Oracle® Identity Manager

Connector Guide for PeopleSoft Employee Reconciliation

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Oracle Identity Manager Connector Guide for PeopleSoft Employee Reconciliation, Release 9.1.1

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Preface

This guide describes the connector that is used to integrate Oracle Identity Manager with PeopleSoft Human Resources Management Systems (HRMS).

Audience

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

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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*.

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

Documentation Updates

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

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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 release 9.1.1 of the PeopleSoft Employee Reconciliation connector.

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

- Software Updates

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

- Documentation-Specific Updates

  This section describes major changes made in this guide. These changes are not related to software updates.

Software Updates

The following sections discuss the software updates:

- Software Updates in Release 9.1.0
- Software Updates in Release 9.1.0.1
- Software Updates in Release 9.1.0.2
- Software Updates in Release 9.1.1

Software Updates in Release 9.1.0

The following software updates have been made in release 9.1.0:

- From this release onward, PeopleTools 8.22, 8.45, 8.46, 8.47, and 8.48 are not supported. Information specific to these releases has been removed from the guide. The modified target system requirements information is documented in Section 1.1, "Certified Components."
- The list of target system fields that are reconciled has changed. This is described in Section 1.5.1, "User Attributes for Reconciliation."
- The list of person types that are supported in this release of the connector has been modified. See "Valid Person Types" on page 16 for details.

- The connector supports the Effective Dating feature of the target system. See Section 1.4.4, "Reconciliation of Effective-Dated Lifecycle Events" for details.
- The connector supports person termination events. See Section 1.4.7, "Person Termination Events" for details.
- Information about the files in which you set the log levels has changed. This information is available in Section 2.3.1.1, "Enabling Logging."
- From this release onward, the connector is installed through the Connector Installer feature of the Oracle Identity Manager Administrative and User Console. Instructions to perform the installation are provided in Section 2.2.1.1, "Running the Connector Installer."
- You can configure SSL connectivity between Oracle Identity Manager and the target system for this release of the connector. However, SSL is not supported for Oracle Application Server. For instructions to configure SSL, see Section 2.3, "Postinstallation."

Software Updates in Release 9.1.0.1

The following software updates have been made in release 9.1.0.1:

- Support for Oracle Identity Manager Release 9.1.0.1
- Resolved Issues in Release 9.1.0.1

Support for Oracle Identity Manager Release 9.1.0.1

From this release onward, the connector can be deployed on Oracle Identity Manager release 9.1.0.1.

Resolved Issues in Release 9.1.0.1

The following table lists the issues resolved in this release:

Bug Number	Issue	Resolution
8246283	The deployment.properties file is bundled in the listener (PeopleSoftOIMListener.war) file. The default message name in this properties file was the one used during testing. You had to change the message name and redeploy the listener while testing the connector and again before you started using it in your production environment.	This issue has been resolved. The message name for both testing and production environments has been set to `PSFT_OIM_ER_MSG`.

Software Updates in Release 9.1.0.2

There are no software updates in release 9.1.0.2.

Software Updates in Release 9.1.1

The following software updates have been made in release 9.1.1:

- Support for Major Person Lifecycle Events
- Support for Standard PeopleSoft Messages
- Enhanced Set of Lookup Definitions
- Support for Resending Messages That Are Not Processed
- Support for Effective-Dated Lifecycle Events

- Support for the Multiple Trusted Source Reconciliation Feature of Oracle Identity Manager
- Support for Validation and Transformation of Person Data
- Support for Creating Copies of Connector Objects
- Support for Specifying Persons to Be Excluded from Reconciliation Operation
- Resolved Issues in Release 9.1.1

Support for Major Person Lifecycle Events

From this release onward, the connector helps you to manage all major person lifecycle events, from onboarding to termination and beyond a whole range of events that defines a long-term relationship a person establishes with an organization. This relationship can be defined as the person lifecycle.

The connector performs real-time reconciliation of changes in PeopleSoft including new person creation, changes to existing persons, and so on.

Whenever the status of a person changes in PeopleSoft, the status of the OIM User changes as defined in the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition.

See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information.

Support for Standard PeopleSoft Messages

In earlier releases, the connector made use of custom PeopleCode in PeopleSoft HRMS for full reconciliation and incremental reconciliation. From this release onward, the connector uses the following standard PeopleSoft messages that are delivered as part of PeopleSoft HRMS installation:

- PERSON_BASIC_FULLSYNC
- WORKFORCE_FULLSYNC
- PERSON_BASIC_SYNC
- WORKFORCE_SYNC

See Section 1.4.5, "Support for Standard PeopleSoft Messages" for more information.

Enhanced Set of Lookup Definitions

Lookup definitions have been added to support reconciliation based on standard message types.

See Section 1.5.4, "Predefined Lookup Definitions" for a complete listing of the lookup definitions.

Support for Resending Messages That Are Not Processed

Standard messages provided by PeopleSoft are asynchronous. In other words, if a message is not delivered successfully, then the PeopleSoft Integration Broker marks that message as not delivered. The message can then be resent manually.

See Section 3.5, "Resending Messages That Are Not Received by the PeopleSoft Listener" for more information.

Support for Effective-Dated Lifecycle Events

The connector can recognize and respond to both current-dated and effective-dated lifecycle events.

See Section 1.4.4, "Reconciliation of Effective-Dated Lifecycle Events" for more information.

Support for the Multiple Trusted Source Reconciliation Feature of Oracle Identity Manager

The connector now supports the multiple trusted source reconciliation feature of Oracle Identity Manager. See *Oracle Identity Manager Design Console Guide* for detailed information about multiple trusted source reconciliation.

Support for Validation and Transformation of Person Data

You can configure validation of person data that is brought into Oracle Identity Manager during reconciliation. In addition, you can configure transformation of person data that is brought into Oracle Identity Manager during reconciliation.

See the following sections for more information:

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

Support for Creating Copies of Connector Objects

To meet the requirements of specific use cases, you might need to create multiple copies of the Oracle Identity Manager objects that constitute the connector. The connector can work with multiple instances of these objects.

See Section 4.8, "Configuring the Connector for Multiple Installations of the Target System" for more information.

Support for Specifying Persons to Be Excluded from Reconciliation Operation

From this release onward, you can specify a list of persons who must be excluded from all reconciliation operations.

See Section 1.5.4.3.2, "Lookup.PSFT.HRMS.ExclusionList" for more information.

Resolved Issues in Release 9.1.1

The following issues are resolved in release 9.1.1:

Bug Number	Issue	Description
8351580 and 8718471	The connector supported a single PeopleSoft implementation for a single Oracle Identity Manager. The connector did not allow the reuse of the adapters with multiple objects, processes, and form names required for different implementations.	This issue has been resolved. The connector now makes use of the configuration lookup definitions. The Oracle Identity Manager object references can now be configured.
8315375	The properties file was loaded multiple times during reconciliation.	This issue has been resolved. From this release onward, the connector does not require the properties file. Instead, it makes use of lookup definitions.

Bug Number	Issue	Description
8919647	The connector did not retrieve the OIM User status from HR Action. It made use of person job status (active or inactive) to mark the status of an OIM User.	This issue has been resolved. The connector now makes use of a lookup definition that maps the Action taken against a person with the OIM User status. The connector now handles major person lifecycle events.
8948098	The target system date format used during reconciliation was incorrect.	This issue has been resolved. You can now specify the target system date format as the value of the **Target Date Format** entry in the Lookup.PSFT.Configuration lookup definition. See Section 1.5.4.3.1, "Lookup.PSFT.Configuration" for more information.

Documentation-Specific Updates

The following sections discuss documentation-specific updates:

- Documentation-Specific Updates in Release 9.1.0
- Documentation-Specific Updates in Release 9.1.0.1
- Documentation-Specific Updates in release 9.1.0.2
- Documentation-Specific Updates in release 9.1.1

Documentation-Specific Updates in Release 9.1.0

The following are the documentation-specific updates in release 9.1.0:

- Information about connector deployment has been modified in this document based on the different stages of connector deployment. This information is provided in Chapter 2, "Deploying the Connector."
- The extended functionalities of the connector are described in Chapter 3, "Using the Connector."
- The architecture of the connector has been included in this guide. This information is located at Section 1.3, "Connector Architecture."
- The field mappings between the target system and Oracle Identity Manager have been moved from the appendix to the first chapter. For information about the field mappings for reconciliation, see Section 1.5.1, "User Attributes for Reconciliation."
- The reconciliation rules and the corresponding actions for these rules have been added to the guide. For information about these rules, see Section 1.5.2, "Reconciliation Rules."

Documentation-Specific Updates in Release 9.1.0.1

The following is a documentation-specific update in release 9.1.0.1:

- In Section 2.2.1.4, "Deploying the PeopleSoft Listener" the steps to redeploy the PeopleSoftOIMListener.war file into the deployment directory of Oracle WebLogic Server have been modified.

Documentation-Specific Updates in release 9.1.0.2

There are no documentation-specific updates in release 9.1.0.2.

Documentation-Specific Updates in release 9.1.1

Major changes have been made to the structure of the guide. The objective of these changes is to synchronize the guide with the changes made to the connector and to improve the usability of the information provided by the guide.

1

About the Connector

Oracle Identity Manager automates access rights management, and the security of resources to various target systems. Oracle Identity Manager connectors are used to integrate Oracle Identity Manager with target applications. This guide discusses the connector that enables you to use PeopleSoft HRMS as an authoritative (trusted) source of identity information for Oracle Identity Manager.

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

In the identity reconciliation (trusted source) configuration of the connector, persons are created or modified only on the target system and information about these persons is reconciled into Oracle Identity Manager.

This chapter contains the following sections:

1.1 Certified Components

Table 1–1 lists the components certified for use with the connector.

Table 1–1 Certified Components

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 9.1.0.2 BP04
Target system	PeopleSoft HRMS 9.0 with PeopleTools 8.49

Table 1–1 (Cont.) Certified Components

Item	Requirement
	You must ensure that the following components are installed and configured in the target system environment: ■ Tuxedo and Jolt (the application server) ■ PeopleSoft Internet Architecture ■ PeopleSoft Application Designer (2-tier mode) The following standard PeopleSoft messages are available: ■ PERSON_BASIC_FULLSYNC ■ WORKFORCE_FULLSYNC ■ PERSON_BASIC_SYNC ■ WORKFORCE_SYNC
JDK	JDK 1.5 or later

Determining the Version of PeopleTools and the Target System

You might want to determine the versions of PeopleTools and the target system you are using to check whether this release of the connector supports that combination. To determine the versions of PeopleTools and the target system:

1. Open a Web browser and enter the URL of PeopleSoft Internet Architecture. The URL of PeopleSoft Internet Architecture is in the following format:

   `http://IPADDRESS:PORT/psp/ps/?cmd=login`

   For example:

   `http://172.21.109.69:9080/psp/ps/?cmd=login`

2. Click **Change My Password**. On the page that is displayed, press **Ctrl+J**. The versions of PeopleTools and the target system that you are using are displayed.

1.2 Certified Languages

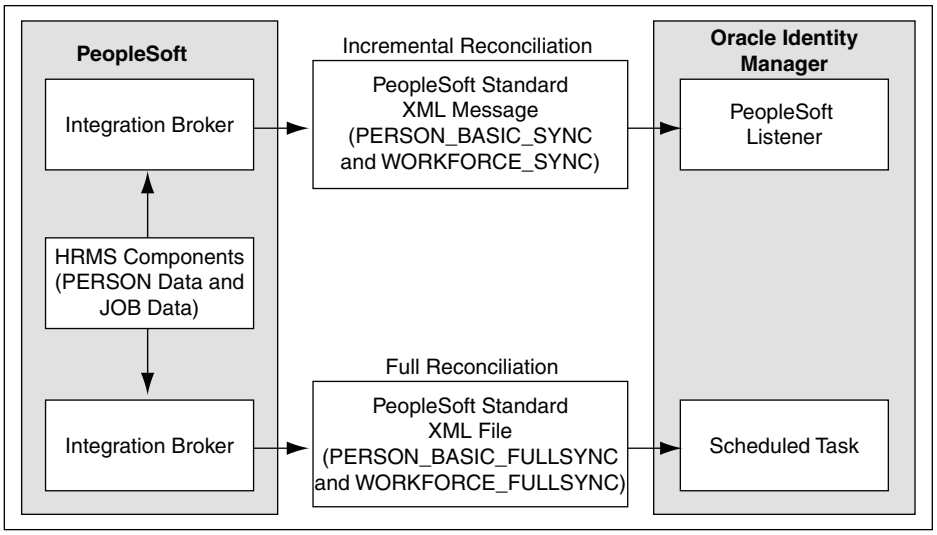
The connector supports only the English language. This has been documented in Chapter 6, "Known Issues."

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

1.3 Connector Architecture

Figure 1–1 shows the architecture of the connector.

Figure 1–1 Architecture of the Connector



The target system is configured as a trusted source of identity data for Oracle Identity Manager. In other words, identity data that is created and updated on the target system is fetched into Oracle Identity Manager and used to create and update OIM Users.

Standard PeopleSoft XML files and messages are the medium of data interchange between PeopleSoft HRMS and Oracle Identity Manager.

The method by which person data is sent to Oracle Identity Manager depends on the type of reconciliation that you configure. It is listed as follows:

- Section 1.3.1, "Full Reconciliation"
- Section 1.3.2, "Incremental Reconciliation"

1.3.1 Full Reconciliation

Note: 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.

PERSON_BASIC_FULLSYNC and WORKFORCE_FULLSYNC are standard PeopleSoft messages used for sending entire person data to external applications, such as Oracle Identity Manager. See Section 1.4.5, "Support for Standard PeopleSoft Messages" for more information about these messages. A full reconciliation run involves fetching all the person records from PERSON_BASIC_FULLSYNC and the WORKFORCE_FULLSYNC message XML files into Oracle Identity Manager.

Full reconciliation involves the following steps:

See Section 3.2, "Performing Full Reconciliation" for the procedure to perform full reconciliation.

1. The PeopleSoft Integration Broker populates the XML files for the PERSON_BASIC_FULLSYNC and WORKFORCE_FULLSYNC messages with all the person data, such as biographical information and job information.

2. Copy these XML files to a directory on the Oracle Identity Manager host computer.
3. Configure the PeopleSoft HRMS Trusted Reconciliation scheduled task. The XML files are read by this scheduled task to generate reconciliation events.

1.3.2 Incremental Reconciliation

Incremental reconciliation involves real-time reconciliation of newly created or modified person data. You use incremental reconciliation to reconcile individual data changes after an initial, full reconciliation run has been performed. PERSON_BASIC_SYNC or WORKFORCE_SYNC are standard PeopleSoft messages to initiate incremental reconciliation. See Section 1.4.5, "Support for Standard PeopleSoft Messages" for details. These messages are used to send specific person data for each transaction on the target system that involves addition or modification of person information. Incremental reconciliation is configured using PeopleSoft application messaging.

Incremental reconciliation involves the following steps:

Section 3.3, "Performing Incremental Reconciliation" describes the procedure to configure incremental reconciliation.

