Oracle® Identity Manager

Connector Guide for PeopleSoft Employee Reconciliation

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Oracle Identity Manager Connector Guide for PeopleSoft Employee Reconciliation, Release 9.0.4

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Contents

Preface

Oracle Identity Manager Connector Guide for PeopleSoft Employee Reconciliation provides information about integrating Oracle Identity Manager with PeopleSoft HRMS or PeopleSoft HCM.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager connector for PeopleSoft HRMS or PeopleSoft HCM.

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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 Employee Reconciliation?

This chapter provides an overview of the updates made to the software and documentation for the PeopleSoft Employee Reconciliation connector in release 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 update has been made in this release of the guide:

- In this guide, the name of the target system has been changed from PeopleSoft Employee Reconciliation to PeopleSoft HRMS or PeopleSoft HCM.

- In the "Employee Data Reconciliation" section on page 1-2, information on full reconciliation and incremental reconciliation has been modified.

- The structure of the "Configuring the Target System" section on page 3-1 has been modified.

- The structure of Chapter 3, "Configuring the Target System and Oracle Identity Manager" has been modified.

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

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

1

About the Connector

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

This guide discusses the procedure to deploy the PeopleSoft Employee Reconciliation connector that is used to integrate PeopleSoft HRMS/HCM with Oracle Identity Manager. This connector provides a means to exchange real-time data between the target system and Oracle Identity Manager.

> **Note:** In this guide, the term **Oracle Identity Manager server** refers to the computer on which Oracle Identity Manager is installed.
>
> In this guide, PeopleSoft HRMS/HCM has been referred to as the **target system**.

The PeopleSoft Employee Reconciliation connector enables the target system as an authoritative identity source of Oracle Identity Manager through trusted source reconciliation. The connector supports trusted source reconciliation in two ways:

- **Full reconciliation**

  Full reconciliation involves reconciling records of employees by using a flat file. A PeopleCode event is activated when employee information is updated in the target system. The PeopleCode then extracts the required employee 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 employee 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 employee 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 employee 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 employee 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:

- Employee Data Reconciliation
- Supported Functionality
- Multilanguage Support
- Files and Directories That Comprise the Connector
- Determining the Release Number of the Connector

Employee Data Reconciliation

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

The following target system fields must be reconciled:

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

You can also configure reconciliation for the following fields of the target system. To do so, you must define custom attributes for each field in Oracle Identity Manager.

- BirthDate
- Sex
- City
- SSN
- Phone
- Country

- Address

- State

- DeptId

- JobCode

- Postal

- HireDate

For information about adding custom attributes, see "Adding Custom Attributes for Full Reconciliation" on page 3-21.

Supported Functionality

Table 1–1 lists the functions that are available with this connector.

Table 1–1   Supported Functionality

Function	Type	Description
Trusted Employee Reconciliation	Reconciliation	Reconciles newly added or modified employee data from the target system to Oracle Identity Manager.

> **See Also:**   Appendix A for information about attribute mappings between Oracle Identity Manager and the target system.

