5. Copy the ticket file to the `sec` directory. This is also the directory in which the PSE and credentials of the Java Application Server are to be stored.
6. Set the `SECUDIR` environment variable for the user of the Java Application Server user to the `sec` directory.
7. Set the `SNC_LIB` environment variable for the user of the Java Application Server to the cryptographic library. In this case, the directory is `C:\install_dir\SAPCryptolib`.

## Configuring the Connector to Use SNC

To configure the connector to use SNC:

1. Either create a PSE or copy the SNC PSE of the application server to the `SECUDIR` directory of the Java Application Server. To create the SNC PSE for the Java Application Server, use the command-line tool `sapgenpse.exe` as follows:

- a. To check the location of the `SECUDIR` directory, run `sapgenpse` without including any command options. The program displays information such as the library version and the location of `SECUDIR`.

- b. Enter a command similar to the following to create the PSE:

```
sapgenpse get_pse -p PSE_Name -x PIN Distinguished_Name
```

The following is a sample distinguished name:

```
CN=SAPJ2EE, O=MyCompany, C=US
```

The `sapgenpse` command creates a PSE in the `SECUDIR` directory of the Java Application Server.

2. Create credentials for the Java Application Server.

The Java Application Server must have active credentials at run time to be able to access its PSE. Therefore, use the command-line `seclogin` of the configuration tool to open the PSE.

Enter the following command to open the server's PSE and create the `credentials.sapgenpse` file:

```
seclogin -p PSE_Name -x PIN -O [NT_Domain\]user_ID
```

The credentials file, `cred_v2`, for the user specified with the `-O` option is created in the `SECUDIR` directory.

3. If you are using individual PSEs, then exchange the public-key certificates of the two servers as follows:

- a. Export the Oracle Identity Manager certificate in the file by entering the following command:

```
sapgenpse export_own_cert -o filename.crt -p PSE_Name -x PIN
```

- b. Import the certificate file into the SAP application server. Obtain the certificate of the SAP application server.

- c. Import the certificate of the SAP application server by entering the following command:

```
sapgenpse maintain_pk -a serverCertificatefile.crt -p PSE_Name -x PIN
```

**4. Set the SNC parameters in the IT Resource.**

You must configure the following parameters in the SAP CUA IT Resource object:

- SAPsnc\_lib
- SAPsnc\_mode
- SAPsnc\_myname
- SAPsnc\_partnername
- SAPsnc\_qop





---

## Testing the Connector

After you deploy the connector, you must test it to ensure that it functions as expected. Tests that you can run on the connector can be divided into the following categories:

- **Provisioning Testing:** This type of test involves using Oracle Identity Manager for provisioning or de-provisioning one of its users or organizations with a target resource. In other words, Oracle Identity Manager is the starting point of the connector, and the target resource is the end point.
- **Reconciliation Testing:** In this type of test, you reconcile Oracle Identity Manager with either a trusted source or a target resource. In other words, the trusted source or target resource is the starting point of the connector, and Oracle Identity Manager is the end point.

---

**Note:** In earlier releases of this guide, the connector was referred to as the *integration*.

---

This chapter contains the following sections:

- [Supported Platforms](#)
- [Running Test Cases](#)
- [Troubleshooting](#)

### Supported Platforms

The following table provides information about the environments on which this connector has been tested.

Oracle Identity Manager Release	Host Platform	Application Server	Database	SAP BASIS Version
8.5.3	Microsoft Windows 2003	JBoss 3.2.7	Oracle9i Database	4.7 and 4.6
8.5.3	Linux AS 2.1	BEA WebLogic 8.1 SP 3	Oracle9i Database	4.7 and 4.6
8.5.3	Solaris 9	IBM WebSphere 5.0.2.9	Oracle9i Database	4.7 and 4.6

## Running Test Cases

You can use the troubleshooting utility to directly use the connector for identifying the cause of problems associated with connecting to the SAP CUA server and performing basic operations on the target system.

The `SAPCUA_versionno\troubleshoot` directory contains the `troubleshoot.properties` file. The troubleshooting utility uses this file to connect to the SAP CUA server. This file contains the following information:

- **SAP connection parameters:** Server-related information.
- **User information:** Field information required to create, modify, update, and delete a user profile.
- **Reconciliation information:** The "From date" timestamp information is passed from this file. The "To date" is set to the current time.
- **CLASSPATH information:** List of files to be included in the CLASSPATH.