1. When person data is added or updated in the target system, a PeopleCode event is generated.
2. The PeopleCode event generates an XML message, PERSON_BASIC_SYNC or WORKFORCE_SYNC, containing the modified person data and sends it in real time to the PeopleSoft listener over HTTP. The PeopleSoft listener is a Web application that is deployed on an Oracle Identity Manager host computer. If SSL is configured, then the message is sent to the PeopleSoft listener over HTTPS.
3. The PeopleSoft listener parses the XML message and creates a reconciliation event in Oracle Identity Manager.

1.4 Features of the Connector

The following are the features of the connector:

- Section 1.4.1, "Dedicated Support for Trusted Source Reconciliation"
- Section 1.4.2, "Full and Incremental Reconciliation"
- Section 1.4.3, "Support for Major Person Lifecycle Events"
- Section 1.4.5, "Support for Standard PeopleSoft Messages"
- Section 1.4.6, "Support for Resending Messages That Are Not Processed"
- Section 1.4.4, "Reconciliation of Effective-Dated Lifecycle Events"
- Section 1.4.7, "Validation and Transformation of Person Data"
- Section 1.4.8, "Reconciliation of the Manager ID Attribute"
- Section 1.4.9, "Target Authentication"
- Section 1.4.10, "Support for Specifying Persons to Be Excluded from Reconciliation Operation"

1.4.1 Dedicated Support for Trusted Source Reconciliation

The connector provides all the features required for setting up PeopleSoft HRMS as a trusted (authoritative) source of identity data for Oracle Identity Manager. Oracle

Identity Manager uses this message for incremental reconciliation. In other words, the connector does not support provisioning operations and target resource reconciliation with PeopleSoft HRMS.

1.4.2 Full and Incremental Reconciliation

The connector supports reconciliation in two ways:

In a full reconciliation run, all records are fetched from the target system to Oracle Identity Manager in the form of XML files. In incremental reconciliation, records that are added or modified are directly sent to the listener deployed on the Oracle Identity Manager host computer. The listener parses the records and sends reconciliation events to Oracle Identity Manager.

1.4.3 Support for Major Person Lifecycle Events

The connector helps you to manage all major person lifecycle events, from onboarding to termination and beyond a whole range of events that defines a long-term relationship a person establishes with an organization. This relationship can be defined as the person lifecycle.

The connector performs real-time reconciliation of changes in PeopleSoft including new person creation, changes to existing persons, and so on. Real-time reconciliation allows Oracle Identity Manager to immediately detect critical lifecycle events, such as job terminations, transfers, and so on. Oracle Identity Manager is thus able to take the appropriate action immediately.

Whenever the status of a person changes in PeopleSoft, the status of the OIM User changes as defined in the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition. See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information.

1.4.4 Reconciliation of Effective-Dated Lifecycle Events

On the target system, you can use the effective-dated feature to assign a future date to changes that you want to make to a person account.

The connector can distinguish between hire events and other events in the lifecycle of a person record on the target system. These events may be either current-dated or future-dated (in other words, effective-dated). A current-dated event is one in which the date of the event is prior to or same as the current date. A future-dated event is one in which the date the event will take effect is set in the future. For example, if the current date is 30-Jan-09 and if the date set for an event is 15-Feb-09, then the event is future-dated. During reconciliation, the manner in which an event is processed depends on the type of the event.

PeopleSoft uses two standard messages to reconcile a record. These are the PERSON_BASIC_SYNC and the WORKFORCE_SYNC messages. See Section 1.4.5, "Support for Standard PeopleSoft Messages" for more information about these messages.

You run the PERSON_BASIC_SYNC message to create an OIM User. The default status of an OIM User is **Active**. See the **Employee Status** Code Key in the lookup definition described in Section 1.5.4.1.1, "Lookup.PSFT.Message.PersonBasicSync.Configuration."

The job-related information of a person is updated through the WORKFORCE_SYNC message. In addition, the status is modified depending on the information fetched from the **ACTION** node of the WORKFORCE_SYNC message XML. For example, the

value for hire event is retrieved from the ACTION node of the WORKFORCE_SYNC message XML as `HIR`.

The Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition provides a mapping for the value retrieved from the ACTION node of the XML message. In the lookup definition, the Code Key defines the action performed, and the Decode value is either Active or Inactive. Depending on the Decode value, the status of the person appears as Active or Disabled in Oracle Identity Manager.

For example, in this case the data fetched from the XML message is `HIR`. The Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition stores the mapping for the HIR action, in the Decode column. If you want to display Active on the Oracle Identity Manager console as against the HIR action then define the following mapping in the lookup definition:

Code Key: HIR

Decode: Active

See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information about this lookup definition.

Note: In the context of the Effective Date feature, records for a particular person on the target system can be categorized into the following types:

- **Current:** The record with an effective date that is closest to or same as, but not greater than, the system date. There can be only one current record
- **History:** Records with dates that are earlier than that of the current-dated record
- **Future:** Records that have effective dates later than the system date

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1.4.5 Support for Standard PeopleSoft Messages

PeopleSoft provides standard messages to send biographical data and job-related data to external applications, such as Oracle Identity Manager. The connector uses the following standard PeopleSoft messages that are delivered as part of PeopleSoft HRMS installation to achieve full reconciliation and incremental reconciliation:

- PERSON_BASIC_FULLSYNC

  This message contains all the basic biographical information of all persons. This information includes Employee ID, First Name, Last Name, and Employee Type. It is used for full reconciliation.

- PERSON_BASIC_SYNC

  This message contains the information about a particular person. This includes Employee ID and the information that is added or modified. During incremental reconciliation, PERSON_BASIC_SYNC messages are sent to Oracle Identity Manager.

Note: It is only if a person is added in PeopleSoft that the triggering of PERSON_BASIC_SYNC creates an OIM User. But, if an OIM User has been created during full reconciliation, then the PERSON_BASIC_SYNC message contains modifications to personal data.

- WORKFORCE_FULLSYNC

  This message contains job-related details of all persons. This information includes Department, Supervisor ID, Manager ID, and Job Code. It is used for full reconciliation.

- WORKFORCE_SYNC

  This message contains job-related details of a particular person. This information includes Employee ID and the information that is added or modified. It is used in incremental reconciliation.

Note: When you reconcile records, it is mandatory to run the PERSON_BASIC_FULLSYNC message before WORKFORCE_FULLSYNC. If the WORKFORCE_FULLSYNC message is processed first, then Oracle Identity Manager stores the data for all those events in the **Event Received** state and processes them after person data is available through reconciliation performed using the PERSON_BASIC_FULLSYNC message.

1.4.6 Support for Resending Messages That Are Not Processed

Standard messages provided by PeopleSoft are asynchronous. In other words, if a message is not delivered successfully, then the PeopleSoft Integration Broker marks that message as not delivered. The message can then be resent manually.

If the connector is not able to process a message successfully, then it sends an error code and PeopleSoft Integration Broker marks that message as Failed. A message marked as Failed can be resent to the listener. See Section 3.5, "Resending Messages That Are Not Received by the PeopleSoft Listener" for details.

See Also: *Resubmitting and Canceling Service Operations for Processing* topic in the PeopleBook *Enterprise PeopleTools 8.49 PeopleBook: PeopleSoft Integration Broker* available on Oracle Technology Network:

`http://download.oracle.com/docs/cd/E13292_01/pt849pbr0/eng/psbooks/tibr/book.htm`

1.4.7 Validation and Transformation of Person Data

You can configure validation of person data that is brought into Oracle Identity Manager during reconciliation. In addition, you can configure transformation of person data that is brought into Oracle Identity Manager during reconciliation.

- Section 4.4, "Configuring Validation of Data During Reconciliation" provides information about setting up the validation feature.
- Section 4.5, "Configuring Transformation of Data During Reconciliation" provides information about setting up the transformation feature.

1.4.8 Reconciliation of the Manager ID Attribute

The Manager ID attribute is one of the predefined OIM User form attributes. When you reconcile data while creating an OIM User, you can populate this field with manager details.

Note: The target system also provides the Supervisor attribute, which is a lookup field on the target system UI. This value is populated in the Supervisor ID field, which is a UDF on the process form.

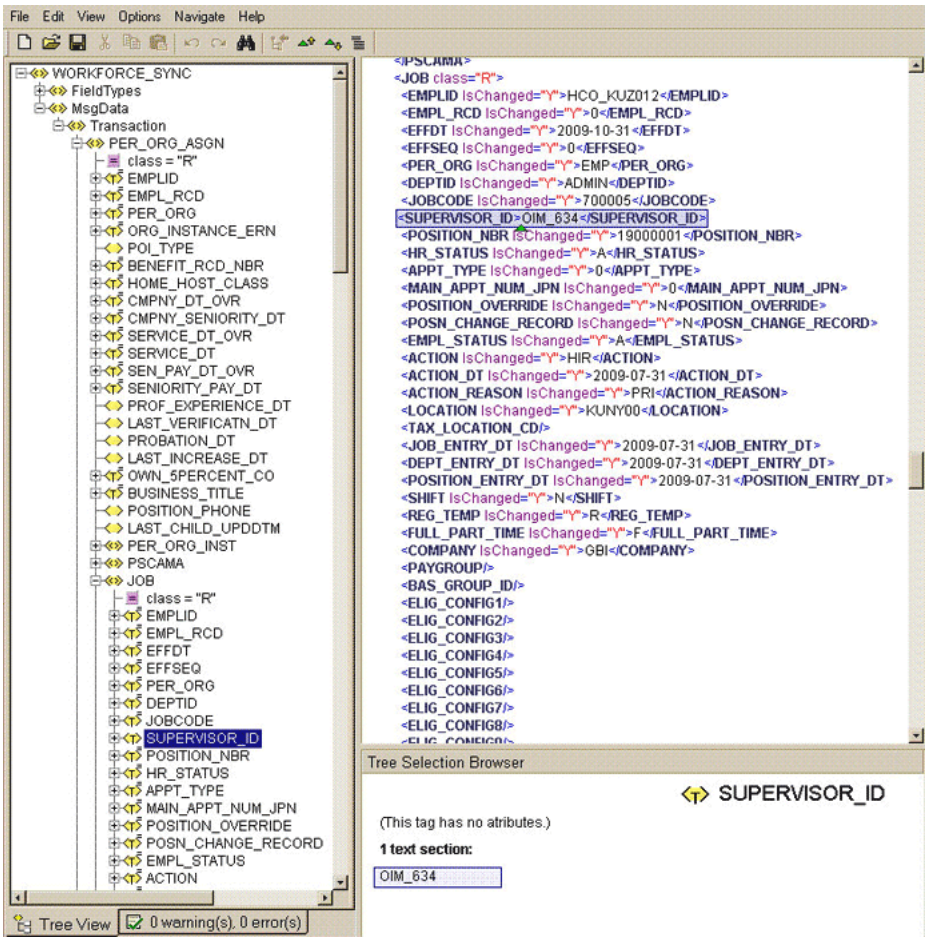
The connector reconciles the manager information based on the Supervisor ID in Oracle Identity Manager and the job information fetched through the WORKFORCE_SYNC message.

Steps in the Manager ID Reconciliation Process

To update the job details of a person:

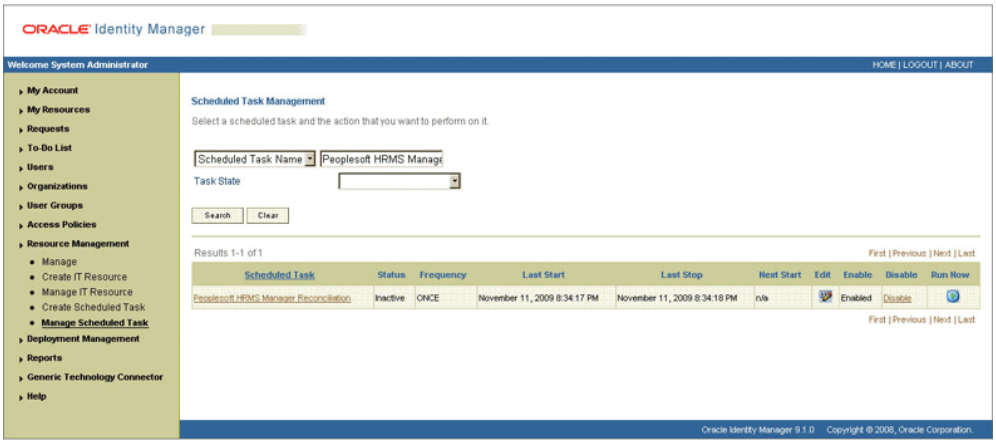
1. The Supervisor details for a person are retrieved from the target system when you run the WORKFORCE_FULLSYNC or the WORKFORCE_SYNC message.

   The Supervisor details are fetched from the SUPERVISOR_ID node of the message XML, as shown in the following screenshot:



2. The connector populates the Supervisor ID field in the process form.

3. Run the PeopleSoft HRMS Manager Reconciliation scheduled task. See Section 3.2.2.2, "Running the PeopleSoft HRMS Manager Reconciliation Scheduled Task" for instructions on how to reconcile Manager ID values in this scenario.



4. The scheduled task checks for the existence of an OIM User with the same User ID as that of Supervisor ID value. If a match is found, the Manager ID attribute is updated with the value of the Supervisor ID.

This sequence of steps can be illustrated by the following example:

Suppose Richard is a person on the target system with the user ID 02. John Doe, his manager, with user ID 01 exists on Oracle Identity Manager. During reconciliation of Richard's person record:

1. The Supervisor ID of Richard is fetched from the target system using the WORKFORCE_FULLSYNC or the WORKFORCE_SYNC message. The value fetched is 01.
2. The Supervisor ID field of Richard is populated with 01.
3. The scheduled task looks for an OIM User with the same Supervisor ID value. John's record matches the criterion.
4. The Manager ID field pertaining to Richard is populated with 01.

1.4.9 Target Authentication

Target authentication is done to validate whether Oracle Identity Manager should accept messages from the target system or not. It is done by passing the name of the IT resource in the Integration Broker node. You must ensure that the correct value of the IT resource name is specified in the node. See Section 2.2.2.2.1, "Configuring PeopleSoft Integration Broker" for setting up the node. In addition, the flag IsActive is used to verify whether the IT Resource is active or not. The value of this flag is `Yes`, by default. When this value is Yes, target authentication is carried out. Target authentication fails if it is set to `No`.

1.4.10 Support for Specifying Persons to Be Excluded from Reconciliation Operation

You can specify a list of persons who must be excluded from all reconciliation operations. Persons whose User IDs you specify in the exclusion list are not affected by the reconciliation operation. See Section 1.5.4.3.2, "Lookup.PSFT.HRMS.ExclusionList" for more information.

1.5 Connector Objects Used During Reconciliation

Trusted source reconciliation involves reconciling data of newly created or modified accounts on the target system into Oracle Identity Manager and adding or updating OIM Users.

> **See Also:** "Trusted Source Reconciliation" in *Oracle Identity Manager Connector Concepts* for conceptual information about trusted source reconciliation

This section discusses the following topics:

- Section 1.5.1, "User Attributes for Reconciliation"
- Section 1.5.2, "Reconciliation Rules"
- Section 1.5.3, "Reconciliation Action Rules"
- Section 1.5.4, "Predefined Lookup Definitions"

1.5.1 User Attributes for Reconciliation

Table 1–2 lists the identity attributes whose values are fetched from the target system during reconciliation.