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 Employee
Reconciliation
```

These files and directories are listed in the following table:

File in the Installation Media Directory	Description
`config/configureReconciliation.properties`	This file contains the date format used for full reconciliation. The date format is used on both the PeopleSoft server and Oracle Identity Manager.
`config/attributemapping_recon.properties`	This file lists the target system attributes and their mappings to corresponding fields in Oracle Identity Manager.
`ext/csv.jar`	This file is a third-party library that is used to read comma-separated files.
`lib/xlPSFTHRRecon.jar`	This JAR file contains the class files that are used to implement full reconciliation.
`lib/peopleSoftApp.war`	This Web Archive (WAR) file contains the classes and configuration files required to implement incremental reconciliation.
For PeopleTools 8.22, the following file in the `lib/MsgPublisher` directory: `xliMsgPublisher.jar`	This JAR file contains the class file that transfers the XML messages generated by the PeopleTools 8.22 file handler on the PeopleSoft Web server to the PeopleSoft connector.
For PeopleTools 8.22, the following file in the `scripts` directory: `publish.bat`	The `publish.bat` file is used to trigger message transfers on a periodic basis. Refer to the "Configuring PeopleSoft Integration Broker" section on page 3-11 for more information.
For PeopleTools 8.22: `PeopleCode/PT822/HRMSCBRecon.txt` For PeopleTools 8.45 through 8.47: `PeopleCode/HRMSCBRecon_8.45-8.47.txt` For PeopleTools 8.48: `PeopleCode/HRMSCBRecon_8.48.txt`	This file contains the PeopleCode that you must add to the `SavePostChange` event while performing the procedure described in the "Publishing the Message" section on page 3-8.
For PeopleTools 8.22: `PeopleCode/PT822/HRMSBulkRecon.txt` For PeopleTools 8.45 through 8.48: `PeopleCode/HRMSBulkRecon.txt`	This file contains the PeopleCode that gets executed during full reconciliation to generate the flat file.
Files in the `resources` directory	Each of these resource bundle files contains language-specific information that is used by the connector. **Note:** A **resource bundle** is a file containing localized versions of the text strings that are displayed on the user interface of Oracle Identity Manager. These text strings include GUI element labels and messages displayed on the Administrative and User Console.
`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 the target system.

File in the Installation Media Directory	Description

`test/cbrecon/pingRequest.xml`
`test/cbrecon/pingResponse.xml`
`test/cbrecon/publishRequest.xml`
`test/cbrecon/publishResponse.xml`
	These XML files are required by the `psft-xel-test.vbs` file for communicating with the connector by using XML over HTTP.

`test/cbrecon/psft_xellerate_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.
`xml/adpPSFT_RECON_DM.xml`	This XML file contains definitions for the following components of the connector: ■ Resource object ■ Process definition ■ IT resource type ■ Reconciliation rules ■ Scheduled tasks ■ Process form
`xml/adpPSFT_XellerateUser_RECON_DM.xml`	This XML file contains the configuration information for the Xellerate User resource object. You must import this file after you import the `adpPSFT_RECON_DM.xml` file. This XML file contains definitions for the following components of the connector: ■ Resource object ■ Process definition ■ Scheduled tasks ■ Process form

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 Employee Reconciliation connector.

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

   `Enterprise Applications/PeopleSoft Enterprise Applications/PeopleSoft Employee Reconciliation/lib`

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

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

   > **Note:** If you maintain a copy of the `xlPSFTHRRecon.jar` file after deployment, you can use this method whenever you want to determine the release number of the connector. After you deploy the connector, Oracle recommends that you use the "After Deployment" method, which is described in the following section.

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 Files

> **Note:** In this guide, PeopleSoft HRMS/HCM has been referred to as the **target system**.

Step 1: Verifying Deployment Requirements

To verify deployment requirements for the PeopleSoft Employee Reconciliation connector:

1. Ensure that your environment meets the requirements listed in the following table.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3 or later
Target system	The following are the supported target systems and the PeopleTools versions for each:
	■ PeopleSoft HRMS 8.3 SP1 with PeopleTools 8.22
	■ PeopleSoft Enterprise HCM 8.9 with PeopleTools 8.45 through 8.47
	■ PeopleSoft Enterprise HCM 9.0 with PeopleTools 8.48
	You must ensure that the following components are installed and configured:
	■ Tuxedo and Jolt (the application server)
	■ PeopleSoft Internet Architecture
Target system host platform	Applications running on PeopleTools 8.22 and PeopleSoft HRMS 8.3 SP1 are supported only on Microsoft Windows platforms. For applications running on any other supported PeopleTools versions, there is no platform dependency.

Item	Requirement
External code	The csv.jar external code file is included in the installation media directory for this connector.
	Refer to the "Files and Directories That Comprise the Connector" section on page 1-3 for more information about these files.

2. Ensure that you have administrative rights on the target system server to configure the "Configuring PeopleSoft Integration Broker" component.

Step 2: Copying the Connector Files and External Code Files

The 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 Employee Reconciliation
```

Refer to the "Files and Directories That Comprise the Connector" section on page 1-3 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/PSFTHR/config
ext/csv.jar	*OIM_HOME*/xellerate/ThirdParty
lib/peopleSoftApp.war	*OIM_HOME*/cbrecon_webapp/lib
lib/xlPSFTHRRecon.jar	*OIM_HOME*/xellerate/ScheduleTask
For PeopleTools 8.22, copy the files from the lib/MsgPublisher 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.
Copy the files from the resources directory	*OIM_HOME*/xellerate/connectorResources
Files in the test/cbrecon directory	*OIM_HOME*/xellerate/XLIntegrations/PSFTHR/cbrecon
Files in the xml directory	*OIM_HOME*/xlclient

> **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.PSFTEMPLOYEE=log_level
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftAction=log_le
     vel
     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.PSFTEMPLOYEE=DEBUG
log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftAction=DEBUG
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 line in the *OIM_HOME*/xellerate/config/log.properties file:

   ```
   log4j.logger.ADAPTER.PSFTEMPLOYEE=log_level
   log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftAction=log_le
   vel
   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.PSFTEMPLOYEE=DEBUG
   log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftAction=DEBUG
   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.PSFTEMPLOYEE">
       <priority value="log_level"/>
   </category>

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

```
<category name="com.thortech.xl.integration.peoplesoft.PeopleSoftAction">
    <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.PSFTEMPLOYEE=log_level
     log4j.logger.com.thortech.xl.Integration.peoplesoft.PeopleSoftAction=log_le
     vel
     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.PSFTEMPLOYEE=DEBUG
     log4j.logger.com.thortech.xl.integration.peoplesoft.PeopleSoftAction=DEBUG
     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 Files

To import the connector XML files into Oracle Identity Manager:

1. Open the Oracle Identity Manager Administrative and User Console.

2. Click the **Deployment Management** link on the left navigation bar.

3. Click the **Import** link under Deployment Management. A dialog box for opening files is displayed.

4. Locate and open the adpPSFT_RECON_DM.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_Employee IT resource is displayed.