This file also contains commands to test the following tasks:

- Create User
- Modify User
- Delete User
- Change Password
- Lock User and Unlock User
- Reconcile user information

In the `C:\test\troubleshoot` directory (path to `troubleshoot` directory), set the following SAP server connection parameters in the `troubleshooting.properties` file:

```
sapClient=800
sapUser=xellerate
sapPassword=project
sapLanguage=EN
sapSystem=00
sapIP=172.20.70.206
sapType=CUA
SAPsnc_mode=0
SAPsnc_myname=p:CN=win2003, OU=SAP, O=ORA, C=IN
SAPsnc_qop=3
SAPsnc_partnertname=p:CN=I47, OU=SAP, O=ORA, C=IN
SAPsnc_lib=C:\\usr\\sap\\sapcrypto.dll
ChangePasswordSystem=X
MasterSystem=CUA47
```

In the `log.properties` file in the same directory, set the path for the log files in the following parameter:

```
log4j.appender.logfile.File=log_file_path
```

---

**Note:** Ensure that all the JAR files associated with this connector are included in the CLASSPATH.

---

## Creating a User

To test the connector for the creation of a user, specify the following information for a new user object in the `troubleshooting.properties` file.

```

userId=CUAKT12
password=PASSNEW
dummyPassword=ADMIN
lockStatus=UnLock
userGroup=ADMIN
lastName=doe
firstName=john
userTitle=Mr.
langComm=E
department=IT
langLogIn=N
timeZone=AUSVIC
telephone=12345678
extension=1234
Fax=12345678
email=saptestcase@sapcua.com
dateFormat=1
decimalNotation=X
function=Function
roomNo=06
floor=1st
building=LBP
code=1
commType=FAX
alias
startMenu=000
userType
roleProfile=SAP_WPS_ADMIN
roleProfileOption=Role
dummyPwd=DUMMY

```

On the command line, use the following command to create a user:

```

java -DTproperties=connector_test_directory\troubleshoot\troubleShoot.properties
-Dlog4j.configuration=file:\connector_test_directory\troubleshoot\log.properties
TroubleShootingUtility C

```

## Deleting a User

Delete an SAP CUA user as follows:

```

java -DTproperties=connector_test_directory\troubleshoot\troubleShoot.properties
-Dlog4j.configuration=file:\connector_test_directory\troubleshoot\log.properties
TroubleShootingUtility D

```

## Modifying a User

Specify the following parameters in the `troubleshooting.properties` file to modify a user:

```

changeUserId=cuakk21
fieldName=
fieldValue=jane
bapiKey=ADDRESS
bapiKeyX=ADDRESSX

```

Use the following command to modify a user:

```
java -DTproperties=connector_test_directory\troubleshoot\troubleShoot.properties
-Dlog4j.configuration=file:\connector_test_directory\troubleshoot\log.properties
TroubleShootingUtility M
```

## Testing Reconciliation

To test reconciliation with the SAP CUA connector, specify a timestamp for the From Date of the reconciliation run as shown:

```
fromDate=Apr 10, 2006 at 10:00:00 GMT+05:30
```

To test reconciliation from the timestamp specified to the current time, run the following command:

```
java -DTproperties=connector_test_directory\troubleShoot.properties
-Dlog4j.configuration=file:\connector_test_directory\troubleshoot\log.properties
TroubleShootingUtility R
```

## Troubleshooting

The following sections provide solutions to some commonly encountered problems associated with the connector:

- [Connection Errors](#)
- [Common SNC Errors](#)
- [Create User Errors](#)
- [Delete User Errors](#)
- [Modify User Errors](#)
- [Child Data Errors](#)

### Connection Errors

The following table provides solutions to common connection errors.

Problem Description	Solution
<p>Oracle Identity Manager cannot establish a connection to SAP CUA.</p> <p><b>Returned Error Message:</b> SAP Connection exception</p> <p><b>Returned Error Code:</b> INVALID_CONNECTION_ERROR</p>	<ul style="list-style-type: none"> <li>■ Ensure that the SAP CUA server is up and running.</li> <li>■ Verify that Oracle Identity Manager is running (that is, the database is running).</li> <li>■ Verify that all the adapters have been compiled.</li> <li>■ Examine the Oracle Identity Manager record (from the IT Resources form). Verify that the IP address, admin ID, and admin password are correct.</li> </ul>
<p>Target not available</p> <p><b>Returned Error Message:</b> Target Server not available</p> <p><b>Returned Error Code:</b> TARGET_UNAVAILABLE_ERROR</p>	<ul style="list-style-type: none"> <li>■ Verify that the given SAP connection values are correct.</li> <li>■ Ensure that the SAP CUA server is running</li> </ul>

Problem Description	Solution
Authentication error <b>Returned Error Message:</b> Authentication error <b>Returned Error Code:</b> AUTHENTICATION_ERROR	Verify that the given SAP connection user ID and password are correct.

## Common SNC Errors

The following table provides a solution to an SNC error.

Problem Descriptions	Solution
Trying to connect to SAP through the SNC. <b>Returned Error Message:</b> SAP Connection JCO Exception <b>Returned Error Code:</b> SNC required for this connection	Ensure that all the required information is given. The required information includes the following:  SAPsnc_mode: 1  SAPsnc_myname: p:CN=win2003, OU=SAP, O=ORA, C=IN  SAPsnc_qop: 3  SAPsnc_partnername: p:CN=I47, OU=SAP, O=ORA, C=IN  SAPsnc_lib: C:\usr\sap\sapcrypto.dll

## Create User Errors

The following table provides solutions to common Create User errors.