Table 1–2 User Attributes for Reconciliation

OIM User Form Field	PeopleSoft HRMS/HCM Field	Description
User ID	PS_PERSON.EMPLID	The employee ID of the user This is a mandatory field for the creation of an OIM User.
Last Name	PS_NAMES.LAST_NAME	The last name of the user This is a mandatory field for the creation of an OIM User.
First Name	PS_NAMES.FIRST_NAME	The first name of the user This is a mandatory field for the creation of an OIM User.
Employee Type	PS_JOB.REG_TEMP PS_JOB.FULL_PART_TIME PS_JOB.PER_ORG	The employee type of the OIM User The combination of the values of the PS_JOB.REG_TEMP, PS_JOB.FULL_PART_TIME, and the PS_JOB.PER_ORG fields are used to specify the employee type of the OIM User. This is a mandatory field for the creation of an OIM User.
Status	PS_JOB.ACTION	The action to be taken for a person. It could be HIRE, TRANSFERED, and so on.
Start Date	PS_JOB.EFFDT	The effective date of a person's job record
Supervisor ID	PS_JOB.SUPERVISOR_ID	The supervisor ID of a person
Department	PS_JOB.DEPTID	The department ID of a person
Job ID	PS_JOB.JOBCODE	The job ID of a person

1.5.2 Reconciliation Rules

See Also: *Oracle Identity Manager Connector Concepts* for generic information about reconciliation matching and action rules

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

- Section 1.5.2.1, "Overview of the Reconciliation Rule"
- Section 1.5.2.2, "Viewing the Reconciliation Rule in the Design Console"

1.5.2.1 Overview of the Reconciliation Rule

The following is the process-matching rule:

Rule Name: Peoplesoft HRMS Recon Rule

Rule Element: User Login Equals User ID

In this rule:

- User Login represents the User ID field on the OIM User form.
- User ID represents the Employee ID field of the employee on the target system.

For trusted source reconciliation, the User ID field of the OIM User form is matched against the Employee ID field on the target system. These are the key fields in Oracle Identity Manager and the target system, respectively.

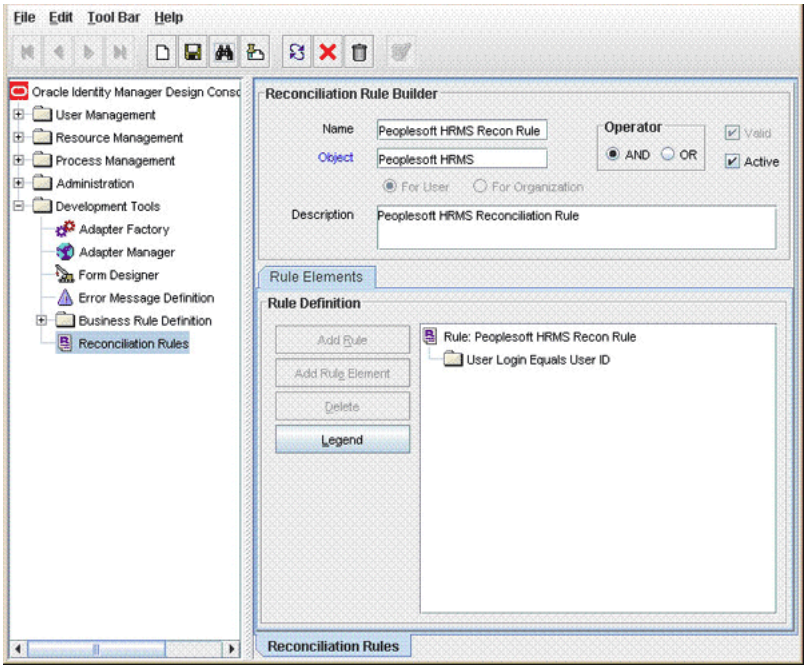
1.5.2.2 Viewing the Reconciliation Rule in the Design Console

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

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

1. Log in to the Oracle Identity Manager Design Console.
2. Expand **Development Tools.**
3. Double-click **Reconciliation Rules.**
4. Search for and open **PSFT ER.** Figure 1–2 shows this reconciliation rule.

Figure 1–2 Reconciliation Rule



See Also: *Oracle Identity Manager Design Console Guide* for information about modifying reconciliation rules

1.5.3 Reconciliation Action Rules

Application of the matching rule on reconciliation events would result in one of multiple possible outcomes. The action rules for reconciliation define the actions to be taken for these outcomes.

Note: For any rule condition that is not predefined for this connector, no action is performed and no error message is logged.

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

- Section 1.5.3.1, "Overview of the Reconciliation Action Rules"
- Section 1.5.3.2, "Viewing the Reconciliation Action Rules in the Design Console"

1.5.3.1 Overview of the Reconciliation Action Rules

Table 1–3 lists the reconciliation action rules for this connector:

Table 1–3 Action Rules for Trusted Source Reconciliation

Rule Condition	Action
No Matches Found	Create User
One Entity Match Found	Establish Link

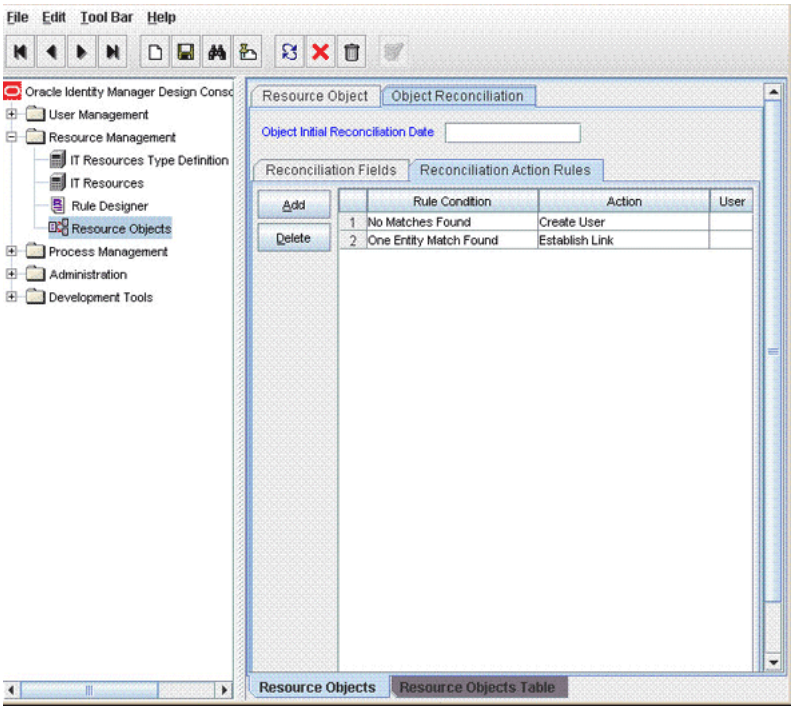
1.5.3.2 Viewing the Reconciliation Action Rules in the Design Console

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

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

1. Log in to the Oracle Identity Manager Design Console.
2. Expand **Resource Management.**
3. Double-click **Resource Objects.**
4. Search for and open the **Peoplesoft HRMS** resource object.
5. Click the **Object Reconciliation** tab and then the **Reconciliation Action Rules** tab. The Reconciliation Action Rules tab displays the action rules defined for this connector. Figure 1–3 shows these reconciliation action rules.

Figure 1–3 Reconciliation Action Rules



See Also: *Oracle Identity Manager Design Console Guide* for information about modifying reconciliation action rules

1.5.4 Predefined Lookup Definitions

The predefined lookup definitions can be categorized as follows:

- Section 1.5.4.1, "Lookup Definitions Used to Process PERSON_BASIC_SYNC Messages"
- Section 1.5.4.2, "Lookup Definitions Used to Process WORKFORCE_SYNC Messages"

- Section 1.5.4.3, "Other Lookup Definitions"

1.5.4.1 Lookup Definitions Used to Process PERSON_BASIC_SYNC Messages

The following lookup definitions are used to process PERSON_BASIC_SYNC messages:

1.5.4.1.1 Lookup.PSFT.Message.PersonBasicSync.Configuration The Lookup.PSFT.Message.PersonBasicSync.Configuration lookup definition provides the configuration-related information for the PERSON_BASIC_SYNC and PERSON_BASIC_FULLSYNC messages.

The lookup definition has the following entries:

Code Key	Decode	Description
Attribute Mapping Lookup	Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping	Name of the lookup definition that maps Oracle Identity Manager attributes with the attributes in the PERSON_BASIC_SYNC and PERSON_BASIC_FULLSYNC message XML See Section 1.5.4.1.2, "Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping" for more information about this lookup definition.
Custom Query	Enter a Value	If you want to implement limited reconciliation, then enter the query condition that you create by following the instructions given in the Section 3.4, "Limited Reconciliation."
Custom Query Lookup Definition	Lookup.PSFT.HRMS.CustomQuery	This entry holds the name of the lookup definition that maps resource object fields with OIM User form fields. This lookup definition is used during application of the custom query. See Section 3.4, "Limited Reconciliation" for more information.
Data Node Name	Transaction	Name of the node in the XML files to execute a transaction Default value: `Transaction` You must not change the default value.
Employee Status	Active	Default status of an employee during the creation of an OIM User **Note:** You can change the status to Disabled, if you want the status to be Inactive when the OIM User is created.

Code Key	Decode	Description
Employee Type Lookup	Lookup.PSFT.HRMS.PersonBasicSync.EmpType	Name of the lookup definition that maps Oracle Identity Manager attributes with employee type attributes obtained from XML message See Section 1.5.4.1.4, "Lookup.PSFT.HRMS.PersonBasicSync.EmpType" for more information about this lookup definition.
Message Handler Class	oracle.iam.connectors.psft.common.handler.impl.PSFTPersonSyncReconMessageHandlerImpl	Name of the Java class that accepts the XML payload, configuration information, and a handle to Oracle Identity Manager. Depending on the message type, it retrieves the appropriate configuration from Oracle Identity Manager and processes the message. To parse a specific message type, it relies on a Message Parser factory. If you want a customized implementation of the message, then you must extend the `MessageHandler.java` class. **See Also:** Appendix B, "Configuring the Connector Messages"
Message Parser	oracle.iam.connectors.psft.common.parser.impl.PersonMessageParser	Name of the parser implementation class that contains the logic for message parsing If you want a customized implementation of the message, then you must extend the `MessageParser.java` class. See Also: Appendix B, "Configuring the Connector Messages"
Organization	Xellerate Users	Default organization in Oracle Identity Manager
Recon Lookup Definition	Lookup.PSFT.HRMS.PersonBasicSync.Recon	Name of the lookup definition that maps Oracle Identity Manager attributes with the Resource Object attributes See Section 1.5.4.1.3, "Lookup.PSFT.HRMS.PersonBasicSync.Recon" for more information about this lookup definition.
Resource Object	Peoplesoft HRMS	Name of the resource object

Code Key	Decode	Description
Transformation Lookup Definition	Lookup.PSFT.HRMS.PersonBasicSync.Transformation	Name of the transformation lookup definition See Section 4.5, "Configuring Transformation of Data During Reconciliation" for more information about adding entries in this lookup definition.
User Type	End-User	It specifies the value with which a person is created in Oracle Identity Manager using the PERSON_BASIC_SYNC message.
Use Transformation	No	Enter `yes` to implement transformation while reconciling records. Otherwise, enter `no`.
Use Validation	No	Enter `yes` to implement validation while reconciling records. Otherwise, enter `no`.
Validation Lookup Definition	Lookup.PSFT.HRMS.PersonBasicSync.Validation	Name of the validation lookup definition See Section 4.4, "Configuring Validation of Data During Reconciliation" for more information about adding entries in this lookup definition.

1.5.4.1.2 Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping

The Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition maps OIM User attributes with the attributes defined in the PERSON_BASIC_SYNC message. The following table provides the format of the values stored in this lookup definition:

Code Key	Decode
Emp Type	PER_ORG~PERSON
First Name	FIRST_NAME~NAMES~NAME_TYPE=PRI~EFFDT
Last Name	LAST_NAME~NAMES~NAME_TYPE=PRI~EFFDT
User ID	EMPLID~PERSON~None~None~PRIMARY

Code Key: Name of the OIM User field

Decode: Combination of the following elements separated by the tilde (~) character:

```
NODE~PARENT NODE~TYPE NODE=Value~EFFECTIVE DATED NODE~PRIMARY
```

In this format:

NODE: Name of the node in the PERSON_BASIC_SYNC message XML file from which the value is read. You must specify the name of the NODE in the lookup definition. It is a mandatory field.

PARENT NODE: Name of the parent node for the NODE. You must specify the name of the parent node in the lookup definition. It is a mandatory field.

TYPE NODE=Value: Type of the node associated with the Node value. Value defines the type of the Node.

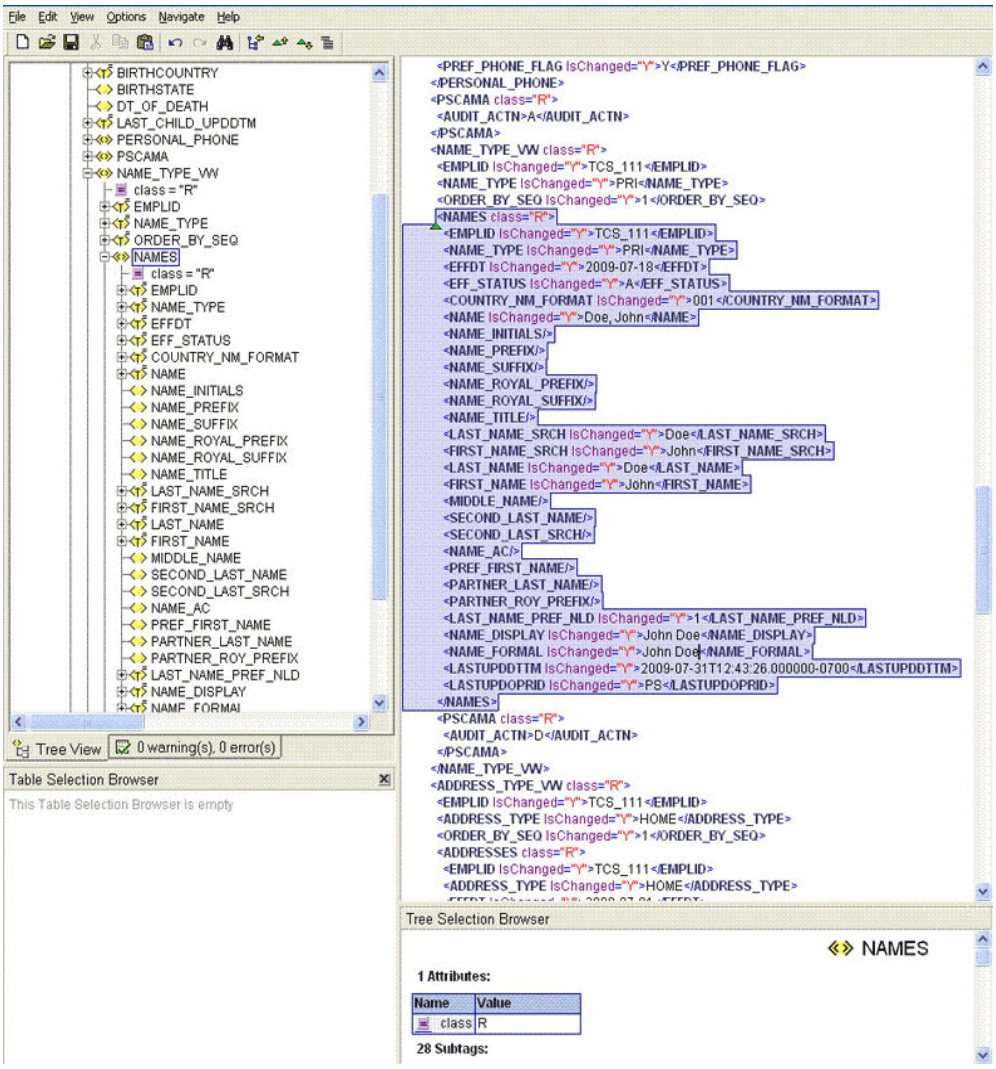
For example, in the PERSON_BASIC_SYNC message, the rowset NAME_TYPE_VW lists the names assigned to a person. The names assigned could be primary, secondary, or nickname, depending on how it is configured in PeopleSoft.