8. Specify values for the parameters of the PSFT_Employee IT resource. The following table lists the values to be specified:

Parameter	Description
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
DelayBetweenRetries	Use this parameter to specify the time difference between consecutive retries (in milliseconds). Default value: 20000
IndexOfLastReconciledReco rd	This parameter stores the index of the last successful reconciled record. This parameter is applicable only for full reconciliation. Refer to the "Configuring the IndexOfLastReconciledRecord Parameter" section on page 3-21 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_Employee 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_Employee. 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.

13. To import the adpPSFT_XellerateUser_RECON_DM.xml file, perform Steps 2 through 7 and Steps 9 through 12. Do not perform Step 8.

> **Caution:** Only one target system can be designated as a trusted source. By importing the adpPSFT_XellerateUser_RECON_DM.xml file, you configure trusted source reconciliation. If you import this XML file while you have another trusted source configured, then both connector reconciliations would stop working.

3

Configuring the Target System and Oracle Identity Manager

This chapter discusses the following topics:

- Configuring the Target System
- Configuring Oracle Identity Manager

> **Note:** This section provides 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 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 employee information through certain components that are applicable, such as `PERSONAL_DATA`, `JOB_DATA`, and `JOB_DATA_EMP`.

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

1. 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.

2. 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 employee 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 Populate.

6. In the App Engine Program window, select **Action** from the **Insert** menu. An action is added to the Populate 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_HR.

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/HRMSBulkRecon.txt file. You must make the following changes in this code:

   ■ Modify the *<ABSOLUTE_PATH_OF_THE_FILE>* placeholder with the directory path for the output file. Change the sample directory path to a directory path on the target system server.

   ■ The code written to fetch the values of BIRTHDATE and HIREDATE is specific to Oracle Database. Therefore, depending on the database that Peoplesoft is running on, you may need to make changes in the code that you copy from the HRMSBulkRecon.txt file. For example:

   If you are running Peoplesoft on Microsoft SQL Server, then

   – Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (varchar, BIRTHDATE, 104)

   – Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (varchar, HIRE_DT, 104)

   If you are running Peoplesoft on Sybase, then

   – Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (char(6), BIRTHDATE, 12)

   – Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (char(6), HIRE_DT, 12)

   If you are running Peoplesoft on Informix, then

   – Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with TO_CHAR (BIRTHDATE, " | """%d %m %y""" | ")

–   Replace `TO_CHAR(HIRE_DT, 'ddmmyy')` with `TO_CHAR(HIRE_DT, "`
    `| """%d %m %y""" | ")`

11. If the PeopleSoft server is running on Microsoft SQL Server, then you may need to change the value of the `XelServerDate` property in the following file:

    OIM_HOME`/xellerate/XLIntegrations/PSFTHR/config/configureReconciliation.propert`
    `ies`

    Set the value of this property to the following:

    `dd.mm.yy`

    If PeopleSoft server is running on Oracle Database, then you need not change the value of the `XelServerDate` property.

12. Save the Application Engine program and close the window.

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_HR**.

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 **People Tools**, **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 the location specified in the code that you copy from the HRMSBulkRecon.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. Click **Start**, **Programs**, **Peoplesoft8.***x*, and then **Application Designer**. The Application Designer window is displayed in 2-tier mode.

2. Specify the connection type, user ID, and password.

3. To open the Application Engine program that you create:

    a. From the **File** menu, select **Open** and then select **Application Engine Program** from the **Object Type** list.

    b. Select **BLKPRCS_HR,** and then click **Open**.

4. Click the RUN PROGRAM control on the toolbar below the menu bar. The comma-separated flat file containing employee records is created at the location specified in the code that you copy from the HRMSBulkRecon.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 PeopleTools 8.48 and HCM 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 PeopleSoft 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 the target system that you are using:

- Creating the Message Channel on PeopleSoft HRMS 8.3 SP1
- Creating the Message Channel on PeopleSoft HRMS 8.9
- Creating the Queue on PeopleSoft HCM 9.0

Creating the Message Channel on PeopleSoft HRMS 8.3 SP1 To create the message channel on PeopleSoft HRMS 8.3 SP1:

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 PERSON_BASIC.

5. Select **Definition 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 PeopleSoft HRMS 8.9 To create the message channel on PeopleSoft HRMS 8.9:

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 PERSON_BASIC.

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 **Archive Messages** check box.

7. Click **OK**, and then save the message channel.

Creating the Queue on PeopleSoft HCM 9.0 To create the queue on PeopleSoft HCM 9.0:

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_HR_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 target system that you are using:

- Creating the Message on PeopleSoft HRMS 8.3 SP1

- Creating the Message on PeopleSoft HRMS 8.9

- Creating the Message on PeopleSoft HCM 9.0

Creating the Message on PeopleSoft HRMS 8.3 SP1 To create the message on PeopleSoft HRMS 8.3 SP1:

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 **Definition Properties** from the **File** menu.

5. In the Message Properties dialog box, click the **Use** tab.

6. On the Use tab, select the **PERSON_BASIC** message channel and 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 PeopleSoft HRMS 8.3 SP1" 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 PERSONAL_DATA in the **Name** field, click **Insert**, and then click **Close**.

