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Preface

This guide describes the connector that is used to integrate Oracle Identity Manager Connector with SAP User Management Engine.

Audience

This guide is intended for resource administrators and target system integration teams.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

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 Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager.

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

http://download.oracle.com/docs/cd/E14571_01/im.htm

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://download.oracle.com/docs/cd/E22999_01/index.htm
Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td><strong>monospace</strong></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that displays on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
What's New in Oracle Identity Manager Connector for SAP User Management Engine?

This chapter provides an overview of the updates made to the software and documentation for the SAP User Management Engine connector in release 11.1.1.9.0.

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

- **Software Updates**
  These include updates made to the connector software.

- **Documentation-Specific Updates**
  These include major changes made to the connector documentation. These changes are not related to software updates.

### Software Updates

The following sections discuss software updates:

- **Software Updates in Release 11.1.1.9.0**
- **Software Updates in Release 11.1.1.8.0**
- **Software Updates in Release 11.1.1.7.0**
- **Software Updates in Release 11.1.1.6.0**
- **Software Updates in Release 11.1.1.5.0**

#### Software Updates in Release 11.1.1.9.0

There are no software updates in release 11.1.1.9.0.

#### Software Updates in Release 11.1.1.8.0

The following are issues resolved in release 11.1.1.8.0:

<table>
<thead>
<tr>
<th>Bug Number</th>
<th>Issue Description</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>16506263</td>
<td>The task responses are displayed only in English even when the connector is configured for any other native language.</td>
<td>This issue has been resolved.</td>
</tr>
<tr>
<td>Bug Number</td>
<td>Issue Description</td>
<td>Resolution</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>13090423</td>
<td>If a User has two roles in the target system and you perform a reconciliation operation, both the roles reflect on Oracle Identity Manager. If you unassign the two roles from the User in the target system and perform a reconciliation operation, then both the roles are not removed from the child form.</td>
<td>This issue has been resolved.</td>
</tr>
<tr>
<td>12951484</td>
<td>If you try to stop a scheduled job when it is running in the Administrative and User Console, then the status of the scheduled job is displayed as INTERRUPT instead of STOPPED.</td>
<td>This issue has been resolved.</td>
</tr>
<tr>
<td>17748918</td>
<td>The default value of UD_SAPUME_IS_LOCK has been changed to NO instead of BLANK.</td>
<td>This issue has been resolved.</td>
</tr>
<tr>
<td>17401453</td>
<td>During User Reconciliation in SAP User Management Engine, two resource objects are created for a particular account in Oracle Identity Manager if the account id is in lowercase.</td>
<td>This issue has been resolved.</td>
</tr>
<tr>
<td>17288932</td>
<td>The &quot;Error in processing WSDL document&quot; issue occurs as there are no logs available within the SAP web dispatcher for the OIM &quot;Create User&quot; task.</td>
<td>This issue has been resolved.</td>
</tr>
</tbody>
</table>

**Software Updates in Release 11.1.1.7.0**

The following is the software update in release 11.1.1.7.0:

In this release, the connector supports new connector configuration entries in the Lookup.SAPUME.AC53.Configuration lookup definition, which can also be used to configure SSL (Secure Socket Layer) for SAP GRC 5.3.
Support for SAP BusinessObjects Access Control Versions 5.3 and 10
From this release onward, the connector supports the following new components:

■ Risk Analysis and Remediation, also known as Analyze and Manage Access Risk (AMAR)
■ Compliant User Provisioning, also known as Provision and Manage Users (PMU)


Software Updates in Release 11.1.1.6.0
There are no software updates in release 11.1.1.6.0.

Software Updates in Release 11.1.1.5.0
This is the first release of the Oracle Identity Manager Connector for SAP User Management Engine based on Identity Connector Framework (ICF). The following are the software updates in release 11.1.1.5.0:

■ Support for Identity Connector Framework
■ Support for Deployment Using Connector Server
■ Support for Multiple Data Sources
■ Support for Remote Role Assignment in Federated Portal Network
■ Support for Dependent Lookup Fields
■ Transformation and Validation of Account Data
■ Reconciliation of Deleted User Records

Support for Identity Connector Framework
The Oracle Identity Manager Connector for SAP User Management Engine is an ICF-based connector.

The Identity Connector Framework (ICF) is a component that provides basic provisioning, reconciliation, and other functions that all Oracle Identity Manager and Oracle Waveset connectors require. The ICF also uses classpath isolation, which allows the SAP User Management Engine connector to co-exist with legacy versions of the connector.

See Section 1.4, "Connector Architecture and Supported Deployment Configurations" for more information.

Support for Deployment Using Connector Server
In the earlier releases, the Enterprise Portal connector could be deployed in the machine on which Oracle Identity Manager was running. This release onward, you can deploy the SAP User Management Engine connector either locally in Oracle Identity Manager or remotely in the Connector Server.

See Section 2.2.2, "Deploying the Connector Bundle in a Connector Server" for more information.

Support for Multiple Data Sources
The SAP User Management Engine connector can be configured and used for provisioning and reconciling user-related data to and from multiple data sources such as Lightweight Directory Access Protocol (LDAP) directories, system database of the
SAP NetWeaver Application Server Java, and user management of an Application Server ABAP. In other words, this connector can be configured for performing user management operations from user management engines irrespective of the data source configuration.

**Support for Remote Role Assignment in Federated Portal Network**
Federated Portal Network (FPN) allows organizations with multiple portals, SAP and non-SAP, to share content between independent portals. In FPN, the producers hold and run the applications. The consumer manages the redirect to producer portals. In FPN configuration, the content can be shared throughout the network using Remote Role Assignment content usage mode. It enables the consumer to assign roles offered by a producer. Connector can be configured to support Remote Role Assignment in FPN configuration.

**Support for Dependent Lookup Fields**
In earlier releases, if you had multiple installations of the target system, then entries in a lookup definition were not linked with the target system installation from which the entries were copied. During a provisioning operation, you could not select lookup field values that were specific to the target system installation on which the provisioning operation was to be performed.

From this release onward, entries in lookup definitions are linked to the target system installation from which they are copied.

See Section 1.6.1, "Lookup Definitions Synchronized with the Target System" for more information.

**Transformation and Validation of Account Data**
You can configure transformation of account data that is brought into Oracle Identity Manager during reconciliation. In addition, you can configure validation of account data that is brought into or sent from Oracle Identity Manager during reconciliation and provisioning. See the following sections for more information:

- Section 4.7, "Configuring Transformation of Data During User Reconciliation"
- Section 4.6, "Configuring Validation of Data During Reconciliation and Provisioning"

**Reconciliation of Deleted User Records**
You can configure the connector for reconciliation of deleted user records. If a record is deleted on the target system, then the corresponding SAP UME resource is revoked from the OIM User.

See Section 3.4.3, "Reconciliation Scheduled Jobs" for more information about the scheduled job used for reconciling deleted user records.

**Documentation-Specific Updates**
The following sections discuss the documentation-specific updates:

- Documentation-Specific Updates in Release 11.1.1.9.0
- Documentation-Specific Updates in Release 11.1.1.8.0
- Documentation-Specific Updates in Release 11.1.1.7.0
- Documentation-Specific Updates in Release 11.1.1.6.0
- Documentation-Specific Updates in Release 11.1.1.5.0
Documentation-Specific Updates in Release 11.1.1.9.0

The following documentation-specific updates have been made in revision “10” of this guide:

- The following rows of Table 1–1, "Certified Components" have been modified:
  - The "Oracle Identity Governance" row has been updated to support 12c Release BP02 (12.2.1.3.2)
  - The "Target systems" row has been updated to include support for SAP NetWeaver 7.5
  - The "SAP Governance, Risk and Compliance Access Control (GRC AC)" row has been modified to include support for SAP NetWeaver AS ABAP 7.01 Support Pack 10 with EP RTA component GRCP00 SP 03 patch 10

- Section 1.2, "Usage Recommendation" has been modified to include which version of SAP User Management Engine must be used if you are using 12c Release BP02 and NetWeaver 7.5 SPS 00 or later.

- Section 5.1, "Known Issues" has been updated on the following issues and their respective workarounds:
  - An error is encountered while creating a user in the enterprise portal through a GRC access request.
  - Lookup data of timezone, country, and locale is not dynamic.

- Section 5.3, "Frequently Asked Questions (FAQs)" has been updated to include a question on whether the SAP UME AC connector provision attributes are mapped directly to SAP ECC system without GRC during a create user provisioning operation.

- Section 5.3, "Frequently Asked Questions (FAQs)" has been updated on why SOD violation does not work in GRC 10.1 with 7.5 NW on OIM 11.1.x.

The following documentation-specific update has been made in revision "9" of this guide:

The "Oracle Identity Manager" row of Table 1–1, "Certified Components" has been renamed as "Oracle Identity Governance or Oracle Identity Manager" and also updated for Oracle Identity Governance 12c (12.2.1.3.0) certification.

The following are documentation-specific updates in revision "8" of this guide:

- OIM interface names have been corrected throughout the guide.
- Section 2.1, "Preinstallation" has been restructured.
- Information pertaining to procedures performed on the target system has been replaced with a high-level summary in the following sections:
  - Section 2.1.2, "Creating a Target System User Account for Connector Operations"
  - Section 2.3.7, "Setting Up the Lookup.SAPUME.UM.RoleDataSource Lookup Definition"
  - Section 2.3.8, "Setting Up the Lookup.SAPUME.UM.GroupDataSource Lookup Definition"
  - Section 2.3.14.2, "Configuring Request Types and Workflows on SAP BusinessObjects AC Access Request Management"
  - Section 2.3.16, "Downloading WSDL files from SAP BusinessObjects AC"
The following are documentation-specific updates in revision "7" of the guide:

- The "Target systems", "JDK", and "SAP Governance, Risk and Compliance Access Control (GRC AC)" rows of Table 1–1, "Certified Components" have been updated.
- Information pertaining to SAP BusinessObjects Access Control 5.3 has been removed throughout the guide.
- Information pertaining to SAP BusinessObjects Access Control 10 artifacts has been added throughout the guide.
- Section 5.1, "Known Issues" has been modified to remove all bugs that are no longer issues.

**Documentation-Specific Updates in Release 11.1.1.8.0**

The following are documentation-specific updates in revision "6" of release 11.1.1.8.0:

- The "Oracle Identity Manager" row of Table 1–1, "Certified Components" has been updated.
- Information specific to Oracle Identity Manager 11g Release 2 PS3 (11.1.2.3.0) has been added to Section 1.2, "Usage Recommendation."

The following is a documentation-specific update in revision "5" of release 11.1.1.8.0:

A "Note" has been added at the beginning of Chapter 4, "Extending the Functionality of the Connector."

The following are documentation-specific updates in revision "4" of release 11.1.1.8.0:

- The "Connector Server" row has been added to Table 1–1, "Certified Components".
- In Table 1–6, "Entries in the Lookup.SAPAC10UME.UM.ProvAttrMap Lookup Definition", the following rows have been modified:
  - AC Request Id[WRITEBACK]
  - UniqueID
- Section 2.3.18, "Synchronizing the SAPUME Process Form and SAP AC UME Process Form with Target System Field Lengths" has been added.
- Section 2.4.3, "Performing the Postupgrade Steps" has been added.
- The connector version has been modified from "11.1.1.7.0" to "11.1.1.8.0" in Step 5.a of Section 2.4, "Upgrading the Connector."
- A note has been added to Step 3.d of Section 2.1.2.1, "Creating a Target System User Account for Connector Operations."

**Documentation-Specific Updates in Release 11.1.1.7.0**

The following is a documentation-specific update in revision "3" of release 11.1.1.7.0:

Step 3 of Section 2.1.2.1, "Creating a Target System User Account for Connector Operations" has been modified.

The following are documentation-specific updates in revision "2" of release 11.1.1.7.0:

- The "Oracle Identity Manager" row in Table 1–1, "Certified Components" has been modified.
- A note has been added in the "xml/SAPUME-Datasets.xml" row of Table 2–1, "Files and Directories On the Installation Media".
The following sections have been added:
  - Section 2.3.1, "Configuring Oracle Identity Manager 11.1.2 or Later"
  - Section 2.3.2, "Enabling the Reset Password Option in Oracle Identity Manager 11.1.2.1.0 or Later"
  - Section 2.3.17, "Localizing Field Labels in UI Forms"

Instructions specific to Oracle Identity Manager release 11.1.2.x have been added in the following sections:
  - Section 2.2.1, "Installing the Connector in Oracle Identity Manager"
  - Section 2.3.12, "Configuring the IT Resource for the Target System"
  - Section 2.3.13, "Creating the IT Resource for the Connector Server"
  - Section 3.5, "Configuring Scheduled Jobs"

**Documentation-Specific Updates in Release 11.1.1.6.0**
There are no documentation-specific updates in this release.

**Documentation-Specific Updates in Release 11.1.1.5.0**
There are no documentation-specific updates in this release.
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 external, identity-aware applications. This guide discusses the connector that enables you to use SAP User Management Engine as a managed (target) resource of Oracle Identity Manager.

**Note:** At some places in this guide, SAP User Management Engine has been referred to as the target system.

In the account management (target resource) mode of the connector, data about users created or modified directly on the target system can be reconciled into Oracle Identity Manager. This data is used to provision (allocate) new resources or update resources already assigned to OIM Users. In addition, you can use Oracle Identity Manager to provision or update SAP User Management Engine resources assigned to OIM Users. These provisioning operations performed on Oracle Identity Manager translate into the creation of or updates to target system accounts.

This chapter contains the following sections:

- **Section 1.1, “Certified Components”**
- **Section 1.2, “Usage Recommendation”**
- **Section 1.3, “Certified Languages”**
- **Section 1.4, “Connector Architecture and Supported Deployment Configurations”**
- **Section 1.5, “Features of the Connector”**
- **Section 1.6, “Lookup Definitions Used During Connector Operations”**
- **Section 1.7, “Connector Objects Used During Reconciliation”**
- **Section 1.8, “Connector Objects Used During Provisioning”**
- **Section 1.9, “Roadmap for Deploying and Using the Connector”**

### 1.1 Certified Components

Table 1–1 lists certified components for the connector.
## Table 1–1 Certified Components

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Oracle Identity Governance or Oracle Identity Manager | You can use one of the following releases of Oracle Identity Governance or Oracle Identity Manager:  
  - Oracle Identity Governance 12c Release BP02 (12.2.1.3.2)  
  - Oracle Identity Manager 11g Release 1 PS1 BP07 (11.1.1.5.7) with patch 16627402 and any later BP in this release track  
  - Oracle Identity Manager 11g Release 2 BP05 (11.1.2.0.5) with patch 16627415 and any later BP in this release track  
  - Oracle Identity Manager 11g Release 2 PS1 (11.1.2.1.0) and any later BP in this release track  
  - Oracle Identity Manager 11g Release 2 PS2 (11.1.2.2.0) and any later BP in this release track  
  - Oracle Identity Manager 11g Release 2 PS3 (11.1.2.3.0) and any later BP in this release track |

| Target systems | The target system can be one of the following:  
  - SAP User Management Engine running on SAP NetWeaver 04 SPS 14 or later  
  - SAP User Management Engine running on SAP NetWeaver 7.0 SPS 05 or later  
  - SAP User Management Engine running on SAP NetWeaver 7.4 SPS 08 or later  
  - SAP User Management Engine running on SAP NetWeaver 7.5 SPS 00 or later  

**Note:** If you install an SAP application in Java stack, such as SAP Enterprise Portal, then the connector can connect to SAP User Management Engine (UME) of the application.  
If you install an SAP application, such as SAP BW or SAP SRM, in ABAP stack, then you must configure SAP Enterprise Portal against SAP UME of the application. See the respective target system documentation for information about this configuration.  
If you install an SAP application, such as SAP PI, in dual stack (ABAP and Java), then the connector can connect to SAP UME of the application. However, the limitations of the ABAP data source are applicable. |

| Connector Server | 11.1.2.1.0 |
| Connector Server JDK | JDK 1.6 update 24 or later and JDK 1.7 or later, or JRockit 1.6 or later |
| SAP Governance, Risk and Compliance Access Control (GRC AC) | If you want to configure and use the Access Risk Analysis or Access Request Management feature of this target system, then install the following:  
  - SAP BusinessObjects Access Control 10 on SAP NetWeaver AS ABAP 7.02 Support Pack 7  
  - Install the GRCFND_A SP 10 component  
  - SAP GRC AC 10.1 on SAP NetWeaver AS ABAP 7.40 Support Pack 8  
  - Install the GRCFND_A SP 10 component  
  - To use the connector with Java, ABAP, or LDAP data source, use SAP NetWeaver AS ABAP 7.01 Support Pack 10 with EP RTA component GRCPSEP SP 03 patch 2 (on deploying GRCAC107303P_2-20009496.SCA)  
  - To use the connector with Java, ABAP, or LDAP data source, use SAP NetWeaver AS ABAP 7.01 Support Pack 10 with EP RTA component GRCPSEP SP 10 patch 2 (on deploying GRCAC1010_4-20007574.SCA) |
| OpenSPML Toolkit | OpenSPML Toolkit version 0.6 (included with the connector bundle). |
1.2 Usage Recommendation

Depending on the Oracle Identity Manager version that you are using, you must deploy and use one of the following connectors:

Note:
In Oracle Identity Manager, you can install and configure both SAP User Management and SAP User Management Engine connectors.
You can configure the connectors with SAP GRC AC target system to use either Access Risk Analysis or Access Request Management feature.

- If you are using an Oracle Identity Manager release 9.1.0.2 or later and earlier than Oracle Identity Manager 11g Release 1 PS1 BP07 (11.1.1.5.7), then you must use the 9.1.0 version of this connector.
- If you are using Oracle Identity Manager 11g Release 1 PS1 BP07 (11.1.1.5.7) and any later BP in this release track (such as Oracle Identity Manager 11g Release 1 PS1 BP08 (11.1.1.5.8) or later, or Oracle Identity Manager 11g Release 2 BP05 (11.1.2.0.5)), or Oracle Identity Manager 11g Release 2 PS3 (11.1.2.3.0), then use the latest 11.1.1.x version of this connector.
- If you are using Oracle Identity Governance 12c Release BP02 (12.2.1.3.2), then use the latest SAP User Management Engine 11.1.1.9.2 (one-off p28550151_111190_Generic.zip) version of this connector. However, if you are using SAP NetWeaver 7.5 SPS 00 or later and SAP GRC AC 10.1, then you must use the SAP User Management Engine 11.1.1.9.2 (one-off p28550151_111190_Generic.zip) version of this connector.

1.3 Certified Languages

The connector supports the following languages:

- Arabic
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- Dutch
- English
- Finnish
- French
- German
- Greek
- Hebrew
- Hungarian
- Italian
1.4 Connector Architecture and Supported Deployment Configurations

The connector sets up Oracle Identity Manager as the front end for sending account creation or modification requests to applications that use the data source linked with SAP User Management Engine.

Account data added or modified through provisioning operations performed directly on the data source can be reconciled into Oracle Identity Manager through SAP User Management Engine.

Figure 1–1 shows the connector integrating SAP User Management Engine with Oracle Identity Manager.

Figure 1–1 Architecture of the Connector

As shown in the figure, SAP User Management Engine is configured as the management tool for user data stored on a data source, which is either the ABAP module, AS Java database, or an LDAP-based solution. User data changes made through the SAP User Management Engine UI are reflected on applications that use the data source or on the UI of the LDAP-based solution.
By deploying the connector, you configure SAP User Management Engine as a target resource of Oracle Identity Manager.

Provisioning requests sent from Oracle Identity Manager are routed through the SPML service to the application or system that uses the data source linked with SAP User Management Engine. User data changes resulting from the provisioning requests can be viewed through the SAP User Management Engine UI. Reconciliation is performed directly from SAP User Management Engine.

This connector can be configured to run in the account management mode. Account management is also known as target resource management. In the account management mode, the target system is used as a target resource. This mode of the connector enables the following operations:

- **Provisioning**

  Provisioning involves creating or updating users on the target system through Oracle Identity Manager. When you allocate (or provision) an SAP User Management Engine resource to an OIM User, the operation results in the creation of an account on SAP UME for that user. In the Oracle Identity Manager context, the term *provisioning* is also used to mean updates made to the target system account through Oracle Identity Manager.

  During provisioning, adapters carry provisioning data submitted through the process form to the target system. The SPML service in the SAP User Management Engine accepts provisioning data from the adapters, performs the necessary provisioning operation, and then returns the response to adapters in Oracle Identity Manager.

- **Reconciliation**

  The scheduled task provided by the connector acts as the SPML client to send SPML requests to the SPML service in this application server.

  During reconciliation, a scheduled task establishes a connection with the SPML service. Reconciliation criteria are sent through SPML requests to this SPML service. The SPML service processes the requests and returns SPML responses containing user records that match the reconciliation criteria. The scheduled task brings these records to Oracle Identity Manager.

  Each record fetched from the target system is compared with SAP User Management Engine resources that are already provisioned to OIM Users. If a match is found, then the update made to the record is copied to the SAP User Management Engine resource in Oracle Identity Manager. If no match is found, then the user ID of the record is compared with the user ID of each OIM User. If a match is found, then data in the target system record is used to provision an SAP User Management Engine resource to the OIM User.

Besides enabling direct integration with the target system, the connector can also be used to act as an interface with the Access Risk Analysis and Access Request Management modules of SAP BusinessObjects AC. The target system (SAP R/3 or SAP CUA) and these two modules of SAP BusinessObjects AC together provide various deployment configurations. The following sections provide information about the supported deployment configurations of the connector:

- **Section 1.4.1, "User Management with Access Request Management"**
- **Section 1.4.2, "Audit Trail Details in Connector Logs"**
- **Section 1.4.3, "User Management with SoD"**
- **Section 1.4.4, "User Management with Both SoD and Access Request Management"**
1.4.1 User Management with Access Request Management

Access Request Management is a module in the SAP BusinessObjects AC suite. In an SAP environment, you can set up Access Request Management as the front end for receiving account creation and modification provisioning requests. In Access Request Management, workflows for processing these requests can be configured and users designated as approvers act upon these requests.

**Note:** In this guide, the phrase configuring Access Request Management has been used to mean configuring the integration between Oracle Identity Manager and SAP BusinessObjects AC Access Request Management.

In your operating environment, the Access Request Management module might be directly linked with the Access Risk Analysis module. In other words, provisioning requests are first sent from Access Request Management to Access Risk Analysis for SoD validation. Only requests that clear the validation process are implemented on the target system. In this scenario, it is recommended that you do not configure the SoD feature of the connector.

Reconciliation does not involve SAP BusinessObjects AC Access Request Management. Scheduled tasks on Oracle Identity Manager fetch data from the target system to Oracle Identity Manager.

Figure 1–2 shows data flow in this mode of the connector.

**Figure 1–2  Connector Integrating SAP BusinessObjects AC Access Request Management with Oracle Identity Manager and the Target System**

The following is the detailed sequence of steps performed during a provisioning operation:

1. The provisioning operation is initiated through direct provisioning, request-based provisioning, or an access policy change.

2. A SPML Create User request is run on the target system to determine one of the following:
   - For a Create User operation, if the SPML Create User request determines that the user exists on the target system, then an error message is displayed. If the
user does not exist, then a request is created out of the provisioning data and sent to SAP BusinessObjects AC Access Request Management.

- For a Modify User operation, if the SPML Create User request determines that the user does not exist on the target system, then an error message is displayed. If the user exists, then a request is created out of the provisioning data and sent to SAP BusinessObjects AC Access Request Management.

The connector sends requests and receives responses through the following Web services of SAP BusinessObjects AC:

- GRAC_USER_ACCESS_WS: This Web service is used to submit requests.
- GRAC_REQUEST_STATUS_WS: This Web service is used to fetch request statuses.
- GRAC_AUDIT_LOGS_WS: This Web service is used to check if there are error messages in the SAP BusinessObjects AC Access Request Management logs.

The process form holds fields for both basic user management and Access Request Management. However, for a Create User operation, only the Access Request Management fields (attributes) on the process form are used. Mappings for these fields are stored in the Lookup.SAPAC10UME.UM.ProvAttrMap lookup definitions. If you specify values for any attribute that is not present in these lookup definitions, then the connector ignores those attributes during the Create User operation.

**Note:** SAP BusinessObjects AC Access Request Management does not process passwords. Therefore, any value entered in the Password field is ignored during Create User provisioning operations.

See Section 3.6, "Guidelines on Performing Provisioning" for information about setting passwords when you configure Access Request Management.

For a Modify User operation, a request is created only for attributes whose mappings are present in these lookup definitions. If you specify values for attributes that are not present in these lookup definitions, then the connector directly sends them to the target system.

**Note:** In a Modify User operation, you can specify values for attributes that are mapped with SAP BusinessObjects AC Access Request Management and attributes that are directly updated on the target system.

3. When the request is created on SAP BusinessObjects AC Access Request Management, data sent back by Access Request Management is stored in the following read-only fields in Oracle Identity Manager:

- AC Request ID: This field holds the request ID that is generated on SAP BusinessObjects AC Access Request Management. The AC Request ID does not change during the lifetime of the request.
- AC Request Status: This field holds the status of the request on SAP BusinessObjects AC Access Request Management. You configure and run the SAP AC Request Status scheduled job to fetch the latest status of the request from the target system.
AC Request Type: This field holds the type of request, such as New Account, Change Account, Delete Account, New, and Change.

4. The request is passed through the workflow defined in SAP BusinessObjects AC Access Request Management. The outcome is one of the following:

- If Access Request Management clears the request, then the outcome is the creation or modification of a user's account on the target system (SAP UME). The status of the request is set to OK. Then, a message is recorded in the Oracle Identity Manager logs.

- If Access Request Management rejects the provisioning request, then the status of the request is set to Failed. Then, a message is recorded in the Oracle Identity Manager logs.

- If an error occurs during communication between Access Request Management and the target system, then the request remains in the Open state. A message stating that the operation has failed is recorded in the audit log associated with the request. An error message is displayed on the console.

1.4.2 Audit Trail Details in Connector Logs

The audit trail details can be captured in the connector logs when Access Request Management is configured.

Here are a few samples of Audit trail in the connector logs:

- **Create User**

  logAuditTrial : Audit Trial:
  (Result=[Createdate:20130409,Priority:HIGH,Requestedby:johtndoe (JOHNDOE),Requestnumber:9000001341,Status:Decision pending,Submittedby:johtndoe (JOHNDOE),auditlogData:{,ID:000C290FC2851ED2A899DA29DAA1B1E2,Description:Display String:Request 9000001341 of type New Account Submitted by johndoe (JOHNDOE) for JK1APRIL9 JK1APRIL9 (JK1APRIL9) with Priority HIGH],Status=0_Data Populated successfully)

- **Request Status Schedule Job**

  logAuditTrial : Audit Trial:
  (Result=[Createdate:20130409,Priority:HIGH,Requestedby:johtndoe (JOHNDOE),Requestnumber:9000001341,Status:Approved,Submittedby:johtndoe (JOHNDOE),auditlogData:{,ID:000C290FC2851ED2A899DA29DAA1B1E2,Description:Display String:Request 9000001341 of type New Account Submitted by johndoe (JOHNDOE) for JK1APRIL9 JK1APRIL9 (JK1APRIL9) with Priority HIGH, ID:000C290FC2851ED2A899DAF9961C91E2,Description:Display String:Request is pending for approval at path GRAC_DEFAULT_PATH stage GRAC_MANAGER,ID:000C290FC2851ED2A89A1400B60631E2,Description:Display String:Approved by JOHNDOE at Path GRAC_DEFAULT_PATH and Stage GRAC_Manager,ID:000C290FC2851ED2A89A150972D091E2,Description:Display String:Auto provisioning activity at end of request at Path GRAC_DEFAULT_PATH and Stage GRAC_MANAGER,ID:000C290FC2851ED2A89A150972D111E2,Description:Display String:Approval path processing is finished, end of path reached,ID:000C290FC2851ED2A89A150972D151E2,Description:Display String:Request is closed)],Status=0_Data Populated successfully)

- **Modify User**

  logAuditTrial : Audit Trial:
  (Result=[Createdate:20130409,Priority:HIGH,Requestedby:johtndoe (JOHNDOE),Requestnumber:9000001342,Status:Decision pending,Submittedby:johtndoe (JOHNDOE),auditlogData:{,ID:000C290FC2851ED2A89A3ED3B1D7B1E2,Description:Display String:Request 9000001342 of type Change Account Submitted by johndoe (JOHNDOE) for JK1APRIL9 JK1APRIL9 (JK1APRIL9) with Priority HIGH],Status=0_Data Populated successfully)
1.4.3 User Management with SoD

If the Access Risk Analysis module of SAP BusinessObjects AC is configured to implement segregation of duties (SoD) in your SAP operating environment, the connector can be used as the interface between Oracle Identity Manager and the SoD module. You can configure the connector to first process the provisioning requests sent from Oracle Identity Manager through SoD validation of SAP BusinessObjects AC Access Risk Analysis. Provisioning requests that clear this validation process are then propagated from Oracle Identity Manager to the target system.

Reconciliation does not involve SAP BusinessObjects AC Access Risk Analysis. Account data added or modified through provisioning operations performed directly on the target system can be reconciled into Oracle Identity Manager.

In this guide, the phrase configuring SoD is used to mean configuring the integration between Oracle Identity Manager and SAP BusinessObjects AC Access Risk Analysis.

Figure 1–3 shows data flow in this mode of the connector.