If you want to use the primary name to create an OIM User, then you must locate the NAME_TYPE node with the value PRI to fetch First Name and Last Name from the XML message. Therefore, you must provide the following mapping in Decode for First Name:

`FIRST_NAME~NAMES~NAME_TYPE=PRI~EFFDT`

In this format, NAME_TYPE specifies the TYPE NODE to consider, and PRI specifies that name of type PRI (primary) must be considered while fetching data from the XML messages. All other names types are then ignored.

The NAME_TYPE node with PRI value is shown in the following screenshot:

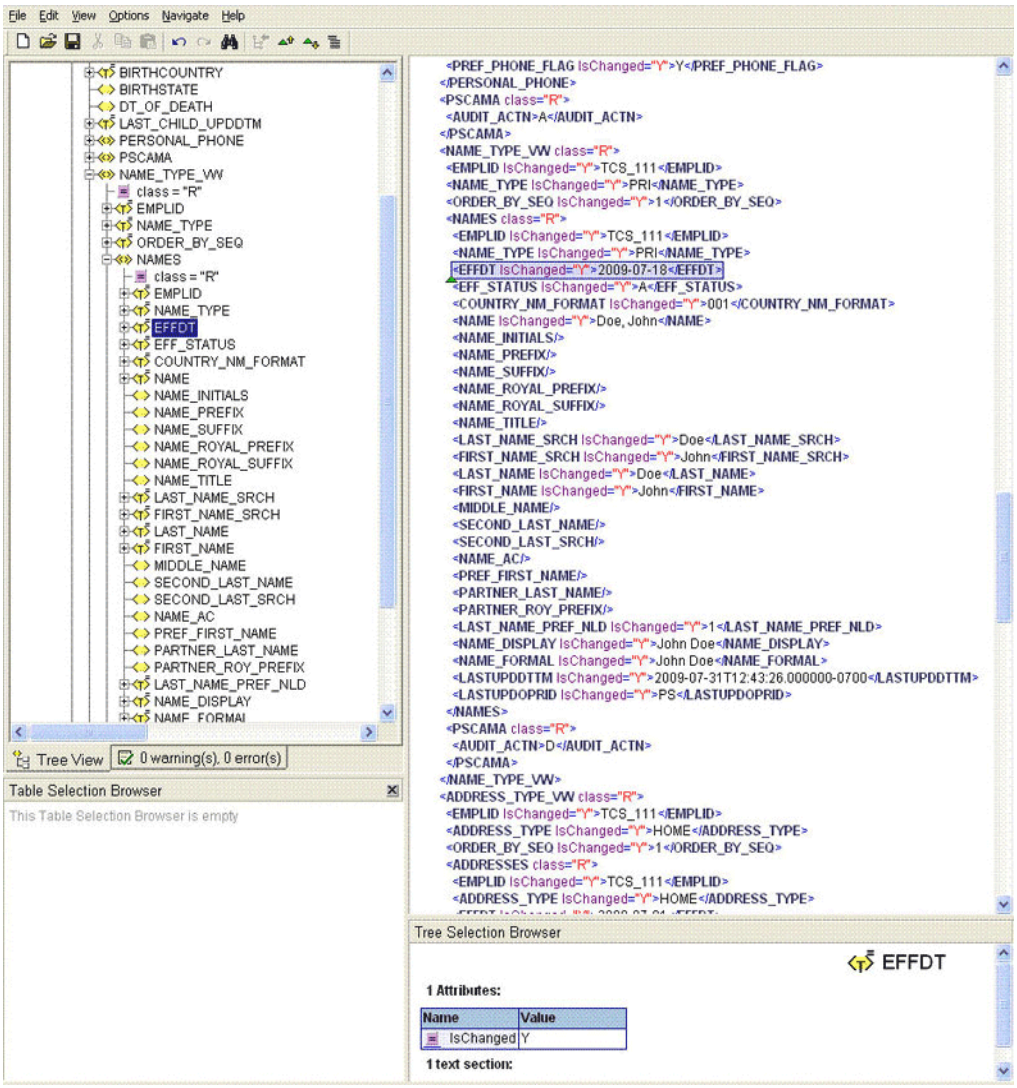


EFFECTIVE DATED NODE: Effective-dated node for the NODE, if any.

PeopleSoft supports effective-dated events. The value refers to the name of the node that provides information about the date on which the event becomes effective.

For example, names can be effective-dated in PeopleSoft. The EFFDT node in XML provides the date on which the name becomes effective for the OIM User.

The EFFDT node is shown in the following screenshot:

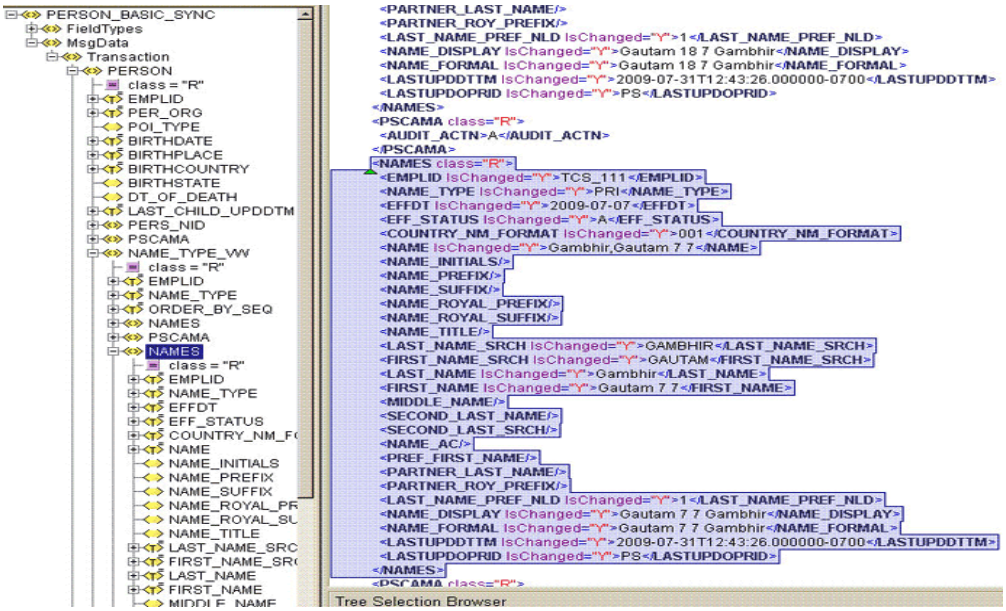


Primary: Specifies if the node is a mandatory field on Oracle Identity Manager.

The following scenario illustrates how to map the entries in the lookup definition. On the target system, there is no direct equivalent for the First Name attribute of the OIM User. As a workaround, a combination of elements is used to decipher the value for each Code Key entry in the preceding table.

If you want to retrieve the value for the Code Key, `First Name`, then the name of the NODE will be FIRST_NAME as depicted in the XML file. See the sample XML file in Figure 1–4 for more information about each node in the PERSON_BASIC_SYNC message.

Figure 1–4 Sample XML File for PERSON_BASIC_SYNC Message



The PARENT NODE for the NODE FIRST_NAME will be NAMES. Now suppose, you have a scenario where you have multiple FIRST_NAME nodes in the XML file to support the effective-dated feature for this attribute. In this case, you must identify the TYPE NODE for the PARENT NODE that has the value PRI. In this example, the TYPE NODE is NAME_TYPE with the value PRI.

Next, you must locate the EFFECTIVE DATED NODE for `FIRST_NAME` in the XML file. This node provides the value when the event becomes effective-dated.

In Oracle Identity Manager, you must specify a mandatory field, such as `User ID` for reconciliation. This implies that to retrieve the value from XML, you must mention `User ID` as the primary node.

If you do not want to provide any element in the Decode column, then you must specify None. This is implemented for the User ID attribute.

Now, you can concatenate the various elements of the syntax using a tilde (~) to create the Decode entry for First Name as follows:

NODE: FIRST_NAME

PARENT NODE: NAMES

TYPE NODE=Value: NAME_TYPE=PRI

EFFECTIVE DATED NODE: EFFDT

So, the Decode column for First Name is as follows:

```
FIRST_NAME~NAMES~NAME_TYPE=PRI~EFFDT
```

1.5.4.1.3 Lookup.PSFT.HRMS.PersonBasicSync.Recon

The Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup definition maps the resource object field name with the value fetched from the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition. The following is the format of the values stored in this lookup definition:

Code Key	Decode
Employee Type	Emp Type~Employee Type Lookup
First Name	First Name
Last Name	Last Name
User ID	User ID

Code Key: Name of the resource object field in Oracle Identity Manager

Decode: Combination of the following elements separated by a tilde (~) character:

```
ATTRIBUTE ~ LOOKUP DEF
```

In this format:

ATTRIBUTE: Refers to the Code Key of the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition

LOOKUP DEF: Name of the lookup definition, if the value of the attribute is retrieved from a lookup definition. This lookup is specified in the message-specific configuration lookup.

Consider the scenario discussed in Section 1.5.4.1.2, "Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping." In this example, you fetched First Name from the FIRST_NAME node of the XML file.

Now, you must map this First Name defined in the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition with the resource object attribute First Name defined in the Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup definition Code Key.

For example, if the name of the Code Key column in the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition is First then you define the mapping in the Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup definition as follows:

Code Key: First Name

Decode: First

In other words, the value for First Name in the Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup definition is fetched from First, defined in the attribute mapping lookup definition.

The same process holds true for Last Name and User ID.

However, to fetch the value of the Employee Type resource object, you must consider the Employee Type lookup definition. `Emp Type` is defined in the message-specific attribute lookup, Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping, which has a value `EMP`, which is fetched from the `PER_ORG` node in the XML.

Now, Employee Type Lookup is defined in the message-specific configuration, Lookup.PSFT.Message.PersonBasicSync.Configuration lookup definition. The mapping is as follows:

Code Key: Employee Type Lookup

Decode: Lookup.PSFT.HRMS.PersonBasicSync.EmpType

In other words, you must search the value `EMP` in the Lookup.PSFT.HRMS.PersonBasicSync.EmpType lookup definition. The mapping in the

Lookup.PSFT.HRMS.PersonBasicSync.EmpType lookup definition is defined as follows:

Code Key: EMP

Decode: Full-Time

When you create an OIM User, the Employee Type field has Full-Time Employee as the value.

1.5.4.1.4 Lookup.PSFT.HRMS.PersonBasicSync.EmpType The Lookup.PSFT.HRMS.PersonBasicSync.EmpType lookup definition is used when person data is received for an account.

The lookup definition has the following entries:

Code Key	Decode
EMP	Full-Time
CWR	Part-Time
POI	Temp

In the preceding table:

- CWR represents Contingent Worker.
- EMP represents Employee.
- POI represents Person of Interest.

1.5.4.1.5 Lookup.PSFT.HRMS.PersonBasicSync.Validation The Lookup.PSFT.HRMS.PersonBasicSync.Validation lookup definition is used to store the mapping between the attribute for which validation has to be applied and the validation implementation class.

The Lookup.PSFT.HRMS.PersonBasicSync.Validation lookup definition is empty by default.

See Section 4.4, "Configuring Validation of Data During Reconciliation" for more information about adding entries in this lookup definition.

1.5.4.1.6 Lookup.PSFT.HRMS.PersonBasicSync.Transformation The Lookup.PSFT.HRMS.PersonBasicSync.Transformation lookup definition is used to store the mapping between the attribute for which transformation has to be applied and the transformation implementation class.

The Lookup.PSFT.HRMS.PersonBasicSync.Transformation lookup definition is empty by default.

See Section 4.5, "Configuring Transformation of Data During Reconciliation" for more information about adding entries in this lookup definition.

1.5.4.2 Lookup Definitions Used to Process WORKFORCE_SYNC Messages

The following lookup definitions are used to process the WORKFORCE_SYNC messages:

1.5.4.2.1 Lookup.PSFT.Message.WorkForceSync.Configuration The Lookup.PSFT.Message.WorkForceSync.Configuration lookup definition provides the

configuration-related information for the WORKFORCE_SYNC and WORKFORCE_FULLSYNC messages for reconciliation.

The Lookup.PSFT.Message.WorkForceSync.Configuration lookup definition has the following entries:

Code Key	Decode	Description
Attribute Mapping Lookup	Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping	Name of the lookup definition that maps Oracle Identity Manager attributes with attributes in the WORKFORCE_SYNC and WORKFORCE_FULLSYNC message XML See Section 1.5.4.2.2, "Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping" for more information about this lookup definition.
Custom Query	Enter a Value	If you want to implement limited reconciliation, then enter the query condition that you create by following the instructions given in Section 3.4, "Limited Reconciliation."
Custom Query Lookup Definition	Lookup.PSFT.HRMS.CustomQuery	This entry holds the name of the lookup definition that maps resource object fields with OIM User form fields. This lookup definition is used during application of the custom query. See Section 3.4, "Limited Reconciliation" for more information.
Data Node Name	Transaction	Name of the node in the XML files to run a transaction
Employee Status Lookup	Lookup.PSFT.HRMS.WorkForceSync.EmpStatus	Name of the lookup definition that maps the value of the ACTION node retrieved from the WORKFORCE_SYNC message XML with the status to be shown on Oracle Identity Manager for an employee See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information about this lookup definition.
Employee Type Lookup	Lookup.PSFT.HRMS.WorkForceSync.EmpType	Name of the lookup definition that stores all valid person types and components of the Employee person type in the target system See Section 1.5.4.2.5, "Lookup.PSFT.HRMS.WorkForceSync.EmpType" for more information about this lookup definition.