10. Click **PERSONAL_DATA** under **VERSION_1**. All the fields that constitute the PERSONAL_DATA 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. Refer to the *OIM_HOME*/xellerate/XLIntegrations/PSFTHR/cbrecon/psft_xellera te_msg.xml file for information about the fields in the message XML file.

11. Repeat Steps 8 through 10 for the PS_PERS_NID, EMPLOYMENT, and JOB records.

12. Save the message as PSFT_XELLERATE_MSG.

Creating the Message on PeopleSoft HRMS 8.9 To create the message on PeopleSoft HRMS 8.9:

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 PERSON_BASIC 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 PeopleSoft HRMS 8.9" 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 PSFT_XELLERATE_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 HRMSCBRecon.txt file while performing the procedure described in the "Publishing the Message on PeopleSoft HRMS 8.9 or HCM 9.0" section on page 3-9.

Creating the Message on PeopleSoft HCM 9.0 To create the message on PeopleSoft HCM 9.0:

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, PSFT_XELLERATE_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

The procedure to publish the message depends on the target system version that you are using:

■ Publishing the Message on PeopleSoft HRMS 8.3 SP1

■ Publishing the Message on PeopleSoft HRMS 8.9 or HCM 9.0

Publishing the Message on PeopleSoft HRMS 8.3 SP1   To publish the message on PeopleSoft HRMS 8.3 SP1:

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 PERSONAL_DATA in the **Name Selection Criteria** field, and then click **Enter**. All component names starting with the text PERSONAL_DATA are displayed.

4. Select **PERSONAL_DATA** from the list, and then click **Open**. The details of the PERSONAL_DATA component are displayed.

5. Click the **Structure** tab, right-click **PERSONAL_DATA**, and then select **View PeopleCode**. The PeopleCode for the PERSONAL_DATA 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/HRMSCBRecon.txt

For PeopleTools 8.45 through 8.47:

OIM_HOME/xellerate/Scripts/HRMSCBRecon_8.45-8.47.txt

For PeopleTools 8.48:

OIM_HOME/xellerate/Scripts/HRMSCBRecon-8.48.txt

> **Note:** While creating the message by following the procedure described in the "Creating the Message on PeopleSoft HRMS 8.3 SP1" section on page 3-6, if you change the name of the message to something other than PSFT_XELLERATE_MSG, then you must use the same name in the code that you copy.

The code written to fetch the values of BIRTHDATE and HIREDATE is specific to Oracle Database. You must modify this code based on the database you are using. For example:

If you are running Peoplesoft on Microsoft SQL Server, then

- Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (varchar, BIRTHDATE, 104)

- Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (varchar, HIRE_DT, 104)

If you are running Peoplesoft on Sybase, then

- Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (char(6), BIRTHDATE, 12)

- Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (char(6), HIRE_DT, 12)

If you are running Peoplesoft on Informix, then

- Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with TO_CHAR (BIRTHDATE, " | """%d %m %y""" | ")

- Replace TO_CHAR(HIRE_DT, 'ddmmyy') with TO_CHAR(HIRE_DT, " | """%d %m %y""" | ")

8. Select **Save** from the **File** menu to save the changes to the PERSONAL_DATA component.

    You must repeat Steps 2 through 8 if you want to publish messages on the following components also:

    - JOB_DATA

    - JOB_DATA_HIRE

Publishing the Message on PeopleSoft HRMS 8.9 or HCM 9.0 To publish the message on PeopleSoft HRMS 8.9 or HCM 9.0:

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 PERSONAL_DATA in the **Name Selection Criteria** field, and then press **Enter**. All component names starting with the text PERSONAL_DATA are displayed.

4. Select **PERSONAL_DATA** from the list, and then click **Open.** The details of the PERSONAL_DATA component are displayed.

5. Click the **Structure** tab, right-click **PERSONAL_DATA,** and then select **View PeopleCode.** The PeopleCode for the PERSONAL_DATA component is displayed.

6. Select the **SavePostChange** event from the list in the upper-left 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:

OIM_HOME/xellerate/Scripts/HRMSCBRecon.txt

> **Note:** While creating the message by following the procedure described in the "Creating the Message on PeopleSoft HRMS 8.9" section on page 3-7, if you change the name of the message to something other than PSFT_XELLERATE_MSG, then you must use the same name in the code that you copy.