Figure 1–3 Data Flow During the SoD Validation Process
The steps performed during a provisioning operation can be summarized as follows:

See Also: Using Segregation of Duties (SoD) in Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the provisioning process flow

1. The provisioning operation is initiated through direct provisioning, request-based provisioning, or an access policy change.
2. The resource approval workflow of Oracle Identity Manager sends this request to the SoD engine (SAP BusinessObjects AC Access Risk Analysis).
3. The SoD engine uses predefined rules to check if the entitlement assignment would lead to SoD violations. The outcome of this check is then sent back to Oracle Identity Manager.
4. If the request fails SoD validation, then the approval workflow can be configured to take remediation steps. If the request passes SoD validation and if the approver in Oracle Identity Manager approves the request, then the resource provisioning workflow is initiated.
5. This resource provisioning workflow can be configured to perform the SoD validation again. This is to ensure SoD compliance of the entitlement assignment immediately before the entitlement assignment is provisioned to the target system. You can also configure the SoD validation check in the resource provisioning workflow to be bypassed if this validation has been passed in the resource approval workflow.
6. The resource provisioning workflow performs the required change on the target system, and the outcome of the operation is sent back to and stored in Oracle Identity Manager.

1.4.4 User Management with Both SoD and Access Request Management

If both SAP BusinessObjects AC Access Risk Analysis and Access Request Management are configured in your SAP operating environment, then configure the connector features for both SoD and Access Request Management at the same time only if the Access Risk Analysis and Access Request Management modules are discretely configured (that is, not linked) modules in your operating environment.

Note: If SAP BusinessObjects AC Access Request Management is configured to send provisioning requests to SAP BusinessObjects AC Access Risk Analysis for SoD validation, then you must not configure the SoD feature of the connector.

1.4.5 Guidelines on Using a Deployment Configuration

When you integrate Oracle Identity Manager with your SAP operating environment, you might have one of the following requirements in mind:

- Use Oracle Identity Manager as the provisioning source for account management on SAP resources.
- Leverage workflows and access policies configured in SAP BusinessObjects AC Access Request Management, with Oracle Identity Manager as the provisioning source for account management on SAP resources.
Use SAP BusinessObjects AC Access Risk Analysis for SoD enforcement and SAP BusinessObjects AC Access Request Management for user approval of provisioning requests sent through Oracle Identity Manager. Overall account management on SAP resources is performed through Oracle Identity Manager.

The following sections describe guidelines on the supported deployment configurations:

---

**Note:** There are no special guidelines for the Basic User Management configuration and the User Management Engine with SoD configuration.

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**User Management Engine with SoD and Access Request Management**

The following are deployment guidelines that you must apply for a scenario in which SAP BusinessObjects AC Access Risk Analysis and SAP BusinessObjects AC Access Request Management are enabled and discretely configured modules:

- Configure both SoD and Access Request Management features of the connector.
- On SAP BusinessObjects AC Access Request Management, configure the no-stage approval for account creation. In other words, account creation requests must be auto-approved on Access Request Management.

If a role or profile is provisioned on Oracle Identity Manager but rejected on SAP BusinessObjects AC Access Request Management, then the role or profile is revoked from Oracle Identity Manager at the end of the next user reconciliation run. Therefore, you can have approval workflows defined for role provisioning requests on SAP BusinessObjects AC Access Request Management.

**Summary of the account management process:**

1. Data from a provisioning operation on Oracle Identity Manager is first sent to the SAP BusinessObjects AC Access Risk Analysis module for SoD validation.
2. After the SoD validation checks are cleared, the provisioning request is sent to SAP BusinessObjects AC Access Request Management.
3. After the SAP BusinessObjects AC Access Request Management workflow clears the request, the provisioning request is implemented on the target system.
4. Scheduled tasks run from Oracle Identity Manager reconcile the outcome of the operation from the target system into Oracle Identity Manager.

**User Management with Access Request Management**

The following are deployment guidelines that you must apply for a scenario in which SAP BusinessObjects AC Access Request Management is configured and enabled in your SAP operating environment:

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**Note:** SAP BusinessObjects AC Access Risk Analysis is either configured as a linked module of SAP BusinessObjects AC Access Request Management or it is not used at all.

---

- On SAP BusinessObjects AC Access Request Management, configure the no-stage approval for account creation. In other words, account creation requests must be auto-approved on Access Request Management.

The scenario described earlier in this section explains this guideline.
Configure the Access Request Management feature of the connector.

Do not configure the SoD feature of the connector.

Summary of the account management process:

1. Data from a provisioning operation on Oracle Identity Manager is sent to SAP BusinessObjects AC Access Request Management.

2. The workflow defined in SAP BusinessObjects AC Access Request Management sends the request to the SAP BusinessObjects AC Access Risk Analysis module for SoD validation.

3. After the SoD validation checks are cleared, the provisioning request is implemented on the target system.

4. Scheduled tasks run from Oracle Identity Manager reconcile the outcome of the operation from the target system into Oracle Identity Manager.

1.4.6 Considerations to Be Addressed When You Enable Access Request Management

Keep in mind the following considerations when you enable the Access Request Management feature of the connector:

- Multiple requests are generated from Oracle Identity Manager in response to some provisioning operations. For example, if you assign multiple roles to a user in a particular provisioning operation, then one request is created and sent to Access Request Management for each role.

- For a particular account, Oracle Identity Manager keeps track of the latest request only. This means, for example, if more than one attribute of an account has been modified in separate provisioning operations, then Oracle Identity Manager keeps track of data related to the last operation only.

- A Modify User operation can involve changes to multiple process form fields or child form fields. For each field that is modified, one request is created and sent to SAP BusinessObjects AC Access Request Management. Only information about the last request sent to Access Request Management is stored in Oracle Identity Manager.

- Only parent or child form requests can be submitted in a single operation. You cannot submit both parent and child form requests at the same time.

1.5 Features of the Connector

The following are features of the connector:

- Section 1.5.1, "Routing of Provisioning Requests Through SAP BusinessObjects AC Access Request Management"

- Section 1.5.2, "SoD Validation of Entitlement Requests"

- Section 1.5.3, "Full Reconciliation"

- Section 1.5.4, "Limited (Filtered) Reconciliation"

- Section 1.5.5, "Enabling and Disabling Accounts"

- Section 1.5.6, "Support for Multiple Data Sources"

- Section 1.5.7, "Support for Remote Role Assignment in Federated Portal Network"

- Section 1.5.8, "Transformation and Validation of Account Data"
1.5.1 Routing of Provisioning Requests Through SAP BusinessObjects AC Access Request Management

You can configure the connector to work with SAP BusinessObjects AC Access Request Management. See Section 1.4.1, “User Management with Access Request Management” for detailed information about this feature.

1.5.2 SoD Validation of Entitlement Requests

The connector supports the SoD feature introduced in Oracle Identity Manager release 9.1.0.2. The following are the focal points of this software update:

- The SoD Invocation Library (SIL) is bundled with Oracle Identity Manager. The SIL acts as a pluggable integration interface with any SoD engine.
- The connector can be configured to work with SAP BusinessObjects AC as the SoD engine. To enable this, changes have been made in the approval and provisioning workflows of the connector.

Note: The default approval workflow and associated object form are configured for the SoD validation capabilities of SAP BusinessObjects AC. You can use them to develop your own approval workflows and object forms.

In Oracle Identity Manager release 11.1.1, object forms have been replaced by request datasets. A request dataset is an XML file that specifies information to be submitted by the requester during a provisioning operation. Predefined request datasets are shipped with this connector. The default approval workflow and associated request dataset are configured for the SoD validation capabilities of SAP BusinessObjects AC. You can use them to develop your own approval workflows and request datasets. See Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for more information about request datasets.

The SoD engine processes role entitlement requests that are sent through the connector. This preventive simulation approach helps identify and correct potentially conflicting assignment of entitlements to a user, before the requested entitlements are granted to users.

See Also:

Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the SoD feature

Section 2.3.15, “Configuring SoD” in this guide
1.5.3 Full Reconciliation

**Note:** The SPML UME API does not return records for which the Last Modified Date value is greater than a specified date. Therefore, the connector cannot support incremental reconciliation. This point is also mentioned in Section 5.2, "Connector Limitations Related to Features of the Target System."

In full reconciliation, all records are fetched from the target system to Oracle Identity Manager. During reconciliation, an SPML request is sent to the target system to fetch user accounts with user IDs that start with valid characters allowed in SAP. See the logonNameInitialSubstring entry in the Table 2–4 for a list of all valid characters.

During full reconciliation, a single reconciliation event is generated for each target system account.

1.5.4 Limited (Filtered) Reconciliation

To limit or filter the records that are fetched into Oracle Identity Manager during a reconciliation run, you can specify the subset of added or modified target system records that must be reconciled.

See Section 3.4.2, "Limited Reconciliation" for more information.

1.5.5 Enabling and Disabling Accounts

Valid From and Valid Through are two user attributes on the target system. For a particular user in SAP, if the Valid Through date is less than the current date, then the account is in the Disabled state. Otherwise, the account is in the Enabled state. The same behavior is duplicated in Oracle Identity Manager through reconciliation. In addition, you can set the value of the Valid Through date to a current date or a date in the past through a provisioning operation.

**Note:** The Enabled or Disabled state of an account is not related to the Locked or Unlocked status of the account.

1.5.6 Support for Multiple Data Sources

The SAP User Management Engine connector can be configured and used for provisioning and reconciling user-related data to and from multiple data sources such as Lightweight Directory Access Protocol (LDAP) directories, system database of the SAP NetWeaver Application Server Java, and user management of an Application Server ABAP. In other words, this connector can be configured for performing user management operations from user management engines irrespective of the data source configuration.

1.5.7 Support for Remote Role Assignment in Federated Portal Network

Federate Portal Network (FPN) allows organizations with multiple portals, SAP and non-SAP, to share content between independent portals. In FPN, the producers hold and run the applications. The consumer manages the redirect to producer portals. In FPN configuration, the content can be shared throughout the network using Remote Role Assignment content usage mode. It enables the consumer to assign roles offered
by a producer. The SAP User Management Engine connector can be configured to support Remote Role Assignment in FPN configuration.

1.5.8 Transformation and Validation of Account Data

You can configure validation of account data that is brought into or sent from Oracle Identity Manager during reconciliation and provisioning. In addition, you can configure transformation of account data that is brought into Oracle Identity Manager during reconciliation. The following sections provide more information:

- Section 4.6, "Configuring Validation of Data During Reconciliation and Provisioning"
- Section 4.7, "Configuring Transformation of Data During User Reconciliation"

1.5.9 Specifying Accounts to Be Excluded from Reconciliation and Provisioning Operations

You can specify a list of accounts that must be excluded from all reconciliation and provisioning operations. Accounts whose user IDs you specify in the exclusion list are not affected by reconciliation and provisioning operations.

Section 1.6.2.18, "Lookup Definitions for Exclusion Lists" describes the lookup definitions where you specify the user IDs to be excluded during reconciliation and provisioning operations.

Section 2.3.9, "Setting Up the Lookup Definitions for Exclusion Lists" describes the procedure to add entries in these lookup definitions.

1.5.10 Support for Bulk Update of Attributes

The connector supports the bulk update of attributes. That is, the connector allows you to update multiple attributes in one operation. With earlier connectors, you could update only one attribute at a time. However, if you specify an invalid value for any of the attributes, none of the attributes are updated. The entire update operation is unsuccessful, and an error is returned. You must then correct any errors in the attribute values and repeat the bulk update operation.

1.6 Lookup Definitions Used During Connector Operations

Lookup definitions used during connector operations can be categorized as follows:

- Section 1.6.1, "Lookup Definitions Synchronized with the Target System"
- Section 1.6.2, "Preconfigured Lookup Definitions"
- Section 1.6.3, "Preconfigured Lookup Definitions for SAP BusinessObjects AC 10"

1.6.1 Lookup Definitions Synchronized with the Target System

During a provisioning operation, you use a lookup field on the process form to specify a single value from a set of values. For example, you use the Role lookup field to select a role from the list of roles defined on the target system. When you deploy the connector, lookup definitions corresponding to the lookup fields on the target system are automatically created in Oracle Identity Manager. Lookup field synchronization involves copying additions or changes made to the target system lookup fields into the lookup definitions in Oracle Identity Manager.
The following lookup definitions are populated with values fetched from the target system by the scheduled jobs for lookup field synchronization:

- Lookup.SAPUME.UM.Group
- Lookup.SAPUME.UM.Role

The SAP UME Group Lookup Reconciliation or SAP UME Role Lookup Reconciliation scheduled jobs are used to synchronize values of these lookup definitions with the target system. Section 3.2, “Scheduled Job for Lookup Field Synchronization” provides more information about these scheduled jobs.

After lookup definition synchronization, data is stored in the following format:

- **Code Key format:** \textit{IT\_RESOURCE\_KEY}~\textit{LOOKUP\_FIELD\_ID}

  In this format:
  - \textit{IT\_RESOURCE\_KEY} is the numeric code assigned to the IT resource in Oracle Identity Manager.
  - \textit{LOOKUP\_FIELD\_ID} is the target system code assigned to the lookup field entry, which is in the following format:
    
    \textit{OBJ\_CLASS\_NAME.DATASOURCE\_NAME.AUTO\_GEN\_VALUE}

  In this format:
  * \textit{OBJ\_CLASS\_NAME} is the name of the object class. For groups, the object class name is GRUP. Similarly, the object class name for roles is ROLE.
  * \textit{DATASOURCE\_NAME} is name of the data source on the target system from which values are being fetched.
  * \textit{AUTO\_GEN\_VALUE} is the auto generated value.

  Sample value: 1~ROLE.UME_ROLE_PERSISTENCE.un:SAP_SLD_CONFIGURATOR

- **Decode format:** \textit{IT\_RESOURCE\_NAME}~\textit{LOOKUP\_FIELD\_ENTRY}

  In this format:
  - \textit{IT\_RESOURCE\_NAME} is the name of the IT resource in Oracle Identity Manager.
  - \textit{LOOKUP\_FIELD\_ENTRY} is the value or description of the lookup field entry on the target system.

  Sample value: SAPUME IT Resource~Configurator role

While performing a provisioning operation on the Oracle Identity Self Service, you select the IT resource for the target system on which you want to perform the operation. When you perform this action, the lookup definitions on the page are automatically populated with values corresponding to the IT resource (target system installation) that you select.

During lookup field synchronization, new entries are appended to the existing set of entries in the lookup definitions. Because the IT resource key is part of each entry created in each lookup definition, only lookup field entries that are specific to the IT resource you select during a provisioning operation are displayed.
1.6.2 Preconfigured Lookup Definitions

This section discusses the other lookup definitions that are created in Oracle Identity Manager when you deploy the connector. These lookup definitions are either prepopulated with values or values must be manually entered in them after the connector is deployed. The other lookup definitions are as follows:

- Section 1.6.2.1, "Lookup.SAPUME.Configuration"
- Section 1.6.2.2, "Lookup.SAPUME.UM.Configuration"
- Section 1.6.2.3, "Lookup.SAPUME.UM.ProvAttrMap"
- Section 1.6.2.4, "Lookup.SAPUME.UM.ReconAttrMap"
- Section 1.6.2.5, "Lookup.SAPUME.UM.ReconValidation"
- Section 1.6.2.6, "Lookup.SAPUME.UM.ReconTransformation"
- Section 1.6.2.7, "Lookup.SAPUME.UM.ProvValidation"
- Section 1.6.2.8, "Lookup.SAPUME.UM.SecurityPolicy"
- Section 1.6.2.9, "Lookup.SAPUME.UM.RoleChildformMappings"
- Section 1.6.2.10, "Lookup.SAPUME.UM.RoleDatasource"
- Section 1.6.2.11, "Lookup.SAPUME.UM.GroupDatasource"
- Section 1.6.2.12, "Lookup.SAPUME.UM.TimeZone"
- Section 1.6.2.13, "Lookup.SAPUME.UM.Lock"
- Section 1.6.2.14, "Lookup.SAPUME.UM.Locale"
- Section 1.6.2.15, "Lookup.SAPUME.UM.Country"
- Section 1.6.2.16, "Lookup.SAPUME.UM.Group"
- Section 1.6.2.17, "Lookup.SAPUME.UM.Role"
- Section 1.6.2.18, "Lookup Definitions for Exclusion Lists"

1.6.2.1 Lookup.SAPUME.Configuration

The Lookup.SAPUME.Configuration lookup definition holds connector configuration entries that are used during reconciliation and provisioning operations.

Table 1–2 lists the default entries in this lookup definition.

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundle Name</td>
<td>org.identityconnectors.sapum e</td>
<td>This entry holds the name of the connector bundle package. Do not modify this entry.</td>
</tr>
<tr>
<td>Bundle Version</td>
<td>1.0.11190</td>
<td>This entry holds the version of the connector bundle class. Do not modify this entry.</td>
</tr>
<tr>
<td>Connector Name</td>
<td>org.identityconnectors.sapume .SAPUMEConnector</td>
<td>This entry holds the name of the connector class. Do not modify this entry.</td>
</tr>
<tr>
<td>entitlementRiskAnalysis</td>
<td>None</td>
<td>This entry holds the WSDL URL for the Entitlement Risk Analysis web service.</td>
</tr>
<tr>
<td>AccessURL</td>
<td>oracle.iam.grc.sod.scomp.impl .grcsap.util.webservice .sap.ac10.RiskAnalysisWit houtNo</td>
<td>Web service client to perform risk analysis without request number</td>
</tr>
</tbody>
</table>

Table 1–2 Entries in the Lookup.SAPUME.Configuration Lookup Definition
As discussed earlier, the Lookup.SAPUME.UM.Configuration lookup definition holds configuration entries that are specific to the user object type. This lookup definition is used during user management operations.

Table 1–3 lists the default entries in this lookup definition.

### Table 1–3 Entries in the Lookup.SAPUME.UM.Configuration Lookup Definition

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning Attribute Map</td>
<td>Lookup.SAPUME.UM.ProvAttrMap</td>
<td>This entry holds the name of the lookup definition that maps process form fields and target system attributes. See Section 1.6.2.3, &quot;Lookup.SAPUME.UM.ProvAttrMap&quot; for more information about this lookup definition.</td>
</tr>
<tr>
<td>Recon Attribute Map</td>
<td>Lookup.SAPUME.UM.ReconAttrMap</td>
<td>This entry holds the name of the lookup definition that maps resource object fields and target system attributes. See Section 1.6.2.4, &quot;Lookup.SAPUME.UM.ReconAttrMap&quot; for more information about this lookup definition.</td>
</tr>
<tr>
<td>Recon Transformation Lookup</td>
<td>Lookup.SAPUME.UM.ReconTransformation</td>
<td>This entry holds the name of the lookup definition that is used to configure transformation of attribute values that are fetched from the target system during user reconciliation. See Section 4.7, &quot;Configuring Transformation of Data During User Reconciliation&quot; for more information about adding entries in this lookup definition.</td>
</tr>
</tbody>
</table>

Note: If you are using a Connector Server, the WSDL File must be copied on the system running the Connector Server. Location of the WSDL files is available in the local machine that is running the Connector Server.
1.6.2.3 Lookup.SAPUME.UM.ProvAttrMap

The Lookup.SAPUME.UM.ProvAttrMap lookup definition holds mappings between process form fields and target system attributes. This lookup definition is used during provisioning. This lookup definition is preconfigured. Table 1–12 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for provisioning. See Chapter 4, "Extending the Functionality of the Connector" for more information.

1.6.2.4 Lookup.SAPUME.UM.ReconAttrMap

The Lookup.SAPUME.UM.ReconAttrMap lookup definition holds mappings between resource object fields and target system attributes. This lookup definitions is used during reconciliation. This lookup definition is preconfigured. Table 1–8 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for reconciliation. See Chapter 4, "Extending the Functionality of the Connector" for more information.
1.6.2.5 Lookup.SAPUME.UM.ReconValidation
The Lookup.SAPUME.UM.ReconValidation lookup definition is used to configure validation of attribute values that are fetched from the target system during reconciliation. See Section 4.6, “Configuring Validation of Data During Reconciliation and Provisioning” for more information about adding entries in this lookup definition.

1.6.2.6 Lookup.SAPUME.UM.ReconTransformation
The Lookup.SAPUME.UM.ReconTransformation lookup definition is used to configure transformation of attribute values that are fetched from the target system during user reconciliation. See Section 4.7, “Configuring Transformation of Data During User Reconciliation” for more information about adding entries in this lookup definition.

1.6.2.7 Lookup.SAPUME.UM.ProvValidation
The Lookup.SAPUME.UM.ProvValidation lookup definition is used to configure validation of attribute values entered on the process form during provisioning operations. See Section 4.6, “Configuring Validation of Data During Reconciliation and Provisioning” for more information about adding entries in this lookup definition.

1.6.2.8 Lookup.SAPUME.UM.SecurityPolicy
The Lookup.SAPUME.UM.SecurityPolicy lookup definition holds information about security policies that you can select for a user account that you create through Oracle Identity Manager. This lookup definition is preconfigured. You cannot add or modify entries in this lookup definition.

1.6.2.9 Lookup.SAPUME.UM.RoleChildformMappings
The Lookup.SAPUME.UM.RoleChildformMappings lookup definition contains information about the actual and dummy child form mapped fields that are used during request-based provisioning of role entitlements. This lookup definition is preconfigured. Do not add or modify entries in this lookup definition.

If you are using a cloned connector for request-based provisioning of entitlements, then you must update the respective child form field names manually in this lookup definition.

This lookup definition contains the following entries:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>UD_UMERC_P_DATASOURCE</td>
<td>UD_UME_ROLE_DATASOURCE</td>
</tr>
<tr>
<td>UD_UMERC_P_ROLENAME</td>
<td>UD_UME_ROLE_ROLENAME</td>
</tr>
</tbody>
</table>

1.6.2.10 Lookup.SAPUME.UM.RoleDatasource
The Lookup.SAPUME.UM.RoleDatasource lookup definition holds data source names of the role object class that you can select for a user account that you create through Oracle Identity Manager. See Section 2.3.7, “Setting Up the Lookup.SAPUME.UM.RoleDataSource Lookup Definition” for more information.

1.6.2.11 Lookup.SAPUME.UM.GroupDatasource
The Lookup.SAPUME.UM.GroupDatasource lookup definition holds data source names of the group object class that you can select for a user account that you create through Oracle Identity Manager. See Section 2.3.8, “Setting Up the
1.6.2.12  **Lookup.SAPUME.UM.TimeZone**
The Lookup.SAPUME.UM.TimeZone lookup definition contains information about time zones that you can select for a user account that you create through Oracle Identity Manager. This lookup definition is preconfigured. You cannot add or modify entries in this lookup definition.

1.6.2.13  **Lookup.SAPUME.UM.Lock**
The Lookup.SAPUME.UM.Lock lookup definition contains information about statuses (lock or unlock) that you can select for a user account that you create through Oracle Identity Manager. This lookup definition is preconfigured. You cannot add or modify entries in this lookup definition.

1.6.2.14  **Lookup.SAPUME.UM.Locale**
The Lookup.SAPUME.UM.Locale lookup definition contains information about locales that you can select for a user account that you create through Oracle Identity Manager.

1.6.2.15  **Lookup.SAPUME.UM.Country**
The Lookup.SAPUME.UM.Country lookup definition contains information about countries that you can select for a user account that you create through Oracle Identity Manager.

1.6.2.16  **Lookup.SAPUME.UM.Group**
The Lookup.SAPUME.UM.Group lookup contains information about the Groups. SAPUME Group Lookup Reconciliation scheduled job is used to synchronize values with the target system for this lookup.

1.6.2.17  **Lookup.SAPUME.UM.Role**
The Lookup.SAPUME.UM.Role lookup contains information about the Roles. SAPUME Role Lookup Reconciliation scheduled job is used to synchronize values with the target system for this lookup.

1.6.2.18  **Lookup Definitions for Exclusion Lists**
The Lookup.SAPUME.UM.ProvExclusionList and Lookup.SAPUME.UM.ReconExclusionList lookup definitions hold user IDs of target system accounts for which you do not want to perform provisioning and reconciliation operations, respectively.

---

**Note:** The Lookup.SAPUME.UM.ProvExclusionList and Lookup.SAPUME.UM.ReconExclusionList lookup definitions are optional and do not exist by default.

You must add these lookups to the Lookup.SAPUME.UM.Configuration lookup definition to enable exclusions during provisioning and reconciliation operations. See Section 1.6.2.2, "Lookup.SAPUME.UM.Configuration" for more information.

---

The following is the format of the values stored in these lookups:
Section 2.3.9, "Setting Up the Lookup Definitions for Exclusion Lists" describes the procedure to add entries in these lookup definitions.

1.6.3 Preconfigured Lookup Definitions for SAP BusinessObjects AC 10

This section discusses the lookup definitions for SAP BusinessObjects AC 10 that are created in Oracle Identity Manager when you deploy the connector. These lookup definitions are either prepopulated with values or values must be manually entered in them after the connector is deployed. The lookup definitions are as follows:

- Section 1.6.3.1, "Lookup.SAPAC10UME.Configuration"
- Section 1.6.3.2, "Lookup.SAPAC10UME.UM.Configuration"
- Section 1.6.3.3, "Lookup.SAPAC10UME.UM.ProvAttrMap"
- Section 1.6.3.4, "Lookup.SAPAC10UME.UM.ReconAttrMap"
- Section 1.6.3.5, "Lookup.SAPAC10UME.UM.ProvValidation"
- Section 1.6.3.6, "Lookup.SAPAC10UME.UM.ReconTransformation"
- Section 1.6.3.7, "Lookup.SAPAC10UME.UM.ReconValidation"
- Section 1.6.3.8, "Lookup.Lookup.SAPAC10UME.ItemProvAction"
- Section 1.6.3.9, "Lookup.SAPAC10UME.RequestType"

1.6.3.1 Lookup.SAPAC10UME.Configuration

The Lookup.SAPAC10UME.Configuration lookup definition holds connector configuration entries that are used during target resource reconciliation and provisioning operations.

Table 1–4 lists the default entries in this lookup definition.
### Table 1-4  Entries in the Lookup.SAPAC10UME.Configuration Lookup Definition

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>appLookupAccessURL</td>
<td>None</td>
<td>WSDL URL for Application Lookup web service</td>
</tr>
<tr>
<td>appLookupWS</td>
<td>oracle.iam.ws.sap.ac10.SelectApplication</td>
<td>Web service client to get all applications configured in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>assignRoleReqType</td>
<td>002<del>Change Account</del>002~006</td>
<td>Name of the request type to be used for assign role request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>auditLogsAccessURL</td>
<td>None</td>
<td>WSDL URL for Audit Logs web service</td>
</tr>
<tr>
<td>auditLogsWS</td>
<td>oracle.iam.ws.sap.ac10.AuditLogs</td>
<td>Web service client to get audit logs</td>
</tr>
<tr>
<td>Bundle Name</td>
<td>org.identityconnectors.sapacume</td>
<td>Name of the connector bundle package</td>
</tr>
<tr>
<td>Bundle Version</td>
<td>1.0.11190</td>
<td>Version of the connector bundle class</td>
</tr>
<tr>
<td>Connector Name</td>
<td>org.identityconnectors.sapacume.SAPACUMEConnector</td>
<td>Name of the connector class</td>
</tr>
<tr>
<td>ConnectorImplType</td>
<td>SAPUME</td>
<td>Enter this value to enable SAP UME roles in SOD</td>
</tr>
<tr>
<td>createUserReqType</td>
<td>001<del>New Account</del>001</td>
<td>Name of the request type to use for create user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>deleteUserReqType</td>
<td>003<del>Delete Account</del>003</td>
<td>Name of the request type to use for delete user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>ignoreOpenStatus</td>
<td>Yes</td>
<td>Specify whether new requests can be sent for a particular user, even if the last request for the user is in the Open status</td>
</tr>
<tr>
<td>lockUserReqType</td>
<td>004<del>Lock Account</del>004</td>
<td>Name of the request type to use for lock user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>logAuditTrial</td>
<td>Yes</td>
<td>Specify whether complete audit trial needs to be logged whenever status request web service is invoked</td>
</tr>
<tr>
<td>modifyUserReqType</td>
<td>002<del>Change Account</del>002</td>
<td>Name of the request type to use for modify user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>otherLookupAccessURL</td>
<td>None</td>
<td>WSDL URL for Other Lookup web service</td>
</tr>
<tr>
<td>otherLookupWS</td>
<td>oracle.iam.ws.sap.ac10.SearchLookup</td>
<td>Web service client to get other lookup field details</td>
</tr>
<tr>
<td>provActionAttrName</td>
<td>provAction;ReqLineItem</td>
<td>Name of the Provision Action target system attribute</td>
</tr>
<tr>
<td>provItemActionAttrName</td>
<td>provItemAction;ReqLineItem</td>
<td>Name of the Provision Item Action target system attribute</td>
</tr>
<tr>
<td>removeRoleReqType</td>
<td>002<del>Change Account</del>002~009</td>
<td>Name of the request type to use for remove user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>requestStatusAccessURL</td>
<td>None</td>
<td>WSDL URL for Status Request web service</td>
</tr>
</tbody>
</table>
**1.6.3.2 Lookup.SAPAC10UME.UM.Configuration**

The Lookup.SAPAC10UME.UM.Configuration lookup definition holds configuration entries that are specific to the user object type. This lookup definition is used during user management operations when your target system is configured as a target resource.

*Table 1–5* lists the default entries in this lookup definition.