Code Key	Decode	Description
Manager Login RO Attribute	Manager ID	Resource object field name of Manager ID
Manager Name RO Attribute	Manager Name	Resource object field name of the Manager
Message Handler Class	oracle.iam.connectors.psft.common.handler.impl.PSFTWorkForceSyncReconMessageHandlerImpl	Name of the Java class that accepts the XML payload, configuration information, and a handle to Oracle Identity Manager. Depending on the message type, it retrieves the appropriate configuration from Oracle Identity Manager and processes the message. To parse a specific message type, it relies on a Message Parser factory. If you want a customized implementation of the message, then you must extend the `MessageHandler.java` class. **See Also:** Appendix B, "Configuring the Connector Messages"
Message Parser	oracle.iam.connectors.psft.common.parser.impl.JobMessageParser	Name of the parser implementation class that contains the logic for message parsing If you want a customized implementation of the message, then you must extend the `MessageParser.java` class. **See Also:** Appendix B, "Configuring the Connector Messages"
Recon Lookup Definition	Lookup.PSFT.HRMS.WorkForceSync.Recon	Name of the lookup definition that maps Oracle Identity Manager attribute with Resource Object attribute See Section 1.5.4.2.3, "Lookup.PSFT.HRMS.WorkForceSync.Recon" for more information about this lookup definition.
Resource Object	Peoplesoft HRMS	Name of the resource object
Transformation Lookup Definition	Lookup.PSFT.HRMS.WorkForceSync.Transformation	Name of the transformation lookup definition It is empty by default. See Section 1.5.4.2.7, "Lookup.PSFT.HRMS.WorkForceSync.Transformation" for more information about this lookup definition.
Use Transformation	No	Enter `yes` to implement transformation while reconciling records. Otherwise, enter `no`.

Code Key	Decode	Description
Use Validation	No	Enter `yes` to implement validation while reconciling records. Otherwise, enter `no`.
Validation Lookup Definition	Lookup.PSFT.HRMS.WorkForceSync.Validation	Name of the validation lookup definition It is empty by default. See Section 1.5.4.2.6, "Lookup.PSFT.HRMS.WorkForceSync.Validation" for more information about this lookup definition.

1.5.4.2.2 Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping The Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition maps OIM User attributes with the attributes defined in the WORKFORCE_SYNC message XML. The following is the format of the values stored in this lookup definition:

Code Key	Decode
Department	DEPTID~JOB~None~EFFDT
Full Part Time	FULL_PART_TIME~JOB~None~EFFDT
Job ID	JOBCODE~JOB~None~EFFDT
Per Org	PER_ORG~JOB~None~EFFDT
Reg Temp	REG_TEMP~JOB~None~EFFDT
Start Date	EFFDT~JOB~None~EFFDT
Status	HR_STATUS~JOB~None~EFFDT
Supervisor ID	SUPERVISOR_ID~JOB~NONE~EFFDT
User ID	EMPLID~PER_ORG_ASGN~None~None~PRIMARY

Code Key: Name of the OIM User field

Decode: Combination of the following elements separated by a tilde (~) character:

```
NODE~PARENT NODE~TYPE NODE=Value~EFFECTIVE DATED NODE~PRIMARY
```

In this format:

NODE: Name of the node in the WORKFORCE_SYNC message XML file from which the value is read. You must specify the name of the NODE in the lookup definition. It is a mandatory field.

PARENT NODE: Name of the parent node for the NODE. You must specify the name of the PARENT NODE in the lookup definition. It is a mandatory field.

TYPE NODE=Value: Type of the node associated with the NODE value. Value defines the Type of the Node.

EFFECTIVE DATED NODE: Effective Dated Node for the NODE, if any.

PeopleSoft supports effective-dated events. The value refers to the name of the node that provides information about the date on which the event becomes effective.

For example, Department can be effective-dated in PeopleSoft. The EFFDT node in XML provides the date on which the name becomes effective for the OIM User.

PRIMARY: Specifies if the node is a mandatory field.

The following scenario illustrates how to map the entries in the lookup definition. On the target system, there is no direct equivalent for the `Department` attribute of the OIM User. As a workaround, a combination of elements is used to decipher the value. See the sample XML file in Figure 1–5 for more information about each node in the WORKFORCE_SYNC message XML.

Figure 1–5 Sample XML File for WORKFORCE_SYNC Message

If you want to fetch the value for the `Department` Code Key from the XML then the NODE is `DEPTID`. The PARENT NODE for `DEPTID` is `JOB`. There is no Type Node defined for this attribute. Therefore, the value `None` is specified in the Decode combination. But, you must locate the `EFFDT` node in the XML for that parent node. In Oracle Identity Manager, you must specify a mandatory field, such as `User ID` for reconciliation. In other words, it implies that you have to specify `User ID` as the primary node to retrieve the value from XML.

1.5.4.2.3 Lookup.PSFT.HRMS.WorkForceSync.Recon This Lookup.PSFT.HRMS.WorkForceSync.Recon lookup definition maps the resource object field name with the value fetched from the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition. The following is the format of the values stored in this lookup definition:

Code Key	Decode
Department	Department
Effective Start Date	Start Date
Employee Type	Per Org##Reg Temp##Full Part Time~Employee Type Lookup
Job Code	Job ID
Manager ID	Supervisor ID
Status	Status~Employee Status Lookup
Supervisor ID	Supervisor ID
User ID	User ID

Code Key: Name of the resource object field in Oracle Identity Manager

Decode: Combination of the following elements separated by a tilde (~) character:

```
ATTRIBUTE ~ LOOKUP DEF
```

In this format:

ATTRIBUTE: Refers to the Code Key of the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition

LOOKUP DEF: Name of the lookup definition, if the value of the attribute is retrieved from a lookup. This lookup is specified in the message-specific configuration lookup.

Consider the scenario discussed in Section 1.5.4.2.2, "Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping." In this example, you fetched the `Department` defined in the Code Key column from the `DEPTID` node of the XML file.

Now, you must map this `Department` defined in the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition with the resource object attribute, `Department` defined in the Lookup.PSFT.HRMS.WorkForceSync.Recon lookup definition.

For example, if the name of the Code Key column in the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition is `Dept`, then you must define the mapping as follows:

Code Key: Department

Decode: Dept

In other words, this implies that the value for `Department` in the Lookup.PSFT.HRMS.WorkForceSync.Recon lookup definition is fetched from `Dept` defined in the attribute mapping lookup.

Similarly, values for all other attributes are fetched from the XML.

However, to fetch the value of the `Employee Type` resource object, you must concatenate the values obtained from `Per Org`, `Reg Temp`, and `Full Part Time`

resource objects defined in the attribute lookup. This value is then searched in the Employee Type Lookup. The values obtained from each node are combined using a double hash (##).

The `Per Org` defined in the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping lookup definition has a value `EMP` that is fetched from the `PER_ORG` node in the XML. Similarly, the values obtained for `Reg Temp` and `Full Part Time` from XML are `T` and `P`, respectively. If you combine these values, it becomes a concatenated string of the following format:

`EMP##T##P`

Now, you must locate this value in the Employee Type Lookup, which is defined in the message-specific configuration, Lookup.PSFT.Message.WorkForceSync.EmpType lookup definition. The mapping is as follows:

Code Key: EMP##T##P

Decode: Temp

Therefore, during reconciliation, the value for the EMP##T##P employee type is reconciled into the corresponding Employee Type field of Oracle Identity Manager.

1.5.4.2.4 Lookup.PSFT.HRMS.WorkForceSync.EmpStatus The Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition maps the value retrieved from the ACTION node of the WORKFORCE_SYNC message XML with the status to be shown on Oracle Identity Manager for the employee.

The following is the format of the values stored in this table:

Code Key: ACTION value retrieved from the WORKFORCE_SYNC message XML

Decode: Active or Disabled in Oracle Identity Manager

Note: You must define the mapping for all Actions to be performed on the target system in this lookup definition.

Code Key	Decode
ADD	Active
ADL	Active
ASG	Disabled
BON	Active
COM	Disabled
DEM	Disabled
DTA	Disabled
FSC	Disabled
HIR	Active
JED	Disabled
JRC	Active
LOA	Disabled
LOF	Disabled
LTO	Disabled

Code Key	Decode
PAY	Active
PLA	Disabled
POI	Active
POS	Disabled
PRB	Disabled
PRO	Active
REC	Active
STD	Disabled
SUB	Disabled
TER	Disabled
XFR	Active

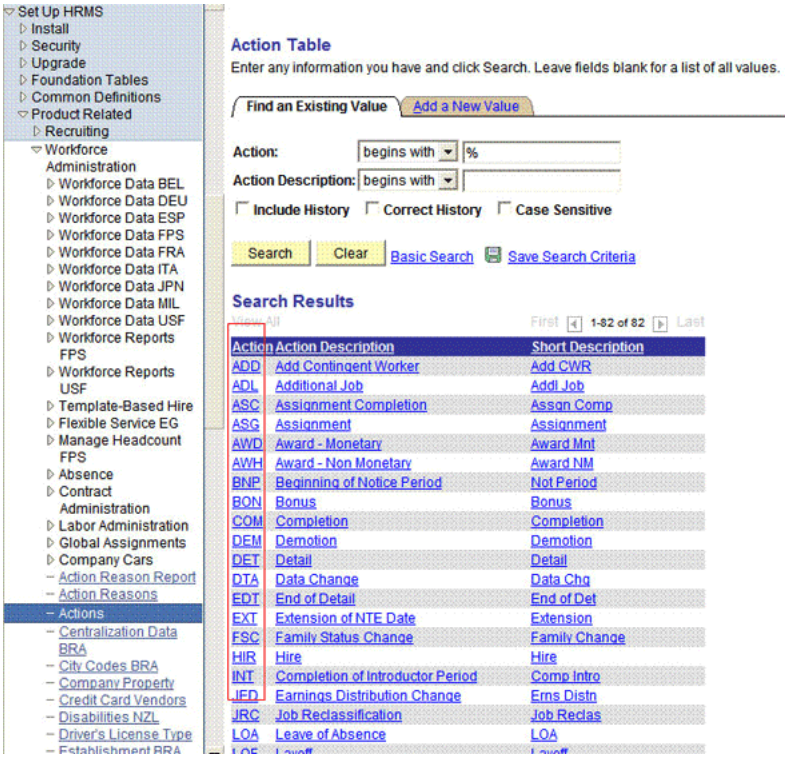
For example, for the action HIRE for an employee, the data fetched from the ACTION node of the XML message is `HIR`. The Decode column of the lookup definition stores the corresponding mapping for this action. To display `Active` on Oracle Identity Manager for the action HIRE, you must define the following mapping:

Code Key: HIR

Decode: Active

See Section 4.7, "Setting Up the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus Lookup Definition" for adding an entry in this lookup definition.

The following screenshot displays all the actions:



1.5.4.2.5 Lookup.PSFT.HRMS.WorkForceSync.EmpType The connector can reconcile all valid person types that are stored in the target system, and all components of the Employee person type. The following example describes how this is done.

The record of a temporary, part-time, Contingent Worker is reconciled from the target system. During reconciliation, you use the Lookup.PSFT.HRMS.WorkForceSync.EmpType lookup definition to determine the Employee Type field to which the person type is mapped. In this lookup definition, the person type value from the target system is used as the Code Key, and its corresponding Decode value is used to fill the specific Employee Type field. Therefore, during reconciliation, the value of the temporary, part-time, Contingent Worker person type is reconciled into the corresponding Employee Type field of Oracle Identity Manager.

The Lookup.PSFT.HRMS.WorkForceSync.EmpType lookup definition has the following entries:

Note: The Decode values are case-sensitive.

Code Key	Decode
CWR##R##D	Consultant
CWR##R##F	Consultant
CWR##R##P	Full-Time
CWR##T##D	Consultant
CWR##T##F	Temp
CWR#T##P	Intern
EMP##R##D	Consultant
EMP##R##F	Full-Time
EMP##R##P	Temp
EMP##T##D	Consultant
EMP##T##F	Part-Time
EMP##T##P	Temp
POI##R##D	Consultant
POI##R##F	Full-Time
POI##R##P	Temp
POI##T##D	Consultant
POI##T##F	Part-Time
POI##T##P	Temp

In the preceding table:

- CWR represents Contingent Worker.
- EMP represents Employee.
- POI represents Person of Interest.
- R represents Regular.

- T represents Temporary.
- D represents On-Demand.
- F represents Full Time.
- P represents Part Time.

1.5.4.2.6 Lookup.PSFT.HRMS.WorkForceSync.Validation The Lookup.PSFT.HRMS.WorkForceSync.Validation lookup definition is used to store the mapping between the attribute for which validation has to be applied and the validation implementation class.

The Lookup.PSFT.HRMS.WorkForceSync.Validation lookup is empty by default.

1.5.4.2.7 Lookup.PSFT.HRMS.WorkForceSync.Transformation The Lookup.PSFT.HRMS.WorkForceSync.Transformation lookup definition is used to store the mapping between the attribute for which transformation has to be applied and the transformation implementation class.

The Lookup.PSFT.HRMS.WorkForceSync.Transformation lookup is empty by default.

1.5.4.3 Other Lookup Definitions

The following are the predefined generic lookup definitions:

1.5.4.3.1 Lookup.PSFT.Configuration The Lookup.PSFT.Configuration lookup definition is used to store configuration information that is used by the connector. See Section 2.2.1.3, "Configuring the IT Resource" for more information about the entries in this lookup definition.

> **Note:** This lookup definition is common to both, Employee Reconciliation and User Management connectors. Therefore, it has entries for both connector features.

The Lookup.PSFT.Configuration lookup definition has the following entries:

Code Key	Decode	Description
Constants Lookup	Lookup.PSFT.UM.Constants	Name of the lookup definition that is used to store constants used by the connector
DELETE_USER_PROFILE	Lookup.PSFT.Message.DeleteUser Profile.Configuration	Name of the lookup definition for the DELETE_USER_PROFILE message This is used for the User Management functionality, and is not applicable in this context.

Code Key	Decode	Description
Delete User Profile Component Interface Name	DELETE_USER_PROFILE	Name of Component interface that deletes user data in PeopleSoft Enterprise Applications This is used for the User Management functionality, and is not applicable in this context.
HRMS Resource Exclusion List Lookup	Lookup.PSFT.HRMS.ExclusionList	Name of the Resource Exclusion lookup for PeopleSoft Employee Reconciliation See Section 1.5.4.3.2, "Lookup.PSFT.HRMS.ExclusionList" for more information about this lookup definition.
ID Types Attribute Map Lookup	Lookup.PSFT.UM.AttrMap.IDTypes	Name of the lookup definition for ID Type attributes This is used for the User Management functionality. You must not change this value.
Ignore Root Audit Action	No	Use this value if the Root PSCAMA audit action is required to be considered while parsing the XML message. Enter `Yes` if PSCAMA Audit Action is not taken into account. Here, the Root Audit Action is considered as a Change event. Enter `No` if PSCAMA Audit Action is taken into account. If Root PSCAMA Audit Action is NULL or Empty, then the Root Audit Action is considered as an ADD event. See Also: Appendix A, "Determining the Root Audit Action Details"
Multiple Version Support	NA	It is used for provisioning operations, and not applicable in this context.