The code written to fetch the values of BIRTHDATE and HIREDATE is specific to Oracle Database. You must modify this code based on the database you are using. For example:

If you are running Peoplesoft on Microsoft SQL Server, then

– Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (varchar, BIRTHDATE, 104)

– Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (varchar, HIRE_DT, 104)

If you are running Peoplesoft on Sybase, then

– Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with convert (char(6), BIRTHDATE, 12)

– Replace TO_CHAR(HIRE_DT, 'ddmmyy') with convert (char(6), HIRE_DT, 12)

If you are running Peoplesoft on Informix, then

– Replace TO_CHAR(BIRTHDATE, 'ddmmyy') with TO_CHAR (BIRTHDATE, " | """%d %m %y""" | ")

– Replace TO_CHAR(HIRE_DT, 'ddmmyy') with TO_CHAR(HIRE_DT, " | """%d %m %y""" | ")

8. Select **Save** from the **File** menu to save the changes to the PERSONAL_DATA component.

9. Add the following function call code at the end of the PeopleCode for the SavePostChange event:

> **Note:** Perform this step after you copy the code.

```
/*****************************************************************/
```

```
/*  Calling the Generate function to generate the
PSFT_XELLERATE_MSG message*/
/*******************************************************************/
Local string &emplid;
&emplid = PERSON.EMPLID;
GENERATE(&emplid);
```

10. To save the changes to the component that you created in Step 5, select **Save** from the **File** menu.

You must repeat Steps 2 through 10 if you want to publish messages on the following components also:

- `JOB_DATA`

- `JOB_DATA_EMP`

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 `XL_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 `XL_NODE`.

2. To configure the `PERSON_BASIC` message channel:

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

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

    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 **XL_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
```

    For example:

```
http://10.121.16.42:8080/peopleSoftApp/do/peopleSoftAction
```

    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, `XL_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 PeopleSoft 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 target system 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. 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://host:port/peopleSoftApp/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 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.acme.com/psp/ps/TestDB/?cmd=login
```

2. 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 PIA.

4. Ensure that the IP address specified in the URL of the PeopleSoft listening connector is the IP address of the computer on which the target system 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 XL_NODE node to serve as the remote node:

1. In the PIA window, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Node Definitions**.

2. Click the **Add a New Value** tab.

3. On the Add a New Value tab, enter `XL_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/peopleSoftApp/do/peopleSoftAction
```

For example:

```
http://10.121.16.42:8080/peopleSoftApp/do/peopleSoftAction
```

8. Click the **Ping Node** button 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: `PSFT_XELLERATE_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 `PERSON_BASIC` message channel:

1. In PIA, 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 **PERSON_BASIC** as the channel name, and select **FULL** as the access level.

5. Click **Save.**

To verify that the `PERSON_BASIC` 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 `PERSON_BASIC` 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, `HT_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 the **Ping Node** button 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 the Oracle Identity Manager server/IP
address:port/peopleSoftApp/do/peopleSoftAction
```

For example:

```
http://10.121.16.42:8080/peopleSoftApp/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_HR_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 the PeopleSoft Internet Architecture window, 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 service that you created in Step 2 of the section on page 3-7, for example, `PSFT_HR_SERVICE`.

   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 `PSFT_XELLERATE_MSG.V1` in the **Message.Version** field and `PSFT_HR_QUEUE` in the **Queue Name** field.

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

   f. On the Routing tab, enter `PSFT_HR_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_HR_NODE` in the **Receiver Node** field.

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

   Before you start sending the XML messages 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 Oracle Identity Manager

Configuring Oracle Identity Manager for this connector involves configuring reconciliation only. As mentioned earlier in this guide, reconciliation involves duplicating in Oracle Identity Manager new and modified employee information from the target system.

This section discusses the following topics:

- Configuring Full Reconciliation
- Configuring Incremental 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 Files" section on page 2-6, the scheduled task is 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 **Administration** folder.

3. Select **Task Scheduler**.

4. Click **Find**, and look for the scheduled task named `PSFTHRTrustedUserRecon` in the Task Scheduler table.

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 and 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 only at the date and time that you specify in Step 7.

After you configure the scheduled task, proceed to the "Configuring Incremental Reconciliation" section on page 3-24.

Specifying Values for the Scheduled Task Attributes The user reconciliation scheduled task has been defined as two scheduled tasks, one for trusted employee reconciliation and the other for target resource employee reconciliation. However, you must use **only** the scheduled task for trusted employee reconciliation for the target system.

You must specify values for the attributes of the `PSFTHRTrustedUserRecon` employee reconciliation scheduled task. The following table describes the attributes of the scheduled task.

> **Note:**
>
> ■ Default attribute values are predefined in the connector XML file that you import. Specify values only for the attributes that you want to change.
>
> ■ Values (either default or user-defined) must be assigned to (or specified by default for) all the attributes. If even a single attribute value were left empty, then reconciliation would not be performed.
>
> ■ Do not make changes in the scheduled task for target resource reconciliation, `PSFTHRNonTrustedUserRecon`. This scheduled task is not meant to be used with this connector.

Attribute Name	Description	Sample Value
FolderPath	Directory path on the Oracle Identity Manager server where employee reconciliation files generated by the target system are to be stored	`C:\PSFTHR\UserRecon\`
	Note: The folder path must contain only the text file that is generated when you run the application engine. The Task Scheduler searches for text files. Therefore, the specified path must only contain the file to be read by the Task Scheduler. The value of the folder path must end in \.	
TargetSystem	Name of the resource object	PSFT_HR_RO
IsTrusted	Specifies whether or not reconciliation is to be performed in trusted mode. For this connector, only trusted source reconciliation is configured. Therefore, this attribute value must always be set to Yes.	Yes
XellerateOrganization	Default name for the Oracle Identity Manager organization	Xellerate Users
	This value is used to create the Xellerate User in trusted source reconciliation mode. The value that you specify must exist in Oracle Identity Manager.	
	Note: This attribute is specific to the scheduled task for trusted source reconciliation.	
NoOfRecordsToBeReconciled	Specifies the number of records to be reconciled	Any integer value greater than zero
	You must enter any integer value greater than zero. Refer to the "Specifying the Number of Records to Be Reconciled" section on page 3-21 for more information about this attribute.	
	Default value: all	
Lastname	Specifies the Lastname attribute value for which you want to perform reconciliation	Nodata
	During reconciliation, only those target system records that contain the Lastname value you specify are reconciled. For more information about how this reconciliation is performed, refer to the "Limited Reconciliation" on page 3-23.	
Postal	Specifies the Postal attribute value for which you want to perform reconciliation	Nodata
	During reconciliation, only those target system records that contain the Postal value you specify are reconciled.	
DeptId	Specifies the DeptId attribute value for which you want to perform reconciliation	Nodata
	During reconciliation, only those target system records that contain the DeptId value you specify are reconciled.	

Attribute Name	Description	Sample Value
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.	`AND`
ServerName	Name of the IT resource defined for the PeopleSoft application target system.	`PSFT_Employee`

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.

To reduce the reconciliation time, you can specify the number of records to be reconciled. To do this, you specify a value for 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_Employee** 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 `PSFT_XELLERATE_MSG` in the **Name Selection Criteria** field, and then click **Enter**. The details of the `PSFT_XELLERATE_MSG` message are displayed.

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

   For example, suppose you want to add the Salary attribute, `SALARY`, in the `JOB` record, then click **JOB** under **VERSION_1**.

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

   For example, select the **SALARY** field.

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

   ```
   Local string &empid, &lastnm, &firstnm, &sex, &postal, &city, &ssn, &ph,
   &birthdt, &country, &add1, &state, &hir_dt, &deptid, &jobcd, &salary;

