Oracle® Identity Manager

Connector Guide for PeopleSoft User Management

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Oracle Identity Manager Connector Guide for PeopleSoft User Management, Release 9.0.4

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Preface

Oracle Identity Manager Connector Guide for PeopleSoft User Management provides information about integrating Oracle Identity Manager with PeopleSoft User Management.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager connector for PeopleSoft User Management.

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Related Documents

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

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

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

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

Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager Connector Pack Release 9.0.4 documentation library, visit Oracle Technology Network at

`http://www.oracle.com/technology/documentation/index.html`

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

What's New in the Oracle Identity Manager Connector for PeopleSoft User Management?

This chapter provides an overview of the updates made to the software and documentation for the PeopleSoft User Management connector in releases 9.0.4.1 of the Oracle Identity Manager connector pack.

> **See Also:** The 9.0.4 release of this guide for information about updates that were new for the 9.0.4 release

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

- Software Updates

  These include updates made to the connector software.

- Documentation-Specific Updates

  These include major changes made to the connector documentation. These changes are not related to software updates.

> **See Also:** *Oracle Identity Manager Release Notes*

Software Updates

This section discusses updates made to this release of the connector software.

New Supported Target Systems

This release of the connector supports PeopleTools 8.47 and 8.48. The required content has been added at appropriate places in this guide.

Documentation-Specific Updates

The following documentation-specific updates have been made in this release of the guide:

- At some places in the guide, the name of the target system has been changed from "PeopleSoft User Management" to "PeopleSoft Enterprise Applications."
- In the "Lookup Fields Reconciliation" section on page 1-2, some lookup fields have been modified.

- In the "User Reconciliation" section, the object fields have been divided into single value and multi value object fields.
- Information on "Full reconciliation" on page 1-1 and "Incremental reconciliation" on page 1-1 has been modified.
- In the "Files and Directories That Comprise the Connector" section on page 1-6, the paths for some files have been modified.
- In the "Step 1: Verifying Deployment Requirements" section on page 2-1, the target systems and the external code information have been modified.
- In the "Step 2: Copying the Connector Files and External Code Files" section on page 2-2, the destination directory path for the `peopleSoftUserMgmt.war` file has been modified.
- The structure of the Configuring the Target System section on page 3-1 has been modified.
- The structure of the "Configuring Reconciliation" section on page 3-17 has been modified.
- In the "User Reconciliation Scheduled Task" subsection of the "Specifying Values for the Scheduled Task Attributes" section on page 3-19, the following attributes have been added:
  - `NoOfRecordsToBeReconciled`
  - `Operator`
  - `UserID`
  - `UserType`
- In the "Multilanguage Support" section, Arabic has been added to the list of languages that the connector supports.

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About the Connector

Oracle Identity Manager automates access rights management, security, and provisioning of IT resources. Oracle Identity Manager connectors are used to integrate Oracle Identity Manager with third-party applications. This guide discusses the procedure to deploy the PeopleSoft User Management connector that is used to integrate Oracle Identity Manager with PeopleSoft Enterprise Applications.

> **Note:** In this guide, the term **Oracle Identity Manager server** refers to the computer on which Oracle Identity Manager is installed.
>
> At some places in this guide, PeopleSoft Enterprise Applications has been referred to as the **target system**.

The PeopleSoft User Management connector helps you to manage the PSOPRDEFN PeopleTools-based PeopleSoft applications account records including Role and Permission List assignments through target resource reconciliation, trusted source reconciliation, and provisioning. The connector supports user data reconciliation in two ways:

- **Full reconciliation**

  Full reconciliation involves reconciling records of existing users by using a flat file. A PeopleCode event is activated when user information is updated in PeopleSoft Enterprise Applications. The PeopleCode then extracts the required user account information. A PeopleSoft Application Engine program then populates the flat file with this information. The flat file is read by an Oracle Identity Manager scheduled task that generates reconciliation events.

  The PeopleSoft Application Engine program is run using PeopleSoft Application Designer or PeopleSoft Internet Architecture (PIA).

  To reconcile all existing target system records into Oracle Identity Manager, you must run full reconciliation the first time you perform a reconciliation run after deploying the connector. This is to ensure that the target system and Oracle Identity Manager contain the same data. In subsequent reconciliation runs, only data that is modified since the last reconciliation is reconciled. Oracle recommends that you run full reconciliations periodically to ensure that all the user records are reconciled into Oracle Identity Manager. See "Configuring the Target System for Full Reconciliation" on page 3-1 for more information.

- **Incremental reconciliation**

  Incremental reconciliation involves real-time reconciliation of newly created or modified user account information. Usually, this type of reconciliation is used for reconciling individual data changes after an initial reconciliation is performed

using full reconciliation. The PeopleCode captures changes to the same PeopleSoft components as applicable for full reconciliation and forwards these changes in real time to a Java Servlet listener running on the Oracle Identity Manager server through an HTTP POST request. Incremental reconciliation is performed using PeopleSoft application messaging. See "Configuring the Target System for Incremental Reconciliation" on page 3-4 for more information.

The synchronization process from the target system to Oracle Identity Manager involves the following steps:

1. When user account information is added or updated in the target system, a PeopleCode event is activated.
2. The PeopleCode event generates an XML message containing the added or updated user account information and sends it to the connector by using HTTP.
3. The connector parses the XML message and sends a reconciliation event to Oracle Identity Manager.

This chapter contains the following sections:

Reconciliation

See Also: The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about reconciliation configurations

Based on the type of data reconciled from the target system, reconciliation can be divided into the following types:

Lookup Fields Reconciliation

During the creation or modification of user accounts, a lookup field is used to specify one value from a set of values. The value that you select populates one of the attributes of the user account. Lookup field reconciliation is used to reconcile the following lookup field values from the target system into Oracle Identity Manager:

- LanguageCode
- EmployeeId
- CurrencyCode
- PermissionList
- EmailTypes

The EmailTypes lookup field is reconciled only in PeopleTools 8.45 through 8.48, because PeopleTools 8.22 does not support multiple e-mail types.

- Roles

User Reconciliation

User reconciliation involves reconciling user account information from the target system into Oracle Identity Manager. The information that is reconciled is different for target resource and trusted source reconciliation.

User Fields Reconciled During Target Resource Reconciliation

The following single-valued target system fields are reconciled during target resource reconciliation:

- UserId
- UserDescription
- EmployeeId
- MultiLanguageCode
- LanguageCD
- CurrencyCode
- UserIdAlias (PeopleTools 8.45 through 8.48 only)
- RowSecurity
- ProcessProfile
- NavigatorHomePage
- Primary
- Role

The following multivalued target system fields are reconciled during target resource reconciliation:

- PrimaryEmailAddress (PeopleTools 8.45 through 8.48 only)
- PrimaryEmailType (PeopleTools 8.45 through 8.48 only)
- Email Address (PeopleTools 8.22 only)
- Secondary EmailAddresses (PeopleTools 8.45 through 8.48 only)
- Secondary EmailTypes (PeopleTools 8.45 through 8.48 only)

User Fields Reconciled During Trusted Source Reconciliation

The following target system fields are reconciled during trusted source reconciliation:

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

Provisioning

Provisioning involves creating or modifying a user's account information on the target system through Oracle Identity Manager. You use the Oracle Identity Manager Administrative and User Console to perform provisioning operations.

> **See Also:** The "Deployment Configurations of Oracle Identity Manager" section in *Oracle Identity Manager Connector Concepts Guide* for conceptual information about provisioning

You can specify values for the following target system fields during a provisioning operation:

- UserId
- UserDescription
- Primary
- RowSecurity
- ProcessProfile
- NavigatorHomePage
- SymbolicID
- LanguageCode
- CurrencyCode
- PrimaryEmailAddress
- PrimaryEmailType (for PeopleTools 8.45 and 8.48 only)
- EmpId
- RecName
- Password
- UserIdAlias (for PeopleTools 8.45 and 8.48 only)
- MultiLanguageCode

Supported Functionality

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

> **Note:** The "PeopleTools Release" column of this table indicates the release of PeopleTools for which the corresponding function is available.

Table 1–1 Supported Functionality

Function	PeopleTools Release	Type	Description
Add User	8.22 and 8.45 through 8.48	Provisioning	Creates a user account
Password Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the password of a user

Table 1–1 (Cont.) Supported Functionality

Function	PeopleTools Release	Type	Description
User Description Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the description of a user
Multilanguage Code Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the multilanguage code of a user
Primary Email Address Updated	8.22 only	Provisioning	Updates the primary e-mail address of a user
Email Address Updated	8.22 only	Provisioning	Updates the e-mail address of a user
Primary Email Type Updated	8.45 through 8.48 only	Provisioning	Updates the primary e-mail address type of a user
Language Code Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the language code of a user
Currency Code Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the currency code of a user
Employee Id Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the employee ID of a user
Primary Permission List Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the Primary Permission list of a user
Process Profile Permission List Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the Process Profile Permission list of a user
Navigator Home Permission List Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the Navigator Home Permission list of a user
Row Security Permission List Updated	8.22 and 8.45 through 8.48	Provisioning	Updates the Row Security Permission list of a user
User Id Alias Updated	8.45 through 8.48 only	Provisioning	Updates the user ID alias of a user
Add RoleName	8.22 and 8.45 through 8.48	Provisioning	Adds a role to a user
Delete RoleName	8.22 and 8.45 through 8.48	Provisioning	Deletes a role from a user
Add EmailAddress	8.45 through 8.48 only	Provisioning	Adds an e-mail address to a user
Delete EmailAddress	8.45 through 8.48 only	Provisioning	Deletes the e-mail address of a user
Enables a User	8.22 and 8.45 through 8.48	Provisioning	Enables a user
Disables a User	8.22 and 8.45 through 8.48	Provisioning	Disables a user
Reconcile Lookup Field	8.22 and 8.45 through 8.48	Reconciliation	Reconciles lookup fields

Table 1–1 (Cont.) Supported Functionality

Function	PeopleTools Release	Type	Description
Reconcile User Data	8.22 and 8.45 through 8.48	Reconciliation	Target resource reconciliation: This is the primary mode of reconciliation for this connector. In this mode, updates made to target system users who already exist in Oracle Identity Manager are reconciled. This connector can also be configured in trusted source mode.

See Also: Appendix A for information about attribute mappings between Oracle Identity Manager and PeopleSoft Enterprise Applications.

Multilanguage Support

The connector supports the following languages:

- Arabic
- Chinese Simplified
- Chinese Traditional
- Danish
- English
- French
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazilian)
- Spanish

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

Files and Directories That Comprise the Connector

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

```
Enterprise Applications/PeopleSoft Enterprise Applications/PeopleSoft User Management
```

These files and directories are listed in the following table:

File in the Installation Media Directory	Description
`config/attributemapping_prov.properties`	This file lists the target system attributes and their mappings to corresponding fields in Oracle Identity Manager during provisioning.

File in the Installation Media Directory	Description
config/attributemapping_recon.properties	This file lists the target system attributes and their mappings to corresponding fields in Oracle Identity Manager during reconciliation.
ext/csv.jar	This file is a third-party library that is used to read comma-separated files.
lib/PSFTBaseProvisioning.jar	This JAR file contains the class files that are required for provisioning.
lib/PSFTBaseReconciliation.jar	This JAR file contains the class files that are used to implement full reconciliation.
lib/peopleSoftUserMgmt.war	This Web Archive (WAR) file contains the classes and configuration files required to implement incremental reconciliation.
For PeopleTools 8.22, the following files in the PeopleCode/PT822 directory: AddEmp.txt CurrencyCode.txt EmployeeId.txt LanguageCode.txt PermissionList.txt UserRoles.txt For PeopleTools 8.45 through 8.48, the following files in the PeopleCode directory: AddEmp.txt CurrencyCode.txt EmployeeId.txt EmailType.txt LanguageCode.txt PermissionList.txt	These files contain the PeopleCode for the steps that you define for the Application Engine program. Refer to the "Creating the Application Engine Program" section on page 3-2 for details.
For PeopleTools 8.22: PeopleCode/PT822/UserMgmtCBRecon.txt For PeopleTools 8.45 through 8.47: PeopleCode/UserMgmtCBRecon_8.45-8.47.txt For PeopleTools 8.48: PeopleCode/UserMgmtCBRecon_8.48.txt	This file contains the code that you must add to the PeopleCode for the SavePostChange event while performing the procedure described in the "Publishing the Message" section on page 3-8.
For PeopleTools 8.22, the following file in the lib/ directory: xliMsgPublisher.jar	This JAR file contains the class file that transfers the XML messages generated by the PeopleTools 8.22 file handler to the connector.
For PeopleTools 8.22, the following file in the scripts directory: publish.bat	This BAT file is a Microsoft Windows batch file that triggers the XML message transfer on a periodic basis. Refer to the "Configuring PeopleSoft Integration Broker" section on page 3-10 for more information.
For PeopleTools 8.22: test/cbrecon/PT822/psft-xel-test.vbs For PeopleTools 8.45 through 8.48: test/cbrecon/psft-xel-test.vbs	This VBScript file can be used to test the incremental reconciliation functionality of the connector by creating a dummy XML message similar to the ones created by PeopleSoft Enterprise Applications.

File in the Installation Media Directory	Description

For PeopleTools 8.22, the following files in the `test/cbrecon/PT822` directory:
`pingRequest.xml`
`pingResponse.xml`
`publishRequest.xml`
`publishResponse.xml`
 	
For PeopleTools 8.45 through 8.48, the following files in the `test/cbrecon` directory:
`pingRequest.xml`
`pingResponse.xml`
`publishRequest.xml`
`publishResponse.xml`
	These XML files are required by the `psft-xel-test.vbs` file for communicating with the connector by using XML over HTTP.

For PeopleTools 8.22*:*
`test/cbrecon/PT822/USR_MGMT_MSG.xml`
 	
For PeopleTools 8.45 through 8.48*:*
`test/cbrecon/USR_MGMT_MSG.xml`
	This XML file is used by the `psft-xel-test.vbs` file to define the template of the XML message that is received from the target system.