Code Key	Decode	Description
PERSON_BASIC_FULLSYNC	Lookup.PSFT.Message.PersonBasicSync.Configuration	Name of the lookup definition for PERSON_BASIC_FULLSYNC message See Section 1.5.4.1.1, "Lookup.PSFT.Message.PersonBasicSync.Configuration" for more information about this lookup definition. **Note:** The Decode value is the same as that of the PERSON_BASIC_SYNC message, because the data to be reconciled is the same for both messages.
PERSON_BASIC_SYNC	Lookup.PSFT.Message.PersonBasicSync.Configuration	Name of the lookup definition for the PERSON_BASIC_SYNC message See Section 1.5.4.1.1, "Lookup.PSFT.Message.PersonBasicSync.Configuration" for more information about this lookup definition.
Provisioning Attribute Map Lookup	Lookup.PSFT.UM.Attr.Map.Prov	Name of the lookup definition that contains provisioning information It is not applicable in this context.
Target Date Format	yyyy-MM-dd	Data format of the Date type data in the XML file and messages You must not change this value.
UM Resource Exclusion List Lookup	Lookup.PSFT.UM.ExclusionList	Name of the Resource Exclusion lookup for User Management operations It is not applicable in this context.
USER_PROFILE	Lookup.PSFT.Message.UserProfile.Configuration	Name of the lookup definition for the USER_PROFILE message This is used for the User Management functionality, and is not applicable in this context.
User Profile Component Interface Name	USER_PROFILE	Component interface that loads user data in PeopleSoft Enterprise Applications This is used for the User Management functionality, and is not applicable in this context

Code Key	Decode	Description
User Profile illegal Characters	,~;~ ~:~&~(~)~\~[~]~/~PPLSOFT	List of characters or strings that are not supported by PeopleSoft in the value specified for any user profile field
Use Validation For Prov	No	Validation flag for User Management provisioning This is used for the User Management functionality, and is not applicable in this context.
Validation Lookup For Prov	Lookup.PSFT.UM.Validation	Name of the lookup definition required for performing validation while provisioning This is used for the User Management functionality, and is not applicable in this context.
WORKFORCE_FULLSYNC	Lookup.PSFT.Message.WorkForceSync.Configuration	Name of the lookup definition for the WORKFORCE_FULLSYNC message See Section 1.5.4.2.1, "Lookup.PSFT.Message.WorkForceSync.Configuration" for more information about this lookup definition. **Note:** The Decode value is the same as that of the WORKFORCE_ SYNC because the data to be reconciled is the same for both messages.
WORKFORCE_SYNC	Lookup.PSFT.Message.WorkForceSync.Configuration	Name of the lookup definition for the WORKFORCE_SYNC message See Section 1.5.4.2.1, "Lookup.PSFT.Message.WorkForceSync.Configuration" for more information about this lookup definition.

You can configure the message names, such as the PERSON_BASIC_SYNC, WORKFORCE_SYNC, PERSON_BASIC_FULLSYNC, and WORKFORCE_FULLSYNC defined in this lookup definition. Section 2.3.1.3, "Setting Up the Lookup.PSFT.Configuration Lookup Definition" describes the procedure to configure these message names.

1.5.4.3.2 Lookup.PSFT.HRMS.ExclusionList The Lookup.PSFT.HRMS.ExclusionList lookup definition provides a list of user IDs or person IDs that cannot be created on Oracle Identity Manager.

The following is the format of the values stored in this table:

Code Key: User ID resource object field name

Decode: List of user IDs separated by the tilde character (~)

See Section 2.3.1.2, "Setting Up the Lookup.PSFT.HRMS.ExclusionList Lookup Definition" for more information.

1.5.4.3.3 Lookup.PSFT.HRMS.CustomQuery You can configure limited reconciliation to specify the subset of target system records that must be fetched into Oracle Identity Manager. This subset is defined on the basis of attribute values that you specify in a query condition, which is then applied during reconciliation.

The Lookup.PSFT.HRMS.CustomQuery lookup definition maps resource object fields with OIM User form fields. It is used during application of the query condition that you create. See Section 3.4, "Limited Reconciliation" for more information. Section 4.6, "Setting Up the Lookup.PSFT.HRMS.CustomQuery Lookup Definition" provides instructions on how to add an entry in this lookup definition.

The following is the format of the values stored in this table:

Code Key: Resource object field name

Decode: Column name of the USR table

Code Key	Decode
Department	USR_UDF_DEPARTMENT_ID
Employee Type	Users.Role
First Name	Users.First Name
Job Code	USR_UDF_JOB_CODE
Last Name	Users.Last Name
Manager ID	Users.Manager Login
Organization Name	Organizations.Organization Name
Status	Users.Status
Supervisor ID	USR_UDF_SUPERVISOR_ID
User ID	Users.User ID
User Type	Users.Xellerate Type

1.6 Roadmap for Deploying and Using the Connector

The following shows how information is organized in the rest of the guide:

- Chapter 2, "Deploying the Connector" describes procedures that you must perform on Oracle Identity Manager and the target system during each stage of connector deployment.
- Chapter 3, "Using the Connector" provides information about the tasks that must be performed each time you want to run reconciliation.
- Chapter 4, "Extending the Functionality of the Connector" describes procedures that you can perform to extend the functionality of the connector.
- Chapter 5, "Testing and Troubleshooting" provides information about testing the connector.

- Chapter 6, "Known Issues" lists the known issues associated with this release of the connector.

2

Deploying the Connector

Deploying the connector involves the following steps:

> **Note:** In this guide, PeopleSoft HRMS is referred to as the **target system**.

- Section 2.1, "Preinstallation"
- Section 2.2, "Installation"
- Section 2.3, "Postinstallation"

2.1 Preinstallation

Preinstallation information is divided across the following sections:

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

2.1.1 Preinstallation on Oracle Identity Manager

This section contains the following topics:

- Section 2.1.1.1, "Files and Directories on the Installation Media"
- Section 2.1.1.2, "Determining the Release Number of the Connector"
- Section 2.1.1.3, "Creating a Backup of the Existing Common.jar File"

2.1.1.1 Files and Directories on the Installation Media

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

Table 2–1 Files and Directories on the Installation Media

File in the Installation Media Directory	Description
configuration/PSFT_Employee_Reconciliation-CI.xml	This XML file contains configuration information that is used during connector installation.
lib/PSFTER.jar	This JAR file contains the class files that are specific to the PeopleSoft Employee Reconciliation connector. During connector deployment, this file is copied into the following directory: *OIM_HOME*/ScheduleTask
lib/Common.jar	This JAR file contains the class files that are common to all connectors. During connector deployment, this file is copied into the following directory: *OIM_HOME*/JavaTasks
lib/PSFTCommon.jar	This JAR file contains PeopleSoft-specific files common to both Employee Reconciliation and User Management versions of the connector. During connector deployment, this file is copied into the following directory: *OIM_HOME*/JavaTasks
lib/PeopleSoftOIMListener.war	This Web Archive (WAR) file contains the classes and configuration files required to implement incremental reconciliation.
test/scripts/InvokeListener.bat test/scripts/InvokeListener.sh	This BAT file and the UNIX shell script call the testing utility for reconciliation.
test/config/reconConfig.properties test/config/log.properties	These files are used by theInvokeListener.bat file. The reconConfig.properties file contains configuration information for running the InvokeListener.bat file. The log.properties file contains logger information.
xml/PeoplesoftHRMS-ConnectorConfig.xml	This XML file contains definitions for the connector components. ■ Resource object ■ Process definition ■ IT resource type ■ Reconciliation rules ■ Scheduled tasks ■ Lookup definitions
Files in the resources directory	Each of these resource bundles contains language-specific information that is used by the connector. **Note:** A **resource bundle** is a file containing localized versions of the text strings that are displayed on the Administrative and User Console. These text strings include GUI element labels and messages.

Table 2–1 (Cont.) Files and Directories on the Installation Media

File in the Installation Media Directory	Description
The following project files in the peoplecode directory: OIM_ER OIM_ER_DELETE	These files contain the PeopleCode for the steps that you define for importing a project from Application Designer. This is explained in Section 2.1.2.1, "Importing a Project from Application Designer." Each project file contains two files with .ini and .xml extension that has the same name as the project. They are listed as follows: ■ OIM_ER.ini ■ OIM_ER.xml ■ OIM_ER_DELETE.ini ■ OIM_ER_DELETE.xml
samples/PSFTXellerateUserReconMessageHandlerImpl.java samples/XellerateUserMessageParser.java	These files are used for implementing Message Handler and Message Parser for PeopleSoft 9.1.0 release-specific messages.
JavaDoc	This directory contains information about the Java APIs used by the connector.

2.1.1.2 Determining the Release Number of the Connector

You might have a deployment of an earlier release of the connector. While deploying the current release, you might want to know the release number of the earlier release. To determine the release number of a connector that has been deployed:

1. In a temporary directory, extract the contents of the following JAR file:

   OIM_HOME/ScheduleTask/PSFTER.jar

2. Open the manifest.mf file in a text editor. The manifest.mf file is bundled inside the PSFTER.jar file.

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

2.1.1.3 Creating a Backup of the Existing Common.jar File

The Common.jar file is in the deployment package of each 9.1.x release of the connector. With each new release, code corresponding to that particular release is added to the existing code in this file. For example, the Common.jar file shipped with Connector Y on 12-July contains:

- Code specific to Connector Y
- Code included in the Common.jar files shipped with all other 9.1.x release of the connectors that were released before 12-July

If you have installed a release 9.1.x connector that was released after the PeopleSoft Employee Reconciliation release 9.1.1 connector, back up the existing Common.jar file, install the PeopleSoft Employee Reconciliation connector, and then restore the Common.jar file. The steps to perform this procedure are as follows:

Caution: If you do not perform this procedure, then your release 9.1.x connectors might not work.

1. Determine the release date of your existing release 9.1.x connector as follows:

a. Extract the contents of the following file in a temporary directory:

   OIM_HOME/JavaTasks/Common.jar

b. Open the Manifest.mf file in a text editor.

c. Note down the Build Date and Build Version values.

2. Determine the Build Date and Build Version values of the PeopleSoft Employee Reconciliation release 9.1.1 connector as follows:

   a. On the installation media for the connector, extract the contents of the lib/Common.jar and then open the Manifest.mf file in a text editor.

   b. Note down the Build Date and Build Version values.

3. If the Build Date and Build Version values for the PeopleSoft Employee Reconciliation connector are less than the Build Date and Build Version values for the connector that is installed, then:

   a. Copy the *OIM_HOME*/JavaTasks/Common.jar to a temporary location.

   b. After you perform the procedure described in Section 2.2, "Installation" overwrite the new Common.jar file in the *OIM_HOME*/JavaTasks directory with the Common.jar file that you backed up in the preceding step.

2.1.2 Preinstallation on the Target System

Permission Lists, Roles, and User Profiles are building blocks of PeopleSoft security. Each user of the system has an individual User Profile, which in turn is linked to one or more Roles. To each Role, you can add one or more Permission Lists, which defines what a user can access. So, a user inherits permissions through the role that is attached to a User Profile.

You must create limited rights users who have restricted rights to access resources in the production environment to perform PeopleSoft-specific installation or maintenance operations.

The preinstallation steps consist of creating a user account with limited rights. Permission lists may contain any number of accesses, such as the Web libraries permission, Web services permissions, page permissions, and so on. You attach this permission list to a role, which in turn is linked to a user profile.

This section describes the following procedures, which have to be performed on the target system to create a user account with limited rights:

- Section 2.1.2.1, "Importing a Project from Application Designer"
- Section 2.1.2.2, "Creating a Target System User Account for Connector Operations"

2.1.2.1 Importing a Project from Application Designer

A PeopleSoft Application Designer project is an efficient way to configure your application.

You can import the OIM_ER project created in Application Designer to automate the steps for creating a permission list. You can also create a permission list by manually performing the steps described in Section 2.1.2.2.1, "Creating a Permission List." If you import the project, OIM_ER then you need not perform the steps mentioned in this section.

Note: If you install, uninstall, or upgrade the same project repeatedly the earlier project definition will be overwritten in the database.

To import a project from Application Designer:

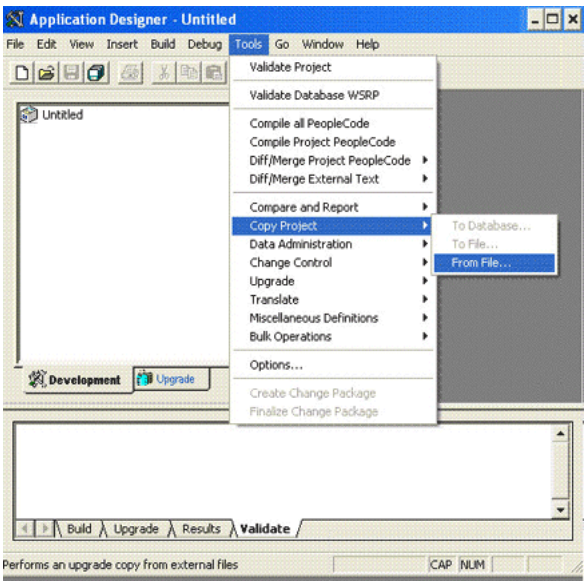
Note: You can access the project files from the following directory:

OIM_HOME/XLIntegrations/PSFTER/peoplecode/OIM_ER

OIM_HOME/XLIntegrations/PSFTER/peoplecode/OIM_ER_DELETE

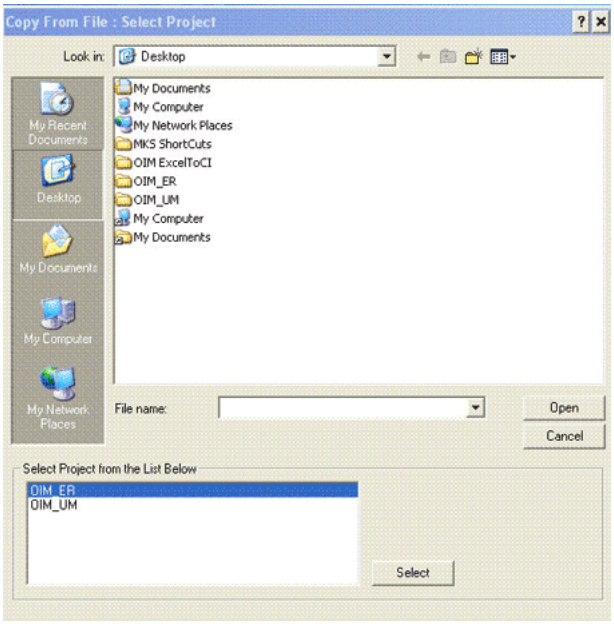
These files should be copied to a location on your computer from where you can access the Application Designer program.

1. To open Application Designer in 2-tier mode, click **Start, Programs, Peoplesoft8.x,** and then **Application Designer.**
2. From the **Tools** menu, click **Copy Project** and then **From File.**



The Copy From File : Select Project dialog box appears.

3. Navigate to the directory in which the PeopleSoft project file is placed.
4. Select the project from the **Select Project from the List Below** region. The name of the project file is **OIM_ER.**



5. Click **Select.**
6. Click **Copy.**

> **Note:** You can remove the PeopleSoft project file and all its objects from the target system. To do so, repeat the steps described in the preceding procedure. When you reach Step 4, select **OIM_ER_DELETE** from the **Select Project from the List Below** region.

2.1.2.2 Creating a Target System User Account for Connector Operations

You must create a target system account with privileges required for connector operations. The user account created on the target system has the permission to perform all the configurations required for connector operations. This includes configuring the PeopleSoft Integration Broker for full reconciliation and incremental reconciliation. This account cannot access pages or components that are not required by the connector.

