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Preface

This guide describes the connector that is used to integrate Oracle Identity Manager with RSA Authentication Manager.

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
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><em>monospace</em></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
What's New in Oracle Identity Manager Connector for RSA Authentication Manager?

This chapter provides an overview of the updates made to the software and documentation for the RSA Authentication Manager connector in release 11.1.1.5.0. The updates discussed in this chapter are divided into the following categories:

- **Software Updates**
  This section describes updates made to the connector software. This section also points out the sections of this guide that have been changed in response to each software update.

- **Documentation-Specific Updates**
  These include major changes made to this guide. For example, the relocation of a section from the second chapter to the third chapter is a documentation-specific update. These changes are not related to software updates.

### Software Updates

The following section discusses software updates:

**Software Updates in Release 11.1.1.5.0**

This is the first release of the Oracle Identity Manager connector for RSA Authentication Manager based on ICF architecture. Therefore, there are no software updates for this release of the connector.

### Documentation-Specific Updates

The following section discusses documentation updates:

**Documentation Updates in Release 11.1.1.5.0**

The following are documentation-specific updates in revision "6" of release 11.1.1.5.0:

- The "Target Systems" row in Table 1–1, "Certified Components" has been modified to include the supported version RSA Authentication Manager 8.2.
- The "JDK" row has been added to Table 1–1, "Certified Components".

The following is a documentation-specific update in revision "5" of release 11.1.1.5.0:

The "Oracle Identity Manager" row of Table 1–1, "Certified Components" has been updated.

The following are documentation-specific updates in revision "4" of release 11.1.1.5.0:

- A "Note" regarding lookup queries has been added at the beginning of Chapter 4, "Extending the Functionality of the Connector."
- A "Note" regarding lookup queries has been removed from Section 1.6, "Lookup Definitions Used During Reconciliation and Provisioning."

The following are documentation-specific updates in revision "3" of release 11.1.1.5.0:
A "Note" regarding lookup queries has been added to Section 1.6, "Lookup Definitions Used During Reconciliation and Provisioning."

The "Target System" row of Table 1–1, "Certified Components" has been updated.

The following is a documentation-specific update in revision "2" of release 11.1.1.5.0: Section 2.3.1.1, "Configuring Self-Request Provisioning" has been added.
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 RSA Authentication Manager as a managed (target) resource of Oracle Identity Manager.

**Note:** At some places in this guide, RSA Authentication Manager has been referred to as the target system.

In the account management (target resource) mode of the connector, information about users created or modified directly on the target system can be reconciled into Oracle Identity Manager. In addition, you can use Oracle Identity Manager to perform provisioning operations on the target system.

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"
- Section 1.5, "Features of the Connector"
- Section 1.6, "Lookup Definitions Used During Reconciliation and Provisioning"
- 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 the certified components for the target system.
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:

- If you are using an Oracle Identity Manager release that is earlier than Oracle Identity Manager 11g Release 2 (11.1.2.0.0), then you must use the 9.1.0.x version of this connector. However, if you are using RSA Authentication Manager 6.0, or 6.1, or 6.1.2, then you must use the 9.0.4.x version of this connector.

- If you are using Oracle Identity Manager 11g Release 2 or later, then you must use the 11.1.1.x version of this connector. However, if you are using RSA Authentication Manager 7.1 with SP3 or later, then use the 9.1.0.x version of this connector.

1.3 Certified Languages

The connector supports the following languages:

- Arabic
- Chinese (Simplified)
- Chinese (Traditional)
- Czech
- Danish
- Dutch
- English (UK)
- English (US)
- Finnish
- French
1.4 Connector Architecture

Figure 1–1 shows the architecture of the connector.

See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for information about supported special characters

The RSA Authentication Manager connector is implemented by using the Identity Connector Framework (ICF). The ICF is a component that provides basic reconciliation...
and provisioning operations that are common to all Oracle Identity Manager connectors. In addition, ICF provides common features that developers would otherwise need to implement on their own, such as connection pooling, buffering, time outs, and filtering. The ICF is shipped along with Oracle Identity Manager. Therefore, you need not configure or modify the ICF.

This connector is used to manage users and tokens on RSA Authentication Manager through Oracle Identity Manager. This connector integrates Oracle Identity Manager with the target system with the help of a Java API.

The target system can be configured to run in the Account Management mode. Account management is also known as target resource management. In this mode, the target system is used as a target resource and the connector enables the following operations:

- **Provisioning:**
  Provisioning involves creating, updating, or deleting users and tokens on the target system through Oracle Identity Manager. The connector makes use of the Java API to connect to the RSA AM Server, and in turn provision accounts and tokens.

  Token provisioning operations are performed in the same manner. A separate set of Oracle Identity Manager adapters is used during token provisioning operations.

  During user provisioning, data received in the create/update operation will be passed to the target system APIs. RSA APIs accept provisioning data, carry out the required operation on the target system, and then return the response from the target system back to the connector. The connector will return the response to Oracle Identity Manager.

- **Target source reconciliation:**
  During reconciliation, the connector fetches data (using scheduled jobs) about users created or modified directly on the target system into Oracle Identity Manager. This data is used to add or modify resources allocated to OIM Users.

  Similarly, during reconciliation, the RSA APIs will accept the search criteria, including filters, and return the records to the connector. The connector supports searching for users, tokens, roles, groups, identity sources, security domains and RADIUS profiles on the target.

### 1.5 Features of the Connector

The following are features of the connector:

- **Section 1.5.1, "Support for Reconciliation and Provisioning of RSA Authentication Manager User Accounts and Tokens"**
- **Section 1.5.2, "Full and Incremental Reconciliation"**
- **Section 1.5.3, "Batched Reconciliation"**
- **Section 1.5.4, "Limited (Filtered) Reconciliation"**
- **Section 1.5.5, "Enabling and Disabling User Accounts and Tokens"**
- **Section 1.5.6, "Reconciliation of Deleted User Accounts and Unassigned Tokens"**
- **Section 1.5.7, "EJB-Based Communication with the Target System"**
- **Section 1.5.8, "Mapping Standard and Custom Attributes for Reconciliation and Provisioning.""
1.5.1 Support for Reconciliation and Provisioning of RSA Authentication Manager User Accounts and Tokens

You can use the connector to reconcile and provision RSA Authentication Manager user accounts and tokens. The connector provides separate process forms and resource objects for user accounts and token operations.

1.5.2 Full and Incremental Reconciliation

In full reconciliation, all records are fetched from the target system to Oracle Identity Manager. In incremental reconciliation, only records that are added or modified after the last reconciliation run are fetched into Oracle Identity Manager.

You can switch from incremental to full reconciliation at any time after you deploy the connector.

See Section 3.3.1, "Performing Full Reconciliation" for more information.

1.5.3 Batched Reconciliation

You can break down a reconciliation run into batches by specifying the number of records that must be included in each batch.

See Section 3.3.3, "Batched Reconciliation" for more information.

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 3.3.2, "Limited Reconciliation" for more information.

1.5.5 Enabling and Disabling User Accounts and Tokens

Account Start and Account Expire are two user attributes on the target system. For a particular user on the target system, if the Account Expire date is less than the current date, then the account is in the Disabled state. Otherwise, the account is in the Enabled state. When the record of this user is reconciled into Oracle Identity Manager, the user's state (RSA resource) in Oracle Identity Manager matches the user's state on the target system. In addition, through a provisioning operation, you can set the value of the Account Expire date to the current date or a date in the past.

Alternatively, you can search for and open the Accounts page on Oracle Identity Manager. Click Enable/Disable to enable or disable user accounts or tokens.

---

**Note:** The Enabled or Disabled state of a user account or a token is not related to the Locked or Unlocked state of the account.
1.5.6 Reconciliation of Deleted User Accounts and Unassigned Tokens

You can configure the connector for reconciliation of deleted user accounts and unassigned tokens. In target resource mode, if a user record is deleted or a token is unassigned on the target system, then the corresponding RSA resource is revoked from the OIM User.

See Section 3.3.4.2, "Scheduled Jobs for Reconciliation of Deleted Token and User Records" for more information about scheduled jobs used for reconciling deleted user records.

1.5.7 EJB-Based Communication with the Target System

The connector supports EJB-based communication between Oracle Identity Manager and the target system. This is a secure connection. By using the connectionType parameter of the IT Resource, you can specify the type of communication (EJB) to be established with the target system.

1.5.8 Mapping Standard and Custom Attributes for Reconciliation and Provisioning

You can create mappings for attributes that are not included in the list of default attribute mappings. These attributes can be custom attributes that you add on the target system.

See Chapter 4, "Extending the Functionality of the Connector" for more information.

1.5.9 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 4.4, "Configuring Validation of Data During Reconciliation and Provisioning"
- Section 4.5, "Configuring Transformation of Data During Reconciliation"

1.5.10 Support for Setting a PIN and the Token Lost Attribute

You can use the connector to set the following:

- A PIN for the token that is assigned to a user.

**Note:** You are compulsorily required to assign a value for the PIN attribute of each token in order to ensure that provisioning takes place as expected.

- The Token Lost attribute when the token device is lost.

1.5.11 Connection Pooling

A connection pool is a cache of objects that represent physical connections to the target. Oracle Identity Manager connectors can use these connections to communicate with target systems. At run time, the application requests a connection from the pool. If a connection is available, then the connector uses it and then returns it to the pool. A
connection returned to the pool can again be requested for and used by the connector for another operation. By enabling the reuse of connections, the connection pool helps reduce connection creation overheads like network latency, memory allocation, and authentication.

One connection pool is created for each IT resource. For example, if you have three IT resources for three installations of the target system, then three connection pools will be created, one for each target system installation.

See Section 2.3.1.5, "Setting up the Lookup Definition for Connection Pooling" for more information.

1.6 Lookup Definitions Used During Reconciliation and Provisioning

Lookup definitions used during reconciliation and provisioning can be divided into the following categories:

- Section 1.6.1, "Lookup Definitions Synchronized with the Target System"
- Section 1.6.2, "Preconfigured Lookup Definitions"

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 Identity Source lookup field to select an identity source during a provisioning operation performed through Oracle Identity Manager Administrative and User Console. 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:

- Section 1.6.1.1, "Lookup.RSAAM.UserGroup"
- Section 1.6.1.2, "Lookup.RSAAM.IdentitySource"
- Section 1.6.1.3, "Lookup.RSAAM.SecurityDomain"
- Section 1.6.1.4, "Lookup.RSAAM.AdminRole"
- Section 1.6.1.5, "Lookup.RSAAM.TokenSerial"
- Section 1.6.1.6, "Lookup.RSAAM.RadiusProfile"

See Also:

Section 3.2, "Scheduled Job for Lookup Field Synchronization" for information about scheduled jobs used for lookup fields synchronization

1.6.1.1 Lookup.RSAAM.UserGroup

The Lookup.RSAAM.UserGroup lookup definition holds details of user groups defined on RSA Authentication Manager. You populate this lookup definition through lookup field synchronization performed using the RSAAM UserGroup Lookup Reconciliation scheduled job.

The following is the format of entries in this lookup definition:

- Code Key: IT_RESOURCE_KEY~GROUP_GUID
In this format:
- **IT_RESOURCE_KEY** is the key assigned to the IT resource on Oracle Identity Manager.
- **GROUP_GUID** is the GUID of the group on the target system.

■ **Decode:**

**IT_RESOURCE_NAME~IDENTITY_SOURCE_NAME~SECURITY_DOMAIN_NAME~GROUP_NAME**

In this format:
- **IT_RESOURCE_NAME** is the name assigned to the IT resource on Oracle Identity Manager.
- **IDENTITY_SOURCE_NAME** is the name of the identity source on the target system.
- **SECURITY_DOMAIN_NAME** is the name of the security domain on the target system.
- **GROUP_NAME** is the name of the group on the target system.

The following table shows sample entries in this lookup definition:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>41~ims.898afd743afcb10a1b20d2688a0b14be</td>
<td>RSA Server Instance<del>Internal Database</del>SecDom1a~Group1</td>
</tr>
<tr>
<td>41~ims.2820d78e3afcb10a1bc9883a4a6dc51</td>
<td>RSA Server Instance<del>Internal Database</del>SystemDomain~Group3</td>
</tr>
<tr>
<td>41~ims.3139e7eb3afcb10a1bc8f2e9afd7a77e</td>
<td>RSA Server Instance<del>Internal Database</del>SystemDomain~Group2</td>
</tr>
</tbody>
</table>

### 1.6.1.2 Lookup.RSAAM.IdentitySource

In RSA Authentication Manager, an identity source can be the default internal database, an LDAP-based solution, or a database. The Lookup.RSAAM.IdentitySource lookup definition holds details of the identity sources configured for your target system installation. You populate this lookup definition through lookup field synchronization performed using the RSAAM IdentitySource Lookup Reconciliation scheduled job.

The following is the format of entries in this lookup definition:

■ **Code Key**: **IT_RESOURCE_KEY~IDENTITY_SOURCE_GUID**

In this format:
- **IT_RESOURCE_KEY** is the key assigned to the IT resource on Oracle Identity Manager.
- **IDENTITY_SOURCE_GUID** is the GUID of the identity source on the target system.