`test/config/config.properties`	This file is used to specify the parameters and settings required to connect to the target system by using the testing utility.
`test/config/log.properties`	This file is used to specify the log level and the directory in which the log file is to be created when you run the testing utility.
`test/scripts/psftBase.bat` `test/scripts/psftBase.sh`	The BAT file or UNIX shell script calls the testing utility when the Oracle Identity Manager server is running Microsoft Windows or UNIX, respectively.
For PeopleTools 8.22, the files in the `resources/PT822` directory For PeopleTools 8.45 through 8.48, the files in the `resources` directory	Each of these files contains locale-specific information that is used by the connector.

For PeopleTools 8.22:
`xml/PT822/PSFTBaseConnector.xml`
 	
For PeopleTools 8.45 through 8.48*:*
`xml/PSFTBaseConnector.xml`
	This XML file contains definitions for the following components of the connector:
	■ IT resource type
	■ Scheduled Task
	■ IT resource
	■ Resource object
	■ Process definition
	■ Process tasks
	■ Adapters
	■ Process form

For PeopleTools 8.22:
`xml/PT822/PSFTBaseXellerateUser.xml`
 	
For PeopleTools 8.45 through 8.48*:*
`xml/PSFTBaseXellerateUser.xml`
	This XML file contains the configuration information for the Xellerate User resource object. You must import this file only if you plan to use the connector for trusted source reconciliation.

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

Determining the Release Number of the Connector

You can use the following method to determine the release number of a PeopleSoft User Management connector:

1. Extract the contents of the `PSFTBaseReconciliation.jar` file. This file is in the following directory on the installation media:

   ```
   Enterprise Applications/PeopleSoft Enterprise Applications/PeopleSoft User Management/lib/ScheduleTask
   ```

2. Open the `manifest.mf` file in a text editor. The `manifest.mf` file is one of the files bundled inside the `PSFTBaseReconciliation.jar` file.

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

2

Deploying the Connector

Deploying the connector involves the following steps:

- Step 1: Verifying Deployment Requirements
- Step 2: Copying the Connector Files and External Code Files
- Step 3: Configuring the Oracle Identity Manager Server
- Step 4: Importing the Connector XML File

Step 1: Verifying Deployment Requirements

The following table lists the deployment requirements for the connector.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3 or later
Target systems	PeopleTools 8.22, 8.45, 8.46, 8.47, 8.48 The PeopleSoft applications compatible with any of the PeopleTools versions in the preceding list are supported. You must ensure that the following components are installed and configured: ▪ Tuxedo and Jolt (the application server) ▪ PeopleSoft Internet Architecture ▪ PeopleSoft Application Designer (2-tier mode)
Target system host platform	Applications running on PeopleTools 8.22 are supported only on Microsoft Windows platforms. For applications running on any other supported PeopleTools versions, there is no platform dependency.
External code	`csv.jar` Refer to the "Files and Directories That Comprise the Connector" section on page 1-6 for more information about this file. The "Step 2: Copying the Connector Files and External Code Files" section on page 2-2 provides information about the required PeopleSoft files.

Item	Requirement
Target system user account	The PS account. Oracle Identity Manager uses target system account to connect to and exchange data with the target system. You provide the credentials of this user while specifying the values for the IT resource parameter.

Step 2: Copying the Connector Files and External Code Files

The connector files to be copied and the directories to which you must copy them are given in the following table:

Note:

- The directory paths given in the first column of this table correspond to the location of the connector files in the following directory on the installation media:

```
Enterprise Applications/PeopleSoft Enterprise
Applications/PeopleSoft User Management
```

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

- If a particular destination directory does not already exist on the Oracle Identity Manager server, then create it.

File in the Installation Media Directory	Destination Directory
Files in the config directory	*OIM_HOME*/xellerate/XLIntegrations/PSFTBase/config
lib/peopleSoftUserMgmt.war	*OIM_HOME*/cbrecon_webapp/lib
ext/csv.jar	*OIM_HOME*/xellerate/ThirdParty
lib/PSFTBaseProvisioning.jar	*OIM_HOME*/xellerate/JavaTasks
lib/PSFTBaseReconciliation.jar	*OIM_HOME*/xellerate/ScheduleTask
For PeopleTools 8.22, copy the files from the lib/ directory.	*OIM_HOME*/xellerate/MsgPublisher
For PeopleTools 8.22, copy the files from the PeopleCode/PT822 directory.	*OIM_HOME*/xellerate/scripts
For PeopleTools 8.45 through 8.48, copy the files from the PeopleCode directory.	**Note:** You must copy the files for either PeopleTools 8.22 or PeopleTools 8.45 through 8.48. Do not copy both sets of files.
For PeopleTools 8.22, copy the files from the resources/PT822 directory.	*OIM_HOME*/xellerate/connectorResources
For PeopleTools 8.45 through 8.48, copy the files from the resources directory.	**Note:** You must copy the files for either PeopleTools 8.22 or PeopleTools 8.45 through 8.48. Do not copy both sets of files.
For PeopleTools 8.22, copy the files from the test/cbrecon/PT822 directory.	*OIM_HOME*/xellerate/XLIntegrations/PSFTBase/cbrecon
For PeopleTools 8.45 through 8.48, copy the files from the test/cbrecon directory.	**Note:** You must copy the files for either PeopleTools 8.22 or PeopleTools 8.45 through 8.48. Do not copy both sets of files.
Files in the test/scripts directory	*OIM_HOME*/xellerate/XLIntegrations/PSFTBase/scripts
Files in the test/config directory	*OIM_HOME*/xellerate/XLIntegrations/PSFTBase/config

File in the Installation Media Directory	Destination Directory

For PeopleTools 8.22:
`xml/PT822/PSFTBaseConnector.xml`
`xml/PT822/PSFTBaseXellerateUser.xml`
 	
For PeopleTools 8.45 through 8.48*:*
`xml/PSFTBaseConnector.xml`
`xml/PSFTBaseXellerateUser.xml`
	OIM_HOME`/xlclient`
	
	Note: You must copy the files for either PeopleTools 8.22 or PeopleTools 8.45 through 8.48. Do not copy both sets of files.

After you copy the connector files, copy the following files from the *PEOLESOFT_HOME*`/PT8`*xx*`/web/PSJOA` directory on the target system server into the *OIM_HOME*`/xellerate/ThirdParty` directory.

- `psjoa.jar`

  This is the PeopleSoft Java object adapter file containing the compiled Java classes required by Oracle Identity Manager to remotely connect to the target system.

- `peoplesoft.jar`

  This JAR file contains APIs for the USER_PROFILE component interface.

  The "Configuring the Target System for Provisioning" section on page 3-17 for information about the procedure to generate this file for the specific release of PeopleTools, 8.22 or 8.45 through 8.48, that you are using.

The `pstools.properties` file contains the Tuxedo parameter settings used by PeopleSoft Integration Broker Gateway. You must copy it into the *OIM_HOME*`/xellerate/bin` directory.

Note: While installing Oracle Identity Manager in a clustered environment, you copy the contents of the installation directory to each node of the cluster. Similarly, you must copy all the JAR files and the contents of the `connectorResources` directory to the corresponding directories on each node of the cluster.

Step 3: Configuring the Oracle Identity Manager Server

Configuring the Oracle Identity Manager server involves the following procedures:

Note: In a clustered environment, you must perform these procedures on each node of the cluster.

- Changing to the Required Input Locale
- Clearing Content Related to Connector Resource Bundles from the Server Cache
- Enabling Logging

Changing to the Required Input Locale

Changing to the required input locale (language and country setting) involves installing the required fonts and setting the required input locale.

You may require the assistance of the system administrator to change to the required input locale.

Clearing Content Related to Connector Resource Bundles from the Server Cache

While performing the procedure described in the "Step 2: Copying the Connector Files and External Code Files" section on page 2-2, you copy files from the `resources` directory on the installation media into the *`OIM_HOME`*`/xellerate/connectorResources` directory. Whenever you add a new resource bundle in the `connectorResources` directory or make a change in an existing resource bundle, you must clear content related to connector resource bundles from the server cache.

To clear content related to connector resource bundles from the server cache:

1. In a command window, change to the *`OIM_HOME`*`/xellerate/bin` directory.

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

   `OIM_HOME``/xellerate/bin/`*`script_file_name`*

2. Enter one of the following commands:

   - On Microsoft Windows:

     ```
     PurgeCache.bat ConnectorResourceBundle
     ```

   - On UNIX:

     ```
     PurgeCache.sh ConnectorResourceBundle
     ```

   Note: You can ignore the exception that is thrown when you perform Step 2. This exception is different from the one mentioned in Step 1.

   In this command, `ConnectorResourceBundle` is one of the content categories that you can remove from the server cache. Refer to the following file for information about the other content categories:

   `OIM_HOME``/xellerate/config/xlconfig.xml`

Enabling Logging

When you enable logging, Oracle Identity Manager automatically stores in a log file information about events that occur during the course of provisioning and reconciliation operations. To specify the type of event for which you want logging to take place, you can set the log level to one of the following:

- `ALL`

  This level enables logging for all events.

- `DEBUG`

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

- `INFO`

  This level enables logging of messages that highlight the progress of the application at a coarse-grained level.

- `WARN`

This level enables logging of information about potentially harmful situations.

- ERROR

  This level enables logging of information about error events that may allow the application to continue running.

- FATAL

  This level enables logging of information about very severe error events that could cause the application to stop functioning.

- OFF

  This level disables logging for all events.

The file in which you set the log level depends on the application server that you use:

- **BEA WebLogic**

  To enable logging:

  1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.ADAPTER.PSFTBASE=log_level
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction=log_
     level
     log4j.logger.com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliati
     on=log_level
     ```

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

     For example:

     ```
     log4j.logger.ADAPTER.PSFTBASE=DEBUG
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction=DEBU
     G
     log4j.logger.com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliati
     on=DEBUG
     ```

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

  WEBLOGIC_HOME/user_projects/domains/*domain_name*/*server_name*/*server_name*.log

- **IBM WebSphere**

  To enable logging:

  1. Add the following lines in the *OIM_HOME*/xellerate/config/log.properties file:

     ```
     log4j.logger.ADAPTER.PSFTBASE=log_level
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction=log_
     level
     log4j.logger.com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliati
     on=log_level
     ```

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

     For example:

     ```
     log4j.logger.ADAPTER.PSFTBASE=DEBUG
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction=DEBU
     G
     log4j.logger.com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliati
     on=DEBUG
     ```

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

WEBSPHERE_HOME/AppServer/logs/*server_name*/SystemOut.log

- **JBoss Application Server**

  To enable logging:

  1. In the *JBOSS_HOME*/server/default/conf/log4j.xml file, locate the following lines:

```
<category name="ADAPTER.PSFTBASE">
   <priority value="log_level"/>
</category>

<category name="com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction">
   <priority value="log_level"/>
</category>

<category
name="com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliation">
   <priority value="log_level"/>
</category>
```

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

```
<category name="ADAPTER.PSFTBASE">
   <priority value="DEBUG"/>
</category>

<category name="com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction">
   <priority value="DEBUG"/>
</category>

<category
name="com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliation">
   <priority value="DEBUG"/>
</category>
```

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

  JBOSS_HOME/server/default/log/server.log

- **Oracle Application Server**

  To enable logging:

  1. Add the following line in the *OIM_HOME*/xellerate/config/log.properties file:

```
log4j.logger.ADAPTER.PSFTBASE=log_level
log4j.logger.com.thortech.xl.Integration.peoplesoft.PeopleSoftUMAction=log_
level
log4j.logger.com.thortech.xl.Integration.peoplesoft.util.tcUtilReconciliati
on=log_level
```

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

     For example:

```
log4j.logger.ADAPTER.PSFTBASE=DEBUG
log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftUMAction=DEBU
```

```
G
log4j.logger.com.thortech.xl.integration.peoplesoft.util.tcUtilReconciliati
on=DEBUG
```

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

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

Step 4: Importing the Connector XML File

To import the connector XML file into Oracle Identity Manager:

1. Open the Oracle Identity Manager Administrative and User Console.
2. Click the **Deployment Management** link on the left navigation bar.
3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.
4. Locate and open the `PSFTBaseConnector.xml` file, which is in the *OIM_HOME*`/xlclient` directory. Details of the XML file are shown on the File Review page.
5. Click **Add File.** The Substitutions page is displayed.
6. Click **Next**. The Confirmation page is displayed.
7. Click **Next**. The Provide IT Resource Instance Data page for the `PSFT Base Server` IT resource is displayed.
8. Specify values for the parameters of the `PSFT Base Server` IT resource. The following table lists the values to be specified:

Parameter	Description
`Admin`	User ID of the PeopleSoft Enterprise Applications administrator Default value: `PS`
`AdminCredentials`	Password of the PeopleSoft Enterprise Applications administrator
`ComponentInterfaceName`	Component interface used to load user data in PeopleSoft Enterprise Applications Default value: `USER_PROFILE`
`ServerName`	IP address or computer name of the PeopleSoft Enterprise Applications server Note: The IP address must be followed by the port number on which PeopleSoft Internet Architecture is running. For example, `ServerName = 172.21.109.48:90`
`ServerPort`	Port at which the PeopleSoft Enterprise Applications server is listening Default value: `8000`
`IsSecure`	Specify whether or not the SSL feature is enabled The value can be `YES` or `NO`. The default value is `NO`. Note: It is recommended that you enable SSL to secure communication with the target system.