Problem Descriptions	Solution
Oracle Identity Manager cannot create a user. <b>Returned Error Message:</b> Require information missing <b>Returned Error Code:</b> INSUFFICIENT_INFORMATION_PROVIDED	Ensure that all the required information has been provided. The required information includes the following: <ul style="list-style-type: none"><li>■ User ID</li><li>■ User First Name</li><li>■ User Last Name</li><li>■ User Password</li><li>■ UsergroupRole</li><li>■ Profile Option</li><li>■ Role or Profile</li></ul>
Oracle Identity Manager cannot create a user. <b>Returned Error Message:</b> User already exists <b>Returned Error Code:</b> USER_ALREADY_EXIST	User with the assigned ID already exists in SAP. Assign a new ID to this user, and try again.

Problem Descriptions	Solution
Oracle Identity Manager cannot create a user. <b>Returned Error Message:</b> User creation failed <b>Returned Error Code:</b> USER_CREATION_FAILED	User may not have been created because of one of the following errors: <ul style="list-style-type: none"> <li>■ The Change Password operation fails</li> <li>■ Role/profile assignment fails</li> </ul>

## Delete User Errors

The following table provides solutions to common Delete User errors.

Problem Descriptions	Solution
Oracle Identity Manager cannot delete a user. <b>Returned Error Message:</b> Require information missing <b>Returned Error Code:</b> INSUFFICIENT_INFORMATION_PROVIDED	Ensure that all the required information has been provided. The required information is the user ID.
Oracle Identity Manager cannot delete a user. <b>Returned Error Message:</b> User does not exist in target <b>Returned Error Code:</b> USER_DOESNOT_EXIST	The specified user ID does not exist in SAP.

## Modify User Errors

The following table provides solutions to common Modify User errors.

Problem Descriptions	Solution
Oracle Identity Manager cannot update new information about a user. <b>Returned Error Message:</b> Error while updating user info <b>Returned Error Code:</b> USER_MODIFICATION_FAILED	Generic error. Refer to the log file for more details.
Oracle Identity Manager cannot update a user. <b>Returned Error Message:</b> User does not exist in target <b>Returned Error Code:</b> USER_DOESNOT_EXIST	The specified user ID does not exist in SAP.

## Child Data Errors

The following table provides solutions to common Child Data errors.

Problem Descriptions	Solution
<p>Oracle Identity Manager cannot add a user to a profile.</p> <p><b>Returned Error Message:</b></p> <p>Profile does not exist</p> <p><b>Returned Error Code:</b></p> <p>PROFILE_NOT_MEMBER_OF_TARGET_SYSTEM</p>	<p>The profile specified does not exist in SAP. Check the profile name.</p>
<p>Oracle Identity Manager cannot assign a role to a user.</p> <p><b>Returned Error Message:</b></p> <p>Role does not exist</p> <p><b>Returned Error Code:</b></p> <p>ROLE_NOT_MEMBER_OF_TARGET_SYSTEM</p>	<p>The specified role for the user in Oracle Identity Manager does not exist in SAP. Check the role name.</p>
<p>Trying to add a duplicate value to a profile or role fails.</p> <p><b>Returned Error Message:</b></p> <p>Duplicate value</p> <p><b>Returned Error Code:</b></p> <p>ROLE_ALREADY_EXISTS</p> <p>PROFILE_ALREADY_EXISTS</p>	<p>The user has already been added to the particular profile or role.</p>





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## Known Issues

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

- To ensure that the provisioning completes successfully, you must specify either the role or profile in the field provided in the process form and then specify whether it is a role or profile. This is to activate a user on the SAP CUA Master system.
- During reconciliation, due to a bug in Oracle Identity Manager release 8.2, any insertion of data into the child tables causes provisioning tasks to be triggered. This tries to put the same information back into the target system. This causes performance degradation during bulk reconciliation.
- The connector can reconcile elements present in the SAP CUA master system only.
- The first step after deploying the connector must be to perform lookup reconciliation. Else you cannot perform provision tasks.
- The connection pool implementation is not feasible because of lack of current Oracle Identity Manager architecture support.
- Creation of a user on the SAP system involves running the Create User and Change Password use cases in a sequence. This event makes three RFC calls to the SAP system. The Create User RFC and Change Password RFC functions commit the transaction explicitly at the end of the call. This commit is enforced by the SAP architecture. This architecture constraint of SAP makes transactional maintenance between Create User and Change Password infeasible.
- When a user is created, the password specified is not allocated to the user. Later, the SAP system requires the user to specify the password again, which is assigned to the user at this stage. To eliminate the occurrence of this event, when a new user is created, the user is assigned a dummy password and after user creation the Change Password event is called automatically. The password changes from the dummy password to the one entered by the user in the SAP User form in Oracle Identity Manager. This process is transparent to the end user.
- When a user is created, the password is set only for the Master system, not the Child system.
- Password validation is not done in Oracle Identity Manager because the password rule is configurable on the SAP system.



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