■ **Decode**: **IT_RESOURCE_NAME~IDENTITY_SOURCE_NAME**

In this format:
- **IT_RESOURCE_NAME** is the name assigned to the IT resource on Oracle Identity Manager.
- **IDENTITY_SOURCE_NAME** is the name of the identity source on the target system.

The following table shows sample entries in this lookup definition:
1.6.1.3 Lookup.RSAAM.SecurityDomain

In the RSA Authentication Manager context, security domains represent the internal business units, such as departments, of the organization. These security domains are organized in a hierarchy. You populate this lookup definition through lookup field synchronization performed using the RSAAM SecurityDomain Lookup Reconciliation scheduled job.

The Lookup.RSAAM.SecurityDomain lookup definition stores the GUID and name of these security domains.

The following is the format of entries in this lookup definition:

- **Code Key**: `IT_Resource_KEY~SECURITY_DOMAIN_GUID`
  - `IT_Resource_KEY` is the key assigned to the IT resource on Oracle Identity Manager.
  - `SECURITY_DOMAIN_GUID` is the GUID of the security domain on the target system.

- **Decode**: `IT_RESOURCE_NAME~SECURITY_DOMAIN_NAME`
  - `IT_RESOURCE_NAME` is the name assigned to the IT resource on Oracle Identity Manager.
  - `SECURITY_DOMAIN_NAME` is the name of the security domain on the target system.

The following table shows sample entries in this lookup definition:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1~ims.000000000000000000001000d0011000</td>
<td>RSA Server Instance~Internal Database</td>
</tr>
<tr>
<td>1~ims.6de7d3c19c3714ac017cfd3c69eecc20e</td>
<td>RSA Server Instance~SystemDomain1</td>
</tr>
<tr>
<td>1~ims.6e3dc8939e3714ac02019a05130a8285</td>
<td>RSA Server Instance~Domain2</td>
</tr>
</tbody>
</table>

1.6.1.4 Lookup.RSAAM.AdminRole

On RSA Authentication Manager, an administrative role is a collection of permissions that can be assigned to an administrator. It determines the level of control the administrator has over users, user groups, and other entities. You populate this lookup definition through lookup field synchronization performed using the RSAAM AdminRole Lookup Reconciliation scheduled job.

The Lookup.RSAAM.AdminRole lookup definition stores details of administrative roles. The following is the format of entries in this lookup definition:

- **Code Key**: `IT_Resource_KEY~ROLE_GUID`
  - `IT_Resource_KEY` is the key assigned to the IT resource on Oracle Identity Manager.
- **ROLE_GUID** is the GUID of the role on the target system.

- **Decode: IT_RESOURCE_NAME~SECURITY_DOMAIN_NAME~ROLE_NAME**

  In this format:
  - **IT_RESOURCE_NAME** is the name assigned to the IT resource on Oracle Identity Manager.
  - **SECURITY_DOMAIN_NAME** is the name of the security domain on the target system.
  - **ROLE_NAME** is the name of the role on the target system.

The following table shows sample entries in this lookup definition:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>41~ims.000000000000000000002000f0035001</td>
<td>RSA Server Instance<del>SystemDomain</del>Auth Mgr Root Domain Admin</td>
</tr>
<tr>
<td>41~ims.000000000000000000001000e0031001</td>
<td>RSA Server Instance<del>SystemDomain</del>TrustedRealmAdminRole</td>
</tr>
</tbody>
</table>

### 1.6.1.5 Lookup.RSAAM.TokenSerial

On RSA Authentication Manager, a token serial is a unique identification number provided for every token. You populate this lookup definition through lookup field synchronization performed using the RSAAM TokenSerial Lookup Reconciliation scheduled job.

The Lookup.RSAAM.TokenSerial lookup definition stores details of token serials. The following is the format of entries in this lookup definition:

- **Code Key: IT_RESOURCE_KEY~TOKEN_SERIAL_NUMBER**

  In this format:
  - **IT_RESOURCE_KEY** is the key assigned to the IT resource on Oracle Identity Manager.
  - **TOKEN_SERIAL_NUMBER** is the number assigned to the token on the target system.

- **Decode: IT_RESOURCE_NAME~SECURITY_DOMAIN_NAME~TOKEN_SERIAL_NUMBER**

  In this format:
  - **IT_RESOURCE_NAME** is the name assigned to the IT resource on Oracle Identity Manager.
  - **SECURITY_DOMAIN_NAME** is the name of the security domain on the target system.
  - **TOKEN_SERIAL_NUMBER** is the number assigned to the token on the target system.

The following table shows sample entries in this lookup definition:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>41~000221996071</td>
<td>RSA Server Instance<del>SecDom2a</del>000221996071</td>
</tr>
<tr>
<td>41~000221996081</td>
<td>RSA Server Instance<del>SystemDomain</del>000221996081</td>
</tr>
</tbody>
</table>
1.6.1.6 Lookup.RSAA.M.RadiusProfile

On RSA Authentication Manager, a radius profile is a collection of attributes that specify session requirements for a user’s authentication using RADIUS. These attributes are contained in a checklist or a return list. You populate this lookup definition through lookup field synchronization performed using the RSAAM RadiusProfile Lookup Reconciliation scheduled job.

The Lookup.RSAA.M.RadiusProfile lookup definition stores details of radius profiles. The following is the format of entries in this lookup definition:

- **Code Key**: `IT_RESOURCE_KEY~RADIUS_PROFILE_GUID`
  
  In this format:
  
  - `IT_RESOURCE_KEY` is the key assigned to the IT resource on Oracle Identity Manager.
  - `RADIUS_PROFILE_GUID` is the GUID of the radius profile on the target system.

- **Decode**: `IT_RESOURCE_NAME~SECURITY_DOMAIN_NAME~RADIUS_PROFILE_NAME`
  
  In this format:
  
  - `IT_RESOURCE_NAME` is the name assigned to the IT resource on Oracle Identity Manager.
  - `SECURITY_DOMAIN_NAME` is the name of the security domain on the target system.
  - `RADIUS_PROFILE_NAME` is the name of the profile on the target system.

The following table shows sample entries in this lookup definition:

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>41~ims.a0f646313afcb10a1ba80b1af3204720</td>
<td>RSA Server Instance<del>SystemDomain</del>RAD_PROF2</td>
</tr>
<tr>
<td>41~ims.6b630bf63afcb10a1bc062fe04d92672</td>
<td>RSA Server Instance<del>SystemDomain</del>RAD_PROF1</td>
</tr>
</tbody>
</table>

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.RSAA.M.Configuration"
- Section 1.6.2.2, "Lookup.RSAA.M.UM.Configuration"
- Section 1.6.2.3, "Lookup.RSAA.M.UM.ProvAttrMap"
- Section 1.6.2.4, "Lookup.RSAA.M.UM.ReconAttrMap"
- Section 1.6.2.5, "Lookup.RSAA.M.Token.Configuration"
- Section 1.6.2.6, "Lookup.RSAA.M.Token.ProvAttrMap"
- Section 1.6.2.7, "Lookup.RSAA.M.Token.ReconAttrMap"
- Section 1.6.2.8, "Lookup.RSAA.M.Hours"
- Section 1.6.2.9, "Lookup.RSAA.M.Minutes"
1.6.2.1 Lookup.RSAAM.Configuration
The Lookup.RSAAM.Configuration lookup definition holds connector configuration entries that are used during target resource 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.rsaam</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>1.0.1115</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.rsaam.RSAAMConnector</td>
<td>This entry holds the name of the connector class. Do not modify this entry.</td>
</tr>
<tr>
<td>User Configuration Lookup</td>
<td>Lookup.RSAAM.UM.Configuration</td>
<td>This entry holds the name of the lookup definition that contains user-specific configuration properties. Do not modify this entry.</td>
</tr>
<tr>
<td>defaultBatchSize</td>
<td>1000</td>
<td>This entry holds the number of records that must be included in each batch during batched reconciliation. This entry is used only when the Batch Size attribute of the user reconciliation scheduled jobs is either empty or set to 0. See Section 3.3.3, &quot;Batched Reconciliation&quot; for more information about the Batch Size attribute.</td>
</tr>
<tr>
<td>Token Configuration Lookup</td>
<td>Lookup.RSAAM.Token.Configuration</td>
<td>This entry holds the name of the lookup definition that contains token-specific configuration properties. Do not modify this entry.</td>
</tr>
</tbody>
</table>

If the computer hosting Oracle Identity Manager and RSA Authentication Manger are in different time zones, you can configure it by following the procedure mentioned in Section 2.3.1.6, "Setting up the Lookup Definition for Different Time Zones."

1.6.2.2 Lookup.RSAAM.UM.Configuration
The Lookup.RSAAM.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 1–3 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>Provisioning Attribute Map</td>
<td>Lookup.RSAAM.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.RSAAM.UM.ProvAttrMap&quot; for more information about this lookup definition.</td>
</tr>
<tr>
<td>Recon Attribute Map</td>
<td>Lookup.RSAAM.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.RSAAM.UM.ReconAttrMap&quot; for more information about this lookup definition.</td>
</tr>
</tbody>
</table>

1.6.2.3 Lookup.RSAAM.UM.ProvAttrMap
The Lookup.RSAAM.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 1–10 lists the default
entries.

You can add entries in this lookup definitions if you want to map new target system attributes for provisioning. See Section 4.3, "Adding New User or Token Attributes for Provisioning" for more information.

1.6.2.4 Lookup.RSAAM.UM.ReconAttrMap

The Lookup.RSAAM.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 1–5 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for reconciliation. See Section 4.2, "Adding New User or Token Attributes for Reconciliation" for more information.

1.6.2.5 Lookup.RSAAM.Token.Configuration

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

Table 1–4 lists the default entries in this lookup definition.

Table 1–4 Entries in the Lookup.RSAAM.Token.Configuration Lookup Definition

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Decode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provisioning Attribute</td>
<td>Lookup.RSAAM.Token.ProvAttrMap</td>
<td>This entry holds the name of the lookup definition that maps process form fields and target system attributes. See Section 1.6.2.6, &quot;Lookup.RSAAM.Token.ProvAttrMap&quot; for more information about this lookup definition.</td>
</tr>
<tr>
<td>Recon Attribute</td>
<td>Lookup.RSAAM.Token.ReconAttrMap</td>
<td>This entry holds the name of the lookup definition that maps resource object fields and target system attributes. See Section 1.6.2.7, &quot;Lookup.RSAAM.Token.ReconAttrMap&quot; for more information about this lookup definition.</td>
</tr>
</tbody>
</table>

1.6.2.6 Lookup.RSAAM.Token.ProvAttrMap

The Lookup.RSAAM.Token.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 1–11 lists the default entries.

You can add entries in this lookup definitions if you want to map new target system attributes for provisioning. See Section 4.3, "Adding New User or Token Attributes for Provisioning" for more information.

1.6.2.7 Lookup.RSAAM.Token.ReconAttrMap

The Lookup.RSAAM.Token.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 Section 4.2, "Adding New User or Token Attributes for Reconciliation" for more information.
1.6.2.8 Lookup.RSAAM.Hours
The Lookup.RSAAM.Hours lookup definition holds the list of configured hours. This is a static lookup definition. You cannot modify or add entries in this lookup definition.

1.6.2.9 Lookup.RSAAM.Minutes
The Lookup.RSAAM.Minutes lookup definition holds the list of configured minutes. This is a static lookup definition. You cannot modify or add entries in this lookup definition.

1.7 Connector Objects Used During Reconciliation
Target resource reconciliation involves fetching data about newly created or modified accounts on the target system and using this data to add or modify resources assigned to OIM Users.

The RSAAM User Target Reconciliation and RSAAM Token Target Reconciliation scheduled jobs are used to initiate a target resource reconciliation run. These scheduled jobs are discussed in Section 3.3.4.1, "Scheduled Jobs for Reconciliation of Token and User Records."

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

The following sections provide information about connector objects used during target resource reconciliation:
- Section 1.7.1, "User Fields for Target Resource Reconciliation"
- Section 1.7.2, "Reconciliation Rule for User Target Resource Reconciliation"
- Section 1.7.3, "Reconciliation Action Rules for User Target Resource Reconciliation"
- Section 1.7.4, "Token Fields for Target Resource Reconciliation"
- Section 1.7.5, "Reconciliation Rule for Token Target Resource Reconciliation"
- Section 1.7.6, "Reconciliation Action Rules for Token Target Resource Reconciliation"

1.7.1 User Fields for Target Resource Reconciliation
The Lookup.RSAAM.UM.ReconAttrMap lookup definition maps resource object fields and target system attributes. This lookup definition is used for performing target resource user reconciliation runs.

In this lookup definition, entries are in the following format:
- Code Key: Reconciliation field of the resource object
- Decode: The value is in the following format:

  METHOD_NAME;PRINCIPAL_TYPE;ATTRIBUTE_TYPE;METHOD_RETURN_TYPE;DTO_ATTRIB
UTE_NAME

In this format:

- METHOD_NAME is the name of the method on the target system that fetches values from the attribute. This method belongs to one of the following classes:
  - com.rsa.admin.data.PrincipalDTO
com.rsa.authmgr.admin.principalmgmt.data.AMPrincipalDTO

The get or is prefix of the method name is not included in the Decode value.