Parameter	Description
SymbolicId	Specifies the AccessId associated with the user profile The AccessId specifies whether or not the user has sufficient privileges on the PeopleSoft Enterprise Applications database. Sample value: PS89
NumberOfRetries	Use this parameter to specify the number of times Oracle Identity Manager must try connecting to the target system before the InvocationTargetException is thrown. Default value: 2 **Note:** The timeout feature is enabled only for full reconciliation and provisioning. It is not applied during incremental reconciliation.
DelayBetweenRetries	Use this parameter to specify the time difference between consecutive retries (in milliseconds). Default value: 20000
IndexOfLastReconciledRecord	This parameter stores the index of last successful reconciled record. This parameter is applicable only for full reconciliation. Refer to the "Configuring the IndexOfLastReconciledRecord Parameter" section on page 3-22 for more information about this parameter Default value: -1

9. Click **Next**. The Provide IT Resource Instance Data page for a new instance of the PSFT Base Server IT resource type is displayed.
10. Click **Skip** to specify that you do not want to define another IT resource. The Confirmation page is displayed.

    See Also: If you want to define another IT resource, then refer to *Oracle Identity Manager Administrative and User Console Guide* for instructions.

11. Click **View Selections.**

    The contents of the XML file are displayed on the Import page. You *may* see a cross-shaped icon along with some nodes. These nodes represent Oracle Identity Manager entities that are redundant. Before you import the connector XML file, you must remove these entities by right-clicking each node and then selecting **Remove**.
12. Click **Import.** The connector file is imported into Oracle Identity Manager.

    Note: The default name of the IT resource provided in the connector xml file is PSFT Base Server. This name is hardcoded in the incremental reconciliation code for PeopleTools 8.22. This IT resource name must not be changed for incremental reconciliation to be run successfully.

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

3

Configuring the Target System and Oracle Identity Manager

This chapter discusses the following topics:

- Configuring the Target System
- Configuring Oracle Identity Manager

Note: These sections provide both conceptual and procedural information about configuring the connector. Oracle recommends that you read the conceptual information before you perform the procedures.

Configuring the Target System

This section discusses the following topics:

- Configuring the Target System for Full Reconciliation
- Configuring the Target System for Incremental Reconciliation
- Configuring the Target System for Provisioning

Configuring the Target System for Full Reconciliation

As described in Chapter 1, "About the Connector", full reconciliation is used to reconcile all the data in the target system into Oracle Identity Manager. The PeopleCode that is activated extracts the required user account information by using the `USERMAINT` component.

Configuring the target system for full reconciliation involves preparing the flat file for full reconciliation by performing the following procedures:

- Creating the Application Engine Program

  You have to create the Application Engine program only once when you are perform full reconciliation for the first time.

- Running the Application Engine Program

  You must run the Application Engine program each time you want to perform full reconciliation.

Creating the Application Engine Program

The Application Engine program populates the flat file used to perform full reconciliation with user account information that requires reconciliation. To create the Application Engine program:

1. To open Application Designer in 2-tier mode, click **Start**, **Programs**, **Peoplesoft8.*x***, and then **Application Designer**.
2. Select **New** from the **File** menu.
3. In the New Definition dialog box, select **App Engine Program** from the **Definition** list.
4. On the App Engine Program page, a plus sign (+) is displayed before the `MAIN` section in the Application Engine program under which there may be multiple steps. In each step, there may be some PeopleCode to be run. Click the plus sign (**+**). A step titled `Step01` is added to `MAIN`.
5. Rename `Step01` to `Currency`.
6. On the App Engine Program page, select **Action** from the **Insert** menu. An action is added to the `Currency` step.
7. Select **PeopleCode** from the list for the new action.
8. Click **Save** from the **File** menu to save the Application Engine program with the name `BLKPRCS_USER`.
9. Double-click the **PeopleCode** action. A new PeopleCode window is displayed.
10. In the PeopleCode window, copy the code from the *OIM_HOME*`/xellerate/Scripts/CurrencyCode.txt` file.
11. In the code that you copy, retain the file name (`CurrencyCode.txt`) but change the path to a directory location on the PeopleSoft server as follows:

    ```
    &DataFile = GetFile("path where you want to generate the comma-separated flat
    file\CurrencyCode.txt", "w", %FilePath_Absolute);
    &LOGFile = GetFile("path where you want to generate the comma-separated flat
    file\CurrencyCode.txt", "w", "a", %FilePath_Absolute);
    ```

    For example:

    ```
    &DataFile = GetFile("C:\PSFT_849_LOOKUPS\CurrencyCode.txt", "w",
    %FilePath_Absolute);
    &LOGFile = GetFile("C:\PSFT_849_LOOKUPS\CurrencyCodelook_up.log", "w", "a",
    %FilePath_Absolute);
    ```

12. Save the PeopleCode action, and close the window.
13. On the App Engine Program page, select the **MAIN** section and then select **Step/Action** from the **Insert** menu.
14. Repeat Steps 5 through 12 to create the remaining steps, which are listed in the following table:

Step Name	File Containing the Required PeopleCode
`language`	`LanguageCode.txt`
`emplid`	`EmployeeId.txt`
`userrole` (PeopleTools 8.22 only)	`UserRoles.txt`
`permiss`	`PermissionList.txt`

Step Name	File Containing the Required PeopleCode
`EmailType` (PeopleTools 8.45 through 8.48 only)	`EmailType.txt`
`addemp`	`AddEmp.txt`

15. Save the Application Engine program.

Running the Application Engine Program

The procedure to run the Application Engine program depends on the release of PeopleTools that you are using:

- Running the Application Engine Program on PeopleTools 8.22
- Running the Application Engine Program on PeopleTools 8.45 Through 8.48

Running the Application Engine Program on PeopleTools 8.22

To run the Application Engine program on PeopleTools 8.22*:*

1. Log in to PeopleSoft Internet Architecture.
2. Click **People Tools**, **Process Scheduler Manager**, **Use**, and **Process Definitions**.
3. On the Process Definitions page, click **Add a New value**.
4. Select **Application Engine** from the **Process Type** list.
5. Enter the name of the Application Engine program as the process name, **BLKPRCS_USER**.
6. Click **Add**.
7. Select the Application Engine program from the search results that are displayed when you click Add.
8. On the Process Definition Options tab, specify the following values:
   - **Run Location**: Server
   - **Server Name**: PSNT
   - **Component**: PRCSMULTI
   - **Process Groups**: ALLPANLS
9. Click **Save**.
10. Return to the home page.
11. Click **PeopleTools**, **Process Scheduler Manager**, **Process**, and **Sample Processes**.
12. On the Sample Processes page, click **Add a New value**.
13. Specify a run control ID, and then click **Add**.

> **Note:** A run control ID is used as a key for records that contain the parameters required by a process at run time. If the parameters are stored in a table that the process can query using the run control ID and user ID, then the process can run without user intervention.

14. Click **Run**.

15. On the Process Scheduler Request page, specify the server name.
16. Select the Application Engine program name, and then click **OK**.
17. Click **Process Monitor** to verify the status of the process.

    After the process status changes to `Success`, the comma-separated flat file is created at a location specified in the code that you copy from the `AddEmp.txt` file.

Running the Application Engine Program on PeopleTools 8.45 Through 8.48

Note: For the Application Engine program to run in 2-tier mode, the database client must be installed on the server used for accessing the application designer. To switch to the 2-tier mode, you select **Connection Type** as the database on the PeopleSoft sign-on screen.

To run the Application Engine program on PeopleTools 8.45 through 8.48*:*

1. To open Application Designer in 2-tier mode, click **Start**, **Programs**, **Peoplesoft8.*x***, and then **Application Designer**.
2. Specify the connection type, user ID, and password.
3. To open the Application Engine program that you created:
   a. From the **File** menu, select **Open** and then select **Application Engine Program** from the **Object Type** list.
   b. Select **BLKPRCS_USER,** and then click **Open**.
4. Click the RUN PROGRAM control on the toolbar below the menu bar. The comma-separated flat file containing user records is created at the location specified in the code that you copy from the `AddEmp.txt` file.

Configuring the Target System for Incremental Reconciliation

Configuring the target system for incremental reconciliation involves creating messages and message channels, publishing messages by writing PeopleCode that is used to populate and send messages from PeopleSoft Integration Broker to other systems, and configuring Integration Broker.

Note: In PeopleSoft Application version 9.0, queues replace message channels.

A message is the physical container for the XML data that is sent from PeopleSoft Enterprise Applications. Message definitions provide the physical description of data that is sent from PeopleSoft Enterprise Applications. This data includes fields, field types, and field lengths. A message channel is used to carry messages. It is a mechanism for structuring data into logical groups. Each message can belong to only one message channel.

After messages are created and associated with their respective message channels, you must publish the messages, which involves writing the PeopleCode in the application designer. This is because PeopleSoft Integration Broker and Oracle Identity Manager communicate through the exchange of XML messages and a message can only be started by using specific instructions in the PeopleCode.

Note: The procedures to create messages, message channels, and publishing messages depend on the version of the target system being used. The procedure to configure PeopleSoft Integration Broker depends on the version of PeopleTools being used.

Setting the PeopleSoft Integration Broker gateway is mandatory when you configure PeopleSoft Integration Broker. To subscribe to XML data, Oracle Identity Manager can accept and process XML messages posted by PeopleSoft by using PeopleSoft connectors located in the PeopleSoft Integration Broker gateway. These connectors are Java programs that are controlled by the Integration Broker gateway and, in turn, control the location of the XML files.

This gateway is a program that runs on the PeopleSoft Web server. It acts as a physical hub between PeopleSoft and other PeopleSoft applications (or third-party systems, such as Oracle Identity Manager). The gateway manages the receipt and delivery of messages passed among systems through PeopleSoft Integration Broker.

To configure the target system for incremental reconciliation, you must perform the following procedures:

Note: You must use an administrator account to perform the following procedures.

1. Creating the Message Channel
2. Creating the Message
3. Publishing the Message
4. Configuring PeopleSoft Integration Broker

Creating the Message Channel

The procedure to create a message channel varies depending on the version of PeopleTools that you are using:

- Creating the Message Channel on PeopleTools 8.22
- Creating the Message Channel on PeopleTools 8.45 Through 8.47
- Creating the Queue on PeopleTools 8.48

Creating the Message Channel on PeopleTools 8.22 To create the message channel on PeopleTools 8.22:

1. Click **Start**, **Programs**, and **Application Designer**. The Application Designer window is displayed in the 2-tier mode.
2. Select **New** from the **File** menu.
3. In the New Definition dialog box, select **Message Channel**, and then click **OK**.
4. Save the new message channel as `USR_MGMT_CH`.
5. Select **Object Properties** from the **File** menu.
6. In the Message Channel Properties dialog box, select the **Run** option, and then select **Archive Messages**.
7. Click **OK,** and then save the message.

Creating the Message Channel on PeopleTools 8.45 Through 8.47 To create the message channel on PeopleTools 8.45 Through 8.47:

1. Click **Start**, **Programs**, and **Application Designer**. The Application Designer window is displayed in the 2-tier mode.
2. Select **New** from the **File** menu.
3. In the New Definition dialog box, select **Message Channel**, and then click **OK**.
4. Save the new message channel as `USR_MGMT_CH`.
5. Select **Object Properties** from the **File** menu.
6. In the Message Channel Properties dialog box, select the **Use** tab, select the **Run** option, and then select the **Archive Messages** check box.
7. Click **OK,** and then save the message channel.

Creating the Queue on PeopleTools 8.48 To create the queue on PeopleTools 8.48:

1. In the PeopleSoft Internet Architecture window, expand **People Tools**, **Integration Broker**, and **Integration Setup**, and then click **Queue**.
2. On the Add a New Value tab, enter the queue name, for example, `PSFT_UM_QUEUE`, and then click **Add**.
3. On the Queue Definition tab, select the **archive** check box.
4. Select **Run** from the **Queue Status** list.
5. Click **Save** to save the changes.

Creating the Message

The procedure to create a message varies depending on the version of the PeopleTools that you are using:

- Creating the Message on PeopleTools 8.22
- Creating the Message on PeopleTools 8.45 Through 8.47
- Creating the Message on PeopleTools 8.48

Creating the Message on PeopleTools 8.22 To create the message on PeopleTools 8.22:

1. Click **Start**, **Programs**, and **Application Designer**. The Application Designer window is displayed.
2. Select **New** from the **File** menu.
3. In the New Definition dialog box, select **Message** from the list, and then click **OK**.
4. Select **Object Properties** from the **File** menu.
5. In the Message Properties dialog box, click the **Use** tab.
6. On the Use tab, select the **USR_MGMT_CH** message channel from the list and then select the version of the message that you create from the Version list. By doing this, you associate the message with the message channel created in the "Creating the Message Channel on PeopleTools 8.22" section on page 3-5.
7. Select **Active** to make the message an active message, and then click **OK**.
8. Right-click **VERSION_1**, and select the **Insert Child Record** option.
9. In the Insert Record window, enter `PSOPRDEFN` in the **Name** field, click **Insert**, and then click **Close**.

Note: PSOPRDEFN is a record defined in the *OIM_HOME*/xellerate/test/cbrecon/USR_MGMT_MSG.xml file. Refer to this file for information about the fields that comprise the PSOPRDEFN record.

10. Click **PSOPRDEFN** under **VERSION_1**. All the fields that constitute the PSOPRDEFN records are displayed.

    By default, all the fields are selected. Deselect the check boxes for the fields that are not required for the message XML file to be generated.

    For the USR_MGMT_MSG message, deselect the following fields from the PSOPRDEFN record:

    - VERSION
    - CLASSCOUNT
    - OPERPSWD
    - ENCRYPTED
    - LASTPSWDCHAN
    - ACCTLOCK
    - LASTUPDDTTM
    - LASTUPDOPRID
    - FAILEDLOGINS

    Note: Do not delete the fields from the PSOPRDEFN record. You just need to deselect the check boxes for the fields in the message definition.

11. Repeat Steps 8 through 10 for the PSROLEUSER_VW record. Deselect the following fields for this record:

    - OPRID
    - DYNAMIC_SW

    Note: PSROLEUSER_VW is the second record defined in the *OIM_HOME*/xellerate/test/cbrecon/USR_MGMT_MSG.xml file.