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>requestStatusValue</td>
<td>OK</td>
<td>This entry is used by the SAP UME AC Request Status schedule job to update status in the process form.</td>
</tr>
<tr>
<td>requestStatusWS</td>
<td>oracle.iam.ws.sap.ac10.RequestStatus</td>
<td>Web service client to get status of provisioning request</td>
</tr>
<tr>
<td>requestTypeAttrName</td>
<td>Reqtype;Header</td>
<td>Name of the request type attribute used to differentiate request flows from the SAPUMCREATE adapter</td>
</tr>
<tr>
<td>RiskLevel</td>
<td>High</td>
<td>In SAP BusinessObjects AC, each business risk is assigned a criticality level. You can control the risk analysis data returned by SAP BusinessObjects by specifying a risk level.</td>
</tr>
<tr>
<td>roleLookupAccessURL</td>
<td>None</td>
<td>WSDL URL for Role Lookup web service</td>
</tr>
<tr>
<td>roleLookupWS</td>
<td>oracle.iam.ws.sap.ac10.SearchRoles</td>
<td>Web service client to get all roles</td>
</tr>
<tr>
<td>Status Configuration</td>
<td>Lookup.SAPACUME.Status.Configuration</td>
<td>Status Configuration.</td>
</tr>
<tr>
<td>unlockUserReqType</td>
<td>005<del>unlock user</del>005</td>
<td>Name of the request type to use for unlock user request in SAP BusinessObjects AC</td>
</tr>
<tr>
<td>userAccessAccessURL</td>
<td>None</td>
<td>WSDL URL for User Access web service</td>
</tr>
<tr>
<td>userAccessWS</td>
<td>oracle.iam.ws.sap.ac10.UserAccess</td>
<td>Web service client to get status of user access</td>
</tr>
<tr>
<td>User Configuration Lookup</td>
<td>Lookup.SAPAC10UME.UM.Configuration</td>
<td>Name of the lookup definition that contains user-specific configuration properties</td>
</tr>
<tr>
<td>wsdlFilePath</td>
<td>WSDL file directory</td>
<td>File path where the WSDL files are available in local machine</td>
</tr>
</tbody>
</table>
1.6.3.3 Lookup.SAPAC10UME.UM.ProvAttrMap

The Lookup.SAPAC10UME.UM.ProvAttrMap lookup definition holds mappings between process form fields and target system attributes. This lookup definition is used during provisioning. This lookup definition is preconfigured. Table 1–6 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for provisioning. See Chapter 4, "Extending the Functionality of the Connector" for more information.
## Table 1–6 Entries in the Lookup.SAPAC10UME.UM.ProvAttrMap Lookup Definition

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Business Process [Lookup]</td>
<td>bproc;Header</td>
</tr>
<tr>
<td>Accounting Number</td>
<td>accno;UserInfo</td>
</tr>
<tr>
<td>AC Functional Area [Lookup]</td>
<td>funcarea;Header</td>
</tr>
<tr>
<td>AC Manager</td>
<td>manager;UserInfo</td>
</tr>
<tr>
<td>AC Manager email</td>
<td>managerEmail;UserInfo</td>
</tr>
<tr>
<td>AC Manager First Name</td>
<td>managerFirstname;UserInfo</td>
</tr>
<tr>
<td>AC Manager Last Name</td>
<td>managerLastname;UserInfo</td>
</tr>
<tr>
<td>AC Priority [Lookup]</td>
<td>priority;Header</td>
</tr>
<tr>
<td>AC Request Due Date [Date]</td>
<td>reqDueDate;Header</td>
</tr>
<tr>
<td>AC Request Requestor ID</td>
<td>requestId</td>
</tr>
<tr>
<td>AC Requestor email</td>
<td>email;Header</td>
</tr>
<tr>
<td>AC Request Reason</td>
<td>requestReason;Header</td>
</tr>
<tr>
<td>AC Request Status [WRITEBACK]</td>
<td>RequestStatus</td>
</tr>
<tr>
<td>AC Request Type [WRITEBACK]</td>
<td>RequestType</td>
</tr>
<tr>
<td>AC System [Lookup]</td>
<td>reqInitSystem;Header</td>
</tr>
<tr>
<td>City</td>
<td>city</td>
</tr>
<tr>
<td>Country</td>
<td>country</td>
</tr>
<tr>
<td>Department</td>
<td>department;UserInfo</td>
</tr>
<tr>
<td>E-Mail Address</td>
<td>email;UserInfo</td>
</tr>
<tr>
<td>End Date of Account Validity [Date]</td>
<td>validTo;UserInfo</td>
</tr>
<tr>
<td>Fax</td>
<td>fax;UserInfo</td>
</tr>
<tr>
<td>First Name</td>
<td>fname;UserInfo</td>
</tr>
<tr>
<td>Form of Address</td>
<td>personnelarea;UserInfo</td>
</tr>
<tr>
<td>Language</td>
<td>logonLang;UserInfo</td>
</tr>
<tr>
<td>Last Name</td>
<td>lname;UserInfo</td>
</tr>
<tr>
<td>Logon Name</td>
<td>userId;UserInfo</td>
</tr>
<tr>
<td>Mobile</td>
<td>personnelno;UserInfo</td>
</tr>
<tr>
<td>Name</td>
<td>displayname</td>
</tr>
<tr>
<td>Password</td>
<td><strong>PASSWORD</strong></td>
</tr>
<tr>
<td>Position</td>
<td>empposition;UserInfo</td>
</tr>
<tr>
<td>Security Policy</td>
<td>securitypolicy</td>
</tr>
<tr>
<td>Start Date of Account Validity [Date]</td>
<td>validFrom;UserInfo</td>
</tr>
</tbody>
</table>
1.6.3.4 Lookup.SAPAC10UME.UM.ReconAttrMap

The Lookup.SAPAC10UME.UM.ReconAttrMap lookup definition holds mappings between resource object fields and target system attributes. This lookup definition is used during reconciliation. This lookup definition is preconfigured. Table 1–7 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for reconciliation. See Chapter 4, "Extending the Functionality of the Connector" for more information.

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>state</td>
</tr>
<tr>
<td>Street</td>
<td>streetaddress</td>
</tr>
<tr>
<td>Telephone</td>
<td>telnumber;UserInfo</td>
</tr>
<tr>
<td>Time Zone</td>
<td>timezone</td>
</tr>
<tr>
<td>Title</td>
<td>title;UserInfo</td>
</tr>
<tr>
<td>UD_ACUMEGRP~Group[Lookup]</td>
<td>itemName;ReqLineItem</td>
</tr>
<tr>
<td>UD_ACUMEROL~Role[Lookup]</td>
<td>itemName;ReqLineItem</td>
</tr>
<tr>
<td>UniqueID</td>
<td><strong>UID</strong></td>
</tr>
<tr>
<td>User Account Locked</td>
<td>userLock;None</td>
</tr>
<tr>
<td>Zip</td>
<td>zip</td>
</tr>
</tbody>
</table>

1.6.3.4.1 Lookup.SAPAC10UME.UM.ProvAttrMap

The Lookup.SAPAC10UME.UM.ProvAttrMap lookup definition holds mappings between resource object fields and target system attributes. This lookup definition is used during provisioning. This lookup definition is preconfigured. Table 1–6 (Cont.) lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for provisioning. See Chapter 4, "Extending the Functionality of the Connector" for more information.

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>city</td>
</tr>
<tr>
<td>Country</td>
<td>country</td>
</tr>
<tr>
<td>Department</td>
<td>department</td>
</tr>
<tr>
<td>E-Mail Address</td>
<td>email</td>
</tr>
<tr>
<td>End Date of Account Validity[Date]</td>
<td>validto</td>
</tr>
<tr>
<td>Fax</td>
<td>fax</td>
</tr>
<tr>
<td>First Name</td>
<td>firstname</td>
</tr>
<tr>
<td>Form of Address</td>
<td>salutation</td>
</tr>
<tr>
<td>Groups~Group[Lookup]</td>
<td>assignedgroups</td>
</tr>
<tr>
<td>Language</td>
<td>locale</td>
</tr>
<tr>
<td>Last Name</td>
<td>lastname</td>
</tr>
<tr>
<td>Logon Name</td>
<td>logonname</td>
</tr>
<tr>
<td>Mobile</td>
<td>mobile</td>
</tr>
<tr>
<td>Name</td>
<td>displayname</td>
</tr>
<tr>
<td>Position</td>
<td>jobtitle</td>
</tr>
<tr>
<td>Roles~Role[Lookup]</td>
<td>assignedroles</td>
</tr>
</tbody>
</table>
1.6.3.5 Lookup.SAPAC10UME.UMEProvValidation

The Lookup.SAPAC10UME.UMEProvValidation lookup definition is used to configure validation of attribute values entered on the process form during provisioning operations. See Section 4.6, "Configuring Validation of Data During Reconciliation and Provisioning" for more information.

1.6.3.6 Lookup.SAPAC10UME.UMEReconTransformation

The Lookup.SAPAC10UME.UMEReconTransformation lookup definition is used to configure transformation of attribute values that are fetched from the target system during user reconciliation. See Section 4.7, "Configuring Transformation of Data During User Reconciliation" for more information about adding entries in this lookup definition.

1.6.3.7 Lookup.SAPAC10UME.UMEReconValidation

The Lookup.SAPAC10UME.UMEReconValidation lookup definition is used to configure validation of attribute values that are fetched from the target system during reconciliation. See Section 4.6, "Configuring Validation of Data During Reconciliation and Provisioning" for more information about adding entries in this lookup definition.

1.6.3.8 Lookup.SAPAC10UME.ItemProvAction

The Lookup.SAPAC10UME.ItemProvAction is used to obtain the request type from the GRC system using the web service, when scheduler job get executed then ItemProvAction lookup is populated.

1.6.3.9 Lookup.SAPAC10UME.RequestType

The Lookup.SAPAC10UME.ItemProvAction is used to obtain request type from the GRC system using the web service, when scheduler job get executed then ItemProvAction lookup is populated.

### Table 1–7 (Cont.) Entries in the Lookup.SAPAC10UME.ReconAttrMap Lookup Definition

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Policy</td>
<td>securypolicy</td>
</tr>
<tr>
<td>Start Date of Account Validity[Date]</td>
<td>validfrom</td>
</tr>
<tr>
<td>State</td>
<td>state</td>
</tr>
<tr>
<td>Status</td>
<td><strong>ENABLE</strong></td>
</tr>
<tr>
<td>Street</td>
<td>streetaddress</td>
</tr>
<tr>
<td>Telephone</td>
<td>telephone</td>
</tr>
<tr>
<td>Time Zone</td>
<td>timezone</td>
</tr>
<tr>
<td>Title</td>
<td>title</td>
</tr>
<tr>
<td>UniqueID</td>
<td>id</td>
</tr>
<tr>
<td>User Account Locked</td>
<td>islocked</td>
</tr>
<tr>
<td>Zip</td>
<td>zip</td>
</tr>
</tbody>
</table>
1.7 Connector Objects Used During Reconciliation

The SAP UME User Recon scheduled task is used to initiate a reconciliation run. This scheduled task is discussed in Section 3.4.3, "Reconciliation Scheduled Jobs".

See Also: Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for conceptual information about reconciliation.

This section discusses the following topics:

- Section 1.7.1, "User Attributes for Reconciliation"
- Section 1.7.2, "Reconciliation Rules"
- Section 1.7.3, "Reconciliation Action Rules"

1.7.1 User Attributes for Reconciliation

The Lookup.SAPUME.UM.ReconAttrMap lookup definition maps resource object fields and target system attributes. This lookup definition is used for performing target resource user reconciliation runs.

Table 1–8 lists entries in this lookup definition.

Table 1–8 Entries in the Lookup.SAPUME.UM.ReconAttrMap Lookup Definition

<table>
<thead>
<tr>
<th>Resource Object Field (Code Key)</th>
<th>Target System Attribute (Decode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>city</td>
</tr>
<tr>
<td>Country</td>
<td>country</td>
</tr>
<tr>
<td>Department</td>
<td>department</td>
</tr>
<tr>
<td>E-Mail Address</td>
<td>email</td>
</tr>
<tr>
<td>End Date of Account Validity[Date]</td>
<td>validto</td>
</tr>
<tr>
<td>Fax</td>
<td>fax</td>
</tr>
<tr>
<td>First Name</td>
<td>firstname</td>
</tr>
<tr>
<td>Form of Address</td>
<td>salutation</td>
</tr>
<tr>
<td>Groups~Group[Lookup]</td>
<td>assignedgroups</td>
</tr>
<tr>
<td>Language</td>
<td>locale</td>
</tr>
<tr>
<td>Last Name</td>
<td>lastname</td>
</tr>
<tr>
<td>Logon Name</td>
<td>logonname</td>
</tr>
<tr>
<td>Mobile</td>
<td>mobile</td>
</tr>
<tr>
<td>Name</td>
<td>displayname</td>
</tr>
<tr>
<td>Position</td>
<td>jobtitle</td>
</tr>
<tr>
<td>Roles~Role[Lookup]</td>
<td>assignedroles</td>
</tr>
<tr>
<td>Security Policy</td>
<td>securypolicy</td>
</tr>
<tr>
<td>Start Date of Account Validity[Date]</td>
<td>validfrom</td>
</tr>
<tr>
<td>State</td>
<td>state</td>
</tr>
<tr>
<td>Status</td>
<td><strong>ENABLE</strong></td>
</tr>
<tr>
<td>Street</td>
<td>streetaddress</td>
</tr>
<tr>
<td>Telephone</td>
<td>telephone</td>
</tr>
</tbody>
</table>
1.7.2 Reconciliation Rules

See Also: Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for generic information about reconciliation matching and action rules.

The following sections provide information about the reconciliation rules for this connector:

- Section 1.7.2.1, "Reconciliation Rule"
- Section 1.7.2.2, "Viewing Reconciliation Rules in the Design Console"

1.7.2.1 Reconciliation Rule

The following is the process-matching rule:

**Rule name:** SAPUME Recon Rule

**Rule element:** User Login Equals Logon Name

Note: Perform the following procedure only after the connector is deployed. If you are using SAP BusinessObjects AC system, see the following rule:

- **Rule name:** SAP AC UME Recon Rule
- **Rule element:** User Login Equals Logon Name

In this rule element:

- User Login is the User ID field of the OIM User form.
- Logon Name is the logonname of the SAP account.

1.7.2.2 Viewing Reconciliation Rules in the Design Console

After you deploy the connector, you can view the reconciliation rule for reconciliation by performing the following steps:

Note: Perform the following procedure only after the connector is deployed.

1. Log in to the Oracle Identity Manager Design Console.

2. Expand Development Tools.

### Table 1–8 (Cont.) Entries in the Lookup.SAPUME.UM.ReconAttrMap Lookup Definition

<table>
<thead>
<tr>
<th>Resource Object Field (Code Key)</th>
<th>Target System Attribute (Decode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Zone</td>
<td>timezone</td>
</tr>
<tr>
<td>Title</td>
<td>title</td>
</tr>
<tr>
<td>Unique Id</td>
<td>id</td>
</tr>
<tr>
<td>User Account Locked</td>
<td>islocked</td>
</tr>
<tr>
<td>Zip</td>
<td>zip</td>
</tr>
</tbody>
</table>

1-30 Oracle Identity Manager Connector Guide for SAP User Management Engine
3. Double-click **Reconciliation Rules**.
4. Search for and open the **SAPUME Recon Rule** rule.

**Note:** If you are using SAP BusinessObjects AC system, search for and open the SAP AC UME Recon Rule rule.

**Figure 1–4** shows this reconciliation rule.

**Figure 1–4 Reconciliation Rule**

1.7.3 Reconciliation Action Rules

**Note:** No action is performed for rule conditions that are not predefined for this connector. You can define your own action rule for such rule conditions. See *Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager* for information about modifying or creating reconciliation action rules.

The following sections provide information about the reconciliation rules for this connector:

- Section 1.7.3.1, "Reconciliation Action Rules for Reconciliation"
- Section 1.7.3.2, "Viewing Reconciliation Action Rules in the Design Console"

1.7.3.1 Reconciliation Action Rules for Reconciliation

Table 1–9 lists the action rules for reconciliation.
1.7.3.2 Viewing Reconciliation Action Rules in the Design Console

After you deploy the connector, you can view the reconciliation action rules for reconciliation by performing the following steps:

1. Log in to the Oracle Identity Manager Design Console.
3. If you want to view the reconciliation action rules for reconciliation, then search for and open the SAPUME Resource Object resource object.

   **Note:** If you are using SAP BusinessObjects AC system.

   If you want to view the reconciliation action rules for reconciliation, then search for and open the SAP AC UME Resource Object resource object.

4. Click the Object Reconciliation tab, and then click the Reconciliation Action Rules tab. The Reconciliation Action Rules tab displays the action rules defined for this connector. Figure 1–5 shows the reconciliation action rules for reconciliation.

   **Figure 1–5 Reconciliation Action Rules**

<table>
<thead>
<tr>
<th>Rule Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Entity Match Found</td>
<td>Establish Link</td>
</tr>
<tr>
<td>One Process Match Found</td>
<td>Establish Link</td>
</tr>
</tbody>
</table>

1.8 Connector Objects Used During Provisioning

Provisioning involves creating or modifying user data on the target system through Oracle Identity Manager.

**See Also:** Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for conceptual information about provisioning

This section discusses the following topics:

- Section 1.8.1, "User Provisioning Functions"
- Section 1.8.2, "User Attributes for Provisioning"
1.8.1 User Provisioning Functions

Table 1–10 and Table 1–12 list the user provisioning functions supported by the SAP UME and SAP AC UME connectors, and the adapters that perform these functions. The functions listed in the table correspond to either a single or multiple process tasks.

Table 1–10  User Provisioning Functions Supported by the SAP UME Connector

<table>
<thead>
<tr>
<th>Function</th>
<th>Adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a user account</td>
<td>adpSAPUMECREATE</td>
</tr>
<tr>
<td>Modify a user account</td>
<td>adpSAPUMEUPDATE</td>
</tr>
<tr>
<td>Delete a user account</td>
<td>adpSAPUMEDELETE</td>
</tr>
<tr>
<td>Enable a user account</td>
<td>adpSAPUMEENABLE</td>
</tr>
<tr>
<td>Disable a user account</td>
<td>adpSAPUMEDISABLE</td>
</tr>
<tr>
<td>Add multivalued attribute</td>
<td>adpSAPUMEADDCCHILD</td>
</tr>
<tr>
<td>Prepopulates the SAPUME Form</td>
<td>adpPREPOPULATESAPUMEFORM</td>
</tr>
<tr>
<td>Remove multivalued attribute</td>
<td>adpSAPUMEREMOVECHILD</td>
</tr>
<tr>
<td>SAPUME request ENTITLEMENT</td>
<td>adpSAPUMEREQUESTENTITLEMENT</td>
</tr>
<tr>
<td>Updates the SAPUME</td>
<td>adpSAPUMEUPDATE</td>
</tr>
<tr>
<td>Child SAPUME update</td>
<td>adpSAPUMEUPDATESAPUMEUPDATE</td>
</tr>
<tr>
<td>Initiates the SODCheck</td>
<td>InitiateSODCheck</td>
</tr>
</tbody>
</table>

Table 1–11  User Provisioning Functions Supported by the SAP AC UME Connector

<table>
<thead>
<tr>
<th>Function</th>
<th>Adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a user account</td>
<td>adpSAPACUMCREATEUSER</td>
</tr>
<tr>
<td>Modify a user account</td>
<td>adpSAPACUMEUPDATE</td>
</tr>
<tr>
<td>Delete a user account</td>
<td>adpSAPACUMEDELETE</td>
</tr>
<tr>
<td>Enable a user account</td>
<td>adpSAPACUMEENABLE</td>
</tr>
<tr>
<td>Disable a user account</td>
<td>adpSAPACUMEDISABLE</td>
</tr>
<tr>
<td>Add multivalued attribute</td>
<td>adpSAPACUMEADDCCHILD</td>
</tr>
<tr>
<td>Remove multivalued attribute</td>
<td>adpSAPACUMEREMOVECHILD</td>
</tr>
<tr>
<td>Prepopulates the SAPACUME</td>
<td>adpPREPOPULATESAPACUME</td>
</tr>
</tbody>
</table>

1.8.2 User Attributes for Provisioning

The Lookup.SAPUME.UM.ProvAttrMap lookup definition maps process form fields with target system attributes. This lookup definition is used for performing provisioning operations. Table 1–12 lists the default entries in this lookup definition.

Table 1–12  Entries in the Lookup.SAPUME.UM.ProvAttrMap Lookup Definition

<table>
<thead>
<tr>
<th>Process Form Field</th>
<th>Target System Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>city</td>
</tr>
<tr>
<td>Country</td>
<td>country</td>
</tr>
</tbody>
</table>
1.9 Roadmap for Deploying and Using the Connector

The following is the organization of information in the rest of this guide:

- **Chapter 2, "Deploying the Connector"** describes procedures that you must perform on Oracle Identity Manager and the target system during each stage of connector deployment.

- **Chapter 3, "Using the Connector"** describes guidelines on using the connector and the procedure to configure reconciliation runs and perform provisioning operations.

- **Chapter 4, "Extending the Functionality of the Connector"** describes the procedures to perform if you want to extend the functionality of the connector.

- **Chapter 5, "Known Issues, Limitations, and FAQs"** lists known issues and limitations associated with this release of the connector.
2
Deploying the Connector

The procedure to deploy the connector can be divided into the following stages:

- Section 2.1, "Preinstallation"
- Section 2.2, "Installation"
- Section 2.3, "Postinstallation"
- Section 2.4, "Upgrading the Connector"

2.1 Preinstallation

Preinstallation information is divided across the following sections:

- Section 2.1.1, "Files and Directories on the Installation Media"
- Section 2.1.2, "Creating a Target System User Account for Connector Operations"
- Section 2.1.3, "Installing and Configuring the Connector Server"
- Section 2.1.4, "Running the Connector Server"

2.1.1 Files and Directories on the Installation Media

Table 2–1 describes the files and directories on the installation media.

<table>
<thead>
<tr>
<th>File in the Installation Media Directory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>org.identityconnectors.sapume-1.0.11190.jar</td>
<td>These JAR files contain the connector bundle. Use org.identityconnectors.sapume-1.0.11190.jar file if you are using SAP BusinessObjects AC system.</td>
</tr>
<tr>
<td>configuration/SAPUMEConnector-CI.xml</td>
<td>This XML file contains configuration information that is used during connector installation.</td>
</tr>
<tr>
<td>configuration/SAPACUMEConnector-CI.xml</td>
<td>Use the SAPACUMEConnector-CI.xml file if you are using SAP BusinessObjects AC system.</td>
</tr>
<tr>
<td>lib/sapume-oim-integration.jar</td>
<td>This JAR file is required to request entitlements for roles and groups through request-based provisioning using request dataset.</td>
</tr>
<tr>
<td>lib/sapac-oim-integration.jar</td>
<td>This JAR file includes a custom scheduled job to update request status from SAP BusinessObjects AC.</td>
</tr>
</tbody>
</table>
2.1.2 Creating a Target System User Account for Connector Operations

The connector uses a target system account to connect to and perform operations on the target system. To create this target system account:

1. Create a technical user account in the target system and assign it a role with the Spml_Read_Action and Spml_Write_Action actions.

2. If the target system is configured with JAVA data source by default, then assign the following roles:
   - NWA_SUPERADMIN
   - MY_SPML_FULL_ACCESS_ROLE

3. If the target system is configured with ABAP data source, then assign the SAP_J2EE_ADMIN group.

4. If this connector is configured with the ABAP data source and CUA is enabled in the backend ABAP application, then assign a system to the user account created earlier.

5. If you want to perform connector operations such as Access Request Management and Access Risk Analysis through an SAP Business Objects Access Control system, then assign the following minimum set of roles to a user account in SAP Business Objects Access Control:

### Table 2-1 (Cont.) Files and Directories On the Installation Media

<table>
<thead>
<tr>
<th>File in the Installation Media Directory</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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 include GUI element labels and messages. |
| xml/SAPUME-ConnectorConfig.xml          | This XML file contains definitions of connector objects. Use the SAPACUME-ConnectorConfig.xml file if you are using SAP BusinessObjects AC system. |
| xml/SAPACUME-ConnectorConfig.xml        | This XML file contains the dataset related definitions for the create and modify user provisioning operations. This file is used if you want to enable request-based provisioning by using the deployment manager.  
  **Note:** This dataset should not be imported if you are using Oracle Identity Manager release 11.1.2.x or later. |
| xml/SAPUME-Datasets.xml                 | This XML file contains the dataset related definitions for the create and modify user provisioning operations. This file is used if you want to enable request-based provisioning by using the deployment manager.  
  **Note:** This dataset should not be imported if you are using Oracle Identity Manager release 11.1.2.x or later. |
| upgrade/PostUpgradeScript               | This file contains the scripts that are run after performing an upgrade of the connector. |
For detailed information on each of these preinstallation tasks, refer the SAP documentation.

### 2.1.3 Installing and Configuring the Connector Server

You can deploy the SAP User Management Engine connector either locally in Oracle Identity Manager or remotely in the Connector Server. A **connector server** is a Microsoft Windows application that enables remote execution of an Identity Connector.

Connector servers are available in two implementations:

- As a .Net implementation that is used by Identity Connectors implemented in .Net
- As a Java Connector Server implementation that is used by Java-based Identity Connectors

The SAP User Management Engine connector is implemented in Java, so you can deploy this connector to a Java Connector Server.

Use the following steps to install and configure the Java Connector Server:

<table>
<thead>
<tr>
<th>Role Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP_BC_WEBSERVICE_CONSUMER</td>
<td>Web Service Consumer</td>
</tr>
<tr>
<td>SAP_GRC_NWBC</td>
<td>Governance, Risk, and Compliance</td>
</tr>
<tr>
<td>SAP_GRAC_ACCESS_APPROVER</td>
<td>Role for Access Request Approver</td>
</tr>
<tr>
<td>SAP_GRAC_RISK_OWNER</td>
<td>Risk Maintenance and Risk Analysis</td>
</tr>
<tr>
<td>SAP_GRAC_ROLE_MGMT_ROLE_OWNER</td>
<td>Role Owner</td>
</tr>
</tbody>
</table>

**Note:** Before you deploy the Java Connector Server, ensure that you install the JDK or JRE on the same computer where you are installing the Java Connector Server and that your `JAVA_HOME` or `JRE_HOME` environment variable points to this installation.

1. Create a new directory on the computer where you want to install the Java Connector Server.

**Note:** In this guide, `CONNECTOR_SERVER_HOME` represents this directory.

2. Unzip the Java Connector Server package in the new directory created in Step 1. You can download the Java Connector Server package from the Oracle Technology Network.

3. Open the `ConnectorServer.properties` file located in the `conf` directory. In the `ConnectorServer.properties` file, set the following properties, as required by your deployment.
4. Set the properties in the ConnectorServer.properties file, as follows:
   
   - To set the connectorserver.key, run the Java Connector Server with the /setKey option.

   **Note:** For more information, see Section 2.1.4, "Running the Connector Server."

   - For all other properties, edit the ConnectorServer.properties file manually.

5. The conf directory also contains the logging.properties file, which you can edit if required by your deployment.

   **Note:** Oracle Identity Manager has no built-in support for connector servers, so you cannot test your configuration.

### 2.1.4 Running the Connector Server

To run the Java Connector Server, use the ConnectorServer.bat script as follows:

1. Make sure that you have set the properties required by your deployment in the ConnectorServer.properties file, as described in Section 2.1.3, "Installing and Configuring the Connector Server."

2. Change to the CONNECTOR_SERVER_HOME\bin directory and find the ConnectorServer.bat script.

   The ConnectorServer.bat supports the following options:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>connectorserver.port</td>
<td>Port on which the Java Connector Server listens for requests.</td>
</tr>
<tr>
<td></td>
<td>Default is: 8759.</td>
</tr>
<tr>
<td>connectorserver.bundleDir</td>
<td>Directory where the connector bundles are deployed.</td>
</tr>
<tr>
<td></td>
<td>Default is: bundles.</td>
</tr>
<tr>
<td>connectorserver.libDir</td>
<td>Directory in which to place dependent libraries.</td>
</tr>
<tr>
<td></td>
<td>Default is: lib.</td>
</tr>
<tr>
<td>connectorserver.usessl</td>
<td>If set to true, the Java Connector Server uses SSL for secure communication.</td>
</tr>
<tr>
<td></td>
<td>Default is: false.</td>
</tr>
<tr>
<td></td>
<td>If you specify true, use the following options on the command line when you start the Java Connector Server:</td>
</tr>
<tr>
<td></td>
<td>-Djavax.net.ssl.keyStore</td>
</tr>
<tr>
<td></td>
<td>-Djavax.net.ssl.keyStoreType (optional)</td>
</tr>
<tr>
<td></td>
<td>-Djavax.net.ssl.keyStorePassword</td>
</tr>
<tr>
<td>connectorserver.ifaddress</td>
<td>Bind address. To set this property, uncomment it in the file</td>
</tr>
<tr>
<td></td>
<td>(if necessary). The bind address can be useful if there are more NICs installed on the computer.</td>
</tr>
<tr>
<td>connectorserver.key</td>
<td>Java Connector Server key.</td>
</tr>
</tbody>
</table>
2. If you need to stop the Java Connector Server, stop the respective Windows service.

2.2 Installation

Depending on where you want to run the connector code (bundle), the connector provides the following installation options:

- To run the connector code locally in Oracle Identity Manager, perform the procedure described in Section 2.2.1, "Installing the Connector in Oracle Identity Manager."
- To run the connector code remotely in a Connector Server, perform the procedures described in Section 2.2.1, "Installing the Connector in Oracle Identity Manager" and Section 2.2.2, "Deploying the Connector Bundle in a Connector Server."