- **PRINCIPAL_TYPE** can be either **IMS** or **AM** depending on whether the attribute is an Identity Management Services attribute or an Authentication Manager attribute.

**See Also:** Target system documentation for information about differences between Identity Management Services and Authentication Manager attributes.

- **ATTRIBUTE_TYPE** can be one of the following:
  - Replace **ATTRIBUTE_TYPE** with Core if the attribute is a standard RSA Authentication Manager attribute.
  - Replace **ATTRIBUTE_TYPE** with Extended if the attribute is a custom attribute.

- **METHOD_RETURN_TYPE** is the data type of the value returned by the method. The return type is specified in the Javadocs for the API.

- **DTO_ATTRIBUTE_NAME** is the name of the attribute in the PrincipalDTO or AMPrincipalDTO class.

Table 1–5 provides information about user attribute mappings for target resource reconciliation.

**Table 1–5 Entries in the Lookup.RSAAM.UM.ReconAttrMap lookup definition**

<table>
<thead>
<tr>
<th>Code</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Expire Date[Date]</td>
<td>accountExpireDate;IMS;Core;Date;EXPIRATION_DATE</td>
</tr>
<tr>
<td>Account Expire Hours</td>
<td>AccountExpireHours</td>
</tr>
<tr>
<td>Account Expire Minutes</td>
<td>AccountExpireMinutes</td>
</tr>
<tr>
<td>Account Start Date[Date]</td>
<td>accountStartDate;IMS;Core;Date;START_DATE</td>
</tr>
<tr>
<td>Account Start Hours</td>
<td>AccountStartHours</td>
</tr>
<tr>
<td>Account Start Minutes</td>
<td>AccountStartMinutes</td>
</tr>
<tr>
<td>Certificate DN</td>
<td>certificateDN;IMS;Core;String;CERT_DN</td>
</tr>
<tr>
<td>Clear Incorrect Passcodes</td>
<td>clearBadPasscodes;AM;Core;boolean</td>
</tr>
<tr>
<td>Clear Windows Password</td>
<td>clearWindowsLoginPassword;AM;Core;boolean</td>
</tr>
<tr>
<td>Default Shell</td>
<td>defaultShell;AM;Core;String</td>
</tr>
<tr>
<td>First Name</td>
<td>firstName;IMS;Core;String;FIRST_NAME</td>
</tr>
<tr>
<td>Fixed Passcode Allowed</td>
<td>staticPasswordSet;AM;Core;boolean</td>
</tr>
<tr>
<td>Groups~Group Name[LOOKUP]</td>
<td>UserGroup</td>
</tr>
<tr>
<td>Identity Source[LOOKUP]</td>
<td>identitySourceGuid;IMS;Core;String;IDENTITY_SRC_ID</td>
</tr>
<tr>
<td>Last Name</td>
<td>lastName;IMS;Core;String;LAST_NAME</td>
</tr>
<tr>
<td>Middle Name</td>
<td>middleName;IMS;Core;String;MIDDLE_NAME</td>
</tr>
<tr>
<td>Security Domain[LOOKUP]</td>
<td>securityDomainGuid;IMS;Core;String;OWNER_ID</td>
</tr>
<tr>
<td>Roles~Role Name[LOOKUP]</td>
<td>AdminRole</td>
</tr>
<tr>
<td>Radius Profile[LOOKUP]</td>
<td>radiusProfileGuid;AM;Core;String</td>
</tr>
</tbody>
</table>
The following is the process-matching rule:

**Rule name:** RSA AuthManager UserRecon

**Rule element:** User Login Equals User ID

In this rule:
- User Login is the User ID field on the OIM User form.
- User ID is the user ID (_NAME_) field of RSA Authentication Manager.

After you deploy the connector, you can view the reconciliation rule for target resource 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.
4. Search for RSA AuthManager UserRecon. Figure 1–2 shows the reconciliation rule for target resource reconciliation.
1.7.3 Reconciliation Action Rules for User Target Resource Reconciliation

Table 1–6 lists the action rules for target resource reconciliation.

<table>
<thead>
<tr>
<th>Rule Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Matches Found</td>
<td>Assign To Administrator With Least Load</td>
</tr>
<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>

**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. For information about modifying or creating reconciliation action rules, see Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager.

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

1. Log in to the Oracle Identity Manager Design Console.
2. Expand Resource Management.
4. Search for and open the RSA Auth Manager User resource object.
5. 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 1–3 shows the reconciliation action rule for target resource reconciliation.
1.7.4 Token Fields for Target Resource Reconciliation

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

In this lookup definition, entries are in the following format:

- **Code Key**: Reconciliation field of the resource object
- **Decode**: The value is in the following format:

  \[
  \text{METHOD_NAME;API_NAME;ATTRIBUTE_TYPE;METHOD_RETURN_TYPE;DTO_ATTRIBUTE_NAME}
  \]

In this format:

- **METHOD_NAME** is the name of the method on the target system that fetches values from the attribute. This method belongs to one of the following classes:
  - com.rsa.admin.data.ListTokenDTO
  - com.rsa.authmgr.admin.principalmgmt.data.TokenDTO

  **Note**: If the field is present in both ListTokenDTO and TokenDTO, use the field from ListTokenDTO for better performance.

The **get** or **is** prefix of the method name is not included in the Decode value.

- **API_NAME** is either ListTokenDTO or TokenDTO.
- **ATTRIBUTE_TYPE** can be one of the following:
  - Replace **ATTRIBUTE_TYPE** with **Core** if the attribute is a standard RSA Authentication Manager attribute.
  - Replace **ATTRIBUTE_TYPE** with **Extended** if the attribute is a custom attribute.
- **METHOD_RETURN_TYPE** is the data type of the value fetched by the method. The return type is specified in the Javadocs for the API.
- **DTO_ATTRIBUTE_NAME** is the name of the attribute in the ListTokenDTO or TokenDTO class.

Table 1–7 provides information about user attribute mappings for target resource reconciliation.
1.7.5 Reconciliation Rule for Token Target Resource Reconciliation

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

The following is the process-matching rule:

**Rule name:** RSA AuthManager TokenRecon

**Rule element:** User Login Equals User ID

In this rule:
- User Login is the User ID field on the OIM User form.
- User ID is the user ID (_NAME_) field of RSA Authentication Manager.

After you deploy the connector, you can view the reconciliation rule for target resource 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.
4. Search for RSA AuthManager TokenRecon. Figure 1–2 shows the reconciliation rule for target resource reconciliation.
1.7.6 Reconciliation Action Rules for Token Target Resource Reconciliation

Table 1–8 lists the action rules for target resource reconciliation.

<table>
<thead>
<tr>
<th>Rule Condition</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Matches Found</td>
<td>Assign To Administrator With Least Load</td>
</tr>
<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>

**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. For information about modifying or creating reconciliation action rules, see Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager.

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

1. Log in to the Oracle Identity Manager Design Console.
2. Expand Resource Management.
4. Search for and open the RSA Auth Manager Token resource object.
5. 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 rule for target resource reconciliation.
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, "Provisioning Functions"
- Section 1.8.2, "User Fields for Provisioning"
- Section 1.8.3, "Token Fields for Provisioning"

1.8.1 Provisioning Functions

Table 1–9 lists the provisioning functions that are supported by the connector. The Adapter column gives the name of the adapter that is used when the function is performed.

<table>
<thead>
<tr>
<th>Function</th>
<th>Adapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create User</td>
<td>adpRSAAMCREATEUSER</td>
</tr>
<tr>
<td>Update User</td>
<td>adpRSAAMUPDATEUSER</td>
</tr>
<tr>
<td>Delete User</td>
<td>adpRSAAMDELETEUSER</td>
</tr>
<tr>
<td>Enable User</td>
<td>adpRSAAMENABLEUSER</td>
</tr>
<tr>
<td>Disable User</td>
<td>adpRSAAMDISABLEUSER</td>
</tr>
<tr>
<td>Assign Token</td>
<td>adpRSAAMASSIGNTOKEN</td>
</tr>
<tr>
<td>Update Token</td>
<td>adpRSAAMUPDATETOKEN</td>
</tr>
<tr>
<td>Enable Token</td>
<td>adpRSAAMENABLETOKEN</td>
</tr>
<tr>
<td>Disable Token</td>
<td>adpRSAAMDISABLETOKEN</td>
</tr>
<tr>
<td>Unassign Token</td>
<td>adpRSAAMUNASSIGNTOKEN</td>
</tr>
<tr>
<td>Add Role</td>
<td>adpRSAAMADDDROLE</td>
</tr>
<tr>
<td>Update Role</td>
<td>adpRSAAMUPDATEROLE</td>
</tr>
<tr>
<td>Remove Role</td>
<td>adpRSAAMREMOVEROLE</td>
</tr>
</tbody>
</table>
### 1.8.2 User Fields for Provisioning

The Lookup.RSAAM.UM.ProvAttrMap lookup definition maps process form fields with target system attributes. This lookup definition is used for performing user provisioning operations.

In this lookup definition, entries are in the following format:

- **Code Key**: Name of the process form field
- **Decode**: The value is in the following format:

  
  \[
  \text{METHOD\_NAME;PRINCIPAL\_TYPE;ATTRIBUTE\_TYPE;METHOD\_INPUT\_TYPE;DTO\_ATTRIBUTE\_NAME}
  \]

  In this format:
  
  - **METHOD\_NAME** is the name of the method on the target system that sets the values for this attribute. This method belongs to one of the following classes:
    - `com.rsa.admin.data.PrincipalDTO`
    - `com.rsa.authmgr.admin.principalmgt.data.AMPrincipalDTO`
  
  The set prefix of the method name is not included in the Decode value.
  
  - **PRINCIPAL\_TYPE** can be either **IMS** or **AM** depending on whether the attribute is an Identity Management Services attribute or an Authentication Manager attribute.

  **See Also**: Target system documentation for information about differences between Identity Management Services and Authentication Manager attributes

  - **ATTRIBUTE\_TYPE** can be one of the following:
    - Replace **ATTRIBUTE\_TYPE** with **Core** if the attribute is a standard RSA Authentication Manager attribute.
    - Replace **ATTRIBUTE\_TYPE** with **Extended** if the attribute is a custom attribute.

  - **METHOD\_INPUT\_TYPE** is the data type of the value sent to the method. The input type is specified in the Javadocs for the API.

  - **DTO\_ATTRIBUTE\_NAME** is the name of the attribute in the PrincipalDTO or AMPrincipalDTO class.

  Table 1–10 lists the user identity fields of the target system for which you can specify or modify values during provisioning operations.
Table 1–10 Entries in the Lookup.RSAM.UM.ProvAttrMap lookup definition

<table>
<thead>
<tr>
<th>Code</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Account Expire Date [Date]</td>
<td>accountExpireDate; IMS; Core; Date; EXPIRATION_DATE</td>
</tr>
<tr>
<td>Account Expire Hours</td>
<td>AccountExpireHours</td>
</tr>
<tr>
<td>Account Expire Minutes</td>
<td>AccountExpireMinutes</td>
</tr>
<tr>
<td>Account Start Hours</td>
<td>AccountStartHours</td>
</tr>
<tr>
<td>Account Start Minutes</td>
<td>AccountStartMinutes</td>
</tr>
<tr>
<td>Account Start Date [Date]</td>
<td>accountStartDate; IMS; Core; Date; START_DATE</td>
</tr>
<tr>
<td>Certificate DN</td>
<td>certificateDN; IMS; Core; String; CERT_DN</td>
</tr>
<tr>
<td>Clear Incorrect Passcodes</td>
<td>clearBadPasscodes; AM; Core; boolean</td>
</tr>
<tr>
<td>Clear Windows Password</td>
<td>clearWindowsLoginPassword; AM; Core; boolean</td>
</tr>
<tr>
<td>Default Shell</td>
<td>defaultShell; AM; Core; String</td>
</tr>
<tr>
<td>First Name</td>
<td>firstName; IMS; Core; String; FIRST_NAME</td>
</tr>
<tr>
<td>Fixed Passcode</td>
<td>staticPassword; AM; Core; String</td>
</tr>
<tr>
<td>Fixed Passcode Allowed</td>
<td>staticPasswordSet; AM; Core; boolean</td>
</tr>
<tr>
<td>Identity Source [LOOKUP]</td>
<td>identitySourceGuid; IMS; Core; String; IDENTITY_SRC_ID</td>
</tr>
<tr>
<td>Last Name</td>
<td>lastName; IMS; Core; String; LAST_NAME</td>
</tr>
<tr>
<td>Middle Name</td>
<td>middleName; IMS; Core; String; MIDDLE_NAME</td>
</tr>
<tr>
<td>Password_</td>
<td><em>PASSWORD</em></td>
</tr>
<tr>
<td>Radius Profile [LOOKUP]</td>
<td>radiusProfileGuid; AM; Core; String</td>
</tr>
<tr>
<td>Security Domain [LOOKUP]</td>
<td>securityDomainGuid; IMS; Core; String; OWNER_ID</td>
</tr>
<tr>
<td>UD_AMGROUP~GroupName [LOOKUP]</td>
<td>UserGroup</td>
</tr>
<tr>
<td>UD_AMROLE~RoleName [LOOKUP]</td>
<td>AdminRole</td>
</tr>
<tr>
<td>User GUID</td>
<td><em>UID</em></td>
</tr>
<tr>
<td>User ID</td>
<td><em>NAME</em></td>
</tr>
</tbody>
</table>

### 1.8.3 Token Fields for Provisioning

The Lookup.RSAM.Token.ProvAttrMap lookup definition maps process form fields with target system attributes. This lookup definition is used for performing token provisioning operations.