12. Save the message as USR_MGMT_MSG.

Creating the Message on PeopleTools 8.45 Through 8.47 To create the message on PeopleTools 8.45 Through 8.47:

1. Click **Start**, **Programs**, and **Application Designer**. The Application Designer window is displayed.
2. Select **New** from the **File** menu.

Note: To run the Application Designer in 2-tier mode, you must have the database client, which is the client of the database that PeopleSoft is using, installed on the server. In addition, you must select the appropriate database type from the **Connection Type** field (for example, Oracle Database) while providing sign-on information in the PeopleSoft Application Designer Signon window.

3. In the New Definition dialog box, select **Message** from the list and then click **OK.**
4. Select **Object Properties** from the **File** menu. The Message Properties dialog box is displayed.
5. In the Message Properties dialog box, click the **Use** tab.
6. On the Use tab, select the **USR_MGMT_CH** message channel and the version of the message that you create in Step 2 of this procedure. By doing this, you associate the message with the message channel created in the "Creating the Message Channel on PeopleTools 8.45 Through 8.47" section on page 3-6.
7. Select **Active** to make the message an active message and then click **OK** to close the dialog box.
8. Save the message as `USR_MGMT_MSG`.

   You can also save this message with a name of your choice. If you do so, then you must make the same change in the code that you copy from the `UserMgmtCBRecon_8.45-8.47.txt` file while performing the procedure described in the "Publishing the Message" section on page 3-8.

Creating the Message on PeopleTools 8.48 To create the message on PeopleTools 8.48:

1. In the PeopleSoft Internet Architecture window, expand **People Tools**, **Integration Broker**, and **Integration Setup**, and then click **Message**.
2. On the Add a New Value tab, enter the message name, for example, `USR_MGMT_MSG`. In addition, enter the version in the **Version** field. The valid values for this field are `version_1` or `v1`.
3. Click **Add**.
4. On the Message Definition tab, select **Nonrowset-based** as the message type.
5. Click **Save** to save the changes.

Publishing the Message

To publish the message on PeopleTools 8.22 through 8.48:

1. Click **Start**, **Programs**, **Peoplesoft8.x**, and then **Application Designer**. The Application Designer window is displayed in 2-tier mode.

   Note: To run the Application Designer in 2-tier mode, you must have the database client, which is the client of the database that PeopleSoft is using, installed on the server. In addition, you must select the appropriate database type from the **Connection Type** field (for example, Oracle Database) while providing sign-on information in the PeopleSoft Application Designer Signon window.

2. Select **Open** from the **File** menu. The Open Definition dialog box is displayed.

3. Select **Component** from the **Definition** list, enter `USERMAINT` in the **Name Selection Criteria** field, and then click **Enter**. All component names starting with the text `USERMAINT` are displayed.
4. Select **USERMAINT** from the list, and then click **Open**. The details of the `USERMAINT` component are displayed.
5. Click the **Structure** tab, right-click **USERMAINT**, and then select **View PeopleCode**. The PeopleCode for the `USERMAINT` component is displayed.
6. Select the `SavePostChange` event from the list in the upper-right corner of the window. The PeopleCode for this event is displayed.
7. Copy the code given in the following file immediately after the import definitions in the PeopleCode for the `SavePostChange` event:

   For PeopleTools 8.22:

   OIM_HOME/xellerate/Scripts/UserMgmtCBRecon.txt

   For PeopleTools 8.45 through 8.47:

   OIM_HOME/xellerate/Scripts/UserMgmtCBRecon_8.45-8.47.txt

   For PeopleTools 8.48:

   OIM_HOME/xellerate/Scripts/UserMgmtCBRecon_8.48.txt

   Note: While creating the message by following the procedures described in the "Creating the Message" section on page 3-6, if you change the name of the message to something other than `USR_MGMT_MSG`, then you must use the same name in the code that you copy.

8. If you are using PeopleTools 8.22, then select **Save** from the **File** menu to save the changes to the `USERMAINT` component.

   If you are using PeopleTools 8.45 through 8.48, then:

   a. Add the following function call at the end of the PeopleCode for the `SavePostChange` event:

      Note: Perform this step only after you copy the code from the text file.

```
/*********************************************************************/
/* Calling the GENERATEUSER function to generate the
USR_MGMT_MSG message*/
/*********************************************************************/
If Len(%CompIntfcName) = 0 Then
Local string &OPID;
&OPID = PSOPRDEFN.OPRID;
&s_ipadd = %Request.ServerName;
&n_port = %Request.ServerPort;
GENERATEUSR(&OPID);
End-If;
```

   b. Select **Save** from the **File** menu to save the changes to the `USERMAINT` component.

Configuring PeopleSoft Integration Broker

The procedure to configure PeopleSoft Integration Broker depends on the release of PeopleTools that you are using.

> **Note:** While configuring PeopleSoft Integration Broker, you perform some of the procedures in PeopleSoft Internet Architecture and some in the Application Designer. For example, for PeopleTools 8.22 and PeopleTools 8.45 through 8.47, some of the configuration steps must be performed in PeopleSoft Internet Architecture and some in the Application Designer. For PeopleTools 8.48, all of the configuration steps must be performed in PeopleSoft Internet Architecture.

The following section explains the procedure to configure PeopleSoft Integration Broker on PeopleTools 8.22:

- Configuring PeopleSoft Integration Broker on PeopleTools 8.22

The following sections explain the procedures to configure PeopleSoft Integration Broker on PeopleTools 8.45 through 8.47 and PeopleTools 8.48:

- Configuring PeopleSoft Integration Broker Gateway on PeopleTools 8.45 Through 8.48
- Configuring PeopleSoft Integration Broker on PeopleTools 8.45 Through 8.47
- Configuring PeopleSoft Integration Broker on PeopleTools 8.48

Configuring PeopleSoft Integration Broker on PeopleTools 8.22 To configure PeopleSoft Integration Broker on PeopleTools 8.22:

> **Note:** Configuring the PeopleSoft Integration Broker gateway is a part of the procedure to configure the PeopleSoft Integration Broker on PeopleTools 8.22.

1. To create the `USR_MGMT_NODE` remote node:
   a. In the Application Designer, select **New** from the **File** menu.
   b. In the New Definition dialog box, select **Message Node** from the list, and then click **OK**.
   c. Right-click anywhere in the white space, and then select **Insert Location**. The Location dialog box is displayed.
   d. Enter the URL for the PeopleSoft Integration Broker gateway in the following format:

      `http://hostname:port/servlets/gateway`

      In this URL, *`hostname`* is the application server that hosts PeopleSoft and *`port`* is the port number at which the application server is listening.
   e. Select **Object Properties** from the **File** menu.
   f. In the Message Node Properties dialog box, select the **Use** tab. Ensure that **Local Node** is not selected.
   g. Save the remote node as `USR_MGMT_NODE`.
2. To configure the `USR_MGMT_MSGCH` message channel:

a. From the **File** menu, select **Open** and then click **Message Channel**.

b. To open the `USR_MGMT_MSGCH` message channel, select **USR_MGMT_MSGCH**.

c. Click the **Routing Rules** tab.

d. Right-click anywhere in the white space, and then select **Insert Message Node**.

e. In the Insert Message Node dialog box, select the **USR_MGMT_NODE** message node, and then click **Insert**.

f. Close the dialog box.

g. Right-click the message node displayed on the Routing Rules tab.

h. Point to **Routing Direction**, and then select **Publish To**.

i. Save the message channel.

3. To configure the PeopleSoft Integration Broker gateway so that messages can be sent through the gateway to Oracle Identity Manager:

Note: The Simple File Handler mentioned in this procedure is a utility in PeopleTools 8.22 that can receive messages published by a PeopleSoft node and write these messages to a file that can be used by third-party systems.

---

a. In a Web browser, use a URL with the following format to open the Handler Directory page (configuration window for the PeopleSoft Integration Broker gateway):

`http://`*`hostname`*`:`*`port`*`/servlets/gateway.administration`

In this URL, *`hostname`* is the application server that hosts PeopleSoft and *`port`* is the port number at which the application server is listening.

b. Click **Add Handler**.

c. On the Add Handler page, enter the full name of the Simple File Handler class, `psft.pt8.filehandler.SimpleFileHandler`.

d. Click **Save**.

e. To load the handler, on the Handler Directory page, click **Load**.

After the handler is loaded, the "Loaded successfully" message is displayed in the Status column.

f. Click **Configure**.

g. Click **Add a file handler node**.

h. In the **Node Name** field on the Add File Handler Node page, enter the name of the message node that you create, `USR_MGMT_NODE`.

i. Specify the output directory in which the published messages are to be stored.

j. Select **Include Header**.

k. Click **Save**.

4. XML messages are generated by the PeopleTools 8.22 Simple File Handler. To publish these messages to the connector, create a Microsoft Windows scheduled

task as follows. You must create the scheduled task on the computer on which the PeopleSoft Web server is running.

Note: The Microsoft Windows scheduled task calls a Java program that communicates with a servlet deployed on the Oracle Identity Manager server. The servlet parses the message and sends reconciliation events to Oracle Identity Manager.

The servlet sends a return code based on the status of the reconciliation event. If the reconciliation event is successfully sent, then the message file is deleted or archived. Otherwise, the message file is left unchanged. The next time the scheduled task is run, another attempt is made to send the message.

---

a. Copy the `xliMsgPublisher.jar` and `publish.bat` files from the *`OIM_HOME`*`/xellerate/lib/MsgPublisher` directory to a directory on the PeopleSoft Enterprise Applications server.

b. Use a text editor to open the `publish.bat` file, and then make the following changes in the file:

i. Change the value of the *`JAVA_HOME`* variable so that it points to the JDK installation directory on the computer on which the PeopleSoft Web server is running.

ii. Specify the following values in the Java command given at the end of the file:

- `PeopleSoft_listener_servlet_URL`: This is the URL of the servlet that listens for reconciliation events generated using PeopleSoft Application Messaging.

- `Output_directory_for_XML_messages`: This is the PeopleSoft Web server directory in which you want published messages to be stored. You have already specified the output directory while performing Step 3.i of this procedure.

- `XML_message_name`: This is the message name created while configuring the target system. Refer to the "Creating the Message" section on page 3-6 for more information.

- `console_log_file_path`: This is the full path and the name of the directory in which the log file must be generated.

The command is in the following format:

```
java com.thortech.xl.Integration.msgpublisher.PeopleSoftPublisher
"PeopleSoft_listener_servlet_URL" "Output_directory_for_XML_messages"
XML_message_name >> console_log_file_path
```

For example:

```
java com.thortech.xl.Integration.msgpublisher.PeopleSoftPublisher
"http://hostname:port/peopleSoftUserMgmt/do/peopleSoftAction"
"C:/test/file" PSFT_XELLERATE_MSG >> c:/test/consolelog.log
```

In the PeopleSoft listener servlet URL specified in this example, *`hostname`* is the IP address or host name of the application server on which Oracle Identity Manager is running and *`port`* is the HTTP port at which the application server listens for incoming messages.

c. Save and close the batch file.

d. On the computer on which the PeopleSoft Web server is running, click **Start**, **Settings**, and **Control Open**.

e. Double-click **Scheduled Tasks**.

f. Click **Add Schedule Task**, and then click **Next**.

g. Click **Browse**, and then select the `publish.bat` file from the directory in which you save it.

h. Select **Daily**, click **Next**, and then click **Next** again.

i. Enter the user ID and password for the scheduled task to run.

j. Select **Open Advance properties**.

k. Click **Finish**.

l. On the Schedule tab, click **Advanced**.

m. Select **Repeat Task**.

n. Select the frequency at which you want the task to run.

o. Click **OK**, and then click **OK** again to close the window.

Configuring PeopleSoft Integration Broker Gateway on PeopleTools 8.45 Through 8.48 To configure the PeopleSoft Integration Broker gateway on PeopleTools 8.45 through 8.48:

1. Open a Web browser and enter the URL for PeopleSoft Internet Architecture.

   The URL for PeopleSoft Internet Architecture is in the following format:

   `http://`*`servername`*`/psp/ps/`*`Databasename`*`/?cmd=login`

   For example:

   `http://psftserver.example.com/psp//ps/TestDB/?cmd=login`

2. To display the Gateway component details, expand **PeopleTools, Integration Broker, Configuration,** and then **Gateways**. The Gateway component details are displayed.

3. Enter `LOCAL` in the **Integration Gateway ID** field, and then click **Search.** The `LOCAL` gateway is a default gateway that is created when you install PeopleSoft Internet Architecture.

4. Ensure that the IP address specified in the URL of the PeopleSoft listening connector is the IP address of the computer on which PeopleSoft Enterprise Applications is installed. The URL of the PeopleSoft listening connector is in the following format:

   `http://`*`computer_name_of_the_PeopleSoft_Web_server/IP_address`*`:`*`port`*`/PSIGW/PeopleSoftListeningConnector`

   For example:

   `http://10.121.16.42:80/PSIGW/PeopleSoftListeningConnector`

5. To load all target connectors that are registered with the `LOCAL` gateway, click **Load Gateway Connectors**.

6. Click **Save**.

7. Click **Ping Gateway** to check if the gateway component is active.

Configuring PeopleSoft Integration Broker on PeopleTools 8.45 Through 8.47 To configure PeopleSoft Integration Broker on PeopleTools 8.45 through 8.47:

To create the `USR_MGMT_NODE` node to serve as the remote node:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and **Node Definitions**.
2. Click the **Add a New Value** tab.
3. On the Add a New Value tab, enter `USR_MGMT_NODE` as the node name and then click **Add**.
4. On the Node Definition tab, enter a description for the node in the **Description** field.
5. Make this node a remote node by deselecting the **Local Node** check box and selecting the **Active Node** check box.
6. On the Connectors tab, enter the following information and then perform a lookup:

   Gateway ID: **LOCAL**

   Connector ID: **HTTPTARGET**
7. On the Properties subpage in the **Connectors** tab, enter the following information:

   Property ID: **HTTPTARGET**

   Property Name: **URL**

   Required value: Enter the URL of the PeopleSoft servlet that is supposed to receive the XML message. This URL must be in the following format:

   `http:/`*`computer_name_of_the_Oracle_Identity_Manager_server/IP_address`*`:`*`port`*`/peopleSoftUserMgmt/do/peopleSoftAction`

   For example:

   `http://10.121.16.42:8080/peopleSoftUserMgmt/do/peopleSoftAction`
8. Click **Ping Node** to check if a connection is established with the specified IP address.
9. On the **Transactions** tab, click **Add Transaction.** The Add Transaction dialog box is displayed.
10. Enter the following details to define a new transaction:

    Transaction Type: `Outbound Asynchronous`

    Request Message: `USR_MGMT_MSG`

    Request Message Version: `VERSION_1`
11. Click **Add.**
12. To keep the status as active, select **Active.**
13. Click **Save** to save the changes.