The following sections describe the procedures to create this target system account:

> **Note:** For creating the target system account, you must log in to PeopleSoft Internet Architecture with administrator credentials.

- Section 2.1.2.2.1, "Creating a Permission List"
- Section 2.1.2.2.2, "Creating a Role for a Limited Rights User"
- Section 2.1.2.2.3, "Assigning the Required Privileges to the Target System Account"

2.1.2.2.1 Creating a Permission List

To create a permission list:

Note: You can skip this section if you have imported a project from Application Designer. See Section 2.1.2.1, "Importing a Project from Application Designer" for more information.

1. Open a Web browser and enter the URL for PeopleSoft Internet Architecture. The URL is in the following format:

   `http://IPADDRESS:PORT/psp/ps/?cmd=login`

   For example:

   `http://172.21.109.69:9080/psp/ps/?cmd=login`

2. In the PeopleSoft Internet Architecture window, click **PeopleTools**, **Security**, **Permissions & Roles**, and then click **Permission Lists.**
3. Click **Add a new Value**. On the Add a New Value tab, enter the permission list name, for example, `OIMER`, and then click **Add.**
4. On the General tab, enter a description for the permission list in the **Description** field.
5. On the Pages tab, click the search icon for Menu Name and perform the following:
   a. Click the plus sign (+) to add a row for **Menu Name.** Click the search icon for Menu Name. In the Menu Name lookup, enter `IB_PROFILE` and then click **Lookup.** From the list, select **IB_PROFILE.** The application returns to the Pages tab. Click **Edit Components**.
   b. On the Component Permissions page, click **Edit Pages** for each of the following component names:

      IB_GATEWAY

      IB_MESSAGE_BUILDER

      IB_MONITOR_QUEUES

      IB_NODE

      IB_OPERATION

      IB_QUEUEDEFN

      IB_ROUTINGDEFN

      IB_SERVICE

      IB_SERVICEDEFN

      IB_MONITOR

   c. Click **Select All,** and then click **OK** for each of the components. Click **OK** on the Components Permissions page.
   d. On the Pages tab, click the plus sign (+) to add another row for **Menu Name.**
   e. In the Menu Name lookup, enter `PROCESSMONITOR` and then click **Lookup.** From the list, select **PROCESSMONITOR.** The application returns to the Pages tab. Click **Edit Components.**
   f. On the Component Permissions page, click **Edit Pages** for the PROCESSMONITOR component name.

g. Click **Select All**, and then click **OK.** Click **OK** on the Components Permissions page.

h. On the Pages tab, click the plus sign (+) to add another row for **Menu Name.**

i. In the Menu Name lookup, enter `PROCESS_SCHEDULER` and then click **Lookup.** From the list, select **PROCESS_SCHEDULER.** The application returns to the Pages tab. Click **Edit Components.**

j. On the Component Permissions page, click **Edit Pages** for the PRCSDEFN component name.

k. Click **Select All**, and then click **OK.** Click **OK** on the Components Permissions page.

l. On the Pages tab, click the plus sign (+) to add another row for **Menu Name.**

m. In the Menu Name lookup, enter `MANAGE_INTEGRATION_RULES` and then click **Lookup.** From the list, select **MANAGE_INTEGRATION_RULES.** The application returns to the Pages tab. Click **Edit Components.**

n. On the Component Permissions page, click **Edit Pages** for the EO_EFFDTPUB component name.

o. Click **Select All,** and then click **OK.** Click **OK** on the Components Permissions page. The application returns to the Pages tab.

6. On the People Tools tab, select the **Application Designer Access** check box and click the **Definition Permissions** link. The Definition Permissions page is displayed.

7. On this page, grant full access to the following object types by selecting **Full Access** from the Access list:

   - App Engine Program
   - Message
   - Component
   - Project
   - Application Package

8. Click **OK.**

9. Click the **Tools Permissions** link. The Tools Permissions page is displayed. On this page, grant full access to the SQL Editor tool by selecting **Full Access** from the Access list.

10. Click **OK.** The application returns to the People Tools tab.

11. On the Process tab, click the **Process Group Permissions** link. The Process Group Permission page is displayed.

12. In the Process Group lookup, click the search icon. From the list, select **TLSALL.**

13. On the Process Group Permission page, click the plus sign (+) to add another row for **Process Group.**

14. In the Process Group lookup, click the search icon. From the list, select **STALL.** The application returns to the Process Group Permission page.

15. Click **OK.**

16. On the Web Libraries tab, click the search icon for the Web Library Name field and perform the following:

a. In the Web Library Name lookup, enter `WEBLIB_PORTAL` and then click **Lookup.** From the list, select **WEBLIB_PORTAL.** The application returns to the Web Libraries tab. Click the **Edit** link.

b. On the WebLib Permissions page, click **Full Access(All).**

c. Click **OK** and then click **Save.**

d. Click the plus sign (+) to add a row for the **Web Library Name** field and repeat Steps a through c for the WEBLIB_PT_NAV library.

e. Click **Save** to save all the settings specified for the permission list.

2.1.2.2.2 Creating a Role for a Limited Rights User

To create a role for a limited rights user:

1. Open a Web browser and enter the URL for PeopleSoft Internet Architecture. The URL is in the following format:

   `http://`*`IPADDRESS:PORT`*`/psp/ps/?cmd=login`

   For example:

   `http:/172.21.109.69:9080/psp/ps/?cmd=login`

2. In the PeopleSoft Internet Architecture window, click **PeopleTools, Security, Permissions & Roles,** and then click **Roles.**
3. Click **Add a new Value.** On the Add a New Value tab, enter the role name, for example, `OIMER`, and then click **Add.**
4. On the General tab, enter a description for the role in the **Description** field.
5. On the Permission Lists tab, click the search icon and perform the following:

   a. In the Permission Lists lookup, enter `OIMER` and then click **Lookup.** From the list, select **OIMER.**

   b. Click the plus sign (+) to add another row.

   c. In the Permission Lists lookup, enter `EOEI9000` and then click **Lookup.** From the list, select **EOEI9000.**

   d. Click the plus sign (+) to add another row.

   e. In the Permission Lists lookup, enter `EOCO9000` and then click **Lookup.** From the list, select **EOCO9000.**

6. Click **Save.**

2.1.2.2.3 Assigning the Required Privileges to the Target System Account To assign the required privileges to the target system account:

1. Open a Web browser and enter the URL for PeopleSoft Internet Architecture. The URL is in the following format:

   `http://`*`IPADDRESS:PORT`*`/psp/ps/?cmd=login`

   For example:

   `http://172.21.109.69:9080/psp/ps/?cmd=login`

2. In the PeopleSoft Internet Architecture window, click **PeopleTools, Security, User Profiles,** and then click **User Profiles.**

3. Click **Add a new Value.** On the Add a New Value tab, enter the user profile name, for example, `OIMER`, and then click **Add.**
4. On the General tab, perform the following:
   a. From the Symbolic ID list, select the value that is displayed. For example, SYSADM1.
   b. Enter valid values for the **Password** and **Confirm Password** fields.
   c. Click the search icon for the Process Profile permission list.
   d. In the Process Profile lookup, enter `OIMER` and then click **Lookup.** From the list, select **OIMER.** The application returns to the General tab.
5. On the ID tab, select **none** as the value of the ID type.
6. On the Roles tab, click the search icon:
   a. In the Roles lookup, enter `OIMER` and then click **Lookup.** From the list, select **OIMER.**
   b. Click the plus sign (+) to add another row.
   c. In the Roles lookup, enter `ProcessSchedulerAdmin` and then click **Lookup.** From the list, select **ProcessSchedulerAdmin.**
   d. Click the plus sign (+) to add another row.
   e. In the Roles lookup, enter `EIR Administrator` and then click **Lookup.** From the list, select **EIR Administrator.**
   f. Click **Save** to save this user profile. This profile is also used for a person with limited rights in PeopleSoft for performing all reconciliation-related configurations.

2.2 Installation

Installation information is divided across the following sections:

- Section 2.2.1, "Installation on Oracle Identity Manager"
- Section 2.2.2, "Installation on the Target System"

2.2.1 Installation on Oracle Identity Manager

Installation on Oracle Identity Manager consists of the following procedures:

- Section 2.2.1.1, "Running the Connector Installer"
- Section 2.2.1.2, "Copying the Connector Files and External Code Files"
- Section 2.2.1.3, "Configuring the IT Resource"
- Section 2.2.1.4, "Deploying the PeopleSoft Listener"
- Section 2.2.1.5, "Removing the PeopleSoft Listener"

2.2.1.1 Running the Connector Installer

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

To run the Connector Installer, refer to the instructions given in the "Installing Predefined Connectors" chapter of *Oracle Identity Manager Administrative and User Console Guide*. The following instructions are specific to individual steps of the procedure described in the "Installing a Predefined Connector" section of that chapter:

- When you reach Step 3 of that procedure, apply the following instructions:

  The following is the default connector installation directory:

  OIM_HOME/ConnectorDefaultDirectory

  If you have copied the installation files into this directory, then select **PeopleSoft Employee Recon 9.1.1** from the **Connector List** list.

- Perform Steps 1 through 5 of that procedure. When you reach Step 6 of that procedure, see Section 2.2.1.3, "Configuring the IT Resource" in this guide. Instructions to perform Step 6 of that procedure are described in detail in this section.

When you run the Connector Installer, it copies the connector files and external code files to destination directories on the Oracle Identity Manager host computer. These files are listed in Table 2–2.

Table 2–2 Files Copied to Oracle Identity Manager

File in the Installation Media Directory	Destination Directory
lib/Common.jar	OIM_HOME/JavaTasks
lib/PSFTCommon.jar	OIM_HOME/JavaTasks
lib/PSFTER.jar	*OIM_HOME*/ScheduleTask
lib/PesopleSoftOIMListener.war	To be deployed on the Application Server

Installing the Connector in an Oracle Identity Manager Cluster

While installing Oracle Identity Manager in a clustered environment, you must copy all the JAR files and the contents of the connector Resources directory into the corresponding directories on each node of the cluster. Then, restart each node. See Table 2–2 for information about the files that you must copy and their destination locations on the Oracle Identity Manager server.

Restoring the Common.jar File

If required, restore the Common.jar file that you had backed up by following the procedure described in Section 2.1.1.3, "Creating a Backup of the Existing Common.jar File."

2.2.1.2 Copying the Connector Files and External Code Files

Table 2–3 lists the files that you must copy manually and the directories on the Oracle Identity Manager host computer to which you must copy them.

Note: The directory paths given in the first column of this table correspond to the location of the connector files in the PeopleSoft Employee Reconciliation directory on the installation media. See Section 2.1.1.1, "Files and Directories on the Installation Media" for more information about these files.

If a particular destination directory does not exist on the Oracle Identity Manager host computer, then create it.

Table 2–3 Files to Be Copied to the Oracle Identity Manager Host Computer

File in the Installation Media Directory	Destination Directory
lib/PeopleSoftOIMListener.war	*OIM_HOME*/XLIntegrations/PSFTER/WAR
Files in the test/scripts directory	*OIM_HOME*/XLIntegrations/PSFTER/scripts
Files in the test/config directory	*OIM_HOME*/XLIntegrations/PSFTER/config

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, after you install the connector, you must copy all the JAR files and the contents of the connectorResources directory into the corresponding directories on each node of the cluster.

2.2.1.3 Configuring the IT Resource

The IT resource for the target system contains connection information about the target system. Oracle Identity Manager uses this information during reconciliation.

When you run the Connector Installer, the `PSFT Server` IT resource is automatically created in Oracle Identity Manager. You must specify values for the parameters of this IT resource as follows:

1. Log in to the Administrative and User Console.
2. Expand **Resource Management.**
3. Click **Manage IT Resource.**
4. In the IT Resource Name field on the Manage IT Resource page, enter `PSFT Server` and then click **Search.**
5. Click the edit icon for the IT resource.
6. From the list at the top of the page, select **Details and Parameters.**
7. Specify values for the parameters discussed in Table 2–4. The remaining parameters of IT resource are not applicable for this connector.

Table 2–4 IT Resource Parameters

Parameter	Description
Configuration Lookup	This parameter holds the name of the lookup definition that contains configuration information. Default value: `Lookup.PSFT.Configuration` **Note:** You must not change the value of this parameter. However, if you create a copy of all the connector objects, then you can specify the unique name of the copy of this lookup definition as the value of the Configuration Lookup Name parameter in the copy of the IT resource.
IsActive	This parameter is used to specify whether the specified IT Resource is in use or not. Enter one of the following as the value of the IsActive parameter: Enter `yes` as the value to specify that the target system installation represented by this IT resource is active. If you specify yes as the value, then the connector processes messages sent from this target system installation. Enter `no` as the value if you do not want the connector to process messages sent from this target system installation. Default value: `Yes`

8. To save the values, click **Update.**

2.2.1.4 Deploying the PeopleSoft Listener

The PeopleSoft listener is a Web application that is deployed on an Oracle Identity Manager host computer. The PeopleSoft listener parses the XML message and creates a reconciliation event in Oracle Identity Manager.

To deploy the PeopleSoft listener:

1. Copy the *OIM_HOME*/XLIntegrations/PSFTER/WAR/PeopleSoftOIMListener.war file into a temporary folder. Enter the following command to extract the contents of the PeopleSoftOIMListener.war file.

   ```
   jar –xvf PeopleSoftOIMListener.war
   ```

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

2. Copy the following files from the *OIM_HOME*/lib directory to the WEB-INF/lib directory in the temporary folder:

   Note: Before you copy these files from the *OIM_HOME*/lib directory, check whether these files exist in the WEB-INF/lib directory of the temporary folder. If these files exist, then first delete them from the WEB-INF/lib directory.

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

3. Copy Common.jar from the /lib directory on the installation media to the WEB-INF/lib directory in the temporary folder.

4. Edit the web.xml file as follows:

   a. Locate the **Login Name of the OIM Admin User** details.

      ```
      <param-value>OIM_ADMIN_USER</param-value>
      ```

      Replace OIM_ADMIN_USER with Oracle Identity Manager administrator credentials.

      For example, if the administrative account on Oracle Identity Manager is **xelsysadm,** then update the line as follows:

      ```
      <param-value>xelsysadm</param-value>
      ```

b. Locate the **XL Home Dir** details, and replace *OIM_HOME* with the Oracle Identity Manager Home location.

c. Locate the **java security login config** details.

```
<param-name>java.security.auth.login.config</param-name>
<param-value>OIM_HOME/config/auth(ws/wl).conf</param-value>
```

Here, java.security.auth.login.config property is used to specify the fully qualified file name of the authentication configuration file. Typically, this file is located in the *OIM_HOME*/config directory.

Each application server uses a different authentication configuration file:

IBM WebSphere Application Server: authws.conf

JBoss Application Server: auth.conf

Oracle WebLogic Server: authwl.conf

You must edit the **auth(ws/wl).conf** value in the preceding line to the application server-specific configuration file.

d. Locate the **Message Handler Impl classes** details.

```
<param-name>IT_RESOURCE_NAME</param-name>
```

Replace IT_RESOURCE_NAME with the name of the IT resource.