In this lookup definition, entries are in the following format:

- **Code Key**: Name of the process form field
- **Decode**: The value is in the following format:

```
METHOD_NAME; API_NAME; ATTRIBUTE_TYPE; METHOD_INPUT_TYPE; DTO_ATTRIBUTE_NAME
```

In this format:
Roadmap for Deploying and Using the Connector

- **METHOD_NAME** is the name of the method on the target system that sets values for this attribute. This method belongs to the com.rsa.authmgr.admin.principalmgmt.data.TokenDTO class.
  The set prefix of the method name is not included in the Decode value.
- **API_NAME** is TokenDTO.
- **ATTRIBUTE_TYPE** can be one of the following:
  - Replace **ATTRIBUTE_TYPE** with Core if the attribute is a standard RSA Authentication Manager attribute.
  - Replace **ATTRIBUTE_TYPE** with Extended if the attribute is a custom attribute.
- **METHOD_INPUT_TYPE** is the data type of the value returned to the method. The return type is specified in the Javadocs for the API.
- **DTO_ATTRIBUTE_NAME** is the name of the attribute in the TokenDTO class.

Table 1–11 lists the token fields of the target system for which you can specify or modify values during provisioning operations.

### Table 1–11 Entries in the Lookup.RSAAM.Token.ProvAttrMap lookup definition

<table>
<thead>
<tr>
<th>Code</th>
<th>Decode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes</td>
<td>notes;TokenDTO;Core;String</td>
</tr>
<tr>
<td>Pin</td>
<td><em>PASSWORD</em></td>
</tr>
<tr>
<td>Token GUID</td>
<td><em>UID</em></td>
</tr>
<tr>
<td>Token Lost</td>
<td>tokenLost;TokenDTO;Core;Boolean</td>
</tr>
<tr>
<td>Token Serial Number[LOOKUP]</td>
<td><em>NAME</em></td>
</tr>
<tr>
<td>User GUID</td>
<td>principalId;TokenDTO;Core;String</td>
</tr>
<tr>
<td>User ID</td>
<td>assignedUser;ListTokenDTO;Core;String;principalId</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 procedures that you can perform if you want to extend the functionality of the connector.
- **Chapter 6, “Known Issues and Workarounds”** lists known issues and limitations associated with this release of the connector.
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"
- Section 2.5, "Postcloning Steps"

2.1 Preinstallation

Preinstallation information is divided across the following sections:

- Section 2.1.1, "Preinstallation on Oracle Identity Manager"
- Section 2.1.2, "Preinstallation on the Target System"

2.1.1 Preinstallation on Oracle Identity Manager

This section contains the following topics:

- Section 2.1.1.1, "Files and Directories On the Installation Media"
- Section 2.1.1.2, "Copying the External Code Files"

2.1.1.1 Files and Directories On the Installation Media

The contents of the connector installation media directory are described in Table 2–1.

<table>
<thead>
<tr>
<th>File in the Installation Media Directory</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bundle/org.identityconnectors.rsaam-1.0.1115.jar</td>
<td>This JAR file contains the connector bundle.</td>
</tr>
</tbody>
</table>
2.1.1.2 Copying the External Code Files

You must perform the following procedure to copy the external code files:

1. Create a directory named RSAAM-*RELEASE_NUMBER* under the following directory:
   
   $OIM_HOME/server/ConnectorDefaultDirectory/targetsystems-lib/

   For example, if you are using release 11.1.1.5.0 of this connector, then create a directory named RSAAM-11.1.1.5.0 in the $OIM_HOME/server/ConnectorDefaultDirectory/targetsystems-lib/*REL*EASE_NUMBER* directory.

2. Copy the third party libraries mentioned in Java API Library JAR Files of RSA Authentication Manager Developer’s Guide to the $OIM_HOME/server/ConnectorDefaultDirectory/targetsystems-lib/*RSAAM-REL*EASE_NUMBER* directory.

2.1.2 Preinstallation on the Target System

Preinstallation on the target system involves performing the following procedure:

2.1.2.1 Creating a Target System Account for Connector Operations

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

1. Log in to the RSA Security Console.

2. If you want to assign administrative roles to end-users, then use the SuperAdminRole which is present by default in the target system, since only SuperAdminRole (and no custom role) can have permissions over all the...
administrative roles. If not, to create a role having the minimum permissions required for connector operations, perform the following procedure:

**a.** Expand the **Administration** list, select **Administrative Roles**, and then select **Add New**.

The following screenshot shows this page:

![Administrative Roles Page](image)

**b.** In the **Administrative Role Name** field, enter a name for the role.

**c.** Select the **Permission Delegation** check box.

**d.** In the **Notes** field, enter a description for the role.

**e.** In the Administrative Scope region:

- Select the security domains that you want to include in the scope for connector operations.
- Select the identity source that you want to include in the scope for connector operations.
f. Click Next.

g. In the Manager Policies region of the General Permissions page, select the View check box for the following permissions:
   - Password Policies
   - Lockout Policies
   - Self-Service Troubleshooting Policies
   - SecurID Token Policies
   - Offline Authentication Policies

h. In the Manage Security Domains region, select the View check box.
i. In the Manage Delegated Administration region, select the following permissions:
   - **View** check box for Administrative Roles
   - Assign Administrative Roles check box

j. In the Manage Users region, select the following permissions:
   - **All, Delete, Add, Edit,** and **View** check boxes for Users
   - Console Display check box

k. In the Manage User Groups region, select the **View** and **Assign User Group Membership** check boxes.

l. In the Manage Reports region, select the **View** check box for the Reports permission.
m. Click Next.

n. In the Manage RSA SecurID Tokens region of the Authentication Permissions page, select the following permissions:
   - Edit and View check boxes for SecurID Tokens
   - Assign Tokens
   - Distribute Software Tokens
   - View check box for Token Attribute Definitions
   - SecurID 800 Smart Card Details

o. In the Manage User Groups region, select the View check box for the User Group Restricted Access permission.

p. In the Manage User Authentication Attributes region, select the following permissions:
   - Edit and View check boxes for the Fixed Passcode
   - Manage Windows Password Integration
   - Manage Incorrect Password Count
   - Edit and View check boxes for the Default Shell permission
In the Manage Authentication Agents region, select the **View** check box for the Authentication Agent permission.

In the Trusted Realm Management region, select the following check boxes:

- **View** check box for the Trusted Users permission
- **View** check box for the Trusted User Groups permission
- **View** check box for the Trusted User Group Restricted Access permission

In the Manage RADIUS region, select the following permissions:

- **View** check box for RADIUS Profiles
- **Assign User RADIUS Profile** check box

In the Manage On-Demand Authentication region, select the **Manage On-Demand Authentication** permission

Click Next.
v. On the Self-Service Permissions page, in the Provisioning Requests region, click Next.

w. On the Control/Summary page, review the summary of permissions and then click Save And Finish.
3. Create a user and assign the role to the user as follows:
   a. Expand the Identity list, select Users, and then select Add New.
      The following screenshot shows this page:

   b. On the Add New User page, enter the required values and then click Save.

   **Note:**
   The user ID and password that you enter on this page must be provided as the values of the Admin UserID and Admin Password IT resource parameters.

   In the Account Information region, select the No expiration date check box.

   The following screenshot shows this page:
c. Use the Search feature to open the details of the newly created user. The following screenshot shows this page:

![Screenshot of RSA Security Console showing Add New User page]

d. Click the arrow displayed next to the user name and then select **Assign More**. The following screenshot shows this page:

![Screenshot of RSA Security Console showing Users page with search results]

e. From the list of administrative roles, select the role that you create in Step 2 and then click **Assign Role**.

The following screenshot shows this page:

![Screenshot of RSA Security Console](image1.png)

2.2 Installation

- If you are using Oracle Identity Manager 11g Release 2 (11.1.2.0.0) and any later BP in this release track, then you must run the connector code remotely in a Connector Server. To do so, perform the procedures described in Section 2.2.1, "Installing the Connector in Oracle Identity Manager" and Section 2.2.2, "Deploying the Connector in a Connector Server."

- If you are using 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, or Oracle Identity Manager 11g Release 2 PS3 (11.1.2.3.0), 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 in a Connector Server."

## 2.2.1 Installing the Connector in Oracle Identity Manager

Installation on Oracle Identity Manager consists of the following procedures:

- Section 2.2.1.1, "Running the Connector Installer"
- Section 2.2.1.2, "Configuring the IT Resource for the Target System"

### 2.2.1.1 Running the Connector Installer

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

To run the Connector Installer:

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

   `OIM_HOME/server/ConnectorDefaultDirectory`

2. Log in to Oracle Identity System Administration by using the user account described in Creating the User Account for Installing Connectors in Oracle Fusion Middleware Administering Oracle Identity Manager.

3. In the left pane, under System Management, click **Manage Connector**.

4. In the Manage Connector page, click **Install**.

5. From the Connector List list, select **RSAAM 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:
   
   **a.** In the **Alternative Directory** field, enter the full path and name of that directory.
   
   **b.** To repopulate the list of connectors in the Connector List list, click **Refresh**.
   
   **c.** From the Connector List list, select **RSAAM Connector RELEASE_NUMBER**.

6. Click **Load**.

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

   The following tasks are performed, in sequence:
   
   **a.** Configuration of connector libraries
b. Import of the connector XML files (by using the Deployment Manager)

c. Compilation of adapters

On successful completion of a task, a check mark is displayed for the task. If a task fails, then an X mark and a message stating the reason for failure is 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.

8. If all three tasks of the connector installation process are successful, then a message indicating successful installation is displayed. In addition, a list of 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 2.3.1.3, "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

The procedure to configure the IT resource is described later in this guide.

c. Configuring the scheduled jobs

The procedure to configure these scheduled jobs 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.

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

The IT resource for the target system is created during connector installation. This IT resource contains connection information about the target system. Oracle Identity Manager uses this information during reconciliation and provisioning.

You must specify values for the parameters of the RSA Server Instance IT resource as follows:

1. Log in to Oracle Identity System Administration.
2. In the left pane, under Configuration, click **IT Resource**.
3. In the IT Resource Name field on the Manage IT Resource page, enter **RSA Server Instance** and then click **Search**. Figure 2–1 shows the Manage IT Resource page.
4. Click the edit icon corresponding to the RSA Server Instance IT resource.
5. From the list at the top of the page, select **Details and Parameters**.
6. Specify values for the parameters of the RSA Server Instance IT resource. Figure 2–2 shows the Edit IT Resource Details and Parameters page.

**Figure 2–2 Edit IT Resource Details and Parameters Page for the RSA Server Instance IT Resource**

---

Table 2–2 describes each parameter of the RSA Server Instance IT resource.
Table 2–2  Parameters of the IT Resource

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>adminPassword</td>
<td>Enter the password of the target system user account that you create for connector operations. See Section 2.1.2.1, &quot;Creating a Target System Account for Connector Operations&quot; for more information.</td>
</tr>
<tr>
<td>adminUserID</td>
<td>Enter the user ID of the target system user account that you create for connector operations. See Section 2.1.2.1, &quot;Creating a Target System Account for Connector Operations&quot; for more information.</td>
</tr>
<tr>
<td>commandClientPassword</td>
<td>Enter the command client password. Setting the command client user name and password is one of the tasks in the procedure mentioned in Section 2.3.1.8, &quot;Addressing Prerequisites for Using the Java API of RSA Authentication Manager.&quot;</td>
</tr>
<tr>
<td>commandClientUserID</td>
<td>Enter the command client user name. Setting the command client user name and password is one of the tasks in the procedure mentioned in Section 2.3.1.8, &quot;Addressing Prerequisites for Using the Java API of RSA Authentication Manager.&quot;</td>
</tr>
<tr>
<td>Configuration Lookup</td>
<td>This parameter holds the name of the configuration lookup definition. Default value: Lookup.RSAAM.Configuration</td>
</tr>
<tr>
<td>Connector Server Name</td>
<td>This parameter holds the hostname of the machine where the connector server resides.</td>
</tr>
<tr>
<td>host</td>
<td>This parameter holds the hostname of the RSA target.</td>
</tr>
<tr>
<td>port</td>
<td>This parameter holds the port of the RSA target. Default value: 7002</td>
</tr>
<tr>
<td>connectionType</td>
<td>This parameter specifies the type of connection to be used to connect to the target system. Default value: EJB Do not change this value.</td>
</tr>
</tbody>
</table>

7. To save the values, click Update.

2.2.2 Deploying the Connector in a Connector Server

You can deploy the RSA Authentication Manager connector either locally in Oracle Identity Manager or remotely in the Connector Server. A connector server is an application that enables remote execution of an Identity Connector, such as the RSA Authentication Manager connector.

**Note:**

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."