To secure the `USR_MGMT_MSGCH` message channel:

1. In PeopleSoft Internet Architecture, expand **PeopleTools**, **Security**, **Permission & Roles**, and **Permission Lists**.
2. Select **AEAE1000**. The AEAE1000 permission list is displayed.

3. Select the **Message Monitor** tab, and then click the plus sign (+) to add a channel name**.**
4. Specify `USR_MGMT_MSGCH` as the channel name, and select **FULL** as the access level.
5. Click **Save.**

To verify that the `USR_MGMT_MSGCH` message channel is in running mode:

1. Expand **PeopleTools, Integration Broker, Monitor Integration,** and **Monitor Message.**
2. Click the **Channel Status** tab.
3. Verify that the `USR_MGMT_MSGCH` message channel is running. If it is paused, then click **Run.**

Configuring PeopleSoft Integration Broker on PeopleTools 8.48 To configure PeopleSoft Integration Broker on PeopleTools 8.48:

1. Create a remote node by performing the following steps:
   a. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Nodes**.
   b. On the Add a New Value tab, enter the node name, for example, `USR_MGMT_NODE`, and then click **Add**.
   c. On the Node Definition tab, enter a description for the node in the **Description** field. In addition, enter `PS` in the **Default User ID** field.
   d. Make this node a remote node by deselecting the **Local Node** check box and selecting the **Active Node** check box.
   e. On the **Connectors** tab, enter the following information:

      Gateway ID: **LOCAL**

      Connector ID: **HTTPTARGET**
   f. Click **Ping Node** to check if a connection is established with the specified IP address.
   g. On the **Properties** subpage in the Connectors tab, enter the following information:

      Property ID: **PRIMARYURL**

      Property Name: **URL**

      Required value: Enter the URL of the PeopleSoft servlet that is supposed to receive the XML message. This URL must be in the following format:

      `http://`*`computer_name_of_OIM_server/IP address:port`*`/peopleSoftUserMgmt/do/peopleSoftAction`

      For example:

      `http://10.121.16.42:8080/peopleSoftUserMgmt/do/peopleSoftAction`
   h. Click **Save** to save the changes.
2. Create a service by performing the following steps:
   a. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service**.

b. On the Add a New Value tab, enter the service name, for example, PSFT_UM_SERVICE, and then click **Add**.

c. On the Service Definition tab, enter a description for the service in the **Description** field.

d. Click **Save** to save the changes.

3. Create a service operation by performing the following steps:

a. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operation**.

b. On the Add a New Value tab, enter the service name for which you are creating the service operation. In addition, enter the service operation name. The name of the service operation must be the same as that of the message you created in Step 2 of the "Creating the Message on PeopleTools 8.48" section on page 3-8, for example, USR_MGMT_MSG.

c. From the **Operation type** list, select **Asynchronous-Oneway**, and then click **Add**.

d. On the General tab of the Service Operation Definition page, enter a description for the Operation type in the **Operation Description** field. In addition, enter USR_MGMT_MSG.V1 in the **Message.Version** field and PSFT_UM_QUEUE in the **Queue Name** field.

e. Click **Save** to save the changes.

f. On the Routing tab, enter PSFT_UM_ROUTING as the routing name and then click **Add**.

g. On the Routing Definition tab, enter PSFT_HR in the **Sender Node** field and PSFT_UM_NODE in the **Receiver Node** field.

Note: PSFT_HR is the default local node for PeopleSoft HCM applications. If you are using other PeopleSoft applications, verify the default local node by using the procedure described in Step 1a. For example, if you are using PeopleSoft CRM applications, then the default local node is PSFT_CR.

---

h. Click **Save** to save the changes.

Before the XML messages are sent from the target system to Oracle Identity Manager, you must verify if the PeopleSoft node is running. You can do so by clicking the **Ping Node** button in the **Connectors** tab. To access the Connectors tab, click **PeopleTools**, **Integration Broker**, and then **Nodes**.

If the Oracle Identity Manager server is not running when a message is published, then the message is added to a queue. You can check the status of the message in the queue in the **Message Instance** tab. This tab lists all the published messages in queue. When you check the details of the particular message, you will find the status listed as Timeout or Error.

To publish a message in the queue to Oracle Identity Manager, resubmit the message when Oracle Identity Manager is running. See "Publishing the Message" on page 3-8 for more information.

If the status of the message is New or Started and it does not change to Timeout or Done, then you must restart the PeopleSoft application server after you restart the Oracle Identity Manager server.

Configuring the Target System for Provisioning

To configure the target system for provisioning, create the APIs for the component interface as follows:

1. To open the Application Designer, click **Start** and then select **Programs, Peoplesoft8.*x***, and **Application Designer**.
2. On the Application Designer page, select **Open** from the **File** menu.
3. In the Open Definition dialog box, select **Component Interface** from the **Definition** list.
4. Enter `USER_PROFILE` in the **Name** field, and then press **Enter.**

   All the component interfaces with names that start with `USER_PROFILE` are displayed in the Open Definition dialog box.
5. Select the **USER_PROFILE** entry, and then click **Open.**
6. Click **Yes** in the message that is displayed. The properties of the `USER_PROFILE` component interface are displayed.
7. In the window for the `USER_PROFILE` component interface, select **PeopleSoft APIs** from the **Build** menu. The Build PeopleSoft API Bindings dialog box is displayed.
8. In the Java Classes region, select **Build**.
9. From the **Select APIs to Build** list, select **CompIntfc.CompIntfcPropertyInfo**, **CompIntfc.CompIntfcPropertyInfoCollection**, and the APIs with names that start with **CompIntfc.USER_PROFILE**.
10. In the **Target Directory** field, specify the path of the directory in which you want the Java API classes to be created, and then click **OK.**
11. Ensure that the `psjoa.jar` file is set in the `CLASSPATH` environment variable. This file is in the *`PEOPLESOFT_HOME`*`/PT8xx/web/PSJOA` directory.
12. Compile the APIs from the target directory specified in the preceding step.
13. Bundle the compiled class files in a JAR named `peoplesoft.jar` as follows:

```
jar -cvf peoplesoft.jar PeopleSoft/Generated/CompIntfc/*.class
```

Note: The `Unable to access pstools.properties` message might be recorded in the server log during the provisioning operation. You can ignore this message.

Configuring Oracle Identity Manager

This section discusses the following topics:

- Configuring Reconciliation
- Configuring Provisioning

Configuring Reconciliation

As mentioned earlier in this guide, reconciliation involves duplicating in Oracle Identity Manager new and modified user account information from PeopleSoft Enterprise Applications.

You can perform reconciliation in two modes: target resource and trusted source. Regardless of whether you configure target resource or trusted source reconciliation, you can configure full or incremental reconciliation for this connector by performing the procedures described in the following topics:

- Configuring Full Reconciliation
- Configuring Incremental Reconciliation

Perform the procedure described in the following section only if you want to configure trusted source reconciliation:

- Configuring Trusted Source Reconciliation

Configuring Full Reconciliation

This section discusses the following topics:

- Configuring the Reconciliation Scheduled Tasks
- Configuring the IndexOfLastReconciledRecord Parameter
- Adding Custom Attributes for Full Reconciliation
- Limited Reconciliation

Configuring the Reconciliation Scheduled Tasks

When you perform the procedure described in the "Step 4: Importing the Connector XML File" section on page 2-7, the scheduled tasks for lookup fields, trusted source, and target resource reconciliations are automatically created in Oracle Identity Manager. To perform a full reconciliation run, you must configure the scheduled task to reconcile the users in Oracle Identity Manager depending on the values that the user has specified in the scheduled task attributes.

Note: You can perform a full reconciliation run at any future date or time for the following specified intervals:

- Daily
- Weekly
- Monthly
- Yearly
- Recurring intervals

Alternatively, you can configure a scheduled task attribute to run once on the specified date and time.

To specify values for the attributes of the scheduled task, perform the following:

1. Open the Oracle Identity Manager Design Console.
2. Expand the **Xellerate Administration** folder.
3. Select **Task Scheduler**.
4. Click **Find**. The details of the predefined scheduled tasks are displayed on two different tabs. Select:
   - `PSFT Base Non Trusted User Reconciliation` for target resource reconciliation

- `PSFT Base Trusted User Reconciliation` for trusted source reconciliation

5. Enter a number in the **Max Retries** field. This number represents the number of times Oracle Identity Manager must attempt to complete the task before assigning the `FAILED` status to the task.
6. Ensure that the **Disabled** and **Stop Execution** check boxes are not selected.
7. In the Start region, double-click the **Start Time** field. From the date-time editor that is displayed, select the date and time at which you want the task to run.
8. To set the task to run only once, select the **Once** option in the Interval region.
9. Provide values for the attributes of the scheduled task. Refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-19 for information about the values to be specified.
10. Click **Save**. The scheduled task is configured. The `INACTIVE` status is displayed in the **Status** field, because the task is not currently running. The task is run at the date and time that you specify in Step 7.

Specifying Values for the Scheduled Task Attributes

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

Lookup Fields Reconciliation Scheduled Task

You must specify values for the following attributes of the `PSFT Base LookUp Reconciliation` scheduled task:

Note:

- Default attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description
`ServerName`	Name of the IT resource Default value: `PSFT Base Server`
`LookupType`	The type of data that is being looked up in the target system. The value can be any one of the following: ▪ `EmployeeId` ▪ `LanguageCode` ▪ `EmailTypes` ▪ `CurrencyCode` ▪ `PermissionList` ▪ `Roles`

Attribute	Description
FilePath	Directory path on the Oracle Identity Manager server where the reconciliation lookup .txt file is stored Sample value: C:/PSFTBase/LookupRecon/EmployeeIds.txt
LookupName	Name of the lookup definition configured in Oracle Identity Manager The value can be any one of the following: ■ Lookup.PSFTBase.EmployeeId ■ Lookup.PSFTBase.LanguageCode ■ Lookup.PSFTBase.EmailType ■ Lookup.PSFTBase.CurrencyCode ■ Lookup.PSFTBase.PermissionList ■ Lookup.PSFTBase.Roles
TargetSystem	Name of the resource object Default value: PSFTBase

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

User Reconciliation Scheduled Task

Depending on whether you want to implement target resource or trusted source reconciliation, you must specify values for the attributes of the user reconciliation scheduled tasks. The following table describes the attributes of the scheduled tasks.

Note:

- You must specify values for either the target resource reconciliation scheduled task (PSFT Base Non Trusted User Reconciliation) or the trusted source reconciliation scheduled task (PSFT Base Trusted User Reconciliation). Do **not** specify values for the attributes of both scheduled tasks.
- Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.
- Values (either default or user-defined) must be assigned to all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.

Attribute	Description
MultiValueSeperator	## is the multivalue separator in the flat file that is used for full reconciliation
ServerName	Name of the IT resource Default value: PSFT Base Server

Attribute	Description
IsTrusted	Specifies whether or not reconciliation is to be carried out in trusted mode Specify Yes for trusted source reconciliation. Specify No for target resource reconciliation.
XellerateOrganization	Default name of the Oracle Identity Manager organization is Xellerate Users This value is used to create OIM User in trusted mode. **Note:** This attribute is specific to the scheduled task for trusted source reconciliation.
FolderPath	Directory path on the Oracle Identity Manager server where the comma-separated flat file is stored **Note**: The folder path must contain only the flat file that is generated when you run the application engine, because the Task Scheduler searches for text files.
TargetSystem	Name of the resource object Default value: PSFTBase
NoOfRecordsToBeReconciled	Specifies the number of records to be reconciled You must enter any integer value greater than zero. Refer to the "Specifying the Number of Records to Be Reconciled" section on page 3-22 for more information about this attribute. Default value: All
Operator	Specifies the operator that you want to apply to the target system attributes for which you specify a value other than nodata This operator value can be AND or OR based on which the data is joined accordingly for any combination of the following fields: Lastname, Postal, DeptId. During reconciliation, only those target system records that contain the specified combination of the Lastname, Postal, and DeptId fields are reconciled. **Note:** This attribute is specific to the scheduled task for trusted source reconciliation Default value: NODATA
UserID	This is a filter attribute. Use this attribute to specify the login ID of the user whose records you want to reconcile. Default value: NODATA
UserType	This is a filter attribute. Use this attribute to specify the user type for which you want to reconcile records. If you do not want to use this attribute, then specify NODATA. Sample values: Customer, Person, Supplier **Note:** This attribute is specific to the scheduled task for trusted source reconciliation Default value: NODATA

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

Specifying the Number of Records to Be Reconciled

During a reconciliation run, all changes in the target system records are reconciled into Oracle Identity Manager. 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 specify the number of records to be reconciled. To do this, you use the `NoOfRecordsToBeReconciled` scheduled task attribute.

You specify a value for the `NoOfRecordsToBeReconciled` attribute by following the instructions described in the "Specifying Values for the Scheduled Task Attributes" section on page 3-19.

Configuring the IndexOfLastReconciledRecord Parameter

You specify a value for the `IndexOfLastReconciledRecord` IT resource parameter when you want to perform full reconciliation. At the start of the first full reconciliation run, the value of this parameter is `-1`. At the end of each subsequent full reconciliation run, this parameter stores the index number of the last record reconciled during the previous reconciliation run.