2.2.1 Installing the Connector in Oracle Identity Manager

In this scenario, you install the connector in Oracle Identity Manager using the Connector Installer.

To run the Connector Installer:

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

   \OIM_HOME\server\ConnectorDefaultDirectory

2. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:

   - For Oracle Identity Manager release 11.1.1.x:
a. Log in to the Administrative and User Console by using the user account described in Creating the User Account for Installing Connectors of Oracle Fusion Middleware Administering Oracle Identity Manager.

b. On the Welcome to Identity Manager Advanced Administration page, in the System Management region, click Manage Connector.

- For Oracle Identity Manager release 11.1.2.x:
  a. Log in to Oracle Identity System Administration by using the user account described in Creating the User Account for Installing Connectors of Oracle Fusion Middleware Administering Oracle Identity Manager.
  
  b. In the left pane, under System Management, click Manage Connector.

3. In the Manage Connector page, click Install.

4. From the Connector List list, select SAP UME Connector RELEASE_NUMBER.

---

**Note:** If you are using SAP BusinessObjects AC system, from the Connector List list, select SAPACUME Connector RELEASE_NUMBER.

---

This list displays the names and release numbers of connectors whose installation files you copy into the default connector installation directory in Step 1.

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

- In the Alternative Directory field, enter the full path and name of that directory.
- To repopulate the list of connectors in the Connector List list, click Refresh.
- From the Connector List list, select SAP UME Connector RELEASE_NUMBER.

---

**Note:** If you are using SAP BusinessObjects AC system, from the Connector List list, select SAPACUME Connector RELEASE_NUMBER.

---

5. Click Load.

6. To start the installation process, click Continue.

The following tasks are performed in sequence:

- Configuration of connector libraries
- Import of the connector XML files (by using the Deployment Manager)
- 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 Oracle Identity Manager PurgeCache utility to load the server cache with content from the connector resource bundle in order to view the list of prerequisites. See Section 2.3.5, "Clearing Content Related to Connector Resource Bundles from the Server Cache" 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 2–1.

### 2.2.2 Deploying the Connector Bundle in a Connector Server

To deploy the connector bundle remotely in a Connector Server, you must first deploy the connector in Oracle Identity Manager, as described in Section 2.2.1, "Installing the Connector in Oracle Identity Manager."

**Note:**
- You can download the Connector Server from the Oracle Technology Network web page.
- See Section 2.3.13, "Creating the IT Resource for the Connector Server" for related information.
- See Using an Identity Connector Server in Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for more information about installing, configuring, and running the Connector Server.

To install the connector into the Connector Server:

1. Stop the Connector Server.

   **Note:** You can download the necessary Java Connector Server from the Oracle Technology Network web page.
2. Copy the SAP UME connector bundle into the `CONNECTOR_SERVER_HOME/bundles` directory.

3. Start the Connector Server. See Section 2.1.4, "Running the Connector Server" for information about starting the Connector Server.

---

**Note:** If you are using a Connector Server, the WSDL File must be copied on the system running the Connector Server. Location of the WSDL files is available in the local machine that is running the Connector Server.

You can download the necessary Java Connector Server from the Oracle Technology Network web page.

## 2.3 Postinstallation

Postinstallation steps are divided across the following sections:

- Section 2.3.1, "Configuring Oracle Identity Manager 11.1.2 or Later"
- Section 2.3.2, "Enabling the Reset Password Option in Oracle Identity Manager 11.1.2.1.0 or Later"
- Section 2.3.3, "Configuring Password Changes for Newly Created Accounts"
- Section 2.3.4, "Changing to the Required Input Locale"
- Section 2.3.5, "Clearing Content Related to Connector Resource Bundles from the Server Cache"
- Section 2.3.6, "Enabling Logging"
- Section 2.3.7, "Setting Up the Lookup.SAPUME.UM.RoleDataSource Lookup Definition"
- Section 2.3.8, "Setting Up the Lookup.SAPUME.UM.GroupDataSource Lookup Definition"
- Section 2.3.9, "Setting Up the Lookup Definitions for Exclusion Lists"
- Section 2.3.10, "Configuring Oracle Identity Manager for Request-Based Provisioning"
- Section 2.3.11, "Configuring SSL to Secure Communication Between the Target System and Oracle Identity Manager"
- Section 2.3.12, "Configuring the IT Resource for the Target System"
- Section 2.3.13, "Creating the IT Resource for the Connector Server"
- Section 2.3.14, "Configuring the Access Request Management Feature of the Connector"
- Section 2.3.15, "Configuring SoD"
- Section 2.3.16, "Downloading WSDL files from SAP BusinessObjects AC"
- Section 2.3.17, "Localizing Field Labels in UI Forms"
- Section 2.3.18, "Synchronizing the SAPUME Process Form and SAP AC UME Process Form with Target System Field Lengths"
2.3.1 Configuring Oracle Identity Manager 11.1.2 or Later

If you are using Oracle Identity Manager release 11.1.2 or later, you must create additional metadata such as a UI form and an application instance. In addition, you must run entitlement and catalog synchronization jobs. These procedures are described in the following sections:

- Section 2.3.1.1, "Creating and Activating a Sandbox"
- Section 2.3.1.2, "Creating a New UI Form"
- Section 2.3.1.3, "Creating an Application Instance"
- Section 2.3.1.4, "Publishing a Sandbox"
- Section 2.3.1.5, "Harvesting Entitlements and Sync Catalog"
- Section 2.3.1.6, "Updating an Existing Application Instance with a New Form"

2.3.1.1 Creating and Activating a Sandbox

Create and activate a sandbox as follows. For detailed instructions, see Managing Sandboxes in Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager.

1. On the upper navigation bar, click **Sandboxes**. The Manage Sandboxes page is displayed.
2. On the toolbar, click **Create Sandbox**. The Create Sandbox dialog box is displayed.
3. In the Sandbox Name field, enter a name for the sandbox. This is a mandatory field.
4. In the Sandbox Description field, enter a description of the sandbox. This is an optional field.
5. Click **Save and Close**. A message is displayed with the sandbox name and creation label.
6. Click **OK**. The sandbox is displayed in the Available Sandboxes section of the Manage Sandboxes page.
7. Select the sandbox that you created.
8. From the table showing the available sandboxes in the Manage Sandboxes page, select the newly created sandbox that you want to activate.
9. On the toolbar, click **Activate Sandbox**.

   The sandbox is activated.

2.3.1.2 Creating a New UI Form

Create a new UI form as follows. For detailed instructions, see Managing Forms in Oracle Fusion Middleware Administering Oracle Identity Manager.

1. In the left pane, under Configuration, click **Form Designer**.
2. Under Search Results, click **Create**.
3. Select the resource type for which you want to create the form, for example, **SAP UME**.
4. Enter a form name and click **Create**.
2.3.1.3 Creating an Application Instance
Create an application instance as follows. For detailed instructions, see Managing Application Instances in Oracle Fusion Middleware Administering Oracle Identity Manager.

1. In the System Administration page, under Configuration in the left pane, click Application Instances.
2. Under Search Results, click Create.
3. Enter appropriate values for the fields displayed on the Attributes form and click Save.
4. In the Form drop-down list, select the newly created form and click Apply.
5. Publish the application instance for a particular organization.

2.3.1.4 Publishing a Sandbox
To publish the sandbox that you created in Section 2.3.1.1, "Creating and Activating a Sandbox":

1. Close all the open tabs and pages.
2. From the table showing the available sandboxes in the Manage Sandboxes page, select the sandbox that you created in Section 2.3.1.1, "Creating and Activating a Sandbox."
3. On the toolbar, click Publish Sandbox. A message is displayed asking for confirmation.
4. Click Yes to confirm. The sandbox is published and the customizations it contained are merged with the main line.

2.3.1.5 Harvesting Entitlements and Sync Catalog
To harvest entitlements and sync catalog:

1. Run the scheduled jobs for lookup field synchronization listed in Section 3.2, "Scheduled Job for Lookup Field Synchronization" and Section 3.3, "Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization."
2. Run the Entitlement List scheduled job to populate Entitlement Assignment schema from child process form table. See Predefined Scheduled Tasks in Oracle Fusion Middleware Administering Oracle Identity Manager for more information about this scheduled job.
3. Run the Catalog Synchronization Job scheduled job. See Predefined Scheduled Tasks in Oracle Fusion Middleware Administering Oracle Identity Manager for more information about this scheduled job.

2.3.1.6 Updating an Existing Application Instance with a New Form
For any changes you do in the Form Designer, you must create a new UI form and update the changes in an application instance. To update an existing application instance with a new form:

1. Create a sandbox and activate it as described in Section 2.3.1.1, "Creating and Activating a Sandbox."
2. Create a new UI form for the resource as described in Section 2.3.1.2, "Creating a New UI Form."
3. Open the existing application instance.
4. In the Form field, select the new UI form that you created.
5. Save the application instance.
6. Publish the sandbox as described in Section 2.3.1.4, "Publishing a Sandbox."

### 2.3.2 Enabling the Reset Password Option in Oracle Identity Manager 11.1.2.1.0 or Later

In Oracle Identity Manager release 11.1.2.1.0 or later, you can reset password for an account after logging in as the user by navigating to My Access, Accounts tab.

The Reset Password option is enabled for only those accounts that follow the UD_FORMNAME_PASSWORD naming convention for the password field. Otherwise, this option would be disabled as shown in the following sample screenshot:

![Screenshot of Oracle Identity Self Service](image)

To enable the Reset Password option in Oracle Identity Manager release 11.1.2.1.0 or later:

1. Log in to Oracle Identity System Administration.
2. In the left pane, under Configuration, click Form Designer.
3. Enter UD_SAPUME in the Table Name field and click the Query for records button.
4. Click Create New Version.
5. In the Create a New Version dialog box, specify the version name in the Label field, save the changes, and then close the dialog box.
6. From the Current Version list, select the newly created version.
7. Click the Properties tab.
8. Select the password field, and click Add Property.
9. From the Property Name list, select AccountPassword.
10. In the Property Value field, enter true.
11. Click Save.

The password field is tagged with the AccountPassword = true property as shown in the following screenshot:
12. Click Make Version Active.

13. Update the application instance with the new form as described in Section 2.3.1.6, "Updating an Existing Application Instance with a New Form."

2.3.3 Configuring Password Changes for Newly Created Accounts

When you log in to SAP by using a newly created account, you are prompted to change your password at first logon. For accounts created through Oracle Identity Manager, password management can be configured by using the changePwdFlag and dummyPassword parameters of the IT resource.

You can apply one of the following approaches:

- Configure the connector so that users with newly created accounts are prompted to change their passwords at first logon.

  To achieve this, set the changePwdFlag parameter of the IT resource to no. With this setting, the password entered on the process form for a new user account is used to set the password for the new account on the target system. When the user logs in to the target system, the user is prompted to change the password.

- Configure the connector so that the password set while creating the account on Oracle Identity Manager is set as the new password on the target system. The user is not prompted to change the password at first logon.

  To achieve this, set the changePwdFlag parameter to yes and enter a string in the dummyPassword parameter of the IT resource. With these settings, when you create a user account through Oracle Identity Manager, the user is first created with the dummy password. Immediately after that, the connector changes the password of the user to the one entered on the process form. When the user logs in to the target system, the user is not prompted to change the password.
2.3.4 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.

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

When you deploy the connector, the resource bundles are copied from the resources directory on the installation media into the Oracle Identity Manager database. Whenever you add a new resource bundle to 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, switch to the \OIM_HOME\server\bin directory.

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

   \OIM_HOME/server/bin/SCRIPT_FILE_NAME

2. Enter the following command:

   **Note:** You can use the PurgeCache utility to purge the cache for any content category. Run PurgeCache.bat CATEGORY_NAME on Microsoft Windows or PurgeCache.sh CATEGORY_NAME on UNIX. The CATEGORY_NAME argument represents the name of the content category that must be purged.

   For example, the following commands purge Metadata entries from the server cache:

   PurgeCache.bat MetaData
   PurgeCache.sh MetaData

   On Microsoft Windows: PurgeCache.bat All
   On UNIX: PurgeCache.sh All
When prompted, enter the user name and password of an account belonging to the SYSTEM ADMINISTRATORS group. In addition, you are prompted to enter the service URL in the following format:

t3://OIM_HOST_NAME:OIM_PORT_NUMBER

In this format:
- Replace OIM_HOST_NAME with the host name or IP address of the Oracle Identity Manager host computer.
- Replace OIM_PORT_NUMBER with the port on which Oracle Identity Manager is listening.

See Oracle Fusion Middleware Administering Oracle Identity Manager for more information about the PurgeCache utility.

2.3.6 Enabling Logging

Oracle Identity Manager release 11.1.x uses Oracle Java Diagnostic Logging (OJDL) for logging. OJDL is based on java.util.logger. 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:

- \( \text{SEVERE.intValue() + 100} \)
  
  This level enables logging of information about fatal errors.

- \( \text{SEVERE} \)
  
  This level enables logging of information about errors that might allow Oracle Identity Manager to continue running.

- \( \text{WARNING} \)
  
  This level enables logging of information about potentially harmful situations.

- \( \text{INFO} \)
  
  This level enables logging of messages that highlight the progress of the application.

- \( \text{CONFIG} \)
  
  This level enables logging of information about fine-grained events that are useful for debugging.

- \( \text{FINE, FINER, FINEST} \)
  
  These levels enable logging of information about fine-grained events, where FINEST logs information about all events.

These message types are mapped to ODL message type and level combinations as shown in Table 2–2.

<table>
<thead>
<tr>
<th>Java Level</th>
<th>ODL Message Type:Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEVERE.intValue()+100</td>
<td>INCIDENT_ERROR:1</td>
</tr>
<tr>
<td>SEVERE</td>
<td>ERROR:1</td>
</tr>
<tr>
<td>WARNING</td>
<td>WARNING:1</td>
</tr>
<tr>
<td>INFO</td>
<td>NOTIFICATION:1</td>
</tr>
<tr>
<td>CONFIG</td>
<td>NOTIFICATION:16</td>
</tr>
</tbody>
</table>
The configuration file for OJDL is logging.xml, which is located at the following path:

\(\text{DOMAIN\_HOME}/\text{config/fmwconfig/servers/OIM\_SERVER}/\text{logging.xml}\)

Here, \text{DOMAIN\_HOME} and \text{OIM\_SERVER} are the domain name and server name specified during the installation of Oracle Identity Manager.

To enable logging in Oracle WebLogic Server:

1. Edit the logging.xml file as follows:

   a. Add the following blocks in the file:

   ```xml
   <log_handler name='sap-handler' level='[LOG\_LEVEL]' class='oracle.core.ojdl.logging.ODLHandlerFactory'>
     <property name='logreader:' value='off'/>
     <property name='path' value='[FILE\_NAME]'/>
     <property name='format' value='ODL-Text'/>
     <property name='useThreadName' value='true'/>
     <property name='locale' value='en'/>
     <property name='maxFileSize' value='5242880'/>
     <property name='maxLogSize' value='52428800'/>
     <property name='encoding' value='UTF-8'/>
   </log_handler>
   <logger name="ORG.IDENTITYCONNECTORS.SAPUME" level='[LOG\_LEVEL]'
   useParentHandlers="false">  
     <handler name="sap-handler"/>
     <handler name="console-handler"/>
   </logger>
   
   If you are using SAP BusinessObjects AC, then add the following block:

   ```xml
   <logger name="ORG.IDENTITYCONNECTORS.SAPAC" level='[LOG\_LEVEL]'
   useParentHandlers="false">  
     <handler name="sap-handler"/>
     <handler name="console-handler"/>
   </logger>
   
   b. Replace both occurrences of [LOG\_LEVEL] with the ODL message type and level combination that you require. Table 2–2 lists the supported message type and level combinations.

   Similarly, replace [FILE\_NAME] with the full path and name of the log file in which you want log messages to be recorded.

   The following blocks show sample values for [LOG\_LEVEL] and [FILE\_NAME]:

   ```xml
   <log_handler name='sap-handler' level='NOTIFICATION:1'
   class='oracle.core.ojdl.logging.ODLHandlerFactory'>
     <property name='logreader:' value='off'/>
     <property name='path'
     value='F:\MyMachine\middleware\user_projects\domains\base_domain1\servers\oim_server1\logs\oim_server1-diagnostic-1.log'/>```
2.3.7 Setting Up the Lookup.SAPUME.UM.RoleDataSource Lookup Definition

The Lookup.SAPUME.UM.RoleDataSource lookup definition is used to hold data source names of the role object class. By default, this lookup definition contains entry for the UME_ROLE_PERSISTENCE role data source, which is common to all SAP configurations. If there are role data sources specific to your environment, then you must update the Lookup.SAPUME.UM.RoleDataSource lookup definition for these data sources.

**Note:** If you are using SAP BusinessObjects AC system, then you must update the Lookup.SAPACUME.RoleDatasource.

You must log into SAP User Management Engine as the administrator to view and determine the list of role data sources in your environment.

The name of the role data source is available as part of the Unique ID field. The value of the Unique ID field is in the following format:

```
Note: If you are using SAP BusinessObjects AC system, then you must update the Lookup.SAPACUME.RoleDatasource.
```

2. Save and close the file.
3. Set the following environment variable to redirect the server logs to a file:
   For Microsoft Windows:
   ```
   set WLS_REDIRECT_LOG=FILENAME
   ```
   For UNIX:
   ```
   export WLS_REDIRECT_LOG=FILENAME
   ```
   Replace FILENAME with the location and name of the file to which you want to redirect the output.
4. Restart the application server.
**ROLE.DATA_SOURCE_NAME.AUTOGENERATED_VALUE**

The following is a simple value of the Unique ID field:

```
ROLE.PCD_ROLE_PERSISTENCE.YJ1ku1NfogCd1ZoMDG78ocBzkA=
```

In this value, PCD_ROLE_PERSISTENCE is the name of the role data source.

After you determine the names of all role data sources available in your environment, add each data source name by creating an entry in the Lookup.SAPUME.UM.RoleDataSource lookup definition as follows:

1. On the Design Console, expand Administration and then double-click Lookup Definition.
2. Search for and open the Lookup.SAPUME.UM.RoleDataSource lookup definition.
3. Click Add.
4. In the Code and Decode columns, enter the name of the role data source.
5. Repeat Steps 3 and 4 to create entries for all data source names determined in this section.
6. Click the Save icon.

For Oracle Identity Manager release 11.1.2.x:

1. Log in to Oracle Identity System Administration.
   In the left pane, under System Configuration, click Lookups.
2. Search for and open the Lookup.SAPUME.UM.RoleDataSource lookup definition.
3. Click Add.
4. In the Code and Decode columns, enter the name of the role data source.
5. Repeat Steps 3 and 4 to create entries for all data source names determined in this section.
6. Click the Save icon.

**2.3.8 Setting Up the Lookup.SAPUME.UM.GroupDataSource Lookup Definition**

The Lookup.SAPUME.UM.GroupDataSource lookup definition is used to hold data source names of the group object class. By default, this lookup definition contains entry for the PRIVATE_DATASOURCE group data source, which is common to all SAP configurations. If there are group data sources specific to your environment, then you must update the Lookup.SAPUME.UM.GroupDataSource lookup definition for these data sources.
You must log into SAP User Management Engine as the administrator to view and determine the list of group data sources in your environment.

The name of the group data source is available as part of the Unique ID field.

The value of the Unique ID field is in the following format:

\[ \text{GROUP.DATASource.NAME.AUTO GENERATED VALUE} \]

The following is a sample value of the Unique ID field:

\[ \text{GROUP.PRIVATE_DATASOURCE.un:Guests} \]

In this value, PRIVATE_DATASOURCE is the name of the group data source.

After you determine the names of all group data sources available in your environment, add each data source name by creating an entry in the Lookup.SAPUME.UM.GroupDataSource lookup definition as follows:

1. On the Design Console, expand Administration and then double-click Lookup Definition.
2. Search for and open the Lookup.SAPUME.UM.GroupDataSource lookup definition.
3. Click Add.
4. In the Code and Decode columns, enter the name of the group data source.
5. Repeat Steps 3 and 4 to create entries for all data source names determined in this section.
6. Click the Save icon.

For Oracle Identity Manager release 11.1.2.x:

1. Log in to Oracle Identity System Administration.
   
   In the left pane, under System Configuration, click Lookups.
2. Search for and open the Lookup.SAPUME.UM.GroupDataSource lookup definition.
3. Click Add.
4. In the Code and Decode columns, enter the name of the role data source.

Note:

- If you are using SAP BusinessObjects AC system, then you must update the Lookup.SAPACUME.GroupDatasource lookup definition.
- SAP User Management Engine does not allow adding a group from the built-in groups adapter data source. Therefore, this data source must not be added in this lookup definition. If SAP User Management Engine is configured with SAP ABAP-based system as data source, such as R3_ROLE_DS, then check whether User Management Engine allows adding a group that assigns ABAP roles to a user. You can check if this is allowed from the Identity Management page of SAP User Management Engine. If adding the group is allowed, then add the data source, R3_ROLE_DS, to the Lookup.SAPUME.UM.GroupDataSource lookup definition.
5. Repeat Steps 3 and 4 to create entries for all data source names determined in this section.

6. Click the Save icon.

### 2.3.9 Setting Up the Lookup Definitions for Exclusion Lists

In the Lookup.SAPUME.UM.ProvExclusionList and Lookup.SAPUME.UM.ReconExclusionList lookup definitions, enter the user IDs of target system accounts for which you do not want to perform provisioning and reconciliation operations, respectively. See Section 1.6.2.18, "Lookup Definitions for Exclusion Lists" for information about the format of the entries in these lookups.

---

**Note:** The Lookup.SAPUME.UM.ProvExclusionList and Lookup.SAPUME.UM.ReconExclusionList lookup definitions are optional and do not exist by default.

You must add these lookups to the Lookup.SAPUME.UM.Configuration lookup definition to enable exclusions during provisioning and reconciliation operations. See Section 1.6.2.2, "Lookup.SAPUME.UM.Configuration" for more information.

---

To add entries in the lookup for exclusions during provisioning operations:

---

**Note:** To specify user IDs to be excluded during reconciliation operations, add entries in the Lookup.SAPUME.UM.ReconExclusionList lookup.

---

1. On the Design Console, expand **Administration** and then double-click **Lookup Definition**.

2. Search for and open the **Lookup.SAPUME.UM.ProvExclusionList** lookup definition.

3. Click **Add**.

4. In the Code Key and Decode columns, enter the first user ID to exclude.

---

**Note:** The Code Key represents the resource object field name on which the exclusion list is applied during provisioning operations.

---

5. Repeat Steps 3 and 4 for the remaining user IDs to exclude.

For example, if you do not want to provision users with user IDs User001, User002, and User088 then you must populate the lookup definition with the following values:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logon Name</td>
<td>User001</td>
</tr>
<tr>
<td>Logon Name</td>
<td>User002</td>
</tr>
<tr>
<td>Logon Name</td>
<td>User088</td>
</tr>
</tbody>
</table>
You can also perform pattern matching to exclude user accounts. You can specify regular expressions supported by the representation in the java.util.regex.Pattern class.

**See Also:** For information about the supported patterns, visit [http://download.oracle.com/javase/6/docs/api/java/util/regex/Pattern.html](http://download.oracle.com/javase/6/docs/api/java/util/regex/Pattern.html)

For example, if you do not want to provision users matching any of the user IDs User001, User002, and User088, then you must populate the lookup definition with the following values:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logon Name[PATTERN]</td>
<td>User001</td>
</tr>
</tbody>
</table>

If you do not want to provision users whose user IDs start with 00012, then you must populate the lookup definition with the following values:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logon Name[PATTERN]</td>
<td>00012*</td>
</tr>
</tbody>
</table>

6. Click the save icon.

**2.3.10 Configuring Oracle Identity Manager for Request-Based Provisioning**

In request-based provisioning, an end user creates a request for a resource by using the Administrative and User Console. Administrators or other users can also create requests for a particular user. Requests for a particular resource on the resource can be viewed and approved by approvers designated in Oracle Identity Manager.

**Note:** Perform the procedure described in this section only if you are using Oracle Identity Manager release 11.1.1.x.

The direct provisioning feature of the connector is automatically disabled when you enable request-based provisioning. Therefore, do not enable request-based provisioning if you want to use the direct provisioning.

To configure request-based provisioning, perform the following procedures:

- Section 2.3.10.1, "Importing Request Datasets Using Deployment Manager"
- Section 2.3.10.2, "Enabling the Auto Save Form Feature"
- Section 2.3.10.3, "Running the PurgeCache Utility"

**2.3.10.1 Importing Request Datasets Using Deployment Manager**

The request datasets (predefined or generated) can be imported by using the Deployment Manager (DM). The predefined request datasets are stored in the xml/SAPUME-Datasets.xml file on the installation media.

To import a request dataset definition by using the Deployment Manager:

1. Log in to the Administrative and User Console.
2. On the Welcome page, click **Advanced** in the upper-right corner of the page.

3. On the Welcome to Oracle Identity Manager Advanced Administration page, in the System Management region, click **Import Deployment Manager File**. A dialog box for opening files is displayed.

4. Locate and open the SAPUME-Datasets.xml file, which is located in the *xml* directory of the installation media.
   
   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**.

The request datasets are imported into MDS.

### 2.3.10.2 Enabling the Auto Save Form Feature

To enable the Auto Save Form feature:

1. Log in to the Design Console.

2. Expand **Process Management**, and then double-click **Process Definition**.

3. Search for and open the **SAPUME process** process definition.

4. Select the **Auto Save Form** check box.

5. Click the Save icon.

### 2.3.10.3 Running the PurgeCache Utility

Run the PurgeCache utility to clear content belonging to the Metadata category from the server cache. See Section 2.3.5, "Clearing Content Related to Connector Resource Bundles from the Server Cache" for instructions.

The procedure to configure request-based provisioning ends with this step.

### 2.3.11 Configuring SSL to Secure Communication Between the Target System and Oracle Identity Manager

To configure SSL between the target system and Oracle Identity Manager:

1. Generate the certificate on the target system.
   
   See the target system documentation for detailed instructions.

2. To import the certificate on Oracle Identity Manager:
   
   a. Copy the target system certificate to the Oracle Identity Manager host computer.

   b. In a command window, change to the directory where you copy the certificate file and then enter a command similar to the following:
      
      ```
      keytool -import -alias ALIAS -file CER_FILE -keystore MY_CACERTS -storepass PASSWORD
      ```
      
      In this command:
      
      - **ALIAS** is the alias for the certificate (for example, the server name).
Table 2-3 Certificate Store Locations

<table>
<thead>
<tr>
<th>Application Server</th>
<th>Certificate Store Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle WebLogic Server</td>
<td>If you are using Oracle jrockit_R27.3.1-jdk, then copy the certificate into the following directory:</td>
</tr>
<tr>
<td></td>
<td>JROCKIT_HOME/jre/lib/security/cacerts</td>
</tr>
<tr>
<td></td>
<td>If you are using the default Oracle WebLogic Server JDK, then copy the certificate into the following directory:</td>
</tr>
<tr>
<td></td>
<td>WEBLOGIC_HOME/java/jre/lib/security/cacerts</td>
</tr>
</tbody>
</table>

To confirm whether or not the certificate has been imported successfully, enter a command similar to the following:

```
keytool -list -alias ALIAS -keystore MY_CACERTS -storepass PASSWORD
```

For example:

```
keytool -list -alias MyAlias -keystore C:\mydir\java\jre\lib\security\cacerts -storepass changeit
```

### 2.3.12 Configuring the IT Resource for the Target System

The SAPUME IT Resource is automatically created when you run the Connector Installer. You must specify values for the parameters of the IT resource.

**Note:** If you are using SAP BusinessObjects AC system, then the SAP AC UME IT resource is automatically created when you run the Connector Installer.

**Note:** If you are using SAP BusinessObjects AC system, then the SAP AC UME IT resource is automatically created when you run the Connector Installer.

The ALL USERS group has INSERT, UPDATE, and DELETE permissions on the default IT resource. This is to ensure that end users can select the IT resource during request-based provisioning. If you create another IT resource, then you must assign INSERT, UPDATE, and DELETE permissions for the ALL USERS group on the IT resource.

To specify values for the parameters of the IT resource:

- **CER_FILE** is the full path and name of the certificate (.cer) file.

Table 2-3 shows the location of the certificate store of the supported application server.

The following is a sample command:

```
keytool -import -alias ibm1-cert140 -file C:\syaug24\Middleware\ibm-cert.cer -keystore C:\syaug24\Middleware\jrockit_160_24_D1.1.2-4\jre\lib\security\cacerts -storepass changeit
```
1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     Log in to the Administrative and User Console.
   - For Oracle Identity Manager release 11.1.2.x:
     Log in to Oracle Identity System Administration.

2. If you are using Oracle Identity Manager release 11.1.1.x, then:
   a. On the Welcome page, click Advanced in the upper-right corner of the page.
   b. On the Welcome to Oracle Identity Manager Advanced Administration page, in the Configuration region, click Manage IT Resource.

3. If you are using Oracle Identity Manager release 11.1.2.x, then, in the left pane under Configuration, click IT Resource.

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

5. Click the edit icon for the IT resource.

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

7. Specify values for the parameters of the IT resource. Table 2–4 describes the parameters of the SAP UME IT resource and Table 2–5 describes the parameters of the SAP AC UME IT resource.

   **Note:** Entries in this table are sorted in alphabetical order of parameter names.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Lookup</td>
<td>This parameter holds the name of the lookup definition containing configuration information. Value: Lookup.SAPUME.Configuration</td>
</tr>
<tr>
<td>ConnectorServerName</td>
<td>Name of the IT resource of the type &quot;Connector Server.&quot; You create an IT resource for the Connector Server in Section 2.3.13, &quot;Creating the IT Resource for the Connector Server.&quot; Note: Enter a value for this parameter only if you have deployed the SAP User Management Engine connector in the Connector Server.</td>
</tr>
<tr>
<td>changePwdFlag</td>
<td>See Section 2.3.3, &quot;Configuring Password Changes for Newly Created Accounts&quot; for information about the value to be specified for this parameter. Default value: no</td>
</tr>
<tr>
<td>dummyPassword</td>
<td>Enter the dummy password that you want the connector to use during a Create User provisioning operation. The connector first sets the password as this value and then changes it to the password specified on the process form. See Section 2.3.3, &quot;Configuring Password Changes for Newly Created Accounts&quot; for more information about this parameter.</td>
</tr>
<tr>
<td>enableDate</td>
<td>Enter the date that must be set (in the YYYY-MM-DD format) if a user must be enabled. Sample value: 9999-12-31</td>
</tr>
</tbody>
</table>
Table 2–4 (Cont.) Parameters of the SAP UME IT Resource

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>logonNameInitialSubstring</td>
<td>Enter a set of characters to support full reconciliation for the English language. For other languages, enter all characters of that language. Sample value: abcdefghijklmnopqrstuvwxyz1234567890</td>
</tr>
<tr>
<td>logSPMLRequest</td>
<td>Enter yes to specify that the SPML requests being sent to the target system be written to the log file. Otherwise, enter no.</td>
</tr>
<tr>
<td>pwdHandlingSupport</td>
<td>If SAP User Management Engine is configured with an LDAP-based data source in writable mode, then SSL configuration between SAP User Management Engine and the LDAP-based data source is mandatory for password management. In such a scenario, if SSL is not configured between SAP User Management Engine and the LDAP-based data source and password need not be maintained from SAP User Management Engine, then set the value of this parameter no. Otherwise, set the value of this parameter to yes. Default value: yes</td>
</tr>
<tr>
<td>TopologyName</td>
<td>Enter the name of the topology of the computer hosting the target system</td>
</tr>
<tr>
<td>umePassword</td>
<td>Enter the password of the target system user account that you create for connector operations</td>
</tr>
</tbody>
</table>
| umeUrl                     | - If you perform the procedure described in Section 2.3.11, “Configuring SSL to Secure Communication Between the Target System and Oracle Identity Manager,” then enter the URL for the SPML service in the following format: https://HOSTNAME:SSL_PORT/spml/spmlservice  
  - If you do not configure SSL between the target system and Oracle Identity Manager, then enter the URL for the SPML service in the following format: http://HOSTNAME:PORT/spml/spmlservice Sample value: http://myhost:50000/spml/spmlservice |
| umeUserId                  | Enter the user ID of the target system user account that you create for connector operations |

Table 2–5 Parameters of the SAP AC UME IT Resource

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| changePwdFlag           | See Section 2.3.3, “Configuring Password Changes for Newly Created Accounts” for information about the value to be specified for this parameter.  
  Default value: no |
| Configuration Lookup    | This parameter holds the name of the lookup definition containing configuration information.  
  Value: Lookup.SAPAC10UME.Configuration |
| ConnectorServerName     | Name of the IT resource of the type “Connector Server.” You create an IT resource for the Connector Server in Section 2.3.13, “Creating the IT Resource for the Connector Server.”  
  Note: Enter a value for this parameter only if you have deployed the SAP User Management Engine connector in the Connector Server. |
| dummyPassword           | Enter the dummy password that you want the connector to use during a Create User provisioning operation. The connector first sets the password as this value and then changes it to the password specified on the process form. See Section 2.3.3, “Configuring Password Changes for Newly Created Accounts” for more information about this parameter. |
| enableDate              | Enter the date that must be set (in the YYYY-MM-DD format) if a user must be enabled. Sample value: 9999-12-31 |
2. To save the values, click **Update**.

### 2.3.13 Creating the IT Resource for the Connector Server

Perform the procedure described in this section only if you have installed the connector bundle in a Connector Server, as described in Section 2.2.2, "Deploying the Connector Bundle in a Connector Server." You must create a separate IT resource for the Connector Server.

To create the IT resource for the Connector Server:

1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     Log in to the Administrative and User Console.
   - For Oracle Identity Manager release 11.2.x:
     Log in to Oracle Identity System Administration.
2. If you are using Oracle Identity Manager release 11.1.1.x, then:
   a. On the Welcome page, click Advanced in the upper-right corner of the page.
   b. On the Welcome to Oracle Identity Manager Advanced Administration page, in the Configuration region, click Create IT Resource.

3. If you are using Oracle Identity Manager release 11.1.2.x, then:
   a. In the left pane under Configuration, click IT Resource.

   **Note:** If you are using Oracle Identity Manager release 11.1.2.3.x or later, then in the left pane, under Provisioning Configuration, click IT Resource.

   b. In the Manage IT Resource page, click Create IT Resource.

4. **Note:** On the Step 1: Provide IT Resource Information page, perform the following steps:
   - IT Resource Name: Enter a name for the IT resource.
   - IT Resource Type: Select Connector Server from the IT Resource Type list.
   - Remote Manager: Do not enter a value in this field.

5. Click Continue. Figure 2–1 shows the IT resource values added on the Create IT Resource page.

   **Figure 2–1  Step 1: Provide IT Resource Information**

   ![Create IT Resource](image)

   Create IT Resource

   **Step 1: Provide IT Resource Information**

   Specify the IT resource name, and select the IT resource type. If the IT resource is to be accessed using a remote manager, then select a remote manager.

   * Indicates Required Field

   IT Resource Name
   IT Resource Type
   Remote Manager

   *ConnectorServer
   *ConnectorServer

   Clear
   Clear

6. On the Step 2: Specify IT Resource Parameter Values page, specify values for the parameters of the IT resource and then click Continue. Figure 2–2 shows the Step 2: Specify IT Resource Parameter Values page.
**Table 2-6** provides information about the parameters of the IT resource.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>Enter the host name or IP address of the computer hosting the connector server. Sample value: RManager</td>
</tr>
<tr>
<td>Key</td>
<td>Enter the key for the Java connector server.</td>
</tr>
<tr>
<td>Port</td>
<td>Enter the number of the port at which the connector server is listening. Default value: 8759</td>
</tr>
<tr>
<td>Timeout</td>
<td>Enter an integer value which specifies the number of milliseconds after which the connection between the connector server and Oracle Identity Manager times out. Sample value: 300</td>
</tr>
<tr>
<td>UseSSL</td>
<td>Enter true to specify that you will configure SSL between Oracle Identity Manager and the Connector Server. Otherwise, enter false. Default value: false</td>
</tr>
</tbody>
</table>

**Note:** If you configure the connector to communicate with the Connector Server using SSL, including setting the connectorserver.usessl property to true and importing the target system certificate into the Connector Server JDK keystore, an attempt to access the target system or run the Connector Server returns an error.

7. On the Step 3: Set Access Permission to IT Resource page, the **SYSTEM ADMINISTRATORS** group is displayed by default in the list of groups that have Read, Write, and Delete permissions on the IT resource that you are creating.

**Note:** This step is optional.

If you want to assign groups to the IT resource and set access permissions for the groups, then:

a. Click **Assign Group**.

b. For the groups that you want to assign to the IT resource, select **Assign** and the access permissions that you want to set. For example, if you want to assign the **ALL USERS** group and set the Read and Write permissions to this group,
then you must select the respective check boxes in the row, as well as the Assign check box, for this group.

c. Click Assign.

8. On the Step 3: Set Access Permission to IT Resource page, if you want to modify the access permissions of groups assigned to the IT resource, then:

   a. Click Update Permissions.

   b. Depending on whether you want to set or remove specific access permissions for groups displayed on this page, select or deselect the corresponding check boxes.

   c. Click Update.

9. On the Step 3: Set Access Permission to IT Resource page, if you want to unassign a group from the IT resource, then:

   a. Select the Unassign check box for the group that you want to unassign.

   b. Click Unassign.

10. Click Continue. Figure 2–3 shows the Step 3: Set Access Permission to IT Resource page.
11. On the Step 4: Verify IT Resource Details page, review the information that you provided on the first, second, and third pages. If you want to make changes in the data entered on any page, click Back to revisit the page and then make the required changes.

12. To proceed with the creation of the IT resource, click Continue. Figure 2–4 shows Step 4: Verify IT Resource Details page.
Figure 2–4  Step 4: Verify IT Resource Details

13. The Step 5: IT Resource Connection Result page displays the results of a connectivity test that is run using the IT resource information. If the test is successful, then click Continue. If the test fails, then you can perform one of the following steps:

- Click Back to revisit the previous pages and then make corrections in the IT resource creation information.
- Click Cancel to stop the procedure, and then begin from the first step onward.

Figure 2–5 shows the Step 5: IT Resource Connection Result page.
14. Click Finish. Figure 2–6 shows the IT Resource Created Page.
2.3.14 Configuring the Access Request Management Feature of the Connector

Oracle Identity Manager can be configured as the medium for sending provisioning requests to SAP BusinessObjects AC Access Request Management. A request from Oracle Identity Manager is sent to Access Request Management, which forwards the provisioning data contained within the request to the target system (SAP R/3 or SAP CUA). The outcome is the creation of or modification to the user’s account on the target system.

**Note:** Before you configure the Access Request Management feature, it is recommended that you read the guidelines described in Section 1.4.5, "Guidelines on Using a Deployment Configuration."

The following sections provide information about configuring the Access Request Management feature:

- Section 2.3.14.1, "Specifying Values for the GRC UME-ITRes IT Resource"
- Section 2.3.14.2, "Configuring Request Types and Workflows on SAP BusinessObjects AC Access Request Management"
2.3.14.1 Specifying Values for the GRC UME-ITRes IT Resource

The GRC UME-ITRes IT resource holds information that is used during communication with SAP BusinessObjects AC Access Request Management. To set values for the parameters of this IT resource:

1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     Log in to the Administrative and User Console.
   - For Oracle Identity Manager release 11.1.2.x:
     Log in to Identity System Administration.

2. If you are using Oracle Identity Manager release 11.1.1.x, then:
   a. On the Welcome page, click Advanced in the upper-right corner of the page.
   b. On the Welcome to Oracle Identity Manager Advanced Administration page, in the Configuration region, click Manage IT Resource.

3. If you are using Oracle Identity Manager release 11.1.2.x, then, in the left pane under Configuration, click IT Resource.

4. In the IT Resource Name field on the Manage IT Resource page, enter GRC UME-ITRes and then click Search.

5. Click the edit icon for the IT resource.

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

7. Specify values for the parameters of the IT resource.

   Table 2–7 lists the parameters of the GRC UME-ITRes IT resource.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration Lookup</td>
<td>Enter the name of the configuration lookup definition.</td>
</tr>
<tr>
<td>Value for Lookup</td>
<td></td>
</tr>
<tr>
<td>Lookup.SAPUME.Configuration</td>
<td></td>
</tr>
<tr>
<td>Connector Server Name</td>
<td>Name of the IT resource of the type &quot;Connector Server.&quot;</td>
</tr>
<tr>
<td>language</td>
<td>Enter the two-letter code for the language set on the target system.</td>
</tr>
<tr>
<td></td>
<td>Sample value: EN</td>
</tr>
<tr>
<td>password</td>
<td>Enter the password of the account created on Access Request Management system.</td>
</tr>
<tr>
<td>port</td>
<td>Enter the number of the port at which Access Request Management system is listening.</td>
</tr>
<tr>
<td></td>
<td>Sample value: 8090</td>
</tr>
<tr>
<td>server</td>
<td>Enter the IP address of the host computer on which Access Request Management system is listening.</td>
</tr>
<tr>
<td></td>
<td>Sample value: 10.231.231.231</td>
</tr>
<tr>
<td>username</td>
<td>Enter the user name of an account created on Access Request Management system. This account is used to call Access Request Management system APIs that are used during request validation.</td>
</tr>
<tr>
<td></td>
<td>Sample value: jdoe</td>
</tr>
</tbody>
</table>
8. To save the values, click **Update**.

### 2.3.14.2 Configuring Request Types and Workflows on SAP BusinessObjects AC Access Request Management

You must create and configure request types and workflows on SAP BusinessObjects AC Access Request Management for provisioning operations.

1. Create a request type in SAP BusinessObjects AC Access Request Management.

   In SAP BusinessObjects AC Access Request Management, a request type defines the action that is performed when a request is processed. Oracle Identity Manager is a requester. It works with request types defined in SAP BusinessObjects AC Access Request Management. The Lookup.SAPUME.AC10.Configuration lookup definition maps request types to provisioning operations submitted through Oracle Identity Manager.

2. Create an access request workflow using the MSMP (Multi Step Multi process) Workflow engine.

### 2.3.15 Configuring SoD

This section discusses the following procedures:

- **Section 2.3.15.1, "Configuring SAP BusinessObjects AC to Act As the SoD Engine"
- **Section 2.3.15.2, "Specifying Values for the GRC UME-ITRes IT Resource"
- **Section 2.3.15.3, "Specifying a Value for the TopologyName IT Resource Parameter"
- **Section 2.3.15.4, "Disabling and Enabling SoD"

#### Note:

- The ALL USERS group has INSERT, UPDATE, and DELETE permissions on the UD_SAPUME and UD_UME_ROLE process forms. This is required to enable the following process:

  During SoD validation of an entitlement request, data first moves from a dummy object form to a dummy process form. From there data is sent to the SoD engine for validation. If the request clears the SoD validation, then data is moved from the dummy process form to the actual process form. Because the data is moved to the actual process forms through APIs, the ALL USERS group must have INSERT, UPDATE, and DELETE permissions on the three process forms.

- In the Lookup.SAPUME.Configuration lookup definition, you must change the Decode value of the SOD Configuration, entitlementRiskAnalysisWS lookup entry to oracle.iam.grc.sod.scomp.impl.grcsap.util.webservice.sap.ac10.RiskAnalysisWithoutNo”

#### 2.3.15.1 Configuring SAP BusinessObjects AC to Act As the SoD Engine

For more information about this procedure, see Using Segregation of Duties in Oracle Fusion Middleware Developer’s Guide for Oracle Identity Manager at [https://docs.oracle.com/cd/E27559_01/dev.1112/e27150/segduties.htm#OMDEV3109](https://docs.oracle.com/cd/E27559_01/dev.1112/e27150/segduties.htm#OMDEV3109).
2.3.15.2 Specifying Values for the GRC UME-ITRes IT Resource

The GRC UME-ITRes IT resource holds information that is used by the connector during SoD operations. This IT resource is the same as the one used by the Access Request Management feature for both Oracle Identity Manager.

See Section 2.3.14.1, "Specifying Values for the GRC UME-ITRes IT Resource" for the procedure to set values for the parameters of this IT resource.

2.3.15.3 Specifying a Value for the TopologyName IT Resource Parameter

The TopologyName IT resource parameter holds the name of the combination of the following elements that you want to use for SoD validation:

- Oracle Identity Manager installation
- SAP BusinessObjects AC installation
- SAP ERP installation

By default, the GRC-ITRes IT resource is registered. However, you must manually register the GRC UME-ITRes IT resource and enter the new topology name as the value of the TopologyName IT resource parameter.

To register the GRC UME-ITRes IT resource:

1. Run the following command and add instance names for SAP and GRC.
   
   On Microsoft Windows: `OIM_HOME\server\bin>registration.bat`
   
   On a UNIX-based computer: `OIM_HOME/server/bin./registration.sh`
   
   After running this command, enter options as shown in the following sample output:
   
   Do you want to proceed with registration? {y/n} y
   Register System Instance for type OIM ?{y/n} n
   Register System Instance for type EBS ?{y/n} n
   Register System Instance for type PSFT ?{y/n} n
   Register System Instance for type OAACG ?{y/n} n
   Register System Instance for type SAP ?{y/n} y
   Provide instance name sap1
   Register System Instance for type GRC ?{y/n} y
   Provide instance name grc1
   GRC ITResource Instance Name: GRC UME-ITRes
   Register System Instance for type OIM SDS ?{y/n} n
   Register System Instance for type OIA ?{y/n} n

2. Run the following command and find the registration IDs for the above instance names:
   
   `OIM_HOME\server\bin>registration printRegistrationIDs`

3. Import the metadata/iam-features-sil/db/SILConfig.xml file from MDS and add the `<Topology>` element with IDs found in Step 2.

   Here is a sample element:
   
   ```xml
   <Topology>
     <name>sodrcume</name>
     <IdmId>1</IdmId>
     <SodId>24</SodId>
     <SDSId>23</SDSId>
   </Topology>
   ```
4. Export the metadata/iam-features-sil/db/SILConfig.xml file to MDS and restart the server.

For more information on Configuring the SoD Engine in Oracle Fusion Middleware Developer’s Guide for Oracle Identity Manager see, https://docs.oracle.com/cd/E27559_01/dev.1112/e27150/segduties.htm#OMDEV3393.

See Section 2.3.12, "Configuring the IT Resource for the Target System" for information about specifying values for parameters of the IT resource.

2.3.15.4 Disabling and Enabling SoD
This section describes the procedure to disable and enable SoD on Oracle Identity Manager.

- Disabling SoD on Oracle Identity Manager
- Enabling SoD on Oracle Identity Manager Release

**Disabling SoD on Oracle Identity Manager**
To disable SoD:

1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     a. Log in to the Administrative and User Console.
     b. On the Welcome page, click Advanced in the upper-right corner of the page.
     c. On the Welcome to Oracle Identity Manager Advanced Administration page, in the System Management tab, click System Configuration.
   - For Oracle Identity Manager release 11.1.2.x:
     a. Log in to Identity System Administration.
     b. In the left pane, under System Management, click System Configuration.

2. In the Search System Configuration box, enter XL.SoDCheckRequired and then click Search.
   
   A list that matches your search criteria is displayed in the search results table.

3. Click the XL.SoDCheckRequired property name.
   
   System properties for SoD are displayed on the right pane.

4. In the Value box, enter FALSE to disable SoD.

5. Click Save.

6. Restart Oracle Identity Manager.

**Enabling SoD on Oracle Identity Manager Release**
To enable SoD:

1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     a. Log in to the Administrative and User Console.
b. On the Welcome page, click **Advanced** in the upper-right corner of the page.

c. On the Welcome to Oracle Identity Manager Advanced Administration page, in the System Management tab, click **System Configuration**.

- For Oracle Identity Manager release 11.1.2.x:
  a. Log in to Identity System Administration.
  b. In the left pane, under System Management, click **System Configuration**.

2. In the Search System Configuration box, enter **XL.SoDCheckRequired** and then click **Search**.

   A list that matches your search criteria is displayed in the search results table.

3. Click the **XL.SoDCheckRequired** property name.

   System properties for SoD are displayed on the right pane.

4. In the Value box, enter **TRUE** to enable SoD.

5. Click **Save**.

6. Restart Oracle Identity Manager.

### 2.3.16 Downloading WSDL files from SAP BusinessObjects AC

In SAP BusinessObjects AC, you need to download the WSDL files from SAP BusinessObjects AC before configuring the web services. WSDL is required for the connector to connect SAP web services.

Since the connector supports only basic authentication, select the User ID/Password check box for the following web services supported from OIM:

<table>
<thead>
<tr>
<th>WSDL</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRAC_AUDIT_LOGS_WS</td>
<td>Audit log web service</td>
</tr>
<tr>
<td>GRAC_LOOKUP_WS</td>
<td>Look Up Service</td>
</tr>
<tr>
<td>GRAC_REQUEST_STATUS_WS</td>
<td>Request status web service</td>
</tr>
<tr>
<td>GRAC_RISK_ANALYSIS_WOUT_NO_WS</td>
<td>Risk analysis without request number</td>
</tr>
<tr>
<td>GRAC_SELECT_APPL_WS</td>
<td>Select Application web service</td>
</tr>
<tr>
<td>GRAC_USER_ACCESS_WS</td>
<td>User Access Request Service</td>
</tr>
<tr>
<td>GRAC_SEARCH_ROLES_WS</td>
<td>Search role web service</td>
</tr>
</tbody>
</table>

When you download the WSDL file, ensure to save it with the same name as mentioned in the SOA Management page. In addition, ensure that the folder containing WSDL files have read permission.

### 2.3.17 Localizing Field Labels in UI Forms

**Note:** Perform the procedure described in this section only if you are using Oracle Identity Manager release 11.1.2.x or later and you want to localize UI form field labels.
To localize field label that you add to in UI forms:

1. Log in to Oracle Enterprise Manager.
2. In the left pane, expand Application Deployments and then select oracle.iam.console.identity.sysadmin.ear.
3. In the right pane, from the Application Deployment list, select MDS Configuration.
4. On the MDS Configuration page, click Export and save the archive to the local computer.
5. Extract the contents of the archive, and open one of the following files in a text editor:
   - For Oracle Identity Manager 11g Release 2 PS2 (11.1.2.2.0):
     
     ```
     SAVED_LOCATION\xliffBundles\oracle\iam\ui\runtime\BizEditorBundle_en.xlf
     ```
   - For releases prior to Oracle Identity Manager 11g Release 2 PS2 (11.1.2.2.0):
     
     ```
     SAVED_LOCATION\xliffBundles\oracle\iam\ui\runtime\BizEditorBundle.xlf
     ```
6. Edit the BizEditorBundle.xlf file in the following manner:
   a. Search for the following text:
      ```
      <file source-language="en"
            original="/xliffBundles/oracle/iam/ui/runtime/BizEditorBundle_en.xlf"
            datatype="x-oracle-adf">
      ```
   b. Replace with the following text:
      ```
      <file source-language="en" target-language="LANG_CODE"
            original="/xliffBundles/oracle/iam/ui/runtime/BizEditorBundle.xlf"
            datatype="x-oracle-adf">
      ```
      In this text, replace LANG_CODE with the code of the language that you want to localize the form field labels. The following is a sample value for localizing the form field labels in Japanese:
      ```
      <file source-language="en" target-language="ja"
            original="/xliffBundles/oracle/iam/ui/runtime/BizEditorBundle.xlf"
            datatype="x-oracle-adf">
      ```
   c. Search for the application instance code. This procedure shows a sample edit for SAP User Management Engine application instance. The original code is:
      ```
      <trans-unit
         id="${adfBundle['oracle.adf.businesseditor.model.util.BaseRuntimeResourceBundle']}'["persdef.sessiondef.oracle.iam.ui.runtime.form.model.user.entity.useREO.UD_SAPUME_DEPARTMENT__c_description'"]">
         <source>Department</source>
      </target>
      </trans-unit>
      <trans-unit
         id="sessiondef.oracle.iam.ui.runtime.form.model.SAPUMEFORM.entity.SAPUMEFOR_MEO.UD_SAPUME_DEPARTMENT__c_LABEL">
         <source>Department</source>
      </target>
      ```
d. Open the resource file from the connector package, for example `SAPUME_ja.properties`, and get the value of the attribute from the file, for example, `global.udf.UD_SAPUME_DEPARTMENT=部門`.

e. Replace the original code shown in Step 6.b with the following:

```xml
<trans-unit
  id="${adfBundle['oracle.adf.businesseditor.model.util.BaseRuntimeResourceBundle']['persdef.sessiondef.oracle.iam.ui.runtime.form.model.user.entity.userEO.UD_SAPUME_DEPARTMENT__c_description']}">
  <source>Department</source>
  <target>部門</target>
</trans-unit>
<trans-unit
  id="sessiondef.oracle.iam.ui.runtime.form.model.SAPUMEFORM.entity.SAPUMEFOR MEO.UD_SAPUME_DEPARTMENT__c_LABEL">
  <source>Department</source>
  <target>部門</target>
</trans-unit>
```

f. Repeat Steps 6.a through 6.d for all attributes of the process form.

g. Save the file as BizEditorBundle_LANG_CODE.xlf. In this file name, replace LANG_CODE with the code of the language to which you are localizing.

Sample file name: BizEditorBundle_ja.xlf.

7. Repackage the ZIP file and import it into MDS.

**See Also:** Deploying and Undeploying Customizations in *Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager*, for more information about exporting and importing metadata files

8. Log out of and log in to Oracle Identity Manager.

### 2.3.18 Synchronizing the SAPUME Process Form and SAP AC UME Process Form with Target System Field Lengths

The field length of attribute values in the target system must be the same as the field length of values in the SAPUME process form and SAP AC UME Process Form fields.

### 2.4 Upgrading the Connector

You can upgrade the SAP User Management Engine connector while in production, and with no downtime. Your customizations will remain intact and the upgrade will be transparent to your users. All form field names are preserved from the legacy connector.

To upgrade the SAP User Management Engine connector, perform the procedures described in the following sections:

- **Section 2.4.1**, "Prerequisites for Upgrading the Connector,"
- **Section 2.4.2**, "Upgrading the Connector,"
- **Section 2.4.3**, "Performing the Postupgrade Steps,"
Upgrading the Connector

2.4.1 Prerequisites for Upgrading the Connector

Before you perform an upgrade operation or any of the upgrade procedures, you must perform the following actions:

- Perform a reconciliation run to fetch all latest updates to Oracle Identity Manager.
- Define the source connector (an earlier release of the connector that must be upgraded) in Oracle Identity Manager. You define the source connector to update the Deployment Manager XML file with all customization changes made to the connector.
- Run the Oracle Identity Manager Delete JARs utility to delete the old connector bundle to the Oracle Identity Manager database.

See Also: Managing Connector Lifecycle of Oracle Fusion Middleware Administering Oracle Identity Manager for detailed information of these steps

2.4.2 Upgrading the Connector

Depending on the environment in which you are upgrading the connector, perform one of the following steps:

- Staging Environment
  Perform the upgrade procedure by using the wizard mode.
- Production Environment
  Perform the upgrade procedure by using the silent mode.

See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the wizard and silent modes

2.4.3 Performing the Postupgrade Steps

Perform the procedure described in this section to complete the steps that are required to post-upgrade.

1. Run the Oracle Identity Manager Upload JARs utility to post the new connector bundle to the Oracle Identity Manager database.
Upgrading the Connector

2. Re-configure the IT resource of the connector.

3. Upgrading the connector will generate duplicate entries in Lookups, you must manually delete these duplicate entries. Perform the Postupgrade procedure documented in Managing Connector Lifecycle of Oracle Fusion Middleware Administering Oracle Identity Manager.

4. Perform the postupgrade steps. Depending on the version of the connector that you are using, perform one of the procedures described in the following sections:
   - Section 2.4.3.1, "Performing the Postupgrade Steps for Releases 9.x, 11.1.1.5.0, and 11.1.1.6.0 of the SAP User Management Engine Connector"
   - Section 2.4.3.2, "Perform the Postupgrade Steps for Release 11.1.1.8.0 or later of the SAP User Management Engine Connector"

2.4.3.1 Performing the Postupgrade Steps for Releases 9.x, 11.1.1.5.0, and 11.1.1.6.0 of the SAP User Management Engine Connector

Run the Form Version Control (FVC) utility to manage data changes on a form after an upgrade operation.

To do so, in a text editor, open the fvc.properties file located in the OIM_DC_HOME directory.

If you are using the connector release 9x, include the following entries:

```
ResourceObject;SAPUME Resource Object
FormName;UD_SAPEP
FromVersion;V_9.0.4.12
ToVersion;v_11.1.1.8.0
Parent;UD_SAPEP_IS_LOCK;false
```

If you are using the connector release 11.1.1.x, include the following entries:

```
ResourceObject;SAPUME Resource Object
FormName;UD_SAPUME
FromVersion;V_11.1.1.5.0
ToVersion;v_11.1.1.8.0
Parent;UD_SAPUME_IS_LOCK;false
```

2.4.3.2 Perform the Postupgrade Steps for Release 11.1.1.8.0 or later of the SAP User Management Engine Connector

Depending on the type of connector that you choose to upgrade, perform one of the following procedures:
   - Section 2.4.3.2.1, "Postupgrade Steps While Upgrading the Basic User Management Engine configuration from Release 11.1.1.8.0 to Release 11.1.1.9.0"
   - Section 2.4.3.2.2, "Postupgrade Steps While Upgrading the SoD validation of SAP BusinessObjects AC Access Risk Analysis from Release 11.1.1.8.0 to Release 11.1.1.9.0"
   - Section 2.4.3.2.3, "Postupgrade Steps While Upgrading the SAP BusinessObjects AC Access Request Management from Release 11.1.1.8.0 to Release 11.1.1.9.0"

See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the Upload JARs utility
2.4.3.2.1 Postupgrade Steps While Upgrading the Basic User Management Engine configuration from Release 11.1.1.8.0 to Release 11.1.1.9.0

Run the Form Version Control (FVC) utility to manage data changes on a form after an upgrade operation. To do so, in a text editor, open the fvc.properties file located in the OIM_DC_HOME directory.

If you are using the connector release 11.1.1.8.0, include the following entries:

```
ResourceObject; SAPUME Resource Object
FormName; UD_SAPUME
FromVersion; V_11.1.1.8.0
ToVersion; v_11.1.1.9.0
```

---

**Note:** While upgrading the connector, the following information will display. You must manually delete the following adapters and Event handlers:

- The "sapume ac remove child" and "sapume ac add child" Adapters.
- The "adpSAPUMEACREMOVECHIL" and "adpSAPUMEACADDCHILD" event handlers.

---

2.4.3.2.2 Postupgrade Steps While Upgrading the SoD validation of SAP BusinessObjects AC Access Risk Analysis from Release 11.1.1.8.0 to Release 11.1.1.9.0

Perform the procedure described in this section to complete the postupgrade steps for the SoD validation of SAP BusinessObjects AC Access Risk Analysis.

1. Re-configure the GRC UME-ITRes IT resource.

2. You must manually update the decode values of the following entries in the 'Lookup.SAPUME.Configuration' lookup definition:
   - SODSystemKey
   - wsdlFilePath
   - entitlementRiskAnalysisAccessURL

3. Run the Form Version Control (FVC) utility to manage data changes on a form after an upgrade operation. To do so, in a text editor, open the fvc.properties file located in the OIM_DC_HOME directory. If you are using the connector release 11.1.1.8.0, include the following entries:

```
ResourceObject; SAPUME Resource Object
FormName; UD_SAPUME
FromVersion; V_11.1.1.8.0
ToVersion; v_11.1.1.9.0
```

4. Create a new version of the process form, and run the "Resubmit Uninitiated Provisioning SODChecks" scheduler.
2.4.3.2.3 Postupgrade Steps While Upgrading the SAP BusinessObjects AC Access Request Management from Release 11.1.1.8.0 to Release 11.1.1.9.0

Perform the procedure described in this section to complete the postupgrade steps for the SAP BusinessObjects AC Access Request Management.

1. Re-configure the SAPUME IT Resource IT resource with GRC credentials.

2. You must manually update the decode values for the following entries in the "Lookup.SAPAC10UME.Configuration" lookup definition:
   - roleLookupAccessURL
   - otherLookupAccessURL
   - auditLogsAccessURL
   - appLookupAccessURL
   - wsdlFilePath
   - userAccessAccessURL
   - requestStatusAccessURL
   - Note: Upgrading the connector will generate duplicate entries in Lookups, you must manually delete these duplicate entries.

   Perform the postupgrade procedure documented in the Managing Connector Lifecycle of Oracle Fusion Middleware Administering Oracle Identity Manager.

3. Run the Form Version Control (FVC) utility to manage data changes on a form after an upgrade operation. To do so:

   In a text editor, open the fvc.properties file located in the OIM_DC_HOME directory. If you are using the connector release 11.1.1.8.0, include the following entries:

   ```
   ResourceObject;SAP AC UME Resource Object
   FormName;UD_SAPUME
   FromVersion;v_11.1.1.8.0
   ToVersion;v_11.1.1.9.0
   ```

   Run the FVC utility. This utility is copied into the following directory when you install the design console:

   **For Microsoft Windows:**
   
   `OIM_DC_HOME/fvcutil.bat`

   **For UNIX:**
   
   `OIM_DC_HOME/fvcutil.sh`

---

**Note:** While upgrading the connector, the following information will display. You must manually delete the following adapters and Event handlers:

- The "sapume ac remove child" and "sapume ac add child" Adapters.
- The "adpSAPUMEACREMOVECHIL" and "adpSAPUMEACADDCCHILD" event handlers.
When you run this utility, you are prompted to enter the login credentials of the Oracle Identity Manager administrator, and the logger level and log file location.

**See Also:** Using the Form Version Control Utility of Oracle Fusion Middleware Administering Oracle Identity Manager for detailed information about the FVC utility

4. Run the PostUpgradeScript_SAPUME.sql script as follows:
   a. Connect to the Oracle Identity Manager database by using the OIM DB User credentials.
   b. Run the PostUpgradeScript_SAPUME.sql. This script is located in the Upgrade directory on the installation media.

   **Note:** Change the task name of the bulk adapter after upgrade.
   Example: Replace UD_SAPACUME Updated with UD_SAPUME Updated.

5. Create a new version of the process form.

   If you are using Oracle Identity Manager release 11.1.2.x, then all changes made to the Form Designer of the Design Console must be done in a new UI form as follows:
   a. Log in to Oracle Identity System Administration.
   b. Create and activate a sandbox. See Section 2.3.1.1, "Creating and Activating a Sandbox" for more information.
   c. Create a new UI form to view the upgraded fields. See Section 2.3.1.2, "Creating a New UI Form" for more information about creating a UI form.
   d. Associate the newly created UI form with the application instance of your target system. To do so, open the existing application instance for your resource, from the Form field, select the form (created in the preceding step), and then save the application instance.
   e. Publish the sandbox. See Section 2.3.1.4, "Publishing a Sandbox" for more information.

6. Run all the following scheduled jobs that are used for SAP BusinessObjects AC lookup field synchronization:

   **Note:** You can specify values for the attributes of these scheduled jobs. Table 3–2 describes the attributes of these scheduled jobs. Section 3.5, "Configuring Scheduled Jobs" describes the procedure to configure scheduled jobs.

   - SAP AC UME Role Lookup Reconciliation
   - SAP AC UME Group Lookup Reconciliation
   - SAP AC UME BusinessProcess Lookup Reconciliation
   - SAP AC UME FunctionalArea Lookup Reconciliation
   - SAP AC UME ItemProvAction Lookup Reconciliation
- SAP AC UME Priority Lookup Reconciliation
- SAP AC UME ReqInitSystem Lookup Reconciliation
- SAP AC UME RequestType Lookup Reconciliation

7. Perform full reconciliation.

   This operation updates the Unique Id resource object field and the lock status of the users. The lock status will be updated as per the value specified in the fvc.properties file in Step 5a.

   See Section 3.4.1, "Full Reconciliation" for more information about this step.

8. After upgrading the connector, you can perform delete reconciliation.

   See Section 3.4.3, "Reconciliation Scheduled Jobs" for more information about delete reconciliation.

9. If you are using Connector Server, Deploy the Connector Bundle in a Connector Server. See Section 2.2.2, "Deploying the Connector Bundle in a Connector Server" for more information.
Upgrading the Connector
This chapter is divided into the following sections:

**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.

- Section 3.1, "Performing Full Reconciliation"
- Section 3.2, "Scheduled Job for Lookup Field Synchronization"
- Section 3.3, "Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization"
- Section 3.4, "Configuring Reconciliation"
- Section 3.5, "Configuring Scheduled Jobs"
- Section 3.6, "Guidelines on Performing Provisioning"
- Section 3.7, "Configuring Provisioning in Oracle Identity Manager Release 11.1.1.x"
- Section 3.8, "Configuring Provisioning in Oracle Identity Manager Release 11.1.2.x"
- Section 3.9, "Uninstalling the Connector"

### 3.1 Performing Full Reconciliation

Full reconciliation involves reconciling all existing user records from the target system into Oracle Identity Manager. After you deploy the connector, you must first perform full reconciliation.

To perform a full reconciliation run, remove (delete) any value currently assigned to the Filter attribute of the SAP UME User Recon scheduled task. See Section 3.5, "Configuring Scheduled Jobs" for information about this scheduled task.

### 3.2 Scheduled Job for Lookup Field Synchronization

The following scheduled jobs are used for lookup field synchronization:

- SAP UME Group Lookup Reconciliation
- SAP UME Role Lookup Reconciliation
You must specify values for the attributes of these scheduled jobs. Table 3–1 describes the attributes of these scheduled jobs. The procedure to configure scheduled tasks is described later in the guide.

### Table 3–1 Attributes of the Scheduled Jobs for Lookup Field Synchronization

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| Code Key Attribute      | Enter the name of the connector or target system attribute that is used to populate the Code Key column of the lookup definition (specified as the value of the Lookup Name attribute).  
  Depending on the scheduled job you are using, the default values are as follows:  
  - For SAP UME Group Lookup Reconciliation: id  
  - For SAP UME Role Lookup Reconciliation: id  
  **Note:** You must not change the value of this attribute. |
| Decode Attribute        | Enter the name of the connector or target system attribute that is used to populate the Decode column of the lookup definition (specified as the value of the Lookup Name attribute).  
  Depending on the scheduled job that you are using, the default values are as follows:  
  - For SAP UME Group Lookup Reconciliation: description  
  - For SAP UME Role Lookup Reconciliation: description |
| Filter                  | Enter a filter condition using the or operator, represented by vertical bar (|), to filter out the data sources from which group or role details must be fetched.  
  Sample value of this attribute for group lookup synchronization:  
  ```java  
  equalTo('datasource', 'R3_ROLE_DS') | equalTo('datasource', 'PRIVATE_DATA SOURCE') | equalTo('datasource', 'SUPER_GROUPS_DATASOURCE')  
  ```  
  Sample value of this attribute for role lookup synchronization:  
  ```java  
  equalTo('datasource', 'PCD_ROLE_PERSISTENCE') | equalTo('datasource', 'UME_ROLE_PERSISTENCE')  
  ```  
  **Note:** Specifying a value for this attribute is mandatory for Group and Role reconciliation schedule jobs. |
| IT Resource Name        | Enter the name of the IT resource for the target system installation from which you want to reconcile user records.  
  Default value: SAPUME IT Resource |
| Lookup Name             | This attribute holds the name of the lookup definition that maps each lookup definition with the data source from which values must be fetched.  
  Default value of this attribute for group lookup synchronization:  
  ```java  
  Lookup.SAPUME.UM.Group  
  ```  
  Default value of this attribute for role lookup synchronization:  
  ```java  
  Lookup.SAPUME.UM.Role  
  ``` |
| Object Class            | Enter the name of the object class from which value must be fetched.  
  Default value of this attribute for group synchronization: __GROUP__  
  Default value of this attribute for role synchronization: __ROLE__  
  **Note:** You must not change the value of the attribute. |
| Object Type             | Enter the type of object whose values must be synchronized.  
  Default value of this attribute for group synchronization: Group  
  Default value of this attribute for role synchronization: Role  
  **Note:** You must not change the value of this attribute. |
3.3 Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization

The following scheduled jobs are used for SAP BusinessObjects AC lookup field synchronization:

- SAP AC UME BusinessProcess Lookup Reconciliation
- SAP AC UME FunctionalArea Lookup Reconciliation
- SAP AC UME Group Lookup Reconciliation
- SAP AC UME ItemProvAction Lookup Reconciliation
- SAP AC UME Priority Lookup Reconciliation
- SAP AC UME ReqInitSystem Lookup Reconciliation
- SAP AC UME RequestType Lookup Reconciliation
- SAP AC UME Request Status
- SAP AC UME Role Lookup Reconciliation
- SAP AC UME Target User Delete Reconciliation
- SAP AC UME Target User Reconciliation

You can specify values for the attributes of these scheduled jobs. Table 3–2 describes the attributes of these scheduled jobs. Section 3.5, "Configuring Scheduled Jobs" describes the procedure to configure scheduled jobs.
### Attributes of the Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| Code Key Attribute | Name of the connector or target system attribute that is used to populate the Code Key column of the lookup definition (specified as the value of the Lookup Name attribute). Depending on the scheduled job you are using, the default values are as follows:  
  - SAP AC UME BusinessProcess Lookup Reconciliation: LCODE  
  - SAP AC UME FunctionalArea Lookup Reconciliation: LCODE  
  - SAP AC UME Group Lookup Reconciliation: id  
  - SAP AC UME ItemProvAction Lookup Reconciliation: LCODE  
  - SAP AC UME Priority Lookup Reconciliation: LCODE  
  - SAP AC UME ReqInitSystem Lookup Reconciliation: REQSYSCODE  
  - SAP AC UME RequestType Lookup Reconciliation: LCODE  
  - SAP AC UME Role Lookup Reconciliation: id  
  **Note**: You must not change the value of this attribute. |
| Decode Attribute   | Enter the name of the connector or target system attribute that is used to populate the Decode column of the lookup definition (specified as the value of the Lookup Name attribute). Depending on the scheduled job you are using, the default values are as follows:  
  - SAP AC UME BusinessProcess Lookup Reconciliation: LCODE  
  - SAP AC UME FunctionalArea Lookup Reconciliation: LDECODE  
  - SAP AC UME Group Lookup Reconciliation: description  
  - SAP AC UME ItemProvAction Lookup Reconciliation: LDECODE  
  - SAP AC UME Priority Lookup Reconciliation: LDECODE  
  - SAP AC UME ReqInitSystem Lookup Reconciliation: REQSYSCODE  
  - SAP AC UME RequestType Lookup Reconciliation: LDECODE  
  - SAP AC UME Role Lookup Reconciliation: description |
| IT Resource Name   | Name of the IT resource for the target system installation from which you want to reconcile records.  
  **Default value**: SAP AC UME IT Resource |
3.4 Configuring Reconciliation

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

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lookup Name</td>
<td>Enter the name of the lookup definition in Oracle Identity Manager that must be populated with values fetched from the target system.</td>
</tr>
<tr>
<td>Note:</td>
<td>If the lookup name that you specify as the value of this attribute is not present in Oracle Identity Manager, then this lookup definition is created while the scheduled job is run.</td>
</tr>
<tr>
<td>Object Class</td>
<td>Enter the name of the class of the object you want to reconcile.</td>
</tr>
<tr>
<td>Object Type</td>
<td>Enter the name of the type of object you want to reconcile.</td>
</tr>
</tbody>
</table>

Table 3–2 (Cont.) Attributes of the Scheduled Jobs for SAP BusinessObjects AC Lookup Field

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lookup Name</td>
<td>Enter the name of the lookup definition in Oracle Identity Manager that must be populated with values fetched from the target system.</td>
</tr>
<tr>
<td>Note:</td>
<td>If the lookup name that you specify as the value of this attribute is not present in Oracle Identity Manager, then this lookup definition is created while the scheduled job is run.</td>
</tr>
<tr>
<td>Depending on the scheduled job you are using, the default values are as follows:</td>
<td></td>
</tr>
<tr>
<td>SAP AC UME BusinessProcess Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.Bproc</td>
</tr>
<tr>
<td>SAP AC UME FunctionalArea Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.Funcarea</td>
</tr>
<tr>
<td>SAP AC UME Group Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.Group</td>
</tr>
<tr>
<td>SAP AC UME ItemProvAction Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.ItemProvAction</td>
</tr>
<tr>
<td>SAP AC UME Priority Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.Priority</td>
</tr>
<tr>
<td>SAP AC UME ReqInitSystem Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.ReqInitSystem</td>
</tr>
<tr>
<td>SAP AC UME RequestType Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.RequestType</td>
</tr>
<tr>
<td>SAP AC UME Role Lookup Reconciliation:</td>
<td>Lookup.SAPACUME.Role</td>
</tr>
</tbody>
</table>

Object Class Enter the name of the class of the object you want to reconcile. Depending on the scheduled job you are using, the default values are as follows: |
| SAP AC UME BusinessProcess Lookup Reconciliation: | BusProc |
| SAP AC UME FunctionalArea Lookup Reconciliation: | FunctionArea |
| SAP AC UME Group Lookup Reconciliation: | __GROUP__ |
| SAP AC UME ItemProvAction Lookup Reconciliation: | ItemProvActionType |
| SAP AC UME Priority Lookup Reconciliation: | PriorityType |
| SAP AC UME ReqInitSystem Lookup Reconciliation: | SYSTEM |
| SAP AC UME RequestType Lookup Reconciliation: | RequestType |
| SAP AC UME Role Lookup Reconciliation: | __ROLE__ |

Object Type Enter the name of the type of object you want to reconcile. Depending on the scheduled job you are using, the default values are as follows: |
| SAP AC UME BusinessProcess Lookup Reconciliation: | BusProc |
| SAP AC UME FunctionalArea Lookup Reconciliation: | FunctionArea |
| SAP AC UME Group Lookup Reconciliation: | Group |
| SAP AC UME ItemProvAction Lookup Reconciliation: | ItemProvActionType |
| SAP AC UME Priority Lookup Reconciliation: | PriorityType |
| SAP AC UME ReqInitSystem Lookup Reconciliation: | SYSTEM |
| SAP AC UME RequestType Lookup Reconciliation: | RequestType |
| SAP AC UME Role Lookup Reconciliation: | Role |
3.4.1 Full Reconciliation

In full reconciliation, all existing target system records are fetched into Oracle Identity Manager for reconciliation. See Section 3.1, "Performing Full Reconciliation" for instructions.

3.4.2 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.

The connector provides a Filter attribute that allows you to use any of the SAP UME resource attributes to filter the target system records.

The syntax for this parameter is as follows:

```
syntax = expression ( operator expression )*  
operator = 'and' | 'or'  
expression = ( 'not' )? filter  
filter = ('equalTo' | 'contains' | 'containsAllValues' | 'startsWith'  
| 'endsWith' | 'greaterThan' | 'greaterThanOrEqualTo' | 'lessThan'  
| 'lessThanOrEqualTo' ) '(' 'attributeName' ',' attributeValue ')'

attributeValue = singleValue | multipleValues  
singleValue = 'value'  
multipleValues = '{' 'value_1' (',' 'value_n')* '}'
```

For example, to limit the number of reconciled accounts to only those in which the account name starts with "a" letter, you could use the following expression:

```
startsWith('__NAME__', 'a')
```

For a more advanced search, where you want to filter only those account names that end with ‘z’, you could use the following filter:

```
startsWith('__NAME__', 'a') & endsWith('__NAME__', 'z')
```

While deploying the connector, follow the instructions in Section 3.5, "Configuring Scheduled Jobs" to specify attribute values.

3.4.3 Reconciliation Scheduled Jobs

Depending on whether you want to reconcile data about users or deleted users from the target system, you must specify values for the attributes of one of the following scheduled jobs:

- SAP UME Target User Reconciliation
You use the SAP UME Target User Reconciliation scheduled job to reconcile user data from the SAP UME target system.

- **SAP UME Target User Delete Reconciliation**
  You use the SAP UME Target User Delete Reconciliation scheduled to reconcile data about deleted users from the target system. During a reconciliation run, for each deleted user account on the target system, the SAP User Management Engine resource is revoked for the corresponding OIM User.

- **SAP AC UME Target User Reconciliation**
  You use the SAP AC UME Target User Reconciliation scheduled job to reconcile user data from the SAP AC UME target system.

- **SAP AC UME Target User Delete Reconciliation**
  You use the SAP AC UME Target User Delete Reconciliation scheduled to reconcile data about deleted users from the target system. During a reconciliation run, for each deleted user account on the target system, the SAP User Management Engine resource is revoked for the corresponding OIM User.

Table 3–3 describes the attributes of the SAP UME Target User Reconciliation and SAP AC UME Target User Reconciliation scheduled jobs. Table 3–4 describes the attributes of the SAP UME Target User Delete Reconciliation and SAP AC UME Target User Delete Reconciliation scheduled jobs.

### Table 3–3 Attributes of the SAP UME Target User Reconciliation and SAP AC UME Target User Reconciliation Scheduled Jobs

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter</td>
<td>Expression for filtering records.</td>
</tr>
<tr>
<td></td>
<td>Sample value: equalTo('logonname', 'SEPT12USER1')</td>
</tr>
<tr>
<td>IT Resource Name</td>
<td>Enter the name of the IT resource for the target system installation from which you want to reconcile user records.</td>
</tr>
<tr>
<td></td>
<td>Depending on the scheduled job you are using, the default values are as follows:</td>
</tr>
</tbody>
</table>
|                               | - For SAP UME Target User Reconciliation  
|                               |   SAPUME IT Resource                                                            |
|                               | - For SAP AC UME Target User Reconciliation  
|                               |   SAP AC UME IT Resource                                                        |
| Object Type                   | Enter the type of object you want to reconcile.                             |
|                               | Default value: User                                                          |
| Resource Object Name          | Name of the resource object that is used for reconciliation.                |
|                               | Depending on the scheduled job you are using, the default values are as follows: |
|                               | - For SAP UME Target User Reconciliation  
|                               |   SAPUME Resource Object                                                       |
|                               | - For SAP AC UME Target User Reconciliation  
|                               |   SAP AC UME Resource Object                                                    |
Table 3–4  Attributes of the SAP UME Target User Delete Reconciliation and SAP AC UME Target User Delete Reconciliation Scheduled Jobs

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Resource Name</td>
<td>Enter the name of the IT resource for the target system installation from which you want to reconcile user records. Depending on the scheduled job you are using, the default values are as follows:</td>
</tr>
<tr>
<td></td>
<td>For SAP UME Target User Delete Reconciliation</td>
</tr>
<tr>
<td></td>
<td>SAPUME IT Resource</td>
</tr>
<tr>
<td></td>
<td>For SAP AC UME Target User Delete Reconciliation</td>
</tr>
<tr>
<td></td>
<td>SAP AC UME IT Resource</td>
</tr>
<tr>
<td>Object Type</td>
<td>Enter the type of object you want to reconcile. Default value: User</td>
</tr>
<tr>
<td>Resource Object Name</td>
<td>Name of the resource object that is used for reconciliation. Depending on the scheduled job you are using, the default values are as follows:</td>
</tr>
<tr>
<td></td>
<td>For SAP UME Target User Delete Reconciliation</td>
</tr>
<tr>
<td></td>
<td>SAPUME Resource Object</td>
</tr>
<tr>
<td></td>
<td>For SAP AC UME Target User Delete Reconciliation</td>
</tr>
<tr>
<td></td>
<td>SAP AC UME Resource Object</td>
</tr>
</tbody>
</table>

3.4.3.1 SAP AC Request Status
You use the SAP AC Request Status scheduled job to reconcile request status from SAP BusinessObjects AC target system. Table 3–5 describes the attributes of this scheduled job.

Table 3–5  Attributes of the SAP AC Request Status Scheduled Job

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Resource Name</td>
<td>Name of the IT resource instance that the connector must use to reconcile data Default value: SAP AC UME IT Resource</td>
</tr>
<tr>
<td>Object Type</td>
<td>Type of object you want to reconcile Default value: STATUS</td>
</tr>
<tr>
<td>Resource Object Name</td>
<td>Name of the resource object against which reconciliation runs must be performed Default value: SAP AC UME Resource Object</td>
</tr>
<tr>
<td>Scheduled Task Name</td>
<td>Name of the scheduled task Default value: SAP AC UME Request Status</td>
</tr>
</tbody>
</table>

3.5 Configuring Scheduled Jobs
This section describes the procedure to configure scheduled jobs. You can apply this procedure to configure the scheduled jobs for lookup field synchronization and reconciliation.

Table 3–6 lists the scheduled jobs that you must configure.
To configure a scheduled job:

1. Depending on the Oracle Identity Manager release you are using, perform one of the following steps:
   - For Oracle Identity Manager release 11.1.1.x:
     a. Log in to the Administrative and User Console.
     b. On the Welcome to Oracle Identity Manager Self Service page, click **Advanced** in the upper-right corner of the page.
   - For Oracle Identity Manager release 11.1.2.x:
     a. Log in to Identity System Administration.
     b. In the left pane, under System Management, click **Scheduler**.

2. Search for and open the scheduled job as follows:
   a. If you are using Oracle Identity Manager release 11.1.1.x, then on the Welcome to Oracle Identity Manager Advanced Administration page, in the System Management region, click **Search Scheduled Jobs**.
   b. In the Search field, enter the name of the scheduled job as the search criterion. Alternatively, you can click **Advanced Search** and specify the search criterion.
   c. In the search results table on the left pane, click the scheduled job in the Job Name column.

3. On the Job Details tab, you can modify the following parameters:

### Table 3–6  Scheduled Tasks for Lookup Field Synchronization and Reconciliation

<table>
<thead>
<tr>
<th>Scheduled Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP UME Group Lookup Reconciliation</td>
<td>This scheduled job is used for lookup field synchronization of groups. <strong>Section 3.2</strong>, &quot;Scheduled Job for Lookup Field Synchronization&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP UME Role Lookup Reconciliation</td>
<td>This scheduled job is used for lookup field synchronization of roles. <strong>Section 3.2</strong>, &quot;Scheduled Job for Lookup Field Synchronization&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP UME Target User Reconciliation</td>
<td>This scheduled job is used for user record reconciliation. <strong>Section 3.4.3</strong>, &quot;Reconciliation Scheduled Jobs&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP UME Target User Delete Reconciliation</td>
<td>This scheduled job is used for reconciliation of deleted user records. <strong>Section 3.4.3</strong>, &quot;Reconciliation Scheduled Jobs&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP AC UME Group Lookup Reconciliation</td>
<td>This scheduled job is used for lookup field synchronization of groups if you are using SAP BusinessObjects AC system. <strong>Section 3.3</strong>, &quot;Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP AC UME Role Lookup Reconciliation</td>
<td>This scheduled job is used for lookup field synchronization of roles if you are using SAP BusinessObject AC system. <strong>Section 3.3</strong>, &quot;Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP AC UME Target User Reconciliation</td>
<td>This scheduled job is used for user record reconciliation if you are using SAP BusinessObject AC system. <strong>Section 3.4.3</strong>, &quot;Reconciliation Scheduled Jobs&quot; describes this scheduled job.</td>
</tr>
<tr>
<td>SAP AC UME Target User Delete Reconciliation</td>
<td>This scheduled job is used for reconciliation of deleted user records if you are using SAP BusinessObject AC system. <strong>Section 3.4.3</strong>, &quot;Reconciliation Scheduled Jobs&quot; describes this scheduled job.</td>
</tr>
</tbody>
</table>
Guidelines on Performing Provisioning

- **Retries:** Enter an integer value in this field. This number represents the number of times the scheduler tries to start the job before assigning the Stopped status to the job.

- **Schedule Type:** Depending on the frequency at which you want the job to run, select the appropriate schedule type.

Note: See Oracle Fusion Middleware Administering Oracle Identity Manager for detailed information about schedule types.

In addition to modifying the job details, you can enable or disable a job.

4. On the Job Details tab, in the Parameters region, specify values for the attributes of the scheduled job.

Note:
- Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value is left empty, then reconciliation is not performed.
- Attributes of the scheduled job are discussed in Section 3.4.3, "Reconciliation Scheduled Jobs."

5. Click **Apply** to save the changes.

Note: You can use the Scheduler Status page in Identity System Administration to either start, stop, or reinitialize the scheduler.

### 3.6 Guidelines on Performing Provisioning

**See Also:** Section 1.4.5, "Guidelines on Using a Deployment Configuration"

Apply the following guidelines while performing provisioning operations in any of the supported deployment configurations:

- If an ABAP data source is configured in SAP User Management Engine, then ABAP roles are shown as groups in SAP User Management Engine. However, SAP User Management Engine does not allow assigning such groups to user accounts in some configurations.

  To assign groups that represent the AS ABAP role, create a new AS Java role in the User Administration tool of SAP User Management Engine. Then, assign the group that represents the AS ABAP role to the newly created AS Java role in Oracle Identity Manager.

- If you disable a user account in Oracle Identity Manager, the connector updates the value of the Valid Through attribute with yesterday’s date. If the user has logged in to the target system today, or if the password of the user was changed...
today, then SAP User Management Engine updates the Valid Through attribute with today's date and lock the user.

Ensure that the dates on Oracle Identity Manager and the SAP User Management Engine target system are in sync.

- The length of the Logon Name field varies in the target system based on the data source configuration. If a target system allows 15 characters, and if you enter more than 15 characters for the Logon Name field in Oracle Identity Manager, then an error is encountered. Therefore, the length of the Logon Name field must be limited to 15 characters in Oracle Identity Manager.

- Through provisioning, if you want to create and disable an account at the same time, then you can set the value of the Valid Through attribute to a date in the past. For example, while creating an account on 31-Jul, you can set the Valid Through date to 30-Jul. With this value, the resource provisioned to the OIM User is in the Disabled state immediately after the account is created.

However, on the target system, if you set the Valid Through attribute to a date in the past while creating an account, then the target system automatically sets Valid Through to the current date. The outcome of this Create User provisioning operation is as follows:

- The value of the Valid Through attribute on Oracle Identity Manager and the target system do not match.
- On the target system, the user can log in all through the current day. The user cannot log in from the next day onward.

You can lock the user on the target system so that the user is not able to log in the day the account is created.

- Remember that if password or system assignment fails during a Create User provisioning operation, then the user is not created.

- When you try to provision a multivalued attribute, such as a role or group, if the attribute has already been set for the user on the target system, then the status of the process task is set to Completed in Oracle Identity Manager. If required, you can configure the task so that it shows the status Rejected in this situation. See Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for information about configuring process tasks.

- When you perform the Lock User or Unlock User provisioning operation, remember that the connector makes the required change on the target system without checking whether the account is currently in the Locked or Unlocked state. This is because the target system does not provide a method to check the current state of the account.

- The target system does not accept non-English letters in the E-mail Address field. Therefore, during provisioning operations, you must enter only English language letters in the E-mail Address field on the process form.

- When you assign a role to a user through provisioning, you set values for the following attributes:
  - Datasource
  - Role

Apply the following guidelines while performing provisioning operations after configuring the Access Request Management feature of the connector:
During a Create User operation performed when the Access Request Management is configured, first submit process form data. Submit child form data after the user is created on the target system. This is because when Access Request Management is enabled, the connector supports modification of either process form fields or child form fields in a single Modify User operation.

The following fields on the process form are mandatory attributes on SAP BusinessObjects AC Access Request Management:

- AC Manager
- AC Manager email
- AC Priority
- AC System
- AC Requestor ID
- AC Requestor email
- AC Request Reason

The following fields may be mandatory or optional based on the configuration in SAP BusinessObjects Access Control system:

- AC Manager First Name
- AC Manager Last Name
- AC Manager Telephone
- AC Request Due Date
- AC Functional Area
- AC Business Process
- AC Requestor First Name
- AC Requestor Last Name
- AC Requestor Telephone
- AC Company

As mentioned earlier in this guide, SAP BusinessObjects Access Request Management does not process passwords. Therefore, any value entered in the Password field is ignored during Create User provisioning operations. After a Create User operation is performed, the user for whom the account is created on the target system must apply one of the following approaches to set the password:

- To use the Oracle Identity Manager password as the target system password, change the password through Oracle Identity Manager.
- Directly log in to the target system, and change the password.

You perform an Enable User operation by setting the Valid From field to a future date. Similarly, you perform a Disable User operation by setting the Valid Through field to the current date. Both operations are treated as Modify User operations.
When you delete a user (account) on Oracle Identity System Administration (process form), a Delete User request is created.

When you select the Lock User check box on the process form, a Lock User request is created.

When you deselect the Lock User check box on the process form, an Unlock User request is created.

The Enable User and Disable User operations are implemented through the Valid From and Valid Through fields on the process form.

In a Modify User operation, you can specify values for attributes that are mapped with SAP BusinessObjects AC Access Request Management and attributes that are directly updated on the target system. A request is created SAP BusinessObjects AC Access Request Management only for attributes whose mappings are present in these lookup definitions. If you specify values for attributes that are not present in these lookup definitions, then the connector sends them to directly the target system.

3.7 Configuring Provisioning in Oracle Identity Manager Release 11.1.1.x

Provisioning a resource for an OIM User involves using Oracle Identity Manager to create a target system account for the user.

When you install the connector on Oracle Identity Manager release 11.1.1.x, the direct provisioning feature is automatically enabled. This means that the process form is enabled when you install the connector.

If you have configured the connector for request-based provisioning, then the process form is suppressed and the object form is displayed. In other words, direct provisioning is disabled when you configure the connector for request-based provisioning. If you want to revert to direct provisioning, then perform the steps described in Section 3.7.6, "Switching Between Request-Based Provisioning and Direct Provisioning."

The following are types of provisioning operations:

- Direct provisioning
- Request-based provisioning
- Provisioning triggered by policy changes

See Also: Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for information about the types of provisioning

This section discusses the following topics:

- Section 3.7.1, "Overview of the Provisioning Process in an SoD-Enabled Environment"
- Section 3.7.2, "Direct Provisioning"
- Section 3.7.3, "Direct Provisioning in an SoD-Enabled Environment"
- Section 3.7.4, "Request-Based Provisioning"
- Section 3.7.5, "Request-Based Provisioning in an SoD-Enabled Environment"
- Section 3.7.6, "Switching Between Request-Based Provisioning and Direct Provisioning"
3.7.1 Overview of the Provisioning Process in an SoD-Enabled Environment

The following is the sequence of steps that take places during a provisioning operation performed in an SoD-enabled environment:

1. The provisioning operation triggers the appropriate adapter.
2. SAP BusinessObjects SoD Invocation Library (SIL) Provider passes the entitlement data to the Web service of SAP BusinessObjects AC.
3. After SAP BusinessObjects AC runs the SoD validation process on the entitlement data, the response from the process is returned to Oracle Identity Manager.
4. The status of the process task that received the response depends on the response itself. If the entitlement data clears the SoD validation process, then the adapter carries provisioning data to the corresponding SPML request on the target system and the status of the process task changes to Completed. This translates into the entitlement being granted to the user. If the SoD validation process returns the failure response, then status of the process task changes to Canceled.

3.7.2 Direct Provisioning

To provision a resource by using the direct provisioning approach:

1. Log in to the Administrative and User Console.
2. If you want to first create an OIM User and then provision a target system account, then:
   a. On the Welcome to Identity Administration page, in the Users region, click Create User.
   b. On the Create User page, enter values for the OIM User fields, and then click Save.
3. If you want to provision a target system account to an existing OIM User, then:
   a. On the Welcome to Identity Administration page, search for the OIM User by selecting Users from the list on the left pane.
   b. From the list of users displayed in the search results, select the OIM User. The user details page is displayed on the right pane.
4. On the user details page, click the Resources tab.
5. From the Action menu, select Add Resource. Alternatively, you can click the add resource icon with the plus (+) sign. The Provision Resource to User page is displayed in a new window.
6. On the Step 1: Select a Resource page, select SAPUME Resource Object from the list and then click Continue.

**Note:** If you are using SAP BusinessObjects AC system, then select SAP AC UME Resource Object from the list and then click Continue.

8. On the Step 5: Provide Process Data for SAPUME Process Form page, enter the details of the account that you want to create on the target system and then click Continue.
If you are using SAP BusinessObject AC system, you enter the details of the account on the Provide Process Data for SAP AC UME Process Form page.

9. If required, on the Step 5: Provide Process Data for SAP UME Group Form page, search for and select a group for the user on the target system and then click Continue.

If you are using SAP BusinessObjects AC system, then search for a select a group on the Provide Process Data for SAP AC UME Group Form.

10. If required, on the Step 5: Provide Process Data for SAP UME Role Form page, search for and select a role for the user on the target system and then click Continue.

If you are using SAP BusinessObjects AC system, then search for a select a role on the Provide Process Data for SAP AC UME Role Form.

11. On the Step 5: Verify Process Data page, verify the data that you have provided and then click Continue.

12. The “Provisioning has been initiated” message is displayed. Close the window displaying this message.

13. On the Resources tab, click Refresh to view the newly provisioned resource.

3.7.3 Direct Provisioning in an SoD-Enabled Environment

This section describes the prerequisites and the procedure to perform direct provisioning. It contains the following sections:

- Section 3.7.3.1, “Prerequisites”
- Section 3.7.3.2, “Performing Direct Provisioning”

3.7.3.1 Prerequisites

**Note:** Perform the procedure in this section only in the following situations:

- The first time you perform direct provisioning.
- If you switch from request-based provisioning to direct provisioning.

When you run the Connector Installer, the configuration for direct provisioning of SAP user accounts is installed. Although the process form is displayed during direct provisioning, the connector cannot complete direct provisioning operations unless you enable the use of the process form. If you want to enable the use of the process form during direct provisioning, then perform the procedure described later in this section.

**To enable the use of the process form during direct provisioning:**

**Note:** Request-based provisioning is disabled after you perform this procedure.

1. Log in to the Design Console.
2. Disable the Auto Save Form feature as follows:
a. Expand **Process Management**, and then double-click **Process Definition**.
b. Search for and open the **SAPUME process** process definition.
c. Deselect the Auto Save Form check box.
d. Click the Save icon.

3. If the Self Request Allowed feature is enabled, then:
   a. Expand **Resource Management**, and then double-click **Resource Objects**.
   b. Search for and open the **SAPUME Resource Object** resource object.
   c. Deselect the **Self Request Allowed** check box.
   d. Click the Save icon.

### 3.7.3.2 Performing Direct Provisioning

To provision a resource by using the direct provisioning approach:

1. Log in to the Administrative and User Console.

2. If you want to first create an OIM User and then provision a target system account, then:
   a. On the Welcome to Identity Administration page, in the Users region, click **Create User**.
   b. On the Create User page, enter values for the OIM User fields, and then click **Save**.

3. If you want to provision a target system account to an existing OIM User, then:
   a. On the Welcome to Identity Administration page, search for the OIM User by selecting Users from the drop-down list on the left pane.
   b. From the list of users displayed in the search results, select the OIM User. The user details page is displayed on the right pane.

4. On the user details page, click the **Resources** tab.

5. From the Action menu, select **Add Resource**. Alternatively, you can click the add resource icon with the plus (+) sign. The Provision Resource to User page is displayed in a new window.

6. On the Step 1: Select a Resource page, select **SAPUME Resource Object** from the list and then click **Continue**.

7. On the Step 2: Verify Resource Selection page, click **Continue**.

8. On the Step 5: Provide Process Data page for process data, enter the details of the account that you want to create on the target system and then click **Continue**.

9. On the Step 5: Provide Process Data page for profile data, search for and select profiles for the user on the target system and then click **Continue**.

10. On the Step 5: Provide Process Data page for role data, search for and select roles for the user on the target system and then click **Continue**.

11. On the Step 6: Verify Process Data page, verify the data that you have provided and then click **Continue**.

12. The "Provisioning has been initiated" message is displayed. Close the window displaying this message.
13. On the Resource tab of the user details page, click **Refresh** to view the newly provisioned resource.

14. To view the Resource Provisioning Details page, which shows the details of the process tasks that were run:

   On the Resources tab of the user details page, from the Action menu, select **Resource History**.

15. The SOD Check Status field is updated with SOD Check Completed status.

16. As the administrator assigning a resource to a user, you can either end the process when a violation is detected or modify the assignment data and then resend it. To modify the assignment data, on the Resource tab of the user details page, select the row containing the resource, and then click **Open**.

17. In the Edit Form window that is displayed, you can modify the role and profile data that you had selected earlier.

   **Note:** To modify a set of entitlements in the Edit Form window, you must first remove all entitlements and then add the ones that you want to use.

   In the following screenshot, one of the roles selected earlier is marked for removal:

18. After invoking the risk analysis web service, the results of the SoD validation process are brought to Oracle Identity Manager. If you open the process form, the results will be displayed as shown in the screenshot in Step 17.

### 3.7.4 Request-Based Provisioning

A request-based provisioning operation involves both end users and approvers. Typically, these approvers are in the management chain of the requesters. The following sections discuss the steps to be performed by end users and approvers during a request-based provisioning operation:
3.7.4.1 End User’s Role in Request-Based Provisioning

The following steps are performed by the end user in a request-based provisioning operation:

1. Log in to the Administrative and User Console.
2. On the Welcome page, click Advanced in the upper-right corner of the page.
3. On the Welcome to Identity Administration page, click the Administration tab, and then click the Requests tab.
4. From the Actions menu on the left pane, select Create Request.
   The Select Request Template page is displayed.
5. From the Request Template list, select Provision Resource and click Next.
6. On the Select Users page, specify a search criterion in the fields to search for the user that you want to provision the resource, and then click Search. A list of users that match the search criterion you specify is displayed in the Available Users list.
7. From the Available Users list, select the user to whom you want to provision the account.
   If you want to create a provisioning request for more than one user, then from the Available Users list, select users to whom you want to provision the account.
8. Click Move or Move All to include your selection in the Selected Users list, and then click Next.
9. On the Select Resources page, click the arrow button next to the Resource Name field to display the list of all available resources.
10. From the Available Resources list, select SAPUME Resource Object, move it to the Selected Resources list, and then click Next.
    If you are using SAP BusinessObjects AC system, select SAP AC UME Resource Object
11. On the Resource Details page, enter details of the account that must be created on the target system, and then click Next.
12. On the Justification page, you can specify values for the following fields, and then click Finish.
    - Effective Date
    - Justification

---

**Note:** The procedures described in these sections are built on an example in which the end user raises or creates a request for provisioning a target system account. This request is then approved by the approver.

See Also: Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for detailed information about these steps.
On the resulting page, a message confirming that your request has been sent successfully is displayed along with the Request ID.

13. If you click the request ID, then the Request Details page is displayed.

14. To view details of the approval, on the Request Details page, click the **Request History** tab.

### 3.7.4.2 Approver's Role in Request-Based Provisioning

The following are steps performed by the approver in a request-based provisioning operation:

The following are steps that the approver can perform:

1. Log in to the Administrative and User Console.
2. On the Welcome page, click **Self-Service** in the upper-right corner of the page.
3. On the Welcome to Identity Manager Self Service page, click the **Tasks** tab.
4. On the **Approvals** tab, in the first section, you can specify a search criterion for request task that is assigned to you.
5. From the search results table, select the row containing the request you want to approve, and then click **Approve Task**.

A message confirming that the task was approved is displayed.

### 3.7.5 Request-Based Provisioning in an SoD-Enabled Environment

#### See Also: Section 2.3.15, "Configuring SoD"

The request-based provisioning operation involves both end users and approvers. Typically, these approvers are in the management chain of the requesters. The request-based provisioning process described in this section covers steps to be performed by both entities.

In the example used in this section, the end user creates a request for two roles on the target system. The request clears the SoD validation process and is approved by the approver.

#### 3.7.5.1 End User's Role in Request-Based Provisioning

The following are types of request-based provisioning:

Request-based provisioning of accounts: OIM Users are created but not provisioned target system resources when they are created. Instead, the users themselves raise requests for provisioning accounts.

Request-based provisioning of entitlements: OIM Users who have been provisioned target system resources (either through direct or request-based provisioning) raise requests for provisioning entitlements.

End-users perform the procedure described in the following section:

#### 3.7.5.1.1 End User's Role in Request-Based Provisioning on Oracle Identity Manager Release 11.1.1.x

The following steps are performed by the end user in a request-based provisioning operation:
1. Log in to the Administrative and User Console.

2. On the Welcome page, click **Advanced** on the top right corner of the page.

3. On the Welcome to Identity Manager Advanced Administration page, click the **Administration** tab, and then click the **Requests** tab.

4. From the Actions menu on the left pane, select **Create Request**. The Select Request Template page is displayed.

5. From the Request Template list, select **Provision Resource** and then click **Next**.

6. On the Select Users page, specify a search criterion in the fields to search for the user that you want to provision the resource, and then click **Search**. A list of users that match the search criterion you specified is displayed in the Available Users list.

7. From the **Available Users** list, select the user to whom you want to provision the account.

   If you want to create a provisioning request for more than one user, then from the Available Users list, select the users to whom you want to provision the account.

8. Click **Move** or **Move All** to include your selection in the Selected Users list, and then click **Next**.

9. On the Select Resources page, click the arrow button next to the Resource Name field to display the list of all available resources.

10. From the Available Resources list, select **SAPUME Resource Object**, move it to the Selected Resources list, and then click **Next**.

11. On the Resource Details page, enter details of the account that must be created on the target system, and then click **Next**.

12. On the Justification page, you can specify values for the following fields, and then click **Finish**:

   - **Effective Date**
   - **Justification**

   On the resulting page, a message confirming that your request has been sent is displayed along with the Request ID.

13. If you click the request ID, then the Request Details page is displayed.

14. On the Resource tab of the Request Details page, click the View Details link in the row containing the resource for which the request was created. The Resource Details page is displayed in a new window.

   One of the fields on this page is the SODCheckStatus field. The value in this field can be SoD Check Not Initiated or SoDCheckCompleted. When the request is placed, the SODCheckStatus field contains the SoDCheckCompleted status.

15. To view details of the approval, on the Request Details page, click the **Approval Tasks** tab.

   On this page, the status of the SODChecker task is pending.

---

**See Also:** Registering to Oracle Identity Manager of *Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager* for detailed information about these steps.
3.7.5.2 Approver’s Role in Request-Based Provisioning

This section discusses the role of the approver in a request-based provisioning operation.

The approver to whom the request is assigned can use the Pending Approvals feature to view details of the request.

In addition, the approver can click the View link to view details of the SoD validation process.

The approver can decide whether to approve or deny the request, regardless of whether the SoD engine accepted or rejected the request. The approver can also modify entitlements in the request.

Approvers can perform the procedure described in the following section:

3.7.5.2.1 Approver’s Role in Request-Based Provisioning on Oracle Identity Manager Release 11.1.1.x

The following steps are performed by the approver in a request-based provisioning operation:

1. Log in to the Administrative and User Console.
2. On the Welcome page, click Self-Service in the upper-right corner of the page.
3. On the Welcome to Identity Manager Self Service page, click the Tasks tab.
4. On the Approvals tab, in the first region, you can specify a search criterion for the request task that is assigned to you.
5. From the search results table, select the row containing the request you want to approve, and then click Approve Task.
   A message confirming that the task has been approved is displayed and the request status is changed to Obtaining Operation Approval.
6. Select the row containing the request which is approved, and then click Approve Task.
   A message confirming that the task has been approved is displayed and the request status is changed to Request Completed.
7. Click the Administration tab and search for the user(s) for whom the request is completed.
8. Select the user.
   The user detail information is displayed in the right pane.
9. Click the Resources tab to view the resource being provisioned.
10. Select the resource being provisioned, and then click Open to view the resource details.
11. On the Resources tab of the User Details page, from the Action menu, select Resource History to view the resource provisioning tasks.
3.7.6 Switching Between Request-Based Provisioning and Direct Provisioning

**Note:** Perform this procedure only if you are using Oracle Identity Manager release 11.1.1.x. It is assumed that you have performed the procedure described in Section 2.3.10, "Configuring Oracle Identity Manager for Request-Based Provisioning."

If you want to switch from request-based provisioning to direct provisioning, then:

1. Log in to the Design Console.
2. Disable the Auto Save Form feature as follows:
   a. Expand **Process Management**, and then double-click **Process Definition**.
   b. Search for and open the **SAPUME process** process definition.

**Note:** If you are using SAP BusinessObjects AC system, then search for and open the **SAP AC UME process** process definition.

   c. Deselect the **Auto Save Form** check box.
   d. Click the Save icon.
3. If the Self Request Allowed feature is enabled, then:
   a. Expand **Resource Management**, and then double-click **Resource Objects**.
   b. Search for and open the **SAPUME Resource Object** resource object.

**Note:** If you are using SAP BusinessObjects AC system, then search for and open the **SAP AC UME process** process definition.

   c. Deselect the **Self Request Allowed** check box.
   d. Click the Save icon.

If you want to switch from direct provisioning back to request-based provisioning, then:

1. Log in to the Design Console.
2. Enable the Auto Save Form feature as follows:
   a. Expand **Process Management**, and then double-click **Process Definition**.
   b. Search for and open the **SAPUME process** process definition.
   c. Select the **Auto Save Form** check box.
   d. Click the Save icon.
3. If you want to enable end users to raise requests for themselves, then:
   a. Expand **Resource Management**, and then double-click **Resource Objects**.
   b. Search for and open the **SAPUME Resource Object** resource object.
c. Select the **Self Request Allowed** check box.

d. Click the *Save* icon.

### 3.8 Configuring Provisioning in Oracle Identity Manager Release 11.1.2.x

To configure provisioning operations in Oracle Identity Manager release 11.1.2.x:

- **Note:** The time required to complete a provisioning operation that you perform the first time by using this connector takes longer than usual.

1. Log in to Oracle Identity System Administration.

2. Create and activate a sandbox. For detailed instructions on creating and activating a sandbox, see Managing Sandboxes in Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager.

3. Create an application instance. To do so:

   a. In the left pane, under Configuration, click **Application Instances**. The Application Instances page is displayed.

   b. From the Actions menu, select **Create**. Alternatively, click **Create** on the toolbar. The Create Application Instance page is displayed.

   c. Specify values for the following fields:

      - **Name:** The name of the application instance.
      - **Display Name:** The display name of the application instance.
      - **Description:** A description of the application instance.
      - **Resource Object:** The resource object name. Click the search icon next to this field to search for and select **SAPUME Resource Object**. If you are using SAP BusinessObjects AC system, then select **SAP AC UME Resource Object**.
      - **IT Resource Instance:** The IT resource instance name. Click the search icon next to this field to search for and select **SAPUME IT Resource**. If you are using SAP BusinessObject AC system, then select **SAP AC UME IT Resource**.
      - **Form:** Select the form name, for example, **SAPUME** (or **SAPACUME** for SAP BusinessObjects AC system). To do so, click **Create** against the Form list, specify the form name, and then create it. On the Create Application Instance page, click the Refresh icon next to the Form field. From this list, select the form name that you created.

- **Note:** If you are using SAP BusinessObjects AC system, then search for and open the **SAP AC UME Resource Object** resource object.
4. Publish the sandbox.

5. Run lookup field synchronization. See Section 3.2, "Scheduled Job for Lookup Field Synchronization" and Section 3.3, "Scheduled Jobs for SAP BusinessObjects AC Lookup Field Synchronization" for more information.

6. Search for and run the Entitlement List scheduled job to populate the ENT_LIST table. See Section 3.5, "Configuring Scheduled Jobs" for more information about configuring and running scheduled jobs.

7. Publish the application instance (created in Step 3) to an organization. To do so:
   a. On the Organizations tab of the Application Instance page, click Assign.
   b. In the Select Organizations dialog box, select the organization to which you want to publish the application instance.
   c. Select the Apply to entitlements checkbox.
   d. Click OK.

8. Search for and run the Catalog Synchronization Job scheduled job. See Section 3.5, "Configuring Scheduled Jobs" for more information about configuring and running scheduled jobs.

9. Log in to Oracle Identity System Administration.

10. Create a user. See Managing Users in Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager for more information about creating a user.

11. On the Account tab, click Request Accounts.

12. In the Catalog page, search for and add to cart the application instance created in Step 3, and then click Checkout.

13. Specify value for fields in the application form and then click Ready to Submit.

14. Click Submit.

15. If you want to provision entitlements, then:
   a. On the Entitlements tab, click Request Entitlements.
   b. In the Catalog page, search for and add to cart the entitlement, and then click Checkout.
   c. Click Submit.

### 3.9 Uninstalling the Connector

If you want to uninstall the connector for any reason, see Uninstalling Connectors in Oracle Fusion Middleware Administering Oracle Identity Manager.
Extending the Functionality of the Connector

This chapter discusses the following optional procedures:

- Section 4.1, "Determining the Names of Target System Attributes"
- Section 4.2, "Adding New Attributes for Reconciliation"
- Section 4.3, "Adding New Attributes for Provisioning"
- Section 4.4, "Adding New Standard SAP BusinessObjects AC Access Request Management Attributes for Provisioning"
- Section 4.5, "Removing SAP BusinessObjects AC Access Request Management Attributes from Process Form"
- Section 4.6, "Configuring Validation of Data During Reconciliation and Provisioning"
- Section 4.7, "Configuring Transformation of Data During User Reconciliation"
- Section 4.8, "Modifying Field Lengths on the Process Form"
- Section 4.9, "Configuring the Connector for Multiple Installations of the Target System"
- Section 4.10, "Defining the Connector"

### 4.1 Determining the Names of Target System Attributes

This section describes the procedure to determine the names of standard single-valued target system attributes that you want to add for reconciliation or provisioning. The names that you determine are used to determine values for the Decode column of the lookup definitions such as Lookup.SAPUME.UM.ReconAttrMap and Lookup.SAPUME.UM.ProvAttrMap that hold attribute mappings.

To determine the name of a target system attribute that you want to add for reconciliation or provisioning:

1. Open the schema.xml file provided with AS Java.
2. In the section containing the object class definition for sapuser, the memberAttributes element defines the list of attributes available.

4.2 Adding New Attributes for Reconciliation

Note:
This section describes an optional procedure. Perform this procedure only if you want to add new attributes for target resource reconciliation.

You must ensure that new attributes you add for reconciliation contain only string-format data. Binary attributes must not be brought into Oracle Identity Manager natively.

By default, the attributes listed in Section 1.7.1, "User Attributes for Reconciliation" are mapped for reconciliation between Oracle Identity Manager and the target system. If required, you can add new attributes for target resource reconciliation.

To add a new attribute for target resource reconciliation, perform the following procedure:

1. Log in to Oracle Identity Manager Design Console.
2. Add the new attribute on the process form as follows:
   a. Expand Development Tools.
   b. Double-click Form Designer.
   c. Search for and open the SAPUME process process form.
   d. Click Create New Version.
   e. In the Label field, enter the version name. For example, version#1.
   f. Click the Save icon.
   g. Select the current version created in Step e from the Current Version list.
   h. Click Add to create a new attribute, and provide the values for that attribute.

For example, if you are adding the Certificate attribute, then enter the following values in the Additional Columns tab:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Certificate</td>
</tr>
<tr>
<td>Variant Type</td>
<td>String</td>
</tr>
<tr>
<td>Length</td>
<td>100</td>
</tr>
<tr>
<td>Field Label</td>
<td>certificate</td>
</tr>
<tr>
<td>Order</td>
<td>20</td>
</tr>
</tbody>
</table>

The following screenshot shows this form:
Adding New Attributes for Reconciliation

Extending the Functionality of the Connector

4-3

3. Add the new attribute to the list of reconciliation fields in the resource object as follows:
   a. Expand **Resource Management**.
   b. Double-click **Resource Objects**.
   c. Search for and open the **SAPUME Resource Object** resource object.
   d. On the **Object Reconciliation** tab, click **Add Field**, and then enter the following values:
      - **Field Name**: Certificate
      - **Field Type**: String
   e. Click **Create Reconciliation Profile**. This copies changes made to the resource object into the MDS.
   f. Click the Save icon.

4. Create a reconciliation field mapping for the new attribute in the process definition form as follows:
a. Expand **Process Management**.

b. Double-click **Process Definition**.

c. Search for and open the **SAPUME process** process definition.

d. On the **Reconciliation Field Mappings** tab, click **Add Field Map**, and then select the following values:

   - **Field Name**: Certificate
   - **Field Type**: String
   - **Process Data Field**: b. Process Definition

5. If you are using Oracle Identity Manager release prior to 11.1.2, create an entry for the attribute in the lookup definition for reconciliation as follows:

   a. Expand **Administration**.

   b. Double-click **Lookup Definition**.

   c. Search for and open the **Lookup.SAPUME.UM.ReconAttrMap** lookup definition.

   d. Click **Add** and enter the **Code Key** and **Decode** values for the attribute. The Code Key value must be the name of the resource object field. The Decode value is the name of the attribute in the target system.

   For example, enter **Certificate** in the **Code Key** field and then enter **certificate** in the **Decode** field.
4.3 Adding New Attributes for Provisioning

**Note:** This section describes an optional procedure. Perform this procedure only if you want to add new attributes for provisioning.

By default, the attributes listed in Section 1.8.2, "User Attributes for Provisioning" are mapped for provisioning between Oracle Identity Manager and the target system. If required, you can map additional attributes for provisioning.

To add a new attribute for provisioning users:

**Note:** You need not perform steps that you have already performed as part of the procedure described in Section 4.2, "Adding New Attributes for Reconciliation."

1. Log in to Oracle Identity Manager Design Console.
2. Add the new attribute on the process form.
If you have added the attribute on the process form by performing Step 2 of Section 4.2, “Adding New Attributes for Reconciliation,” then you need not add the attribute again. If you have not added the attribute, then:

- Expand Development Tools.
- Double-click Form Designer.
- Search for and open the UD_SAPUME process form.
- Click Create New Version.
- In the Label field, enter the version name. For example, version#1.
- Select the current version created in Step e from the Current Version list.
- Click Add to create a new attribute, and provide the values for that attribute.

For example, if you are adding the certificate attribute, then enter the following values in the Additional Columns tab:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>certificate</td>
</tr>
<tr>
<td>Variant Type</td>
<td>String</td>
</tr>
<tr>
<td>Length</td>
<td>100</td>
</tr>
<tr>
<td>Field Label</td>
<td>Certificate</td>
</tr>
<tr>
<td>Order</td>
<td>20</td>
</tr>
</tbody>
</table>

The following screenshot shows this form:

- Click the Save icon.
- Click Make Version Active.
3. Create an entry for the attribute in the lookup definition for provisioning as follows:
   a. Expand **Administration**.
   b. Double-click **Lookup Definition**.
   c. Search for and open the **Lookup.SAPUME.UM.ProvAttrMap** lookup definition.
   d. Click **Add** and enter the **Code Key** and **Decode** values for the attribute. The Code Key value must be the value specified in the Field Label column in the process form. The Decode value is the name of the attribute in the target system.
      
      For example, enter **Certificate** in the **Code Key** field and then enter **certificate** in the **Decode** field.
   
   e. Click the Save icon.

   **Note:** Perform steps 4 to 6 only if you want to perform request-based provisioning.

4. Update the request dataset.
   
   When you add an attribute on the process form, you also update the XML file containing the request dataset definitions. To update a request dataset:
   
   a. In a text editor, open the **SAPUME-Datasets.xml** file located in the xml directory of the installation media.
   
   b. Add the **AttributeReference** element and specify values for the mandatory attributes of this element.
Adding New Attributes for Provisioning

See Also: For more information about creating and updating request datasets, see Configuring Requests of Oracle Fusion Middleware Developer’s Guide for Oracle Identity Manager at http://docs.oracle.com/cd/E21764_01/doc.1111/e14309/request.htm#OMDEV2856

For example, while performing Step 2 of this procedure, if you added certificate as an attribute on the process form, then enter the following line:

```xml
<AttributeReference
name = "Certificate"
attr-ref = "Certificate"
type = "String"
widget = "text"
length = "50"
available-in-bulk = "false"/>
```

In this AttributeReference element:
- For the name attribute, enter the value in the Name column of the process form without the tablename prefix.
  For example, if UD_SAPUME_CERTIFICATE is the value in the Name column of the process form, then you must specify Certificate as the value of the name attribute in the AttributeReference element.
- For the attr-ref attribute, enter the value that you entered in the Field Label column of the process form while performing Step 2.
- For the type attribute, enter the value that you entered in the Variant Type column of the process form while performing Step 2.
- For the widget attribute, enter the value that you entered in the Field Type column of the process form, while performing Step 2.
- For the length attribute, enter the value that you entered in the Length column of the process form while performing Step 2.
- For the available-in-bulk attribute, specify true if the attribute must be available during bulk request creation or modification. Otherwise, specify false.

While performing Step 2, if you added more than one attribute on the process form, then repeat this step for each attribute added.

c. Save and close the XML file.

5. Run the PurgeCache utility to clear content related to request datasets from the server cache.

   See Oracle Fusion Middleware Administering Oracle Identity Manager for more information about the PurgeCache utility.

6. Import this modified request datasets in XML format using the deployment manager.

   See Section 2.3.10.1, "Importing Request Datasets Using Deployment Manager" for detailed information about the procedure.

7. To enable the update of a new attribute for provisioning a user:

b. Double-click Process Definition and open the SAPUME process process definition.

c. In the process definition, add a new task for updating the field as follows:
   – Click Add and enter the task name, for example, CellPhone Updated, and the task description.
   – In the Task Properties section, select the following fields:
     Conditional
     Required for Completion
     Allow Cancellation while Pending
     Allow Multiple Instances
   – Click the Save icon.

d. On the Integration tab, click Add, and then click Adapter.

e. Select the sapume update adapter, click Save, and then click OK in the message that is displayed.

f. To map the adapter variables listed in this table, select the adapter, click Map, and then specify the data given in the following table:

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Data Type</th>
<th>Map To</th>
<th>Qualifier</th>
<th>Literal Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter return value</td>
<td>Object</td>
<td>Response code</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>objectType</td>
<td>String</td>
<td>Literal</td>
<td>String</td>
<td>User</td>
</tr>
<tr>
<td>itResourceFieldName</td>
<td>String</td>
<td>Literal</td>
<td>String</td>
<td>UD_SAPUME_RESOURCETYPE</td>
</tr>
<tr>
<td>IProcessInstKey</td>
<td>Long</td>
<td>Process data</td>
<td>Iprocessinstance</td>
<td>NA</td>
</tr>
</tbody>
</table>


g. On the Responses tab, click Add to add the following response codes:

<table>
<thead>
<tr>
<th>Code Name</th>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERROR</td>
<td>Error occurred during Certificate update</td>
<td>R</td>
</tr>
<tr>
<td>CONNECTOR_EXCEPTION</td>
<td>Certificate update Failed</td>
<td>R</td>
</tr>
<tr>
<td>INVALID_CREDENTIAL</td>
<td>Unauthorized user Login</td>
<td>R</td>
</tr>
<tr>
<td>UNKNOWN</td>
<td>UNKNOWN</td>
<td>R</td>
</tr>
<tr>
<td>CONNECTION_FAILED</td>
<td>Cannot make connection to the resource</td>
<td>R</td>
</tr>
<tr>
<td>UNKNOWN_UID</td>
<td>User does not exist in the target</td>
<td>R</td>
</tr>
<tr>
<td>SUCCESS</td>
<td>Certificate update Successful</td>
<td>C</td>
</tr>
</tbody>
</table>

h. Click the Save icon and then close the dialog box.

8. Define the connector. If you are planning to perform any of the other procedures described in this chapter, perform those procedures and then define the connector. See Section 4.10, "Defining the Connector" for more information.

9. If you are using Oracle Identity Manager release 11.1.2.x or later, create a new UI form and attach it to the application instance to make this new attribute visible.
4.4 Adding New Standard SAP BusinessObjects AC Access Request Management Attributes for Provisioning

By default, the attributes listed in Table 1–6 and Table 1–10 are mapped for sending requests from Oracle Identity Manager to SAP BusinessObjects AC Access Request Management. If required, you can map additional single-valued attributes.

Summary of the procedure to add a new SAP BusinessObjects AC Access Request Management attribute for provisioning

1. Determine the name of the attribute on Access Request Management.
2. Add the attribute on the process form.
3. Create an entry for the attribute in the Lookup.SAPAC10UME.UM.ProvAttrMap lookup definition.
4. Create a task to enable update of the attribute during provisioning operations.

To add a new SAP BusinessObjects AC Access Request Management attribute for provisioning:

1. Log in to Oracle Identity Manager Design Console.

2. If the attribute does not already exist on the process form, then add it on the process form as follows:
   a. Expand Development Tools, and double-click Form Designer.
   b. Search for and open the UD_SAPACUME process form.
   c. Click Create New Version, and then click Add.
   d. Enter the details of the attribute.
      For example, if you are adding the Telephone field, enter UD_SAPACUME_TELEPHONE in the Name field, and then enter the rest of the details of this field.
   e. Click the Save icon, and then click Make Version Active. The following screenshot shows the new field added to the process form:

Note: Perform the procedure described in this section only if you want to map additional standard Access Request Management attributes for requests sent from Oracle Identity Manager to Access Request Management.

Note: See Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the steps of this procedure.
3. Create an entry for the attribute in the Lookup.SAPAC10UME.UM.ProvAttrMap lookup definition as follows:
   a. Expand Administration.
   b. Double-click Lookup Definition.
   c. Search for and open the Lookup.SAPAC10UME.UM.ProvAttrMap lookup definition.
   d. Click Add and then enter the Code Key and Decode values for the attribute.

   The Code Key value must be the name of the field on the process form. The Decode value is in the following format:

   \textit{FIELD\_NAME};\textit{CUSTOM}

   In this format:
   - \textit{FIELD\_NAME} is the name of the attribute.
   - \textit{CUSTOM} is used to specify that the attribute is a custom attribute on SAP BusinessObjects AC Access Request Management.

4. Create a process task to enable update of the attribute during provisioning operations if the following conditions are true:
   - The task does not already exist.
   - This attribute exists on both SAP BusinessObjects AC Access Request Management and the target system.

   \textbf{Note:} If you do not perform this procedure, then you will not be able to modify the value of the attribute after you set a value for it during the Create User provisioning operation.

To enable the update of the attribute during provisioning operations, add a process task for updating the attribute:
See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about these steps

b. Search for and open the SAP AC UME process definition.
c. Click Add.
d. On the General tab of the Creating New Task dialog box, enter a name and description for the task and then select the following:
   - Conditional
   - Required for Completion
   - Allow Cancellation while Pending
   - Allow Multiple Instances
e. Click the Save icon.
g. In the Handler Selection dialog box, select Adapter, click adpSAPACUMETEMPLATE, and then click the Save icon.
   The list of adapter variables is displayed on the Integration tab.
h. To create the mapping for the first adapter variable:
   Double-click the number of the first row.
   In the Edit Data Mapping for Variable dialog box, enter the following values:
   - Variable Name: Adapter return value
   - Data Type: Object
   - Map To: Response code
   Click the Save icon.
i. To create mappings for the remaining adapter variables, use the data given in the following table:

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Map To</th>
<th>Qualifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>fieldValue</td>
<td>ProcessData</td>
<td>Telephone Number</td>
</tr>
<tr>
<td>fieldName</td>
<td>Literal</td>
<td>String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UD_SAPACUMETEMPLATE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MBER</td>
</tr>
<tr>
<td>itResourceFieldName</td>
<td>Literal</td>
<td>String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UD_SAPACUMETYPE</td>
</tr>
<tr>
<td>objectType</td>
<td>Literal</td>
<td>String</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User</td>
</tr>
<tr>
<td>IProcessInstanceKey</td>
<td>Process Data</td>
<td>Process Instance</td>
</tr>
</tbody>
</table>
### 4.5 Removing SAP BusinessObjects AC Access Request Management Attributes from Process Form

The form attributes used for Access Request Management are prefixed with AC. These attributes are available in the process form. If the connector is not configured for SAP BusinessObjects AC, then the AC-specific attributes can be removed manually.

The following is the list of AC attributes:

- AC Manager
- AC Manager email
- AC Priority
- AC System
- AC Requestor ID
- AC Requestor email
- AC Request Reason
- AC Manager First Name
- AC Manager Last Name
- AC Manager Telephone
- AC Request Due Date
- AC Functional Area
- AC Business Process
- AC Requestor First Name
- AC Requestor Last Name
- AC Requestor Telephone
- AC Company

To remove the AC attributes from the process form:

1. From Oracle Identity Manager Design Console, expand **Development Tools**.
2. Double-click **Form Designer**.
3. Search for and open the **UD_SAPACUME** process form.
4. Click **Create New Version**.
5. In the Label field, enter the version name. For example, **version#1**.
6. Click the Save icon.
7. Select the current version created in Step 5 from the Current Version list.
8. Select the AC field to be removed.
9. Click **Delete** to remove the selected attribute row from the form.
10. Similarly, repeat Steps 8 and 9 until you remove all the AC attributes.
11. Click the Save icon. The following screenshot shows to remove the AC attributes from the process form:

![Form Designer screenshot](image)

12. Click **Make Version Active**.
13. If you are using Oracle Identity Manager release 11.1.1, after you remove an attribute on the process form, you must update the XML file containing the request dataset definitions. To update a request dataset:
   - a. Locate and open the **SAPUME-Datasets.xml** file, which is located in the xml directory of the installation media.
   - b. Search for and find the AC field tags. You can either comment or delete the entire set of AC field tags in the XML file.
See Also: For more information about creating and updating request datasets, see Configuring Requests of Oracle Fusion Middleware Developer’s Guide for Oracle Identity Manager at http://docs.oracle.com/cd/E21764_01/doc.1111/e14309/request.htm#OMDEV2856

c. Save and close the XML file.
d. Run the PurgeCache utility to clear content related to request datasets from the server cache.

See Oracle Fusion Middleware Administering Oracle Identity Manager for more information about the PurgeCache utility.
e. Import into MDS the request dataset definitions in XML format.

See Section 2.3.10.1, "Importing Request Datasets Using Deployment Manager" for detailed information about the procedure.

4.6 Configuring Validation of Data During Reconciliation and Provisioning

You can configure validation of reconciled and provisioned single-valued data according to your requirements. For example, you can validate data fetched from the First Name attribute to ensure that it does not contain the number sign (#). In addition, you can validate data entered in the First Name field on the process form so that the number sign (#) is not sent to the target system during provisioning operations.

Note: This feature cannot be applied to the Locked/Unlocked status attribute of the target system.

To configure validation of data:

1. Write code that implements the required validation logic in a Java class.

   This validation class must implement the validate method.

   The following sample validation class checks if the value in the First Name attribute contains the number sign (#):

   ```java
   package com.validationexample;

   import java.util.HashMap;

   public class MyValidator {
     public boolean validate(HashMap hmUserDetails, HashMap hmEntitlementDetails, String sField) throws ConnectorException {
       /* You must write code to validate attributes. Parent
          * data values can be fetched by using hmUserDetails.get(field)
          * For child data values, loop through the
          * ArrayList/Vector fetched by hmEntitlementDetails.get("Child Table")
          * Depending on the outcome of the validation operation,
          * the code must return true or false.
          */

          /*
          * In this sample code, the value 'false' is returned if the field
          */
   }
   ```

   import java.util.HashMap;

   public class MyValidator {
     public boolean validate(HashMap hmUserDetails, HashMap hmEntitlementDetails, String sField) throws ConnectorException {
       /* You must write code to validate attributes. Parent
          * data values can be fetched by using hmUserDetails.get(field)
          * For child data values, loop through the
          * ArrayList/Vector fetched by hmEntitlementDetails.get("Child Table")
          * Depending on the outcome of the validation operation,
          * the code must return true or false.
          */

          /*
          * In this sample code, the value 'false' is returned if the field
* contains the number sign (#). Otherwise, the value 'true' is returned.
*/
boolean valid = true;
String sFirstName = (String) hmUserDetails.get(sField);
for (int i = 0; i < sFirstName.length(); i++) {
  if (sFirstName.charAt(i) == '#') {
    valid = false;
    break;
  }
}
return valid;
}

2. If you created the Java class for validating a process form field for reconciliation, then:
   a. Log in to the Design Console.
   b. Search for and open the Lookup.SAPUME.UM.ReconValidation (or create another custom name) lookup definition.

    **Note:** If you cannot find the Lookup.SAPUME.UM.ReconValidation lookup definition, create a new lookup definition.

   c. In the Code Key column, enter the resource object field name that you want to validate.
   d. In the Decode column, enter the class name. For example, com.VALIDATIONEXAMPLE.MYVALIDATOR.
   e. Save the changes to the lookup definition.
   f. Search for and open the Lookup.SAPUME.Configuration lookup definition.
   g. In the Code Key column, enter Recon Validation Lookup.
   h. In the Decode column, enter the name of the lookup you created in step 2.b.
   i. Save the changes to the lookup definition.

3. If you created the Java class for validating a process form field for provisioning, then:
   a. Log in to the Design Console.
   b. Search for and open the Lookup.SAPUME.UM.ProvValidation (or create another custom name) lookup definition.

    **Note:** If you cannot find the Lookup.SAPUME.UM.ProvValidation lookup definition, create a new lookup definition.

   c. In the Code Key column, enter the process form field name that you want to validate.
   d. In the Decode column, enter the class name. For example, com.VALIDATIONEXAMPLE.MYVALIDATOR.
   e. Save the changes to the lookup definition.
f. Search for and open the **Lookup.SAPUME.Configuration** lookup definition.

g. In the **Code Key** column, enter **Provisioning Validation Lookup**.

h. In the **Decode** column, enter **Lookup.SAPUME.UM.ProvValidation** or enter the name of the lookup you created in step 3.b.

i. Save the changes to the lookup definition.

### 4.7 Configuring Transformation of Data During User Reconciliation

You can configure transformation of reconciled single-valued user data according to your requirements. For example, you can use First Name and Last Name values to create a value for the Full Name field in Oracle Identity Manager.

---

**Note:** This feature cannot be applied to the Locked/Unlocked status attribute of the target system.

---

To configure transformation of single-valued user data fetched during reconciliation:

1. Write code that implements the required transformation logic in a Java class.

   This transformation class must implement the `transform` method.

   The following sample transformation class creates a value for the Full Name attribute by using values fetched from the First Name and Last Name attributes of the target system:

   ```java
   package com.transformationexample;

   import java.util.HashMap;

   public class MyTransformer {
     public Object transform(HashMap hmUserDetails, HashMap hmEntitlementDetails, String sField) throws ConnectorException {
       /*
       * You must write code to transform the attributes.
       * Parent data attribute values can be fetched by
       * using hmUserDetails.get("Field Name").
       * To fetch child data values, loop through the
       * ArrayList/Vector fetched by hmEntitlementDetails.get("Child Table")
       * Return the transformed attribute.
       */
       String sFirstName = (String) hmUserDetails.get("First Name");
       String sLastName = (String) hmUserDetails.get("Last Name");
       return sFirstName + "." + sLastName;
     }
   }
   ```

2. Log in to the Design Console.

3. Search for and open the **Lookup.SAPUME.UM.ReconTransformation** (or create another custom name) lookup definition.
Modifying Field Lengths on the Process Form

4. In the Code Key column, enter the resource object field name you want to transform.

5. In the Decode column, enter the class name. For example, com.TRANSFORMATIONEXAMPLE.MYTRANSFORMER.

6. Save the changes to the lookup definition.

7. Search for and open the Lookup.SAPUME.Configuration lookup definition.

8. In the Code Key column, enter Recon Transformation Lookup.

9. In the Decode column, enter Lookup.SAPUME.UM.ReconTransformation or enter the name of the lookup you created in step 3.

10. Save the changes to the lookup definition.

4.8 Modifying Field Lengths on the Process Form

You might want to modify the lengths of fields (attributes) on the process form. For example, if you use the Japanese locale, then you might want to increase the lengths of process form fields to accommodate multibyte data from the target system.

If you want to modify the length of a field on the process form, then:

1. Log in to the Design Console.

2. Expand Development Tools, and double-click Form Designer.

3. Search for and open the UD_UME process form.

4. Click Create New Version.

5. Enter a label for the new version, click the Save icon, and then close the dialog box.

6. From the Current Version list, select the version that you create.

7. Modify the length of the required field.

8. Click the Save icon.

9. Click Make Version Active.

4.9 Configuring the Connector for Multiple Installations of the Target System

You might want to configure the connector for multiple installations of the target system. The following example illustrates this requirement:

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

To meet the requirement posed by such a scenario, you can create copies of connector objects, such as the IT resource and resource object.

The decision to create a copy of a connector object might be based on a requirement. For example, an IT resource can hold connection information for one target system installation. Therefore, it is mandatory to create a copy of the IT resource for each target system installation.

With some other connector objects, you do not need to create copies at all. For example, a single attribute-mapping lookup definition can be used for all installations of the target system.

If you want to create copies of all the objects that constitute the connector, then see Cloning Connectors in Oracle Fusion Middleware Administering Oracle Identity Manager.

4.10 Defining the Connector

By using the Identity System Administration, you can define a customized or reconfigured connector. Defining a connector is equivalent to registering the connector with Oracle Identity Manager.

A connector is automatically defined when you install it using the Install Connectors feature or when you upgrade it using the Upgrade Connectors feature. You must manually define a connector if:

- You import the connector by using the Deployment Manager.
- You customize or reconfigure the connector.
- You upgrade Oracle Identity Manager.

The following events take place when you define a connector:

- A record representing the connector is created in the Oracle Identity Manager database. If this record already exists, then it is updated:
- The status of the newly defined connector is set to Active. In addition, the status of a previously installed release of the same connector automatically is set to Inactive.

See Defining Connectors in Oracle Fusion Middleware Administering Oracle Identity Manager for detailed information about the procedure to define connectors.
This chapter is divided into the following sections:

- Section 5.1, "Known Issues"
- Section 5.2, "Connector Limitations Related to Features of the Target System"
- Section 5.3, "Frequently Asked Questions (FAQs)"

5.1 Known Issues

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

- **Bug 14152765**
  
  If the size of the violation details obtained from SAP BusinessObjects AC target system is more than 4000 characters, then you must update the Length of the SODCheckViolation field as per the expected size of the violation data.

- **Bug 13248559**
  
  After performing user reconciliation on the user form in the Administrative and User Console, the code key values are displayed instead of the decode values.

- **Bug 13343976**
  
  If you configure the connector to communicate with the Connector Server using SSL, including setting the connectorserver.usessl property to true and importing the target system certificate into the Connector Server JDK keystore, an attempt to access the target system or run the Connector Server returns an error.

  There is no workaround for this issue. Do not use SSL to communicate with the Connector Server.

- **Bug 28217796**
  
  While creating a user in the enterprise portal through a GRC access request with valid date on the system set at 31/12/9999, the following error message is encountered:

  ```
  Exception while creating user: BAPI_USER_CREATE1@GR1CLNT001:TYPE=E, ID=S5, NUMBER=003,
  ```

  Workaround is to apply the following SNOTEs on top of GRCFND_A SP 10:
  
  - SNOTE 2653244
  - SNOTE 2203867

- **Bug 23342634**
Lookup Data of Timezone, Country, and Locale is not Dynamic.

During provisioning and reconciliation, the look up data of timezone, country, and locale can be inconsistent with the target system because the lookup values were generated during the earlier versions of Netweaver.

If there is any mismatch in data between target and lookup, the workaround is for the customer to modify the lookups manually in the OIM design console.

- **Bug 23559285**

In the Access Request Management (AC) flow, if you trigger a revoke account in OIG and reject the revoke request for the same account in GRC, then the account is still active in the SAP NetWeaver Java Application server (backend Java Stack) and you cannot modify the account details in OIG.

There is no workaround for this issue.

### 5.2 Connector Limitations Related to Features of the Target System

The following are connector limitations related to features of the target system:

- The SPML UME API does not return records for which the Last Modified Date value is greater than a specified date. Therefore, the connector cannot support incremental reconciliation.

- Configurable batched reconciliation is not supported. The connector performs batched reconciliation implicitly when it first fetches user records with logonname that begin with valid characters allowed in the target system.

In addition, the following sections describe specific connector limitations:

- Section 5.2.1, "Limitations for AS ABAP Data Source for the Connector"
- Section 5.2.2, "Limitations for Groups That Represent AS ABAP Roles"
- Section 5.2.3, "Limitations for Role Management with the Connector"

#### 5.2.1 Limitations for AS ABAP Data Source for the Connector

An AS ABAP data source on the target system has the following limitations for the connector:

- **Limitation when searching for users**
  
  The search considers only actions performed using the AS Java tools. Therefore, the connector cannot search using the last modified timestamp.

- **List of SAP User Management Engine (UME) user attributes**
  
  The list of user attributes that can be read from or written to the SAP UME with an AS ABAP data source is fixed and cannot be extended. However, a backend AS ABAP system can have additional attributes, but these attributes are not supported from the SAP UME.

- **Delay in the display of AS ABAP roles in the SAP UME**
  
  If you create a new AS ABAP role or change the description of an existing AS ABAP role, these changes might not be visible in the SAP UME for up to 30 minutes. The SAP UME reads this data from the AS ABAP data source every 30 minutes. To force the SAP UME to read the data from the AS ABAP data source, you must restart the AS Java. Therefore, performing a reconciliation operation might lose roles that have been created recently.
5.2.2 Limitations for Groups That Represent AS ABAP Roles

The SAP UME groups that represent AS ABAP roles on the target system have the following limitations for the connector:

- You can assign ABAP users only to the SAP UME groups that represent ABAP roles.
- The SAP UME cannot show a user-group assignment when the current date is outside the validity period of the corresponding user-role assignment in the AS ABAP data source.
- If you try to assign a SAP UME group to a user when the user is already assigned to the corresponding ABAP role, but the current date is outside the validity period, you will receive an error message.
- If a role assignment to a user in ABAP is by means of a collective role or organizational management, you cannot unassign the user from the corresponding SAP UME group.
- If a role assignment to a user in ABAP is by means of an indirect assignment through a reference user (visible in transaction SU01), you cannot unassign the user from the corresponding SAP UME group.
- If a role assignment to a user in ABAP is by means of direct and indirect assignment simultaneously, you cannot unassign the user from the corresponding SAP UME group.

For example, a user administrator named ADMIN has assigned the user named USER1 to the roles Z_DIRECT and Z_COLLECT. Z_COLLECT is a collective role including the role Z_DIRECT. When ADMIN uses identity management of the AS Java, ADMIN cannot unassign USER1 from the SAP UME group Z_DIRECT because this ABAP role is also assigned indirectly by the ABAP role Z_COLLECT.

- New groups created with the SAP UME are stored in a local database.

5.2.3 Limitations for Role Management with the Connector

The connector supports the assignment of the following types of roles to users:

- Roles that define what is displayed in SAP Enterprise Portal
  - Portal roles
    - These roles are applicable to SAP Enterprise Portal. The connector supports the assignment of these roles to users.

- Roles that define what authorizations a user has in the backend system
  - UME authorization roles
    - These roles support programmatic authorization checks. The connector supports the assignment of these roles to users.
  - J2EE Security role
These roles support declarative authorization checks. The connector does not support the assignment of these roles to users. These roles need to be managed from the Visual Administrator tool of the J2EE Engine.

- **ABAP authorization role**
  These roles are applicable when the SAP UME is configured with an ABAP data source. These roles will be displayed as groups in the SAP UME. The SAP UME instance needs to be checked whether it is supported or not. The connector will support the assignment of these roles if the SAP UME instance supports it.

### 5.3 Frequently Asked Questions (FAQs)

You can refer the following FAQs as guidelines and to troubleshoot connector issues:

1. I have installed only the SAP UME connector in my Oracle Identity Manager (OIM) environment. I want to use it with SAP BusinessObjects AC. Is it mandatory to follow the SIL Registration steps to use it with GRC?
   **Answer:** Not mandatory if you are not using the sodgrc topology name for any other connector. The sodgrc topology name is already registered by default and it is mapped to GRC-ITRes IT Resource. So, you must create the IT resource with instance name GRC-ITRes type GRC-UME if it does not exist already. Specify the GRC details in this instance and use this IT Resource for GRC. To use GRC-ITRes instance, mention sodgrc as the topology name in SAPUME IT Resource.

2. Can I simultaneously use the SAP ER and the SAP UME connectors in the same OIM environment?
   **Answer:** Yes.

3. I have decided to use the SAP UME connector directly without configuring the Access Request Management feature. The default process form has AC fields on it. How do I remove these AC fields from the form?
   **Answer:** See Section 4.5, "Removing SAP BusinessObjects AC Access Request Management Attributes from Process Form" for the procedure.

4. I have changed the system property for SOD as XL.SoDCheckRequired = TRUE. Is it now possible to use two SAP connectors in the same OIM environment having one connector configured for SOD analysis and the other connector configured without SOD analysis?
   **Answer:** No, the system property is common in OIM. Hence, the property applies to all the connectors installed in that OIM.

5. Suppose I have installed the SAP EP connector and I want to upgrade it to the SAP UME connector. What are the changes that need to be done after upgrading it?
   **Answer:** You need to change the child table name mapping in Add Role, Remove Role, Add Group, and Remove Group tasks in the process definition according to the existing child table names. Similarly, replace all the new child form names with the existing form names in the below mentioned lookup definitions:
   - Lookup.SAPUME.UM.ProvAttrMap
   - Lookup.SAPUME.AC10.Configuration
   - Lookup.SAPUME.AC10.ProvAttrMap
6. I have configured the SAP UME connector for SOD analysis. I have multiple GRC systems but have configured this connector to only one system. I have added a set of violated roles but my SOD analysis result shows as Passed without violations. Have I missed any configuration in order to get correct analysis?

Answer: It may be a configuration mistake. Verify the Sod System Key decode value in Lookup.SAPUME.AC.xx.Configuration where xx denotes 10 for SAP BusinessObjects AC 10 release. You need to mention the correct system value.

7. I have configured the SAP UME connector for Access Request Management and would like to see the Audit trail details. Where can I get these details?

Answer: To get the Audit trail details, you need to enable the logs specific to AC for the connector. The Audit trail details can be viewed in the log file along with the connector logs.

Here are a few formatted samples of the Audit trial:

- **Create User**
  - Audit Trial: [Result=[Createdate:20130409, Priority:HIGH, Requestedby:johndoe (JOHNDOE), Requestnumber:9000001341, Status:Decision pending, Submittedby:johndoe (JOHNDOE), auditlogData:ID:000C290FC2851ED2A899DA29DAA1B1E2, Description:Display String:Request 9000001341 of type New Account Submitted by johndoe (JOHNDOE) for JK1APRIL9 JK1APRIL9 (JK1APRIL9) with Priority HIGH], Status=0_Data Populated successfully]

- **Request Status**
  - Audit Trial: [Result=[Createdate:20130409, Priority:HIGH, Requestedby:johndoe (JOHNDOE), Requestnumber:9000001341, Status:Approved, Submittedby:johndoe (JOHNDOE), auditlogData:ID:000C290FC2851ED2A899DA29DAA1B1E2, Description:Display String:Request 9000001341 of type New Account Submitted by johndoe (JOHNDOE) for JK1APRIL9 JK1APRIL9 (JK1APRIL9) with Priority HIGH, ID:000C290FC2851ED2A899DAF9961C91E2, Description:Display String:Request is pending for approval at path GRAC_DEFAULT_PATH stage GRAC_MANAGER, ID:000C290FC2851ED2A89A1400B60631E2,
Description:
Display String: Approved by JOHNDOE at Path GRAC_DEFAULT_PATH and Stage GRAC_MANAGER,
ID: 000C290FC2851ED2A89A150972D091E2,
Description:
Display String: Auto provisioning activity at end of request at Path GRAC_DEFAULT_PATH and Stage GRAC_MANAGER,
ID: 000C290FC2851ED2A89A150972D111E2,
Description:
Display String: Approval path processing is finished, end of path reached,
ID: 000C290FC2851ED2A89A150972D151E2,
Description:
Display String: Request is closed]]
Status=0_Data Populated successfully

Modify Request (First Name)
Audit Trial: 
[Result=[Createdate:20130409,
Priority: HIGH,
Requestedby: johndoe (JOHNDOE),
Requestnumber: 9000001342,
Status: Decision pending,
Submittedby: johndoe (JOHNDOE),
auditlogData:[]
ID: 000C290FC2851ED2A89A3ED3B1D7B1E2,
Description:
Display String: Request 9000001342 of type Change Account Submitted by johndoe (JOHNDOE) for JK1FirstName JK1APRIL9 (JK1APRIL9) with Priority HIGH],
Status=0_Data Populated successfully

8. What is the purpose of SAP UME Roles resource object available with the connector?

**Answer:** These resource objects must be used only with Oracle Identity Manager 11g Release 1 (11.1.1). They are used in Oracle Identity Manager release 11.1.1 to serve the same purpose as entitlements do in Oracle Identity Manager 11g Release 2 (11.1.2). They are not required in Oracle Identity Manager release 11.1.2.

9. After changing the mapped adapter for Delete User Task, the responses within the task are not available in the Responses Tab because of which the task fails or the description of executed task is blank. Should the responses be added manually?

**Answer:** Yes, only if the responses are not available, you need to add the responses manually after changing the adapter. Add the following responses:
10. I had configured the SAP UME connector for Access Request Management and have users provisioned through GRC. Now, I have reverted back the connector to the default type without Access Request Management feature. When I try to update an existing user, the task fails. Do I need to run any schedule job before performing any operations on the existing users provisioned through Access Request Management?

Answer: Yes, run a full reconciliation once using the SAP UME User Reconciliation schedule job before performing any provisioning operations.

11. I have installed the SAP UME connector in my Oracle Identity Manager environment. I see the following exception while provisioning the user. How do I work around this issue?

Exception:
org.identityconnectors.framework.common.exceptions.ConnectorException:
The HTTP request is not valid.

Answer: Perform the following procedure as a workaround for this issue:

a. Login to the Operation system level of the SAP NW7.4 UME and navigate to the following path:
D:\usr\sap\<SID>\SYS\PROFILE\n
b. Edit the DEFAULT.PFL as follows:
#icm/HTTP/mod_0 =
PREFIX=,FILE=$(DIR_GLOBAL)/security/data/icm_filter_rules.txt

c. Run configtool.sh from the directory present within the profile directory as shown in the following path:
cd /usr/sap/<SID>/j2ee/configtool
./configtool.sh

d. Now the Configtool GUI will open and change the value of the use.spml.http_header_check_active parameter to false if it had been set to true.

12. During a Create User provisioning operation, does the SAP UME AC connector provision attributes that are mapped directly to SAP ECC system without GRC?
**Answer:** No. For account creation request in GRC, the request is created only with the GRC attributes. Attributes mapped directly to SAP ECC system are not part of the create operation. Once the request is approved and the account is provisioned to the SAP ECC system (backend ABAP system), these attributes (mapped directly to SAP) can be provisioned as part of the update operation.

**13.** I am on OIM 11.1.x and SOD violation is not working in GRC10.1 with NW7.5.

**Answer:** You must mandatorily apply bug 23582379 one-off fix or BP.
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