This procedure can be divided into the following stages:

- Section 2.2.2.1, "Installing and Configuring the Connector Server"
- Section 2.2.2.2, "Running the Connector Server"
- Section 2.2.2.3, "Installing the Connector on the Connector Server"
2.2.2.1 Installing and Configuring the Connector Server

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 RSA Authentication Manager 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:

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.

<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. Default is 8763.</td>
</tr>
<tr>
<td>connectorserver.bundleDir</td>
<td>Directory where the connector bundles are deployed. Default is bundles.</td>
</tr>
<tr>
<td>connectorserver.libDir</td>
<td>Directory in which to place dependent libraries. Default is lib.</td>
</tr>
<tr>
<td>connectorserver.useSsl</td>
<td>If set to true, the Java Connector Server uses SSL for secure communication. 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 (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>
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.

```markdown
Note: For more information, see Section 2.2.2.2, "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.

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

### 2.2.2.2 Running the Connector Server

To run the Java Connector Server, use the ConnectorServer.bat script for Windows and use the ConnectorServer.sh script for UNIX as follows:

1. Make sure that you have set the properties required by your deployment in the ConnectorServer.properties file, as described in Section 2.2.2.1, "Installing and Configuring the Connector Server."

2. Make sure that you have set the JAVA_HOME and the PATH to the java used by Oracle Identity Manager.

3. 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>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/install [serviceName]</td>
<td>Installs the Java Connector Server as a Windows service. Optionally, you can specify a service name and Java options. If you do not specify a service name, the default name is ConnectorServerJava.</td>
</tr>
<tr>
<td>[<em>-J java-option</em>]</td>
<td>Runs the Java Connector Server from the console. Optionally, you can specify Java options. For example, to run the Java Connector Server with SSL: ConnectorServer.bat /run &quot;-J-Djavax.net.ssl.keyStore=mykeystore.jks&quot; &quot;-J-Djavax.net.ssl.keyStorePassword=password&quot;</td>
</tr>
<tr>
<td>/setKey [key]</td>
<td>Sets the Java Connector Server key. The ConnectorServer.bat script stores the hashed value of the key in the connectorserver.key property in the ConnectorServer.properties file.</td>
</tr>
<tr>
<td>/uninstall [serviceName]</td>
<td>Uninstalls the Java Connector Server. If you do not specify a service name, the script uninstalls the ConnectorServerJava service.</td>
</tr>
</tbody>
</table>

4. If you need to stop the Java Connector Server, stop the respective Windows service.
2.2.2.3 Installing the Connector on the Connector Server

**See Also:** Using an Identity Connector Server in *Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager* for information about installing and configuring connector server and running the connector server.

If you need to deploy the RSA Authentication Manager into the Java Connector Server, then follow these steps:

1. Stop the Java Connector Server.

---

**Note:**
- You can download the necessary Java Connector Server from the Oracle Technology Network web page.
- Ensure that you are using latest framework JARs of Oracle Identity Manager to keep the Connector Server consistent with your Oracle Identity Manager instance. To do so:
  - Copy the framework JAR files, connector-framework.jar and connector-framework-internal.jar, from the `OIM_HOME/server/ext/internal` directory to the `CONNECTOR_SERVER_HOME/lib/framework` directory.

---

2. Copy the connector bundle JAR file (org.identityconnectors.rsaam-1.0.1115.jar) from the installation media into the Java Connector Server `CONNECTOR_SERVER_HOME/bundles` directory.

3. Copy the files listed in Step 2 of Section 2.1.1.2, "Copying the External Code Files" into the `CONNECTOR_SERVER_HOME/lib` directory:

4. Start the Java Connector Server.

---

**Note:** Use the following command line to start the Connector Server for EJB request:

```
-J-Dweblogic.security.SSL.trustedCAKeyStore=//scratch/OIM/wl_server_10.3/server/lib/cacerts
```

---

2.3 Postinstallation

Postinstallation steps are divided across the following sections:

- Section 2.3.1, "Postinstallation on Oracle Identity Manager"
- Section 2.3.2, "Creating the IT Resource for the Connector Server"

2.3.1 Postinstallation on Oracle Identity Manager

Configuring Oracle Identity Manager involves performing the following procedures:

- Section 2.3.1.1, "Configuring Self-Request Provisioning"
- Section 2.3.1.2, "Configuring Oracle Identity Manager"
- Section 2.3.1.3, "Clearing Content Related to Connector Resource Bundles from the Server Cache"
2.3.1.1 Configuring Self-Request Provisioning
To configure self-request provisioning, perform the following procedure:

1. Log in to the Design Console.
2. Expand Process Management, and then double-click Process Definition.
3. Search for and open the RSA Auth Manager User process form.
4. Double-click the Create User process task.
5. Open the Responses tab and select SUCCESS.
   The Copy the UID task is displayed at the bottom of the same page.
6. Delete the Copy the UID task under the Task To Generate entry by selecting the delete option.
7. Click Save.

2.3.1.2 Configuring Oracle Identity Manager
You must create additional metadata such as a UI form and an application instance, and must run entitlement and catalog synchronization jobs. In addition, you must tag some of the fields in the OIM User process form. These procedures are described in the following sections:

---

**Note:** The procedure mentioned in the following sections have to performed for RSA Auth Manager User resource object and RSA Auth Manager Token resource object.

---

2.3.1.2.1 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.

### 2.3.1.2.2 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, **RSA Auth Manager User** or **RSA Auth Manager Token**.

4. Enter a form name and click **Create**.

### 2.3.1.2.3 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 to an organization to make the application instance available for requesting and subsequent provisioning to users. For detailed instructions, see Managing Organizations Associated With Application Instances in *Oracle Fusion Middleware Administering Oracle Identity Manager*.

### 2.3.1.2.4 Upgrading User Form in Oracle Identity Manager

This connector creates a new OIM user attribute (UDF) RSAAM User GUID. Although this user attribute (UDF) is added to a new User Form version, the User Form from the old version is only used for all operations. To use the latest form version which contains the GUID field, you must customize the associated pages on the interface to upgrade to the latest User Form and add the custom form fields. To do so, perform the following procedure:

1. Log in to Oracle Identity System Administration.

2. From the Upgrade region, click **Upgrade User Form**. The RSAAM User GUID UDF is listed.
3. Click Upgrade.

**See Also:** Configuring Custom Attributes in *Oracle Fusion Middleware Administering Oracle Identity Manager* for more information about UDFs.

### 2.3.1.2.5 Publishing a Sandbox
To publish the sandbox that you created in Section 2.3.1.2.1, "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 2.3.1.2.1, "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.

### 2.3.1.2.6 Harvesting Entitlements and Sync Catalog
To harvest entitlements and sync catalog:

1. Run the scheduled jobs for lookup field synchronization.
2. Run the Entitlement List scheduled job to populate Entitlement Assignment schema from child process form table. For more information about this scheduled job, see Predefined Scheduled Tasks in *Oracle Fusion Middleware Administering Oracle Identity Manager*.
3. Run the Catalog Synchronization Job scheduled job. For more information about this scheduled job, see Predefined Scheduled Tasks in *Oracle Fusion Middleware Administering Oracle Identity Manager*.

### 2.3.1.2.7 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 2.3.1.2.1, "Creating and Activating a Sandbox."
2. Create a new UI form for the resource as described in Section 2.3.1.2.2, "Creating a New UI Form."
3. Open the existing application instance.
4. In the **Form** field, select the new UI form that you created in Step 2.
5. Save the application instance.
6. Publish the sandbox as described in Section 2.3.1.2.5, "Publishing a Sandbox."

### 2.3.1.3 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 one of the following commands:

   **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:

   ```bat
   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.

### 2.3.1.4 Enabling Logging

Oracle Identity Manager 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:

- **SEVERE.intValue()+100**
  
  This level enables logging of information about fatal errors.

- **SEVERE**

  This level enables logging of information about errors that might allow Oracle Identity Manager to continue running.

- **WARNING**
This level enables logging of information about potentially harmful situations.

- **INFO**
  This level enables logging of messages that highlight the progress of the application.

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

- **FINE, FINER, FINEST**
  These levels enable logging of information about fine-grained events, where FINEST logs information about all events.

These log levels are mapped to ODL message type and level combinations as shown in Table 2–3.

<table>
<thead>
<tr>
<th>Log 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>
<tr>
<td>FINE</td>
<td>TRACE:1</td>
</tr>
<tr>
<td>FINER</td>
<td>TRACE:16</td>
</tr>
<tr>
<td>FINEST</td>
<td>TRACE:32</td>
</tr>
</tbody>
</table>

The configuration file for OJDL is logging.xml, which is located at the following path: `DOMAIN_HOME/config/fmwconfig/servers/OIM_SERVER/logging.xml`

Here, `DOMAIN_HOME` and `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='rsaam-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.RSAAM" level="[LOG_LEVEL]" useParentHandlers="false">
     <handler name='rsaam-handler'/>
   </logger>
   ```

---

Deploying the Connector 2-23
b. Replace both occurrences of \[LOG_LEVEL\] with the ODL message type and level combination that you require. Table 2–3 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 specific to connector operations to be recorded.

The following blocks show sample values for \[LOG_LEVEL\] and \[FILE_NAME\]:

```
<log_handler name='rsaam-handler' level='NOTIFICATION:1'
class='oracle.core.ojdl.logging.ODLHandlerFactory'>
  <property name='logreader:' value='off'/>
  <property name='path' value='/scratch/RSA/Logs/RSA.log'/>
  <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.RSAAM" level="NOTIFICATION:1"
useParentHandlers="false">
  <handler name="rsaam-handler"/>
  <handler name="console-handler"/>
</logger>
```

With these sample values, when you use Oracle Identity Manager, all messages generated for this connector that are of a log level equal to or higher than the \(\text{NOTIFICATION:1}\) level are recorded in the specified file.

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.

2.3.1.5 Setting up the Lookup Definition for Connection Pooling

By default, this connector uses the ICF connection pooling. Table 2–4 lists the connection pooling properties, their description, and default values set in ICF:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pool Max Idle</td>
<td>Maximum number of idle objects in a pool. Default value: 10</td>
</tr>
</tbody>
</table>
If you want to modify the connection pooling properties to use values that suit requirements in your environment, then:

1. Log in to the Design Console.
2. Expand Administration, and then double-click Lookup Definition.
3. Search for and open the Lookup.RSAAM.Configuration lookup definition.
   A new row is added.
5. In the Code Key column of the new row, enter Pool Max Idle.
6. In the Decode column of the new row, enter a value corresponding to the Pool Max Idle property.
7. Repeat Steps 4 through 6 for adding each of the connection pooling properties listed in Table 2–4.
8. Click the Save icon.

### 2.3.1.6 Setting up the Lookup Definition for Different Time Zones

Perform the following procedure only if Oracle Identity Manager and RSA Authentication Manager are in different time zones.

#### Table 2–5 Time Zone Properties

<table>
<thead>
<tr>
<th>Code Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>sourceTimeZone</td>
<td>For the decode value, refer the format of the timeZone present in the following URL: <a href="http://docs.oracle.com/javase/1.5.0/docs/api/java/util/TimeZone.html">http://docs.oracle.com/javase/1.5.0/docs/api/java/util/TimeZone.html</a></td>
</tr>
</tbody>
</table>

This entry is not present by default, and has to be added only if Oracle Identity Manager and RSA Authentication Manager are in different time zones. If this entry is not defined, then the connector retrieves the default time zone from the location where the connector is running (can be either from the Oracle Identity Manager server or the connector server).
If you want to specify the time zone properties, then:

1. Log in to the Design Console.
2. Expand Administration, and then double-click Lookup Definition.
3. Search for and open the Lookup.RSAAM.Configuration lookup definition.
   A new row is added.
5. In the Code Key column of the new row, enter sourceTimeZone.
6. In the Decode column of the new row, enter the value from the URL mentioned in Table 2–5.
7. Repeat Steps 4 through 6 for adding the targetTimeZone property.
8. Click the Save icon.

2.3.1.7 Localizing Field Labels in UI Forms
To localize field label that is added to the 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) and later:
     
     \$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:

```xml
<file source-language="en"
      original="/xliffBundles/oracle/iam/ui/runtime/BizEditorBundle.xlf"
      datatype="x-oracle-adf">
```

b. Replace with the following text:

```xml
<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:

```xml
<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 RSA application instance. The original code is:

```xml
<trans-unit
  id="${adfBundle['oracle.adf.businesseditor.model.util.BaseRuntimeResourceBundle']=['persdef.sessiondef.oracle.iam.ui.runtime.form.model.user.entity.userEO.UD_AMUSER_FIRST_NAME__c_description']}">
  <source>First Name</source>
  <target/>
</trans-unit>
```