Whenever you want to perform a full reconciliation run, change the value of the `IndexOfLastReconciledRecord` parameter to `-1`. To change the value of this parameter:

1. Log in to the Oracle Identity Manager Design Console.
2. Expand **Resource Management**.
3. Double-click **IT Resources**.
4. Locate the **PSFT Base Server** IT resource.
5. Change the value of the `IndexOfLastReconciledRecord` parameter to -1.

Adding Custom Attributes for Full Reconciliation

To add custom attributes for full reconciliation:

Note: The procedure described in this section is the same for all certified versions of PeopleTools. If you do not want to add custom attributes for full reconciliation, then you can skip this section.

---

1. In PeopleSoft Application Designer:

Note: Step 1 is mandatory if you are using PeopleTools 8.22.

---

   a. Select **Open** from the **File** menu. The Open Definition dialog box is displayed.

   b. Select **Message** from the **Definition** list, enter `USR_MGMT_MSG` in the **Name Selection Criteria** field, and then click **Enter**. The details of the `USR_MGMT_MSG` message are displayed.

   c. Click the record to which you want to add custom attributes.

      For example, if you want to add the Account lock attribute, `ACCTLOCK` in the `PSOPRDEFN` record, then click **PSOPRDEFN** under **VERSION_1**.

   d. Select the check box for the required attribute, and then save the message.

For example, select the **ACCTLOCK** check box.

2. Modify the header and the queries written in the application engine code (BLKPRCS_UM). For example, if you want to reconcile a new column with the name ACCTLOCK, then make the following changes in the application engine code:

```
Local String &acctlock

&hdr =
"OPRID,OPRDEFNDESC,ALIAS,EMPLID,PRIEMAILID,LANGUAGE_CD,MULTILANG,CURRENCY_CD,OP
RCLASS,ROWSECCLASS,PRCSPRFLCLS,DEFAULTNAVHP,ROLES,EMAILIDS,USERTYPE, ACCTLOCK";
```

If the ACCTLOCK column exists in the PSOPRDEFN table, the SQL statement will be:

```
SQLExec("select ACCTLOCK from PSOPRDEFN where oprid =:1 ", &oprid, &acctlock);
   &data_row = &oprid | "," | &desc | "," | &alias | "," | &empid | "," |
&email | "," | &lng_cd | "," | &multilang | "," | &currency | "," | &oprclass |
"," | &rowsec | "," | &prcsprf | "," | &navhp | "," | &roles | "," | &othmail |
"," | &type|" , "|&acctlock;
```

3. Open the process form located in the **Development Tools** folder of the Oracle Identity Manage Design Console.

   See Also: *Oracle Identity Manager Design Console* for more information about this step and the remaining steps of this procedure

4. Click **Create New Version**.
5. In the Create a New Version dialog box, specify the version name in the **Label** field. Save the changes, and then close the dialog box.
6. From the **Current Version** list, select the newly created version.
7. On the Additional Columns tab, click **Add**. Add a column corresponding to the new attribute in the User Defined process form, UD_PSFT_BAS. For the example described earlier, you can add the UD_PSFT_ACCTLOCK column.
8. Add a reconciliation field corresponding to the new attribute in the resource object, PSFTBase. For the example described earlier, you can add the Users.ACCTLOCK reconciliation field.
9. Modify the UD_PSFT_BAS process definition to include the mapping between the newly added attribute and the corresponding reconciliation field. For the example described earlier, the mapping is as follows:

```
Users.ACCTLOCK=UD_PSFT_ACCTLOCK
```

In this example, ACCTLOCK is the reconciliation field and also the equivalent target system attribute. As a standard, the prefix "Users." is added at the start of all reconciliation field names.

Limited Reconciliation

By default, all target system records that are added or modified after the previous reconciliation run are reconciled during the current reconciliation run. You can customize the reconciliation process by specifying the subset of newly added or modified records that must be reconciled. You implement this form of **limited reconciliation** by creating **customized queries** for reconciliation. You do this by creating filters for the reconciliation module.

For Target Resource Reconciliation:

Creating a filter involves specifying a value for the UserID scheduled task attribute, which will be used in the SELECT query criteria to retrieve the records to be reconciled.

For instructions to specify values for the UserID scheduled task attribute, refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-19.

For Trusted Source Reconciliation:

Creating a filter involves specifying values for the UserID, UserType, and the Operator scheduled task attributes, which will be used in the SELECT query criteria to retrieve the records to be reconciled.

For instructions to specify values for the UserID, UserType, and Operator scheduled task attributes, refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-19.

Configuring Incremental Reconciliation

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

This section discusses the following topics:

- Configuring the PeopleSoft Listener
- Encrypting a New Oracle Identity Manager Password
- Adding Custom Attributes for Incremental Reconciliation
- Limited Reconciliation

Configuring the PeopleSoft Listener This section describes how to configure the PeopleSoft listener. In the following procedure, *OIM_HOME* refers to the local Oracle Identity Manager installation directory.

To configure the PeopleSoft Listener:

1. Copy the *OIM_HOME*/cbrecon_webapp/lib/peopleSoftUserMgmt.war file into a temporary directory. Enter the following command in the command window to extract the contents of the peopleSoftUserMgmt.war file.

   ```
   jar -xvf  peopleSoftUserMgmt.war
   ```

   Note: All the files mentioned in the remaining steps of this procedure are extracted from the peopleSoftUserMgmt.war file.

2. Edit the deployment.properties file. This file contains the message property that corresponds to the name of the XML message sent by PeopleSoft. The default value of this attribute is USR_MGMT_MSG. Obtain the actual value for this attribute from the PeopleSoft administrator, and replace the value in this file with the actual value.
3. If you are using PeopleTools 8.22, then you must modify the PSFTBase.Roles property in the attributemap.properties file as follows:

Note: In the `attributemap.properties` file, the key part of each line is the text to the left of the equal (=) sign. You must ensure that the key part of the lines does not contain spaces. For example, `PSFT Base.Roles`, `PSFTBase .Roles`, `PSFTBase. Roles` are all invalid key values because they contain spaces.

a. Search for the following line:

```
PSFTBase.Roles=//Transaction/PSROLEUSER_VW/ROLES
```

b. Replace it with the following line:

```
PSFTBase.Roles=//Transaction/PSROLEUSER_VW/ROLENAME
```

4. Edit the `xlsession.properties` file. This file contains the following Oracle Identity Manager connection parameters:

   - **ObjectName:** This is the name of the resource object in Oracle Identity Manager against which the reconciliation event is created. The default value is `PSFTBase`. For target resource reconciliation, you can change it to the name of any other resource object that you might have created.
   - **Username:** This is the user name for logging in to Oracle Identity Manager. The default value is `xelsysadm`.
   - **Password:** This is the password for logging in to Oracle Identity Manager. You must enter the encrypted value of the password.

     See Also: The "Encrypting a New Oracle Identity Manager Password" section on page 3-29 for information about encrypting a plaintext password

5. Edit the `xlclient.properties` file. This file contains the following system properties that enable an API client to communicate with Oracle Identity Manager:

   - **xl.homedir:** This property specifies the Oracle Identity Manager client directory. Typically, the Oracle Identity Manager client directory is *`OIM_HOME`*`/xlclient`.
   - **java.security.policy:** This property specifies the path of the security policy file. Typically, this file is located in the *`OIM_HOME`*`/xlclient/config` directory.
   - **java.security.auth.login.config:** This property specifies the path of the authentication configuration file. Typically, this file is located in the *`OIM_HOME`*`/xlclient/config` directory.

     Each application server uses a different authentication configuration file:

     IBM WebSphere: `authws.conf`

     BEA WebLogic: `authwl.conf`

     JBoss Application Server: `auth.conf`

     Oracle Application Server: `auth.conf`
   - **java.naming.provider.url:** This property specifies the JNP URL of the application server. This URL is given in the `<Discovery><CoreServer><java.naming.provider.url>` tag of the *`OIM_HOME`*`/xlclient/config/xlconfig.xml` file. Each application server uses a different java.naming.provider.url:

- WebLogic: `t3://host:7001`
- JBoss: `jnp://host:1099`
- WebSphere: `corbaloc:iiop:host:2809`
- Oracle Application Server: `ormi://localhost:12401/Xellerate`

6. Edit the following properties in the `configureReconciliation.properties` file:
   - **reconciliationMode:** This property can accept one of two possible values:
     - If you want to perform trusted source reconciliation, then set this property to `trusted`.
     - If you want to perform target resource reconciliation, then set this property to `ntrusted` (default).
   - **Serverdateformat:** This property specifies the date format that is used by the PeopleSoft server. You can select one of the following date formats:
     - `dd-mmm-yy`
     - `ddmmyy`
     - `yyddmm`
     - `yymmdd`
   - **xellerateOrganization:** This property specifies the name of the Oracle Identity Manager organization. The default value of this parameter is `Xellerate Users`. The value that you assign to this property must exist in Oracle Identity Manager.
   - **nullDate:** This property specifies the default value for a date field. The value is `2200/01/01 00:00:00 PST`. This value is used if the date field is left empty.
   - **PeoplesoftstartingYEAR:** This property specifies the year in two digits. If the number represented by these two digits (*xx*):
     - Is greater than or equal to 50, then it is assumed that the year is 19*xx*.
     - Is less than 50, then it is assumed that the year is 20*xx*.

     This specifies a range of 1950 to 2049 for the property.
   - **XelServerDate:** This property contains the date format that is used for the Oracle Identity Manager server.

     Sample value: `yyyy/mm/dd hh:MM:ss z`

     Note: You must not change this date format.

   - **Filter**: This property edits the value for filters, for example, `OPRIDLIKE` and `UserType` as required. The default value of this property is `NO DATA`. These values are used to configure incremental reconciliation.
7. Copy the following files from the *`OIM_HOME`*`/xellerate/lib` directory to the `WEB-INF/lib` directory:

Note: Before you copy these files from the *OIM_HOME*/xellerate/lib directory, check if these files exist in the WEB-INF/lib directory. If these files exist, then delete them from the WEB-INF/lib directory before copying from the *OIM_HOME*/xellerate/lib directory.

- xlAPI.jar
- xlAuthentication.jar
- xlBackOfficeBeans.jar
- xlBackofficeClient.jar
- xlCache.jar
- xlCrypto.jar
- xlDataObjectBeans.jar (for IBM WebSphere Application Server, copy this file from the *OIM_CLIENT*/xlclient/lib directory)
- xlDataObjects.jar
- xlLogger.jar
- xlUtils.jar
- xlVO.jar
- xlAdapterUtilities.jar

Copy the following files from the *OIM_HOME*/xellerate/ext directory to the WEB-INF/lib directory:

- oscache.jar
- javagroups-all.jar
- commons-collections.jar
- commons-digester.jar
- commons-logging.jar
- commons-validator.jar
- jdbcpool-0.99.jar
- log4j-1.2.8.jar
- struts.jar
- xalan.jar
- xerces.jar
- xercesImpl.jar
- xlRemoteManager.jar
- xlScheduler.jar

Copy the following files from the *OIM_HOME*/xellerate/ThirdParty directory to the WEB-INF/lib directory:

- peoplesoft.jar
- psjoa.jar

See Also: The "Step 2: Copying the Connector Files and External Code Files" section on page 2-2 for information about the `peoplesoft.jar` and `psjoa.jar` files

8. Delete the `peopleSoftUserMgmt.war` file from the temporary directory into which you extract it, and then use the following command to re-create the file:

   ```
   jar -cvf  peopleSoftUserMgmt.war
   ```

9. Ensure that the old version of the `peopleSoftUserMgmt.war` file is removed from the application server (BEA WebLogic, IBM WebSphere, JBoss Application Server, or Oracle Application Server) deployment directory.

10. Deploy the newly created `peopleSoftUserMgmt.war` file in the deployment directory of the application server as follows:

    BEA WebLogic:

    1. Copy the war file to
       BEA_HOME`/user_projects/`*OIM_DOMAIN*`/applications`

       in which:

       BEA_HOME is the BEA WebLogic installed directory.

       OIM_DOMAIN is the domain on which Oracle Identity Manager is installed.

    2. Restart the WebLogic server.

    IBM WebSphere:

    1. Log in to the WebSphere Admin console using a valid username and password.
    2. Expand the **Applications** node.
    3. Click **Install New Application**.
    4. Locate the WAR file by using the **Browse** button.
    5. Specify the Context root as **peopleSoftUserMgmt**.
    6. Click **Next**.
    7. Accept the default setting in the next page and click **Next**.
    8. On the Application Security Warnings page, click **Continue**.
    9. Click **Next**.
    10. On the Install New Application page, specify the application name as **peopleSoftUserMgmt**.
    11. Click **Next**.
    12. On the subsequent pages, click **Next** until the Finish button is displayed.
    13. Click **Finish**.
    14. Select the **Save to Master Configuration** link for saving the configurations in Websphere.
    15. Click **Save**.
    16. Click **Enterprise Applications**. On the Enterprise Applications page, the peopleSoftUserMgmt check box is displayed.

17. Select the **peopleSoftUserMgmt** check box and click **Start** to start the application.

JBoss Application Server:

1. Copy the modified war file to the *JBOSS_HOME*\server\default\deploy directory.
2. Restart the JBoss application server.

Oracle Application Server:

1. Log in to the Oracle Application Server using a valid username and password.
2. Select the name of the instance on which the Oracle Identity Manager server is running.
3. Select the **Applications** tab.
4. Click **Deploy**.
5. Select the WAR file by clicking **Browse**.
6. Click **Next**.
7. Specify the application name as **peopleSoftUserMgmt**.
8. Click **Next**.
9. To accept the default deployment settings, click **Deploy**.
10. When the WAR file is successfully deployed, restart Oracle Application Server.

11. Restart Oracle Identity Manager and the Design Console.

Note: You can add custom attributes to be reconciled during incremental reconciliation. However, you must complete the deployment procedure before you can add custom attributes.