   &hdr =
   "EMPLID,LASTNAME,FIRSTNAME,SEX,POSTAL,CITY,SSN,PHONE,BIRTHDATE,COUNTRY,ADDRESS,
   STATE,HIRE_DATE,DEPTID,JOBCODE,SALARY";
   ```

   If the `SALARY` column exists in the `ps_job` table, the SQL statement will be:

   ```
   SQLExec("select DEPTID, JOBCODE, SALARY from ps_job a where emplid =:1 and
   effdt=(select max(effdt) from ps_job b where a.emplid=b.emplid and effseq
   =(select max(effseq) from ps_job c where b.emplid = c.emplid and
   b.effdt=c.effdt))", &empid, &deptid, &jobcd, &salary);
   ```

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_HR`. For the example described earlier, you can add the `UD_PSFT_HR_SALARY` column.

8. Add a reconciliation field corresponding to the new attribute in the resource object, `PSFT_HR_RO`. For the example described earlier, you can add the `Users.SALARY` reconciliation field.

9. Modify the `PSFT_HR` 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.SALARY=UD_PSFT_SALARY
```

In this example, `SALARY` 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.

10. Modify the `attributemapping_recon.properties` file, which is in the *OIM_HOME*`/xellerate/XLIntegrations/PSFTHR/config` directory.

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

```
TargetAttribute=Users.OimAttributeName
```

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

For example:

```
SALARY=Users.SALARY
```

In this example, `SALARY` 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.

Creating a filter involves specifying a value for a target system attribute, which will be used in the `SELECT` query criteria to retrieve the records to be reconciled. You can specify values for any one or a combination of the following target system attributes:

■ `Lastname`

■ `DeptId`

■ `Postal`

If you want to use multiple target system attributes to filter records, then you must also specify the logical operator (`AND` or `OR`) that you want to apply to the combination of target system attributes that you select.

For instructions to specify values for the target system attributes and the logical operator that you want to apply while deploying the connector, 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 a Custom Attribute 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/peopleSoftApp.war file into a temporary folder. Enter the following command to extract the contents of the peopleSoftApp.war file.

   ```
   jar -xvf peopleSoftApp.war
   ```

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

2. Edit the deployment.properties file. This file contains the message property that corresponds to the name of the XML message from the PeopleSoft feed. The default value of this attribute is PSFT_XELLERATE_MSG. Obtain the correct actual value for this attribute from the PeopleSoft administrator, and replace the value in this file with the actual value.

3. 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 PSFT_HR_RO.

   - **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 3-27 for information about encrypting a plaintext password

4. 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

5. Edit the following properties in the configureReconciliation.properties file:

   - **reconciliationMode:** You must always set this property to trusted.

   - **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

     - dd.mm.yy (if the PeopleSoft installation uses Microsoft SQL Server)

     - dd.mm.yyyy (if the PeopleSoft installation uses IBM DB2 UDB)

   - **xellerateOrganization:** This property specifies the name of the Oracle Identity Manager organization. The default value of this property 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.

  Current value of the `XelServerDate` property: `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.