```xml
<trans-unit
  id="sessiondef.oracle.iam.ui.runtime.form.model.RSAForm.entity.RSAFormEO.UD_AMUSER_FIRST_NAME__c_LABEL">
  <source>First Name</source>
  <target/>
</trans-unit>
```

d. Open the resource file from the connector package, for example RSA-AuthManager JA.properties, and get the value of the attribute from the file, for example, global.udf.UD_AMUSER_FIRST_NAME=\u540D.

e. Replace the original code shown in Step 6.c 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_AMUSER_FIRST_NAME__c_description']}">
  <source>First Name</source>
  <target>\u540D</target>
</trans-unit>
```

```xml
<trans-unit
  id="sessiondef.oracle.iam.ui.runtime.form.model.RSAForm.entity.RSAFormEO.UD_AMUSER_FIRST_NAME__c_LABEL">
  <source>First Name</source>
  <target>\u540D</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.

2.3.1.8 Addressing Prerequisites for Using the Java API of RSA Authentication Manager

To enable the connector to work with the Java API of the target system, perform the following procedures:

- Section 2.3.1.8.1, "Required Java System Properties"
- Section 2.3.1.8.2, "Exporting and Importing the Server Root Certificate"
- Section 2.3.1.8.3, "Setting the Command Client User Name and Password"

2.3.1.8.1 Required Java System Properties

Perform the procedure described in Required Java System Properties of RSA Authentication Manager Developer's Guide.

2.3.1.8.2 Exporting and Importing the Server Root Certificate

To export and then import the server root certificate:

1. To export the certificate from RSA Authentication Manager, perform the procedure described in Making the RSA Root Certificate Available for API Clients (Java) of RSA Authentication Manager Developer’s Guide.

2. To import the certificate exported in Step 1 into your Application Server (IBM Websphere, JBoss or Oracle Weblogic), follow the procedure described in Import the Server Root Certificate of RSA Authentication Manager Developer’s Guide. Import the certificate into the same keystore defined by the Java property in the previous section depending upon the type of connection with the target system.

2.3.1.8.3 Setting the Command Client User Name and Password

Perform the procedure described in Setting the Command Client User Name and Password of RSA Authentication Manager Developer’s Guide.

2.3.2 Creating the IT Resource for the Connector Server

Note: Perform the procedure described in this section only if you have deployed the connector bundle remotely in a Connector Server.

To create the IT resource for the Connector Server:

1. Log in to Oracle Identity System Administration.

2. In the left pane, under Configuration, click IT Resource.

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

4. 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 2–3 shows the IT resource values added on the Create IT Resource page.

**Figure 2–3  Step 1: Provide IT Resource Information**

![Figure 2–3](image)

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 2–4 shows the Step 2: Specify IT Resource Parameter Values page.

**Figure 2–4  Step 2: Specify IT Resource Parameter Values**

![Figure 2–4](image)

Table 2–6 provides information about the parameters of the IT resource.
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. 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.

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:

Note:
- This step is optional.
- You cannot modify the access permissions of the SYSTEM ADMINISTRATORS group. You can modify the access permissions of only other groups that you assign to the IT resource.

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:

   **Note:**
   - This step is optional.
   - You cannot unassign the SYSTEM ADMINISTRATORS group. You can unassign only other groups that you assign to the IT resource.

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

10. Click Continue. **Figure 2–5** shows the Step 3: Set Access Permission to IT Resource page.

   **Figure 2–5 Step 3: Set Access Permission to IT Resource**

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 2–6 shows Step 4: Verify IT Resource Details page.

*Figure 2–6  Step 4: Verify IT Resource Details*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>URL</td>
<td>172.30.40.120</td>
</tr>
<tr>
<td>Key</td>
<td>*********</td>
</tr>
<tr>
<td>Port</td>
<td>8779</td>
</tr>
<tr>
<td>Timeout</td>
<td>0</td>
</tr>
<tr>
<td>UseSSL</td>
<td>False</td>
</tr>
</tbody>
</table>

Before advancing to the next step, perform any manual steps required to connect to this IT resource. Otherwise, the target connectivity test may fail.

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 2–7* shows the Step 5: IT Resource Connection Result page.
14. Click Finish. Figure 2–8 shows the IT Resource Created page.
2.4 Upgrading the Connector
Upgrading to this release of the connector from earlier releases is not supported.

2.5 Postcloning Steps
You can clone the RSA Authentication Manager connector by setting new names for some of the objects that comprise the connector. The outcome of the process is a new connector XML file. Most of the connector objects, such as Resource Object, Process Definition, Process Form, IT Resource Type Definition, IT Resource Instances, Lookup Definitions, Adapters, Reconciliation Rules and so on in the new connector XML file have new names.

After a copy of the connector is created by setting new names for connector objects, some objects might contain the details of the old connector objects. Therefore, you must modify the following Oracle Identity Manager objects to replace the base connector artifacts or attribute references with the corresponding cloned artifacts or attributes:

- Localization Properties
You must update the resource bundle of a user locale with new names of the process form attributes for proper translations after cloning the connector. You can modify the properties file of your locale in the resources directory of the connector bundle.

■ Lookup Definition

In the cloned lookup definition for provisioning attribute map, if the code key entries specific to groups and roles contain the old process form details, then you must modify them to reflect the cloned form name.

For example, consider Lookup.RSAAM.UM.ProvAttr1 and UD_AMROLE1 to be the cloned versions of the Lookup.RSAAM.UM.ProvAttrMap lookup definition and UD_AMROLE child form, respectively.

After cloning, the Lookup.RSAAM.UM.ProvAttrMap1 lookup definition contains Code Key entries that correspond to the fields of the old child form UD_AMROLE. To ensure that the Code Key entries point to the fields of the cloned child form (UD_AMROLE1), specify UD_AMROLE1~Role Name[LOOKUP] in the corresponding Code Key column. Similarly, you can specify UD_AMGROUP1~Group Name[LOOKUP] in the Code Key column for groups.

■ Child Table

As a result of a change in the name of the child table, you must modify the corresponding mappings for the child table operations to work successfully.

To update the corresponding mappings, perform the following procedure:

1. Log in to the Design Console.
2. Expand Process Management, and then double-click Process Definition.
3. Search for and open the RSA Auth Manager User1 process form.
4. Double-click the Add User to Group process task.
   The Editing Task window is displayed.
5. On the Integration tab, select the row corresponding to the name of the child table, and then click Map.
6. The Data Mapping for Variable window is displayed.
7. Change the value in the Literal Value field to the cloned table name. For example, UD_AMGROUP1.
8. Click Save and close the window.
9. To change the mappings for the Remove User from Group task, perform Steps 1 through 8 of this procedure with the following difference:
   While performing Step 4 of this procedure, instead of double-clicking the Add User to Group task, double-click the Remove User from Group task.
10. To change the mappings for the Update User for Group task, perform Steps 1 through 8 with the following difference:
    While performing Step 4 of this procedure, instead of double-clicking the Add User to Group task, double-click the Update User for Group task.
11. To change the mappings for the Add User to Role task, perform Steps 1 through 8 with the following difference:
    While performing Step 4 of this procedure, instead of double-clicking the Add User to Group task, double-click the Add User to Role task.
12. To change the mappings for the Remove User from Role task, perform Steps 1 through 8 with the following difference:
   While performing Step 4 of this procedure, instead of double-clicking the Add User to Group task, double-click the **Remove User from Role** task.

13. To change the mappings for the Update User for Role task, perform Steps 1 through 8 with the following difference:
   While performing Step 4 of this procedure, instead of double-clicking the Add User to Group task, double-click the **Update User for Role** task.
This chapter is divided into the following sections:

- Section 3.1, "Performing First-Time Reconciliation"
- Section 3.2, "Scheduled Job for Lookup Field Synchronization"
- Section 3.3, "Configuring Reconciliation"
- Section 3.4, "Configuring Scheduled Jobs"
- Section 3.5, "Guidelines On Performing Provisioning Operations"
- Section 3.6, "Performing Provisioning Operations"
- Section 3.7, "Uninstalling the Connector"

3.1 Performing First-Time Reconciliation

First-time reconciliation involves synchronizing lookup definitions in Oracle Identity Manager with the lookup fields of the target system, and performing full reconciliation. In full reconciliation, all existing user records from the target system are brought into Oracle Identity Manager.

The following is the sequence of steps involved in reconciling all existing user records:

1. Perform lookup field synchronization by running the scheduled jobs provided for this operation.

   See Section 3.2, "Scheduled Job for Lookup Field Synchronization" for information about the attributes of the scheduled jobs for lookup field synchronization.

   See Section 3.4, "Configuring Scheduled Jobs" for information about running scheduled jobs.

2. Perform user and token reconciliation by running the scheduled jobs for user and token reconciliation.

   See Section 3.3.4, "Reconciliation Scheduled Jobs" for information about the attributes of this scheduled job.

   See Section 3.4, "Configuring Scheduled Jobs" for information about running scheduled jobs.

After first-time reconciliation, the Last Execution Timestamp attribute of the scheduled job is automatically set to the time stamp at which the reconciliation run began.

From the next reconciliation run onward, only target system user records that are added or modified after the time stamp stored in the scheduled job are considered for
incremental reconciliation. These records are brought to Oracle Identity Manager when you configure and run the user reconciliation scheduled job.

3.2 Scheduled Job for Lookup Field Synchronization

The following scheduled jobs are used for lookup fields synchronization:

- RSAAM TokenSerial Lookup Reconciliation
- RSAAM SecurityDomain Lookup Reconciliation
- RSAAM RadiusProfile Lookup Reconciliation
- RSAAM IdentitySource Lookup Reconciliation
- RSAAM UserGroup Lookup Reconciliation
- RSAAM AdminRole Lookup Reconciliation

You must specify values for the attributes of these scheduled jobs. Table 3–1 describes the attributes of these scheduled jobs. Section 3.4, "Configuring Scheduled Jobs" describes the procedure to configure scheduled jobs.

<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). Default value: __UID__  
  **Note:** Do not change the value of this attribute. |
| Decode Attribute           | 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). Default value: __NAME__  
  **Note:** Do not change the value of this attribute. |
| 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: RSA Server Instance |
3.3 Configuring Reconciliation

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:

- Section 3.3.1, "Performing Full Reconciliation"
- Section 3.3.2, "Limited Reconciliation"
- Section 3.3.3, "Batched Reconciliation"
- Section 3.3.4, "Reconciliation Scheduled Jobs"

3.3.1 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. In addition, you can switch from incremental reconciliation to full reconciliation whenever you want to ensure that all target system records are reconciled in Oracle Identity Manager.

To perform a full reconciliation run, ensure that no values are specified for the Latest Token and Filter attributes of the scheduled jobs for reconciling user records.

At the end of the reconciliation run, the Latest Token attribute of the scheduled job for user record reconciliation is automatically set to the time stamp at which the run ended. From the next reconciliation run onward, only records created or modified after this time stamp are considered for reconciliation. This is incremental reconciliation.
### 3.3.2 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.

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

You can perform limited reconciliation by creating filters for the reconciliation module. This connector provides a Filter attribute (a scheduled job attribute) that allows you to use any of the RSA Authentication Manager resource attributes to filter the target system records.

The following RSA Authentication Manager attributes are supported for filtering:

- For User Reconciliation:
  - CERT_DN
  - EMAIL
  - FIRST_NAME
  - LAST_NAME
  - LOGINUID
  - MIDDLE_NAME
  - PASSWORD
  - ADMINISTRATOR_FLAG
  - PROXIED_AUTHENTICATORS
  - CHANGE_PASSWORD_DATE
  - CHANGE_PASSWORD_FLAG
  - DESCRIPTION
  - ENABLE_FLAG
  - EXPIRATION_DATE
  - EXPIRE_LOCKOUT_DATE
  - EXPIRE_EMERGENCY_LOCKOUT_DATE
  - FAIL_EMERGENCY_COUNT
  - FAIL_EMERGENCY_DATE
  - FAIL_PASSWORD_COUNT

**Note:** Incremental reconciliation reflects changes or modifications made in the target system when a change or modification is made in the incremental reconciliation attribute. For example, during user reconciliation, changes like updates to all the fields on the Authentication Settings page (including radius profiles) and group updates will not be reconciled as a part of incremental reconciliation, and a full reconciliation has to be performed in order to reconcile these changes into Oracle Identity Manager.
- FAIL_PASSWORD_DATE
- IDENTITY_SRC_ID
- IMPERSONATABLE_FLAG
- IMPERSONATOR_FLAG
- LAST_UPDATED_BY
- LAST_UPDATED_ON
- LOCKOUT_FLAG
- EMERGENCY_LOCKOUT_FLAG
- LOGIN_FAILURE_COUNT
- OWNER_ID
- SECURITY_QUES_ANSWERS
- SECURITY_QUES_REQUIRED_AUTHN
- SECURITY_QUES_REQUIRED_REG
- SECURITY_QUES_LANGUAGE
- SECURITY_QUES_COUNTRY
- SECURITY_QUES_VARIANT
- START_DATE

In addition, all extended attributes that are added in the target system through customization are supported for filtering.

- For Token Reconciliation:
  - assignedBy
  - tokenAssignedDate
  - assignedToken
  - enabled
  - tokenShutdownDate
  - importedBy
  - importedOn
  - lastExportedBy
  - lastExportedOn
  - tokenRuntime.lastLoginDate
  - lastUpdatedBy
  - lastUpdatedOn
  - tokenLost
  - replacedByToken
  - pinType
  - serialNumber
  - softidDeployed
Note: While entering filters in the scheduled job for user and token reconciliation, the attribute name should be in the same syntax as the decode value in the reconciliation attribute map.

See Section 1.7.1, "User Fields for Target Resource Reconciliation" and Section 1.7.4, "Token Fields for Target Resource Reconciliation" for decode values that need to be specified for user and token reconciliation.

In addition, during token reconciliation, use the token attributes from ListTokenDTO and not from TokenDTO target class.

Following are a few examples:

- To reconcile all users whose login id is like 'jo*', use filter
  \texttt{startsWith('\_NAME\_','jo')}

- To reconcile all users whose email is like '*@company.com', use filter
  \texttt{endsWith('email;IMS;Core;String;EMAIL','@company.com')}

- To reconcile all tokens whose serialnumber is like '0002219*', use filter
  \texttt{startsWith('\_NAME\_','0002219')}

- To reconcile all tokens which are marked as lost, use filter
  \texttt{equalTo('tokenLost;ListTokenDTO;Core;boolean;tokenLost', true)}

For detailed information about ICF Filters, see ICF Filter Syntax in Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager.

### 3.3.3 Batched Reconciliation

This section discusses the Batch Size, Batch Start, and Number of Batches attributes of the scheduled jobs for target resource reconciliation.

By default, all target system records that are added or modified after the last reconciliation run are reconciled during the current reconciliation run. Depending on the number of records to be reconciled, this process may require a large amount of time. In addition, if the connection breaks during reconciliation, then the process would take longer to complete.

You can configure batched reconciliation to avoid such problems.

The following are the attributes used to configure batched reconciliation:

- **Batch Size**: Use this attribute to specify the number of records that must be included in each batch.
  If you set the value of this attribute to 0, then the default \texttt{batchsize} entry of the main configuration lookup (Lookup.RSAAM.Configuration) is considered as the batch size for batched reconciliation. Any numeric value other than 0 takes precedence over the default \texttt{batchsize} entry.

- **Batch Start**: Use this attribute to specify the record number from which batched reconciliation must begin.
  Set the value of this attribute to 0 to begin reconciliation from the first record in the target system. Similarly, set the value of this attribute to 1 to begin reconciliation from the second record in the target system and so on.
Configuring Reconciliation

Using the Connector

3.3.4 Reconciliation Scheduled Jobs

When you run the Connector Installer, the scheduled tasks corresponding to the following scheduled jobs are automatically created in Oracle Identity Manager:

- Section 3.3.4.1, "Scheduled Jobs for Reconciliation of Token and User Records"
- Section 3.3.4.2, "Scheduled Jobs for Reconciliation of Deleted Token and User Records"

### 3.3.4.1 Scheduled Jobs for Reconciliation of Token and User Records

Depending on whether you want to implement target resource reconciliation for tokens or users, you must specify values for the attributes of one of the following user reconciliation scheduled jobs:

- RSAAM Token Target Reconciliation

This scheduled job is used to reconcile token data for assigned tokens.

Table 3–2 describes the attributes of the scheduled job for reconciliation of token records

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batch Size</td>
<td>Enter the number of records that must be included in each batch fetched from the target system. Default value: 0. This attribute is used in conjunction with the Batch Start and Number of Batches attributes. All these attributes are discussed in Section 3.3.3, &quot;Batched Reconciliation.&quot;</td>