Refer to the "Adding Custom Attributes for Incremental Reconciliation" section on page 3-30 for information about the procedure to add custom attributes for reconciliation.

Encrypting a New Oracle Identity Manager Password If the password of the Oracle Identity Manager administrator is different from the default password, then you must encrypt the Oracle Identity Manager password as follows:

Note: The default administrator user ID is `xelsysadm`.

---

1. On the Oracle Identity Manager server, open a command window.
2. In the command window, change to the *OIM_HOME*/xellerate/ScheduleTask directory.
3. Enter the following command:

```
java -classpath PSFTBaseReconciliation .jar  \
Com.thortech.xl.Integration.peoplesoft.util.tcUtilEncryption -e \
OIM_plaintext_password
```

In this command, *OIM_plaintext_password* is the new Oracle Identity Manager administrator password that you want to encrypt.

The encrypted password is displayed in the command window.

4. Copy the encrypted password into the `xlsession.properties` file. This file is compressed in the *OIM_HOME*`/xlclient/lib/peopleSoftUserMgmt.war` file.
5. Delete the `peopleSoftUserMgmt.war` file from the temporary directory where you extracted its contents, and then use the following command to re-create the file:

```
jar -cvf  peopleSoftUserMgmt.war
```

6. Ensure that the old version of the `peopleSoftUserMgmt.war` file is removed from the application server (BEA WebLogic, IBM WebSphere, JBoss Application Server, or Oracle Application Server) deployment directory.
7. Copy the newly created `peopleSoftUserMgmt.war` file into the application server (BEA WebLogic, IBM WebSphere, JBoss Application Server, or Oracle Application Server) deployment directory.
8. Restart Oracle Identity Manager and the Design Console.

Adding Custom Attributes for Incremental Reconciliation

Note: In this section, the term "attribute" refers to the identity data fields that store user data. If you do not want to add custom attributes for incremental reconciliation, then you can skip this section.

Standard incremental reconciliation involves the reconciliation of predefined attributes. If required, you can add custom attributes to the list of fields that are reconciled.

The procedure to add a custom attribute for reconciliation depends on the release of PeopleTools that you are using:

- Adding a Custom Attribute for Incremental Reconciliation on PeopleTools 8.22
- Adding a Custom Attribute for Incremental Reconciliation on PeopleTools 8.45 Through 8.48

Adding a Custom Attribute for Incremental Reconciliation on PeopleTools 8.22

To add a custom attribute for incremental reconciliation on PeopleTools 8.22:

1. In PeopleSoft Application Designer:
   a. Select **Open** from the **File** menu. The Open Definition dialog box is displayed.
   b. Select **Message** from the **Definition** list, enter `USR_MGMT_MSG` in the **Name Selection Criteria** field, and then click Enter. The details of the `USR_MGMT_MSG` message are displayed.
   c. Click the record to which you want to add custom attributes.

      For example, if you want to add the ALTERNATE USER ID attribute, `ROLEUSER_ALT`, then add **PSROLEXLATOPRVW** under **VERSION_1**.
   d. Select the check box for the required attribute, and then save the message.

      For example, select the **ALTERNATE USER ID** check box.
2. Make the required changes in the PeopleCode given in the `UserMgmtCBRecon.txt` file. This file is in the *OIM_HOME*`/xellerate/scripts` directory. The required changes are as follows:

a. At the end of the SQL statements section, edit the SQL statement to retrieve the column values for the new attribute and store the values in local variables.

   For example, suppose you want to add the alternate user id attribute, ALTERNATE USER ID, to the list of attributes that are reconciled. Then, performing this step involves editing the SQL statement as follows, so that it retrieves the values of the ALTERNATE USER ID column from the table:

   ```
   SQLExec("select ROLEUSER_ALT from PSROLEXLATOPRVW a where userid =:1 ",
   &userid,  &roleuser_alt);
   ```

b. Add the required lines at the end of the block of code for adding data to the XML message. For example, to add the ROLEUSER_ALT column to the PSROLEXLATOPRVW tag, add the lines highlighted in bold in the following code sample:

   ```
   /* FOR PSROLEXLATOPRVW RECORD */
   &MSG_RWST.GetRow(1).PSROLEUSER_VW.ROLENAME.Value = &roles;
   &MSG_RWST.GetRow(1).PSOPRALIAS.OPRALIASTYPE.Value = &type;
   &MSG_RWST.GetRow(1).PSROLEXLATOPRVW.ROLEUSER_ALT.Value = &roleuser_alt
   ```

3. To extract the contents of the peopleSoftUserMgmt.war file into a temporary directory, enter the following command:

   ```
   jar -xvf peopleSoftUserMgmt.war
   ```

4. In the attributemap.properties file, add the XPath (key-value entry) of the custom attribute. (The attributemap.properties file is one of the files extracted from the WAR file.) For example, you can add the following XPath for the ALTERNATE USER ID attribute:

   ```
   Users.ROLEUSER_ALT =//Transaction/PSROLEXLATOPRVW/ROLEUSER_ALT
   ```

   Note: In the attributemap.properties file, the key part of each line is the text to the left of the equal (=) sign. You must ensure that the key part of the lines does not contain spaces. For example, Users. ROLEUSER_ALT, Users. ROLEUSER_ALT, Users.ROLEUSER_ALT are all invalid key values because they contain spaces.

5. Delete the existing peopleSoftUserMgmt.war file from the temporary directory into which you extract it, and then enter the following command to re-create the file:

   ```
   jar -cvf peopleSoftUserMgmt.war .
   ```

6. Delete the old version of the peopleSoftUserMgmt.war file from the application server deployment directory.
7. Copy the newly created peopleSoftUserMgmt.war file into the application server deployment directory.
8. In the Oracle Identity Manager Design Console, make the required changes as follows:

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

a. Open the process form located in the **Development Tools** folder of the Oracle Identity Manage Design Console.

b. Click **Create New Version**.

c. In the Create a New Version dialog box, specify the version name in the **Label** field. Save the changes, and then close the dialog box.

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

e. On the Additional Columns tab, click **Add**. Add a column corresponding to the new attribute in the User Defined process form, `UD_PSFT_BAS`. For the example described earlier, you can add the `UD_PSFT_ALT_USER` column.

f. Add a reconciliation field corresponding to the new attribute in the resource object, `PSFTBase`. For the example described earlier, you can add the `Users.ROLEUSER_ALT` reconciliation field.

g. Modify the `PSFTBase` process definition to include the mapping between the newly added attribute and the corresponding reconciliation field. For the example described earlier, the mapping is as follows:

```
Users.ROLEUSER_ALT= UD_PSFT_ALT_USER
```

In this example, `ROLEUSER_ALT` is the reconciliation field and also the equivalent target system attribute. As a standard, the prefix "`Users.`" is added at the start of all reconciliation field names.

9. Restart Oracle Identity Manager and the Design Console.

Adding a Custom Attribute for Incremental Reconciliation on PeopleTools 8.45 Through 8.48

To add a custom attribute for incremental reconciliation on PeopleTools 8.45 through 8.48:

1. Make the required changes in the PeopleCode given in the `UserMgmtCBRecon_8.45-8.47.txt` or the `UserMgmtCBRecon_8.48.txt` file. These files are in the *`OIM_HOME`*`/xellerate/scripts` directory. The required changes are as follows:

   a. At the end of the SQL statements section, add a SQL statement to retrieve the column values for the new attribute and store the values in local variables.

   For example, suppose you want to add the alternate user ID attribute, `ROLEUSER_ALT`, to the list of attributes that are reconciled. Then, performing this step involves adding the following SQL statement to retrieve the values of the `ROLEUSER_ALT` column from the `PSROLEXLATOPRVW` table:

```
SQLExec("select ROLEUSER_ALT from PSROLEXLATOPRVW a where userid =:1 ",
&userid,  &roleuser_alt);
```

   b. Add the required lines at the end of the block of code for adding data to the XML message. For example, to add the `Alternate User ID` column to the `PSROLEXLATOPRVW` tag, add the lines highlighted in bold in the following code sample:

```
&recnode = &fieldtypenode.AddElement("PSROLEXLATOPRVW");
&recnode.AddAttribute("class", "R");
&fields = &recnode.AddElement("ALTERNATE USER ID");
&fields.AddAttribute("type", "CHAR");
```

c. Add the required lines at the end of the block of code for adding data to the XML message. For example, to add the ROLEUSER_ALT column to the PSROLEXLATOPRVW tag, add the lines highlighted in bold in the following code sample:

```
&datarecnode = &transnode.AddElement("PSROLEXLATOPRVW");
&datarecnode.AddAttribute("class", "R");
&datafldnode = &datarecnode.AddElement("ALTERNATE USER ID");
&textnode = &datafldnode.AddText(&roleuser_alt);
```

2. In PeopleSoft Application Designer, copy the contents of the UserMgmtCBRecon_8.45-8.47.txt or UserMgmtCBRecon_8.48.txt file into the savePostChange event for the USERMAINT component.

3. To extract the contents of the peopleSoftUserMgmt.war file into a temporary directory, enter the following command:

```
jar -xvf peopleSoftUserMgmt.war
```

4. In the attributemap.properties file, add the XPath (key-value entry) of the custom attribute. For example, you can add the following XPath for the ROLEUSER_ALT attribute:

```
Users.ROLEUSER_ALT =//Transaction/PSROLEXLATOPRVW/ROLEUSER_ALT
```

Note: In the attributemap.properties file, the key part of each line is the text to the left of the equal (=) sign. You must ensure that the key part of the lines does not contain spaces. For example, Users.ROLEUSER_ALT, Users. ROLEUSER_ALT, Users.ROLEUSER_ALT are all invalid key values because they contain spaces.

5. Delete the existing peopleSoftUserMgmt.war file from the temporary directory into which you extract it, and then enter the following command to re-create the file:

```
jar -cvf peopleSoftUserMgmt.war .
```

6. Delete the old version of the peopleSoftUserMgmt.war file from the application server deployment directory.

7. Copy the newly created peopleSoftUserMgmt.war file into the application server deployment directory.

8. In the Oracle Identity Manager Design Console, make the required changes as follows:

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

a. Open the process form located in the **Development Tools** folder of the Oracle Identity Manage Design Console.

b. Click **Create New Version**.

c. In the Create a New Version dialog box, specify the version name in the **Label** field. Save the changes, and then close the dialog box.

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

e. On the Additional Columns tab, click **Add**. Add a column corresponding to the new attribute in the User Defined process form, `UD_PSFT_BAS`. For the example described earlier, you can add the `UD_PSFT_ALT_USER` column.

f. Add a reconciliation field corresponding to the new attribute in the resource object, `PSFTBase`. For the example described earlier, you can add the `Users.ROLEUSER_ALT` reconciliation field.

g. Modify the `PSFTBase` process definition to include the mapping between the newly added attribute and the corresponding reconciliation field. For the example described earlier, the mapping is as follows:

```
Users.ROLEUSER_ALT=UD_PSFT_ALT_USER
```

In this example, `ROLEUSER_ALT` is the reconciliation field and also the equivalent target system attribute. As a standard, the prefix "`Users.`" is added at the start of all reconciliation field names.

9. Restart Oracle Identity Manager and the Design Console.

Limited Reconciliation

By default, all target system records that are added or modified after the previous reconciliation run are reconciled during the current reconciliation run. You can customize the reconciliation process by specifying the subset of newly added or modified records that must be reconciled. You implement this form of **limited reconciliation** by creating **customized queries** for reconciliation. You do this by creating filters for the reconciliation module.

Creating a filter involves specifying a value for the `UserID` scheduled task attribute, which will be used in the `SELECT` query criteria to retrieve the target system records to be reconciled. This can be done by editing the `configureReconciliation.properties` file, which contains the `OPRIDLIKE` and `UserType` parameters.

For instructions to specify values for the `UserID` scheduled task attribute, refer to the "Specifying Values for the Scheduled Task Attributes" section on page 3-19.

Configuring Trusted Source Reconciliation

Note: The following procedure can be implemented regardless of whether you select full or incremental reconciliation. You can skip this section if you do not want to designate the target system as a trusted source for reconciliation.

While configuring the connector, the target system can be designated as a trusted source or a target resource. If you designate the target system as a **trusted source**, then both newly created and modified user accounts are reconciled in Oracle Identity Manager. If you designate the target system as a **target resource**, then only modified user accounts are reconciled in Oracle Identity Manager.

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

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

2. Specify values for the attributes of the `PSFT Base Trusted User Reconciliation` scheduled task. This procedure is described later in this guide.

To configure trusted source reconciliation:

1. Open the Oracle Identity Manager Administrative and User Console.
2. Click the **Deployment Management** link on the left navigation bar.
3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.
4. Locate and open the `PSFTBaseXellerateUser.xml` file, which is in the *`OIM_HOME`*`/xlclient` directory. Details of this XML file are shown on the File Preview page.
5. Click **Add File**. The Substitutions page is displayed.
6. Click **Next**. The Confirmation page is displayed.
7. Click **Import**.
8. In the message that is displayed, click **Import** to confirm that you want to import the XML file and then click **OK**.

Configuring Provisioning

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

This section discusses the following topics related to configuring provisioning:

- Compiling Adapters
- Adding Custom Attributes for Provisioning

Compiling Adapters

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

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

See Also: The "Supported Functionality" section on page 1-4 for a listing of the provisioning functions that are available with this connector

- `adpPSFTCREATEUSER`
- `adpPSFTUPDATEUSER`
- `adpPSFTRESETPASSWORD`

- adpPSFTUNLOCKUSER
- adpPSFTLOCKUSER
- adpPSFTUPDATEUSEREMPID
- adpPSFTADDORDELETEROLE
- adpPSFTADDORDELETEEMAIL (PeopleTools 8.45 through 8.48 only)

You must compile these adapters before they can be used in provisioning operations.

To compile adapters by using the Adapter Manager form:

1. Open the Adapter Manager form.
2. To compile all the adapters that you import into the current database, select **Compile All**.