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

  > **Note:** Delete the following JAR files from the `WEB-INF/lib` directory before you copy the JAR files 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 *OIM_CLIENT*/`xlclient/lib`)
  - `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`

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

```
jar -cvf peopleSoftApp.war
```

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

9. Copy the newly created `peopleSoftApp.war` file into the application server deployment directory.

10. Restart the Oracle Identity Manager server and client.

> **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 "Configuring Incremental Reconciliation" section on page 3-24 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 xlPSFTHRRecon.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. Replace the value of the encrypted password in the `xlsession.properties` file with the value that you copy from the command window. This file is compressed in the `OIM_HOME/xlclient/lib/peopleSoftApp.war` file.

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

```
jar -cvf peopleSoftApp.war .
```

6. Ensure that the old version of the `peopleSoftApp.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 `peopleSoftApp.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 a Custom Attribute 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 attributes 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 reconciliation on PeopleTools 8.22:

1. Change the PeopleCode given in the `HRMSBulkRecon.txt` file. This file is in the `OIM_HOME`/`xellerate/scripts` directory. The required changes are as follows:

a. Modify the following line in the file:

```
&hdr =
"EMPLID,LASTNAME,FIRSTNAME,SEX,POSTAL,CITY,SSN,PHONE,BIRTHDATE,COUNTRY,ADDR
ESS,STATE,HIRE_DATE,DEPTID,JOBCODE";
```

For example, to add the `LOCATION` column, add `LOCATION` at the end of the list of the list of column names as follows:

```
&hdr =
"EMPLID,LASTNAME,FIRSTNAME,SEX,POSTAL,CITY,SSN,PHONE,BIRTHDATE,COUNTRY,ADDR
ESS,STATE,HIRE_DATE,DEPTID,JOBCODE,LOCATION";
```

b. Modify the SQL statement in the file to retrieve and store the value for the new attribute added in a local variable.

For example, to add the job location attribute, `LOCATION`, to the list of attributes that are reconciled, modify the SQL statement as follows:

```
SQLExec("select DEPTID, JOBCODE, LOCATION from ps_job a where emplid =:1
and effdt=(select max(effdt) from ps_job b where a.emplid=b.emplid and
effseq =(select max(effseq) from ps_job c where b.emplid = c.emplid and
```

```
b.effdt=c.effdt))", &empid, &deptid, &jobcd, &location);
```

   c. After modifying the header and SQL statement, add the required data to the XML message. For example, to add the LOCATION data in the XML message to the JOB tag, add the line highlighted in bold in the following code sample:

```
/* FOR JOB RECORD */
&MSG_ROWSET.GetRow(1).JOB.JOBCODE.Value = &jobcd;
&MSG_ROWSET.GetRow(1).JOB.DEPTID.Value = &deptid;
&MSG_ROWSET.GetRow(1).JOB.LOCATION.Value = &location;
```

2. Modify the peopleSoftApp.war file based on the custom attribute added. Extract the contents of the peopleSoftApp.war file into a temporary directory by using the following command:

```
jar -xvf peopleSoftApp.war
```

Copies of this file are in the application server deployment directory.

3. 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 LOCATION attribute:

```
Users.LOCATION=//Transaction/DEPT_TBL/LOCATION
```

> **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 . LOCATION, Users. LOCATION, Users.CURRENT LOCATION are all invalid key values because they contain spaces.

4. Delete the old version of the peopleSoftApp.war file from the temporary directory into which you had extracted it, and then enter the following command to re-create the file that contains the custom attribute added:

```
jar -cvf peopleSoftApp.war .
```

5. Delete the old version of the peopleSoftApp.war file from the application server deployment directory.

6. Copy the newly created peopleSoftApp.war file into the application server deployment directory.

7. 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. Add a column corresponding to the new attribute in the User Defined process form, UD_PSFT_HR. For the example described earlier, you can add the UD_PSFT_HR_LOCATION column for the new attribute added.

   b. Add a reconciliation field corresponding to the new attribute in the resource object, PSFT_HR_RO. For the example described earlier, you can add the Users.LOCATION reconciliation field.

    c. Modify the `PSFT_HR Process` 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.LOCATION = UD_PSFT_HR_LOCATION
```

    In this example, `LOCATION` 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.

8. Restart the Oracle Identity Manager server and client.

Adding a Custom Attribute for Incremental Reconciliation on PeopleTools 8.45 Through 8.48 To add a custom attribute for reconciliation on PeopleTools 8.45 through 8.48:

1. Make the required changes in the PeopleCode given in the `HRMSCBRecon.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, add a SQL statement to retrieve and store the column values for the new attribute in a local variable.

    For example, suppose you want to add the department location attribute, `LOCATION`, to the list of attributes that are reconciled. Add the following SQL statement to retrieve the values of the `LOCATION` column from the `PS_DEPT_TBL` table:

```
SQLExec("SELECT DESCR, LOCATION FROM PS_DEPT_TBL WHERE DEPTID=:1", &deptid,
&deptname, &location);
```

    b. Add the data fields you retrieved to the XML message. For example, to add the `LOCATION` column to the `DEPT_TBL` tag, add the lines highlighted in bold in the following code sample:

```
&recnode = &fieldtypenode.AddElement("DEPT_TBL");
&recnode.AddAttribute("class", "R");
&fields = &recnode.AddElement("DEPTNAME");
&fields.AddAttribute("type", "CHAR");
&fields = &recnode.AddElement("LOCATION");
&fields.AddAttribute("type", "CHAR");
```

    c. Add the data text you retrieved to the XML message. For example, to add the `LOCATION` column to the `DEPT_TBL` tag, add the lines highlighted in bold in the following code sample:

```
&datarecnode = &transnode.AddElement("DEPT_TBL");
&datarecnode.AddAttribute("class", "R");
&datafldnode = &datarecnode.AddElement("DEPTNAME");
&textnode = &datafldnode.AddText(&deptname);
&datafldnode = &datarecnode.AddElement("LOCATION");
&textnode = &datafldnode.AddText(&location);
```

2. In PeopleSoft Application Designer, copy the contents of the `HRMSCBRecon.txt` file into the `savePostChange` event for the `PERSONAL_DATA` component.

3. Extract the contents of the `peopleSoftApp.war` file into a temporary directory by using the following command:

```
jar -xvf peopleSoftApp.war
```

Copies of this file are in the application server deployment directory.

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

```
Users.LOCATION=//Transaction/DEPT_TBL/LOCATION
```

> **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 .` `LOCATION`, `Users. LOCATION`, `Users.CURRENT LOCATION` are all invalid key values because they contain spaces.

5. Delete the old version of the `peopleSoftApp.war` file from the temporary directory into which you had extracted it, and then use the following command to re-create the file that contains the new attribute:

```
jar -cvf peopleSoftApp.war .
```

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

7. Copy the newly created `peopleSoftApp.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_HR`. For the example described earlier, you can add the `UD_PSFT_HR_LOCATION` column.

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

g. Modify the `PSFT_HR Process` 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.LOCATION = UD_PSFT_HR_LOCATION
```

In this example, `LOCATION` 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 the Oracle Identity Manager server and client.

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 a target system attribute, which will be used in the SELECT query criteria to retrieve the records to be reconciled. This can be done by editing the configureReconciliation.properties file, which contains the OPRIDLIKE and UserType parameters.

You can specify values for any one or a combination of the following target system attributes:

- `Lastname`
- `DeptId`
- `Postal`

If you want to use multiple target system attributes to filter records, then you must also specify the logical operator (AND or OR) that you want to apply to the combination of target system attributes that you select.

For instructions to specify values for the target system attributes and the logical operator that you want to apply while deploying the connector, refer to the

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Testing the Connector

Testing the connector involves verifying that the PeopleSoft listener can reconcile employees into Oracle Identity Manager. This chapter provides 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 template is described in the `psft_xellerate_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/XLIntegrations/PSFTHR/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 employee 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.

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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.

- Different versions of multiple target systems are not supported.

- Effective dating for future changes to data is not supported.

- Target resource reconciliation and provisioning are not applicable for this connector.

- In the `configureReconciliation.properties` file, the following attribute values have been set incorrectly:

  - `Lastname=Test`

  - `DeptId=100`

  - `Postal=108`

  - `Operator=or`

  You must edit these attributes to remove the values that are specified. In other words change these four lines to the following:

  - `Lastname=`

  - `DeptId=`

  - `Postal=`

  - `Operator=`

- For successful incremental reconciliation, Oracle Identity Manager must be running when a change in employee information takes place in the target system. If Oracle Identity Manager were not running, then the XML message generated by the PeopleCode event is lost and the change in the employee information is not reconciled into Oracle Identity Manager, even if Oracle Identity Manager is started later.

A

Attribute Mappings Between Oracle Identity Manager and PeopleSoft Employee Reconciliation

The following table discusses attribute mappings between Oracle Identity Manager and PeopleSoft Employee Reconciliation.

Oracle Identity Manager Attribute	PeopleSoft Employee Reconciliation Attribute	Description
EmployeeID	PS_PERSON.EMPLID	Person ID associated with user
LastName	PS_NAMES.LAST_NAME	Last name
FirstName	PS_NAMES.FIRST_NAME	First Name
Sex	PS_PERS_DATA_EFFDT.SEX	Sex
Postal	PS_ADDRESSES.POSTAL	Postal address
City	PS_ADDRESSES.CITY	City name
SSN	PS_PERS_NID.NATIONAL_ID	National ID provided to user
Phone	PS_PERSONAL_PHONE.PHONE	Telephone number
BirthDate	PS_PERSONAL_DATA.BIRTHDATE	Date of birth
Country	PS_ADRESSES.COUNTRY	Country name
Address	PS_ADRESSES.ADDRESS1	Contact address
State	PS_ADRESSES.STATE	State
HireDate	PS_EMPLOYMENT.HIRE_DT	Date of hire
DepartmentID	PS_JOB.DEPTID	Department ID
JobCode	PS_JOB.JOBCODE	Job code

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