</tr>
<tr>
<td>Batch Start</td>
<td>Enter the number of the target system record from which a batched reconciliation run must begin. Default value: 0. This attribute is used in conjunction with the Batch Start and Number of Batches attributes. All these attributes are discussed in Section 3.3.3, &quot;Batched Reconciliation.&quot;</td>
</tr>
</tbody>
</table>
Configuring Reconciliation

- **RSAAM User Target Reconciliation**

  This scheduled job is used to reconcile user data in the target resource (account management) mode of the connector.

  Table 3–3 describes the attributes of the scheduled job for reconciliation of user records.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
</table>
| Filter     | Expression for filtering records. Use the following syntax: 
  
  \[
  \text{syntax} = \text{expression} ( \text{operator expression} )^* \\
  \text{operator} = \text{'and'} \mid \text{'or'} \\
  \text{expression} = ( \text{not} )? \text{filter} \\
  \text{filter} = \{ \text{'equalTo'} \mid \text{'contains'} \mid \text{'containsAllValues'} \\
  \mid \text{'startsWith'} \mid \text{'endsWith'} \mid \text{'greaterThan'} \mid \\
  \text{'greaterThanOrEqualTo'} \mid \text{'lessThan'} \mid \text{'lessThanOrEqualTo'} \} ( \text{attributeName} , \text{attributeValue} ) \\
  \text{attributeValue} = \text{singleValue} \mid \text{multipleValues} \\
  \text{singleValue} = \text{'value'} \\
  \text{multipleValues} = \{ \text{'value_1' , , 'value_n'} \}^* \\
  \]  
  
  Default value: None

| Incremental Recon Attribute | Attribute that holds the date on which the token record was modified. 
  
  Default value: lastUpdatedOn;TokenDTO;Core;Date;lastUpdatedOn 
  
  **Note:** Do not change the value of this attribute

| IT Resource Name | Name of the IT resource instance that the connector must use to reconcile data. 
  
  Sample value: RSA Server Instance

| Latest Token | This attribute holds the value of the attribute that is specified as the value of the Incremental Recon Attribute attribute. The Latest Token attribute is used for internal purposes. By default, this value is empty. 
  
  **Note:** Do not enter a value for this attribute. The reconciliation engine automatically enters a value in this attribute. 
  
  Sample value: 1354753427000

| Number of Batches | Enter the number of batches that must be reconciled.  
  
  Default value: 0 
  
  This attribute is used in conjunction with the Batch Start and Number of Batches attributes. All these attributes are discussed in Section 3.3.3, "Batched Reconciliation."

| Object Type | This attribute holds the type of object you want to reconcile. 
  
  Default value: Token

| Resource Object Name | Enter the name of the resource object against which reconciliation runs must be performed. 
  
  Default value: RSA Auth Manager Token

| Scheduled Task Name | Name of the scheduled task used for reconciliation. 
  
  Default value: RSAAM Token Target Reconciliation

---
3.3.4.2 Scheduled Jobs for Reconciliation of Deleted Token and User Records

Depending on whether you want to implement target resource delete reconciliation for tokens or users, you must specify values for the attributes of one of the following scheduled jobs:

- **RSAAM Token Target Delete Reconciliation**

  This scheduled job is used to reconcile unassigned token data in the target source (identity management) mode of the connector. After the completion of this scheduled job, all the unassigned tokens are revoked in Oracle Identity Manager.

  Table 3–4 describes the attributes of the scheduled job for reconciliation of deleted token records.
### 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 Scheduled Jobs for Lookup Field Synchronization and Reconciliation**

<table>
<thead>
<tr>
<th>Scheduled Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSAAM Token Serial Lookup Reconciliation</td>
<td>This scheduled job is used to synchronize values of the token serial lookup fields between Oracle Identity Manager and the target system. See Section 3.2, “Scheduled Job for Lookup Field Synchronization” for information about this scheduled job.</td>
</tr>
<tr>
<td>RSAAM Security Domain Lookup Reconciliation</td>
<td>This scheduled job is used to synchronize values of the security domain lookup fields between Oracle Identity Manager and the target system. See Section 3.2, “Scheduled Job for Lookup Field Synchronization” for information about this scheduled job.</td>
</tr>
<tr>
<td>RSAAM Radius Profile Lookup Reconciliation</td>
<td>This scheduled job is used to synchronize values of the radius profile lookup fields between Oracle Identity Manager and the target system. See Section 3.2, “Scheduled Job for Lookup Field Synchronization” for information about this scheduled job.</td>
</tr>
</tbody>
</table>
To configure a scheduled job:

1. Log in to Oracle Identity System Administration.
2. In the left pane, under System Management, click Scheduler.
3. Search for and open the scheduled job as follows:
   a. 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.
   b. In the search results table on the left pane, click the scheduled job in the Job Name column.
4. On the Job Details tab, you can modify the following parameters:
   - 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.

5. On the Job Details tab, in the Parameters region, specify values for the attributes of the scheduled job.
3.5 Guidelines On Performing Provisioning Operations

The following is a guideline that you must apply while performing a provisioning operation:

During a provisioning operation, if you do not specify values or clear all the existing values for the Account Expire Date, Account Expire Hours, and Account Expire Minutes fields, then the corresponding account in the target system is set to \textit{Does Not Expire}.

3.6 Performing Provisioning Operations

To perform provisioning operations in Oracle Identity Manager:

1. Log in to Oracle Identity Administrative and User console.
2. Create a user. See Managing Users in \textit{Oracle Fusion Middleware Performing Self Service Tasks with Oracle Identity Manager} for more information about creating a user.
3. On the Account tab, click Request Accounts.
4. In the Catalog page, search for and add to cart the application instance created for the RSA Server Instance IT resource (in Section 2.3.1.2.3, "Creating an Application Instance"), and then click Checkout.
5. Specify value for fields in the application form.

\textbf{Note:} Ensure to select proper values for lookup type fields as there are a few dependent fields. Selecting a wrong value for such fields may result in provisioning failure.
6. Click Ready to Submit.
7. Click Submit.
8. If you want to provision entitlements, then:
   \begin{enumerate}
   \item On the Entitlements tab, click Request Entitlements.
   \item In the Catalog page, search for and add to cart the entitlement, and then click Checkout.
   \end{enumerate}
c. Click Submit.

3.7 Uninstalling the Connector

If you want to uninstall the connector for any reason, see Uninstalling Connectors in Oracle Fusion Middleware Administering Oracle Identity Manager.

After you uninstall the connector, perform the postuninstall procedure. See Postuninstall in Oracle Fusion Middleware Administering Oracle Identity Manager for more information.
Extending the Functionality of the Connector

This chapter describes procedures that you can perform to extend the functionality of the connector for addressing your specific business requirements. This chapter discusses the following sections:

- **Section 4.1, “Determining Whether an Attribute Is an Identity Management Services or Authentication Manager Attribute”**
- **Section 4.2, “Adding New User or Token Attributes for Reconciliation”**
- **Section 4.3, “Adding New User or Token Attributes for Provisioning”**
- **Section 4.4, “Configuring Validation of Data During Reconciliation and Provisioning”**
- **Section 4.5, “Configuring Transformation of Data During Reconciliation”**

### 4.1 Determining Whether an Attribute Is an Identity Management Services or Authentication Manager Attribute

Some of the sections in this chapter describe procedures to map new attributes for reconciliation and provisioning. One of the steps of these procedures is to create an entry in the lookup definition that holds the mapping between target system and Oracle Identity Manager attributes. The Decode value of these lookup definitions contains a setting that requires you to specify whether the attribute is an Identity Management Services or Authentication Manager attribute.

To determine if an attribute is an Identity Management Services or Authentication Manager attribute:

1. Log in to the RSA Security Console.
2. From the Identity list, select **Users** and then select **Manage Existing**.
3. Use the Search feature to display details of either a single user or all users.
4. For any user in the list of users displayed, click the arrow next to the user ID.
5. From the menu displayed:
4.2 Adding New User or Token Attributes for Reconciliation

By default, the attributes listed in Table 1–5 and Table 1–7 are mapped for reconciliation between Oracle Identity Manager and the target system. If required, you can add new attributes (standard or custom) for reconciliation.

Summary of the procedure to add a new user or token attribute for reconciliation

1. Add the new attribute on the process form.
2. Add the attribute to the list of reconciliation fields in the resource object.
3. Create a reconciliation field mapping for the attribute in the process definition.
4. Create an entry for the field in the lookup definition that holds attribute mappings.
5. Perform all changes made to the Form Designer of the Design Console in a new UI form.

To add a new user or token attribute for reconciliation:

Note:
See Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the steps of this procedure.

If you have already added an attribute for provisioning, then you need not repeat steps performed as part of that procedure.

1. Log in to the Oracle Identity Manager Design Console.
2. Add the new attribute on the process form as follows:
   a. Expand Development Tools, and double-click Form Designer.
   b. If you want to add a user attribute, then search for and open the UD_AMUSER process form.
      If you want to add a token attribute, then search for and open the UD_AMTOKEN process form.
   c. Click Create New Version, and then click Add.
   d. Enter the details of the field.
Adding New User or Token Attributes for Reconciliation

For example, if you are adding the EMAIL field, enter UD_AMUSER_EMAIL in the Name field and then enter other details such as Variable Type, Length, Field Label, and Field Type.

**e.** Click the Save icon, and then click Make Version Active. The following screenshot shows the new field added to the process form:

---

3. Add the new attribute to the list of reconciliation fields in the resource object as follows:

**a.** Expand Resource Management, and double-click Resource Objects.

**b.** Search for and open either the RSA Auth Manager User or the RSA Auth Manager Token resource object.

**c.** On the Object Reconciliation tab, click Add Field.

**d.** Enter the details of the field.

For example, enter EMAIL in the Field Name field and select String from the Field Type list.

Later in this procedure, you enter the field name as the Code value of the entry that you create in the lookup definition for reconciliation.

**e.** Click the Save icon. The following screenshot shows the new reconciliation field added to the resource object:
f. Click Create Reconciliation Profile. This copies changes made to the resource object into the MDS.

4. Create a reconciliation field mapping for the new attribute in the process definition as follows:


b. Search for and open either the RSA Auth Manager User or the RSA Auth Manager Token process definition.

c. On the Reconciliation Field Mappings tab of the RSA Auth Manager User process definition, click Add Field Map.

d. From the Field Name list, select the field that you want to map.

e. Double-click the Process Data Field field, and then select the column for the attribute. For example, select UD_AMUSER_EMAIL.

f. Click the Save icon. The following screenshot shows the new reconciliation field mapped to a process data field in the process definition:
5. Create an entry for the field in the lookup definition for reconciliation as follows:
   a. Expand Administration.
   b. Double-click Lookup Definition.
   c. Search for and open one of the following lookup definitions:
      - For Users: Lookup.RSAAM.UM.ReconAttrMap
      - For Tokens: Lookup.RSAAM<Token>.ReconAttrMap
   d. Click Add and enter the Code Key and Decode values for the field. The Code Key value must be the name of the field in the resource object.
      See Section 1.7.1, "User Fields for Target Resource Reconciliation" for information about the Decode format for users.
      See Section 1.7.4, "Token Fields for Target Resource Reconciliation" for information about the Decode format for tokens.
   e. Click the Save icon. The following screenshot shows the entry added to the lookup definition:
6. Perform all changes made to the Form Designer of the Design Console (in Step 2) in a new UI form as follows:
   a. Log in to Oracle Identity System Administration.
   b. Create and activate a sandbox. See Section 2.3.1.2.1, “Creating and Activating a Sandbox” for more information.
   c. Create a new UI form to view the newly added field along with the rest of the fields. See Section 2.3.1.2.2, “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 Step 6.c), and then save the application instance.
   e. Publish the sandbox. See Section 2.3.1.2.5, “Publishing a Sandbox” for more information.

4.3 Adding New User or Token Attributes for Provisioning

By default, the attributes listed in Table 1–10 and Table 1–11 are mapped for provisioning between Oracle Identity Manager and the target system. If required, you can map additional attributes for provisioning.

Note: Only single-valued attributes can be mapped for provisioning.

Summary of the procedure to add a new user or token attribute for provisioning

1. Add the new attribute on the process form.
2. Create an entry for the attribute in the lookup definition that holds attribute mappings.
3. Create a task to enable update of the attribute during provisioning operations.
4. Perform all changes made to the Form Designer of the Design Console in a new UI form.
To add a new user or token attribute for provisioning:

1. Log in to the Oracle Identity Manager Design Console.
2. Add the new attribute on the process form as follows:
   a. Expand Development Tools, and double-click Form Designer.
   b. If you want to add a user attribute, then search for and open the UD_AMUSER process form.
      If you want to add a token attribute, then search for and open the UD_AMTOKEN 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 EMAIL field, enter UD_AMUSER_EMAIL 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:

3. Create an entry for the attribute in the lookup definition for provisioning as follows:
   a. Expand Administration.

---

**Note:** See Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the steps of this procedure.

If you have already added an attribute for reconciliation, then you need not repeat steps performed as part of that procedure.
b. Double-click **Lookup Definition**.

c. Search for and open one of the following lookup definitions:
   - For Users: **Lookup.RSAAM.UM.ProvAttrMap**
   - For Tokens: **Lookup.RSAAM.Token.ProvAttrMap**

d. Click **Add** and then enter the Code Key and Decode values for the attribute. Enter the Decode value in one of the following formats:

   See Section 1.8.2, "User Fields for Provisioning" for more information about the Decode format for users.

   See Section 1.8.3, "Token Fields for Provisioning" for more information about the Decode format for tokens.

   For example, enter **EMAIL** in the **Code Key** column and then enter **email;IMS;Core;String;EMAIL** in the **Decode** column. The following screenshot shows the entry added to the lookup definition:

![Lookup Definition](image)

4. Create a task to enable update of the attribute during provisioning operations.

   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:

   a. Expand **Process Management**, and double-click **Process Definition**.

   b. Search for and open either the **RSA Auth Manager User** or the **RSA Auth Manager Token** 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:

   See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about these steps
Conditional
Required for Completion
Allow Cancellation while Pending
Allow Multiple Instances

e. Click the Save icon. The following screenshot shows the new task added to the process definition:

![Screenshot of task added to process definition]


g. In the Handler Selection dialog box, select Adapter, click adpRSAMUPDATEUSER, and then click the Save icon.

The list of adapter variables is displayed on the Integration tab. The following screenshot shows the list of adapter variables:

![Screenshot of adapter variables]

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:** ParentFormProcessInstanceKey

**Map To:** Process Data

**Qualifier:** Process Instance

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>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>attributeName</td>
<td>String</td>
<td>Literal</td>
<td>String</td>
<td>EMAIL</td>
</tr>
<tr>
<td>itResourceFieldName</td>
<td>String</td>
<td>Literal</td>
<td>String</td>
<td>UD_AMUSER_ITRESOURCE</td>
</tr>
<tr>
<td>objectType</td>
<td>String</td>
<td>Literal</td>
<td>String</td>
<td>User</td>
</tr>
<tr>
<td>processInstanceKey</td>
<td>Long</td>
<td>Process Data</td>
<td>Process Instance</td>
<td>NA</td>
</tr>
</tbody>
</table>

j. Click the Save icon in the Editing Task dialog box, and then close the dialog box.

k. Click the Save icon to save changes to the process definition.

5. Perform all changes made to the Form Designer of the Design Console (in Step 2) in a new UI form as follows:

a. Log in to Oracle Identity System Administration.

b. Create and activate a sandbox. See Section 2.3.1.2.1, "Creating and Activating a Sandbox" for more information.

c. Create a new UI form to view the newly added field along with the rest of the fields. See Section 2.3.1.2.2, "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 Step 5.c), and then save the application instance.

e. Publish the sandbox. See Section 2.3.1.2.5, "Publishing a Sandbox" for more information.

4.4 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.

To configure validation of data:

1. Write code that implements the required validation logic in a Java class.

   The following sample validation class checks if the value in the First Name attribute contains the number sign (#):

   ```java
   package org.identityconnectors.rsaam.extension;
   import java.util.*;
   public class RSAAMValidator {