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

   Note: Click **Compile Previously Failed** to recompile only those adapters that were not compiled successfully. Such adapters do not have an OK compilation status.

3. Click **Start.** Oracle Identity Manager compiles the selected adapters.
4. If Oracle Identity Manager is installed in a clustered environment, then copy the compiled adapters from the *OIM_HOME*/xellerate/Adapter directory to the same directory on each of the other nodes of the cluster. If required, overwrite the adapter files on the other nodes.

If you want to compile one adapter at a time, then use the Adapter Factory form.

See Also: *Oracle Identity Manager Tools Reference Guide* for information about using the Adapter Factory and Adapter Manager forms

To view detailed information about an adapter:

1. Highlight the adapter in the Adapter Manager form.
2. Double-click the row header of the adapter, or right-click the adapter.
3. Select **Launch Adapter** from the shortcut menu that is displayed. Details of the adapter are displayed.

Adding Custom Attributes for Provisioning

Note: In this section, the term "attribute" refers to the identity data fields that store user data. If you do not want to add custom attributes for provisioning, then you can skip this section.

To add a custom attribute for provisioning:

See Also: *Oracle Identity Manager Design Console Guide*

1. Modify the `attributemapping_prov.properties` file, which is in the *`OIM_HOME`*`/xellerate/XLIntegrations/PSFTBase/config` directory. At the end of this file, some of the attribute definitions are preceded by comment characters. You can uncomment the definitions of attributes that you want to use any one of them to make it a part of the provisioning attributes.

   You can also add new attributes in this file. The format that you must use is as follows:

   `OimAttributeName=TargetAttributeName`

   Note: You must ensure that the *`OimAttributeName`* value that you specify does not contain spaces.

   For example:

   If you want to add the `AlternateUserID` field, then add the following line in the `attributemapping_prov.properties` file:

   ```
   AlternateUserID=AlternateUserID
   ```

   See Also: *Oracle Identity Manager Design Console* for more information about this step and the remaining steps of this procedure

   Add a new column in the process form.

   a. Open the process form. This form is in the **Development Tools** folder of the Oracle Identity Manager Design Console.

   b. Click **Create New Version**.

   c. In the Create a New Version dialog box, specify the version name in the **Label** field, save the changes, and then close the dialog box.

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

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

   f. Specify the new field name and other values.

2. Add a new variable in the variable list.

   a. Open the Adapter Factory form. This form is in the Development Tools folder of the Oracle Identity Manager Design Console.

   b. Click the **Query for Records** icon.

   c. On the Adapter Factory Table tab, double-click the **adpPSFTCREATEUSER** adapter from the list.

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

   e. In the Add a Variable dialog box, specify the required values and then save and close the dialog box.

3. Define an additional adapter task for the newly added variable in the `adpPSFTCREATEUSER` adapter.

   a. On the Adapter Tasks tab of the Adapter Factory form, click **Add**.

   b. In the Adapter Task Selection dialog box, select **Functional Task**, select **Java** from the list of functional task types, and then click **Continue**.

c. In the Object Instance Selection dialog box, select the Persistent instance and then click **Continue**.

d. In the Add an Adapter Factory Task dialog box, specify the task name, select the **setProperty** method from the **Method** list, and then click **Save**.

e. Map the application method parameters, and then save and close the dialog box. To map the application method parameters:

For the "Output: String Return variable (Adapter Variable)" parameter:

i. From the **Map to** list, select **Literal**.

ii. From the **Name** list, select **Return variable**.

For the "Input: String input (Adapter Variable)" parameter:

i. From the **Map to** list, select **Adapter Variables**.

ii. From the **Name** list, select **Input**.

For the "Input: String Status (Literal)" parameter:

i. From the **Map to** list, select **Literal**.

ii. From the **Name** list, select **String**.

iii. In the **Value** field, enter **Status**.

For the "Input: String Status (Adapter Variable)" parameter:

i. From the **Map to** list, select **Adapter Variables**.

ii. From the **Name** list, select **Status**.

f. Repeat Steps b through e to create more adapter tasks.

4. Create an additional adapter task to set the input variable.

a. Open the Adapter Factory form. This form is in the Development Tools folder in the Oracle Identity Manager Design Console.

b. On the Adapter Tasks tab, click **Add**.

c. In the Adapter Task Selection dialog box, select **Logic Task**, select **SET VARIABLE** from the list, and then click **Continue**.

d. In the Edit Set Variable Task Parameters dialog box, select **input** from the **Variable Name** list, select **Adapter Task** from the **Operand Type** list, and the **Operand Qualifier** as the Adapter Task that you have created in the previous step. Then, click **Save**.

5. Map the process form columns and adapter variables for the Create User process task as follows:

a. Open the Process Definition form. This form is in the Process Management folder of the Design Console.

b. Click the **Query for Records** icon.

c. On the Process Definition Table tab, double-click the **PSFTBase** process.

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

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

f. On the Integration tab of the Editing Task Columns Create User dialog box, map the unmapped variables, and then save and close the dialog box. To map an unmapped variable:

i. Double-click the row in which **N** is displayed in the Status column. The value `N` signifies that the variable is not mapped.

ii. From the **Map to** list in the Edit Data Mapping for Variables dialog box, select **Process Data**.

iii. From the **Qualifier** list, select the name of the variable.

Repeat Steps i through iii for all unmapped variables.

Repeat Steps 1 through 5 if you want to add more attributes.

4

Testing and Troubleshooting

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

- Testing Reconciliation
- Testing Provisioning
- Troubleshooting

Testing Reconciliation

Running test cases for reconciliation involves verifying that the PeopleSoft Listener Web application can reconcile user accounts into Oracle Identity Manager. The following sections provide instructions to perform this test.

Prerequisites for Testing the PeopleSoft Listener Web Application

The following are prerequisites for testing the PeopleSoft Listener Web application:

- Ensure that the Microsoft Windows scripting engine is installed. This is required to run VBScript files.
- Ensure that the PeopleSoft XML message schema is described in the `USR_MGMT_MSG.xml` file, which is in the *`OIM_HOME`*`/xellerate/test` directory.

Testing the PeopleSoft Listener Web Application

To test the PeopleSoft Listener Web application:

1. In the *`OIM_HOME`*`/xellerate/test/cbrecon/psft-xel-test.vbs` file:
   - Modify the value of the `ps_server_url` variable so that it points to the URL for the PeopleSoft Listener Web application.
   - Specify the required PeopleSoft attributes and user data values in the `ExecuteATM` function.
2. Run `psft-xel-test.vbs`. Ensure that the script runs without any errors.

When the script is run, it creates a reconciliation event. Verify that the reconciliation event is created in Oracle Identity Manager and that the event contains the data that you specify in the VBScript file.

Performing Trial Reconciliation

Refer to the "Limited Reconciliation" section on page 3-23.

Testing Provisioning

You can use the testing utility to identify the cause of problems associated with connecting to the target system and performing basic operations on the target system.

Before you use the testing utility, you must set the required values in the `config.properties` file. This file is in the *OIM_HOME*`/xellerate/XLIntegrations/PSFTBase/config` directory.

Use the information in the following table to modify the default attributes of the `config.properties` file.

Name	Description	Sample Value
`serverName`	IP address or host name of the PeopleSoft Enterprise Applications server	`172.21.109.95`
`serverPort`	Port at which the PeopleSoft Enterprise Applications server is listening	`9000`
`admin`	User ID of the PeopleSoft Enterprise Applications server administrator	`PS`
`ciName`	Component interface used to load user data in PeopleSoft Enterprise Applications	`USER_PROFILE`
`NumberOfRetries`	Number of times the connection to the target system must be retried before the `InvocationTargetException` is thrown	`2`
`DelayBetweenRetries`	Time difference between subsequent retries (in milliseconds)	`10000`

`action`	Action to be performed	You can specify one of the following values:
		`CONNECT`
		`CREATE`
		`UPDATEUSERINFO`
		`UPDATEUSER_EMPID`
		`UPDATEPASSWORD`

`userId`	User login ID	`PSFTTEST`
`userDescription`	Description of the user	`PSFTTEST`
`primaryEmailAddress`	Primary e-mail address	`PSFTTEST@psft.com`
`primaryEmailType`	E-mail type of the primary e-mail account	`BUS`
`password`	Password of the user	`password`
`languageCode`	Language code for the user	`ENG`
`currencyCode`	Currency code for the user	`USD`
`recName`	Used to validate the employee ID during user provisioning in PeopleSoft Enterprise Applications	PERSONAL_DATA
`empId`	Employee ID for the user	A10000

Name	Description	Sample Value
primaryPermissionList	Primary permission list for the user	HCCPAM1
userIdAlias	User ID alias	PSFITEST1
symbId	Specifies the AccessId associated with the user profile The AccessId specifies whether or not the user has sufficient privileges on the PeopleSoft Enterprise Applications database.	PS89
attrName	Name of the attribute to be updated	You can specify one of the following values: USER_DESCRIPTION EMAIL_ADDRESS EMAILTYPE MULTI_LANGUAGE_CODE LANGUAGE_CODE CURRENCY_CODE
attrValue	Value of the attribute to be updated	The value that you provide must correspond to the attribute name that you specify as the value of the attrName parameter.

After you specify values in the config.properties file, run one of the following files:

For UNIX:

OIM_HOME/xellerate/XLIntegrations/tests/scripts/PSFTBase.sh

For Microsoft Windows

OIM_HOME\xellerate\XLIntegrations\tests\scripts\PSFTBase.bat

Troubleshooting

The following table lists solutions to some commonly encountered issues associated with the PeopleSoft User Management connector.

Problem Description	Solution
Oracle Identity Manager cannot establish a connection with the PeopleSoft Enterprise Applications server.	■ Ensure that the PeopleSoft Enterprise Applications server is running. ■ Ensure that Oracle Identity Manager is running. ■ Ensure that all the adapters have been compiled. ■ Use the IT Resources form to examine the Oracle Identity Manager record. Ensure that the IP address, admin ID, and admin password are correct.

Problem Description	Solution
The Operation Fail message is displayed on the Oracle Identity Manager Administrative and User Console.	■ Ensure that the values for the attributes do not contain delimiter characters, such as white space and commas. ■ Ensure that the attribute values do not exceed allowable length.
The Create User adapter is triggered even when the pre-populate adapter is run successfully.	Set the property associated with the user ID attribute in the process form as required.
The `PSFTBaseProvisioning.jar` file is not accessible while running `OIM_HOME/xellerate/XLIntegrations/tests/scripts/PSFTBase.sh` testing utility.	It can be resolved by running the following command on the file: `dos2unix ./PSFTBase.sh`
You might encounter the following error when you run the testing utility for provisioning: `java.io.FileNotFoundException: null\XLIntegrations\PSFTBase\config\attributemapping_prov.properties`	Update the `OIM_HOME/xellerate/XLIntegrations/tests/scripts/PSFTBase.sh` file with following details: `XL.HomeDir=OIM_HOME`

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Known Issues

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

- Secure Sockets Layer (SSL) connections are not supported.
- The connector files for PeopleTools 8.22 and PeopleTools 8.45 through 8.48 cannot be deployed on the same Oracle Identity Manager installation.
- Some Asian languages use multibyte character sets. If the character limit for the fields in the target system is specified in bytes, then the number of Asian-language characters that you can enter in a particular field may be less than the number of English-language characters that you can enter in the same field. The following example illustrates this limitation:

  Suppose you can enter 50 characters of English in the User Last Name field of the target system. If you were using the Japanese language and if the character limit for the target system fields were specified in bytes, then you would not be able to enter more than 25 characters in the same field.

A

Attribute Mappings Between Oracle Identity Manager and PeopleSoft User Management

The following table discusses attribute mappings between Oracle Identity Manager and PeopleSoft User Management.

Oracle Identity Manager Attribute	PeopleSoft User Management Attribute	Description
Lookup Fields		
LanguageCode	PSXLATITEM.FIELDVALUE, PSXLATITEM.XLATLONGNAME	Language code
EmployeeId	PS_PERSONAL_DATA.EMPLID, PS_PERSONAL_DATA.NAME	Employee ID
CurrencyCode	PS_CURRENCY_CD_TBL.CURRENCY_CD, PS_CURRENCY_CD_TBL.DESCR	Currency Code
PermissionList	PSCLASSDEFN.CLASSID,PSCLASSDEFN.CLASSDEFNDESC	Permission List
EmailType	PSXLATITEM.FIELDVALUE, PSXLATITEM.XLATLONGNAME	E-mail Type
UserRoles	PSROLEDEFN.ROLENAME, PSROLEDEFN.DESC	User Roles
User Attributes		
User Id	PSOPRDEFN.OPRID	User login ID
User Description	PSOPRDEFN.OPRDEFNDESC	Description of user
Employee Id	PSOPRDEFN.EMPLID	Employee ID
Primary Email Address	PSUSEREMAIL.EMAILID	E-mail address (primary e-mail account)
Primary Email Type	PSUSEREMAIL.EMAILTYPE	Email type (primary e-mail account)
Multi Language Code	PSOPRDEFN.MULTILANG	Multilanguage code
Language Code	PSOPRDEFN.LANGUAGE_CD	Language code

Oracle Identity Manager Attribute	PeopleSoft User Management Attribute	Description
Currency Code	PSOPRDEFN.CURRENCY_CD	Currency code
User Id Alias	PSOPRDEFN.USERIDALIAS	Alias of user login ID
Row Security Permission List	PSOPRDEFN.ROWSECCLASS	Row security parameter
Process Profile Permission List	PSOPRDEFN.PRCSPRFLCLS	Process profile parameter
Navigator Home Permission List	PSOPRDEFN.DEFAULTNAVHP	Navigator home page address
Primary Permission List	PSOPRDEFN.OPRCLASS	Primary permission list
Email Address	PSUSEREMAIL.EMAILID	E-mail address
Email Type	PSUSEREMAIL.EMAILTYPE	E-mail type
RoleName	PSROLEUSER_VW.ROLENAME	Role name

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