   public boolean validate(HashMap hmUserDetails,
                           HashMap hmEntitlementDetails, String field) {
   ```
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.

```java
boolean valid=true;
String sFirstName=(String) hmUserDetails.get(field);
for(int i=0;i<sFirstName.length();i++){
    if (sFirstName.charAt(i) == '#'){
        valid=false;
        break;
    }
}
return valid;
} /* End */
```

2. Create a JAR file to hold the Java class.

3. Run the Oracle Identity Manager Upload JARs utility to post the JAR file created in Step 2 to the Oracle Identity Manager database. This utility is copied into the following location when you install Oracle Identity Manager:

   For Microsoft Windows:
   
   ```
   OIM_HOME/server/bin/UploadJars.bat
   ```

   For UNIX:
   
   ```
   OIM_HOME/server/bin/UploadJars.sh
   ```

   When you run the utility, you are prompted to enter the login credentials of the Oracle Identity Manager administrator, URL of the Oracle Identity Manager host computer, context factory value, type of JAR file being uploaded, and the location from which the JAR file is to be uploaded. Specify 1 as the value of the JAR type.

   **See Also:** Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the Upload JARs utility

4. If you created the Java class for validating a process form field for reconciliation, then:
   a. Log in to the Design Console.
   b. Create a lookup definition named `Lookup.RSAAM.UM.ReconValidation`.
   c. In the Code Key column, enter the resource object field name that you want to validate. For example, `Firstname`. In the Decode column, enter the class

---

**Note:** Before you use this utility, verify that the `WL_HOME` environment variable is set to the directory in which Oracle WebLogic Server is installed.

---

- For Microsoft Windows:

  ```
  OIM_HOME/server/bin/UploadJars.bat
  ```

- For UNIX:

  ```
  OIM_HOME/server/bin/UploadJars.sh
  ```

See Also: Oracle Fusion Middleware Developing and Customizing Applications for Oracle Identity Manager for detailed information about the Upload JARs utility
You can configure the transformation of reconciled single-valued data according to your requirements. For example, you can append the domain name with the User ID.

To configure the transformation of data:

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 modifies the User ID attribute by using values fetched from the __NAME__ attribute of the target system:

   ```java
   package oracle.iam.connectors.rsaam;
   import java.util.HashMap;
   public class RSAAMTransformation {  
     public Object transform(HashMap hmUserDetails, HashMap hmEntitlementDetails, String sField) throws ConnectorException {  
       // You must write code to transform the attributes.
   ```
Configuring Transformation of Data During Reconciliation

Extending the Functionality of the Connector

* 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.
*/

```java
String sUserName = (String) hmUserDetails.get("__NAME__");
return sUserName + "@example.com";
```

2. Create a JAR file to hold the Java class.

3. Run the Oracle Identity Manager Upload JARs utility to post the JAR file created
   in Step 2 to the Oracle Identity Manager database. This utility is copied into the
   following location when you install Oracle Identity Manager:

   ```
   For Microsoft Windows:
   OIM_HOME/server/bin/UploadJars.bat
   For UNIX:
   OIM_HOME/server/bin/UploadJars.sh
   ```

   When you run the utility, you are prompted to enter the login credentials of the
   Oracle Identity Manager administrator, URL of the Oracle Identity Manager host
   computer, context factory value, type of JAR file being uploaded, and the location
   from which the JAR file is to be uploaded. Specify 1 as the value of the JAR type.

   **Note:** Before you use this utility, verify that the `WIL_HOME` environment
   variable is set to the directory in which Oracle WebLogic Server is
   installed.

   **See Also:** *Oracle Fusion Middleware Developing and Customizing
   Applications for Oracle Identity Manager* for detailed information about
   the Upload JARs utility

4. Create a new lookup definition by the name
   `Lookup.RSAAM.UM.ReconTransformations` and then add the following entry:
   a. Log in to the Design Console.
   b. Expand Administration, and then double-click Lookup Definition.
   c. In the Code field, enter `Lookup.RSAAM.UM.ReconTransformations` as the name
      of the lookup definition.
   d. Select the Lookup Type option.
   e. On the Lookup Code Information tab, click Add.
   f. In the Code Key column, enter the resource object field name on which you
      want to apply the transformation. For example: User ID.
   g. In the Decode column, enter the name of the class file. For example:
      `oracle.iam.connectors.rsaam.RSAAMTransformation`.
   h. Save the lookup definition.
5. Purge the cache to get the changes reflected in Oracle Identity Manager. See *Oracle Fusion Middleware Administering Oracle Identity Manager* for information on purging cache.
This chapter provides solutions to problems you might encounter after you deploy or while using the RSA Authentication Manager connector.

Table 5–1 provides solutions to problems you might encounter with the RSA Authentication Manager connector.

<table>
<thead>
<tr>
<th>Problem Description</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The following error message is encountered: com.rsa.common.SystemException: Failed to construct CommandTarget</td>
<td>Ensure that you are using the right port in the IT resource parameter. Generally, the port used to access the RSA UI and the port used in the IT resource are different.</td>
</tr>
<tr>
<td>The following error message is encountered: com.rsa.command.exception.InvalidArgumentException: Static password does not meet policy requirements</td>
<td>Ensure that you are entering the passcode as per the policy defined in RSA Authentication Manager. Generally, the passcode should be between 4 to 8 characters, and should not contain any special characters.</td>
</tr>
</tbody>
</table>
| The following error message is encountered: com.rsa.command.exception.InvalidArgumentException: Password policy not satisfied | Ensure that you enter the accurate password as per the policies specified in RSA Authentication Manager. The following are the predefined policies to set a password in the connector:  
  ■ Require at least alphabetic characters  
  ■ Require at least uppercase characters  
  ■ Require at least lowercase characters  
  ■ Require at least numeric characters  
  ■ Require at least special characters |
### Table 5–1 (Cont.) Troubleshooting for the RSA Authentication Manager Connector

<table>
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<tr>
<th>Problem</th>
<th>Solution</th>
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<tr>
<td>The following error message is encountered: <strong>javax.naming.CommunicationException</strong> [Root exception is <strong>java.net.ConnectException</strong>: <code>t3s://rsa.idc.oracle.com:7002: Destination unreachable; nested exception is: javax.net.ssl.SSLHandshakeException: General SSLEngine problem; No available router to destination]</code></td>
<td>This exception is encountered because the RSA certificate is incorrectly imported, or imported to the incorrect keystore. It is observed that this problem occurs if you have imported the certificate into the wrong keystore. You can fix this issue by checking the Oracle Identity Manager server logs for the correct keystore, and reimporting the same into it. See Section 2.3.1.8, &quot;Addressing Prerequisites for Using the Java API of RSA Authentication Manager&quot; for more details.</td>
</tr>
<tr>
<td>The following error message is encountered: <strong>com.rsa.command.AuditedLocalizableSystemException</strong>: <strong>COMMAND_EXECUTION_UNEXPECTED_ERROR</strong></td>
<td>This exception is encountered because the <code>&lt;attributename&gt;</code> in the exception is not supported for filtering, but is being used as a filter. For supported attributes for filters, see Section 3.3.2, &quot;Limited Reconciliation.&quot;</td>
</tr>
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There are no known issues associated with this release of the connector.
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