For example, if the name of IT resource is **PSFT Server,** then update the line as follows:

```
<param-name>PSFT Server</param-name>
```

e. Locate the following line:

```
<param-value>MESSAGE~IMPLEMENTATION_CLASS;MESSAGE~IMPLEMENTATION_CLASS;MESS
AGE~IMPLEMENTATION_CLASS</param-value>
```

In this format, the message name and its implementation class must be separated by a tilde (~). For multiple messages, each pair must be separated with a semicolon (;). For default implementation, you must modify the line as follows:

```
<param-value>PERSON_BASIC_SYNC~oracle.iam.connectors.psft.common.handler.im
pl.PSFTPersonSyncReconMessageHandlerImpl;USER_PROFILE~oracle.iam.connectors
.psft.common.handler.impl.PSFTUserProfileReconMessageHandlerImpl;WORKFORCE_
SYNC~oracle.iam.connectors.psft.common.handler.impl.PSFTWorkForceSyncReconM
essageHandlerImpl;DELETE_USER_PROFILE~oracle.iam.connectors.psft.common.han
dler.impl.PSFTDeleteUserReconMessageHandlerImpl</param-value>
```

If PeopleSoft is sending the PERSON_BASIC_SYNC.VERSION_3 message for PERSON_BASIC_SYNC, then modify the line as follows:

```
<param-value>PERSON_BASIC_SYNC.VERSION_3~oracle.iam.connectors.psft.common.
handler.impl.PSFTPersonSyncReconMessageHandlerImpl;USER_PROFILE~oracle.iam.
connectors.psft.common.handler.impl.PSFTUserProfileReconMessageHandlerImpl;
WORKFORCE_SYNC~oracle.iam.connectors.psft.common.handler.impl.PSFTWorkForce
SyncReconMessageHandlerImpl;DELETE_USER_PROFILE~oracle.iam.connectors.psft.
common.handler.impl.PSFTDeleteUserReconMessageHandlerImpl</param-value>
```

5. Delete the PeopleSoftOIMListener.war file from the temporary directory into which you extracted it, and then use the following command to re-create the file:

```
jar -cvf PeoplesoftOIMListener.war
```

6. Ensure that the old version of the PeopleSoftOIMListener.war file is removed from the application server deployment directory.
7. Deploy the newly created PeopleSoftOIMListener.war file into the deployment directory of the application server as follows:

   For IBM WebSphere Application Server:

   a. Log in to the WebSphere Admin console.
   b. Expand **Applications.**
   c. Click **Install New Application.**
   d. Click the **Browse** button to locate the WAR file.
   e. Specify the Context root as `PeopleSoftOIMListener`.
   f. Click **Next.**
   g. In the Select installation options field, enter `PeopleSoftOIMListener` as the application name and click **Next.**
   h. On the Map modules to servers page, select **PeopleSoftOIMListener.war,** and click **Next.**
   i. On the Map virtual hosts page, select **PeopleSoftOIMListener.war,** and click **Next.**
   j. Click **Finish.**
   k. Click **Save** to save all the configurations to the master configuration in IBM WebSphere Application Server.
   l. Click **Enterprise Applications.**
   m. On the Enterprise Applications page, select **PeopleSoftOIMListener** and then click **Start** to restart the application.

   For JBoss Application Server:

   a. Copy the modified WAR file to the *JBOSS_HOME*/server/default/deploy directory.

      In case of JBoss cluster environment, copy the modified WAR file to the *JBOSS_HOME*/server/all/deploy directory.

   b. Restart JBoss Application Server.

   For Oracle WebLogic Server:

   a. Log in to the Oracle WebLogic admin console.
   b. From the Domain Structure list, select **OIM_DOMAIN.**

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

   c. Click the **Deployments** tab.
   d. On Microsoft Windows, in the Change Centre window, click **Lock & Edit.** It enables the Install button of the Monitoring tab in the Summary Of Deployments section.
   e. Click **Install.**
   f. In the Install Application Assistant, enter the full path of the directory in which the WAR file is placed. Then, click **Next.**

g. Select the WAR file to install.

h. Click **Next.**

i. Select the **Install this deployment as an application** option, and then click **Next.**

j. In the **Name of deployment** field, enter `PeopleSoftOIMListener`.

k. In the Security section, select the **DD Only: Use only roles and policies that are defined in the deployment descriptors** option.

l. In the Source accessibility window, select the **Use the defaults defined by the deployments targets** option.

m. Click **Finish.**

On Microsoft Windows, a message that reads "The deployment has been successfully installed" is displayed.

n. On UNIX platforms, click **Save.** The following messages are displayed:

Success All changes have been activated. No restarts are necessary.

Success Settings updated successfully.

o. On Microsoft Windows, to activate the changes that you have made up to this point:

i. Select the check box corresponding to the newly installed application.

ii. In the Change centre window, click **Activate Changes.**

p. On Microsoft Windows, select the check box for the newly installed application, select the **Servicing all requests** option from the Start list, and then click **Yes.**

8. Restart Oracle Identity Manager and the Design Console.

2.2.1.5 Removing the PeopleSoft Listener

Note: This section is not a part of installation on Oracle Identity Manager. You might need this procedure to extend the connector.

To remove the PeopleSoft listener:

For IBM WebSphere Application Server:

1. Log in to the WebSphere Admin console.
2. Expand **Applications.**
3. Select **Enterprise Applications** from the list.

   A list of deployed applications is shown in the right pane.
4. Select the **PeopleSoftOIMListener.war** check box.
5. Specify the Context root as `PeopleSoftOIMListener`.
6. Click **Uninstall.**

   An Uninstall Application confirmation screen appears with the name of the application to be uninstalled. In this scenario, the application would be PeopleSoftOIMListener.

7. Click **OK.**

For JBoss Application Server:

1. Delete the WAR file from the *JBOSS_HOME*/server/default/deploy directory.

   In case of JBoss cluster environment, delete the WAR file from the *JBOSS_HOME*/server/all/deploy directory.

2. Restart JBoss Application Server.

For Oracle WebLogic Server:

1. Log in to the Oracle WebLogic admin console.
2. From the Domain Structure list, select **OIM_DOMAIN.**

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

3. Click the **Deployments** tab.
4. On Microsoft Windows, in the Change Centre window, click **Lock & Edit.**
5. Select **PeopleSoftOIMListener.war.** This enables the Delete button of the Control tab in the Summary Of Deployments region.
6. Click **Stop.** A list appears.
7. Select **Force Stop Now.**

   The Force Stop Application confirmation screen appears.

8. Click **Yes.**
9. On the Control tab in the Summary Of Deployments region, select **PeopleSoftOIMListener.war.**
10. Click **Delete.**

    A confirmation message appears on successful deletion of the WAR file.

11. On the left pane, click the **Active Changes** button.

2.2.2 Installation on the Target System

During this stage, you configure the target system to enable it for reconciliation. This information is provided in the following sections:

- Section 2.2.2.1, "Configuring the Target System for Full Reconciliation"
- Section 2.2.2.2, "Configuring the Target System for Incremental Reconciliation"

2.2.2.1 Configuring the Target System for Full Reconciliation

As described in Chapter 1, "About the Connector", full reconciliation is used to reconcile all existing person data into Oracle Identity Manager. The PeopleCode that is activated in response to these events extracts the required person data through the following components:

For PeopleSoft 9.0:

PERSONAL_DATA, JOB_DATA, JOB_DATA_EMP, JOB_DATA_CONCUR, and JOB_DATA_CWR

Configuring the target system for full reconciliation involves creation of XML files for full reconciliation by performing the following procedures:

- Section 2.2.2.1.1, "Configuring the PeopleSoft Integration Broker"
- Section 2.2.2.1.2, "Configuring the PERSON_BASIC_FULLSYNC Service Operation"
- Section 2.2.2.1.3, "Configuring the WORKFORCE_FULLSYNC Service Operation"

2.2.2.1.1 Configuring the PeopleSoft Integration Broker The following sections explain the procedure to configure PeopleSoft Integration Broker:

Configuring PeopleSoft Integration Broker Gateway

PeopleSoft Integration Broker is installed as part of the PeopleTools installation process. The Integration Broker Gateway is a component of PeopleSoft Integration Broker, which runs on the PeopleSoft Web Server. It is the physical hub between PeopleSoft and the third-party system. The integration gateway manages the receipt and delivery of messages passed among systems through PeopleSoft Integration Broker.

To configure the PeopleSoft Integration Broker gateway:

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://IPADDRESS:PORT/psp/ps/?cmd=login`

   For example:

   `http://172.21.109.69:9080/psp/ps/?cmd=login`

2. To display the Gateway component details, expand **PeopleTools, Integration Broker, Configuration,** and then **Gateways.** The Gateway component details are displayed.
3. In the Integration Gateway ID field, enter `LOCAL`, and then click **Search.** The LOCAL gateway is a default gateway that is created when you install PeopleSoft Internet Architecture.
4. Ensure that the IP address and host name specified in the URL of the PeopleSoft listener are those on which the target system is installed. The URL of the PeopleSoft listener is in one of the following formats:

   `http://HOSTNAME_of_the_PeopleSoft_Web_server` or
   `IPADDRESS: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.** A window is displayed mentioning that the loading process is successful. Click **OK.**
6. Click **Save.**
7. Click **Ping Gateway** to check whether the gateway component is active. The PeopleTools version and the status of the PeopleSoft listener are displayed. The status should be `ACTIVE`.

Configuring PeopleSoft Integration Broker

PeopleSoft Integration Broker provides a mechanism for communicating with the outside world using XML files. Communication can take place between different

PeopleSoft applications or between PeopleSoft and third-party systems. To subscribe to data, third-party applications can accept and process XML messages posted by PeopleSoft using the available PeopleSoft connectors. The Integration Broker routes messages to and from PeopleSoft.

To configure PeopleSoft Integration Broker:

1. Create a remote node as follows:
   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, `OIM_FILE_NODE`, and then click **Add.**
   c. On the Node Definition tab, provide the following values:

      In the Description field, enter a description for the node.

      In the Default User ID field, enter `PS`.
   d. Make this node a remote node by deselecting the **Local Node** check box and selecting the **Active Node** check box.
   e. Ensure that the Node Type is **PIA.**
   f. On the Connectors tab, search for the following information by clicking the Lookup icon:

      Gateway ID: LOCAL

      Connector ID: FILEOUTPUT
   g. On the Properties page in the Connectors tab, enter the following information:

      Property ID: HEADER

      Property Name: sendUncompressed

      Required value: Y

      Property ID: PROPERTY

      Property Name: Method

      Required value: PUT

      Property ID: PROPERTY

      Property Name: FilePath

      Required value: FilePath of the PeopleSoft Server

      Property ID: PROPERTY

      Property Name: Password

      Required value: Same value as of **ig.fileconnector.password** in the integrationGateway.properties file

Note: To locate the intergrationGateway.properties file, perform the following steps using the PeopleSoft administrator credentials:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Configuration,** and then click **Gateways.**
2. In the Integration Gateway ID field, enter `LOCAL`, and then click **Search.**
3. Click the **Gateway Setup Properties** link.

   You are prompted to enter the user ID and password.
4. Specify the following values:

   In the UserID field, enter the appropriate user ID.

   In the Password field, enter the appropriate password.

h. Click **Save.**

i. Click **Ping Node** to check whether a connection is established with the specified IP address.

2.2.2.1.2 Configuring the PERSON_BASIC_FULLSYNC Service Operation The PERSON_BASIC_FULLSYNC message contains the basic personal information about all the persons. This information includes the Employee ID, First Name, Last Name, and Employee Type.

To configure the PERSON_BASIC_FULLSYNC service operation perform the following procedures:

- Activating the PERSON_BASIC_FULLSYNC Service Operation
- Verifying the Queue Status for the PERSON_BASIC_FULLSYNC Service Operation
- Setting Up the Security for the PERSON_BASIC_FULLSYNC Service Operation
- Defining the Routing for the PERSON_BASIC_FULLSYNC Service Operation
- Displaying the EI Repository Folder
- Activating the PERSON_BASIC_FULLSYNC Message
- Activating the Full Data Publish Rule

Activating the PERSON_BASIC_FULLSYNC Service Operation

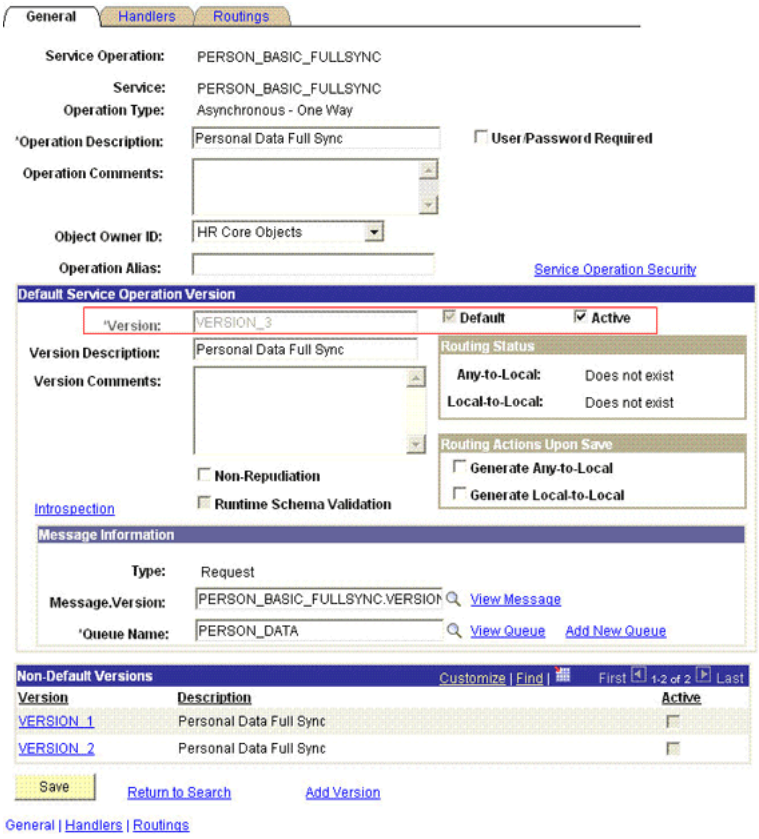
The service operation is a mechanism to trigger, receive, transform, and route messages that provide information about updates in PeopleSoft or an external application. You must activate the service operation to successfully transfer or receive messages.

To activate the PERSON_BASIC_FULLSYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. On the Find Service Operation tab, enter `PERSON_BASIC_FULLSYNC` in the **Service** field, and then click **Search.**
3. Click the **PERSON_BASIC_FULLSYNC** link.

Note: In PeopleSoft HRMS, there are three versions of the message associated with this service operation. But, when you integrate PeopleSoft HRMS 9.0 and Oracle Identity Manager, you must send `VERSION_3` . So, you must use the default version `VERSION_3` for HRMS 9.0.

The following screenshot displays the default version associated with this service operation:



4. In the Default Service Operation Version region, click **Active.**
5. Click **Save.**

Verifying the Queue Status for the PERSON_BASIC_FULLSYNC Service Operation

All messages in PeopleSoft are sent through a queue. This is done to ensure that the messages are delivered in a correct sequence. Therefore, you must ensure that the queue is in the Run status.

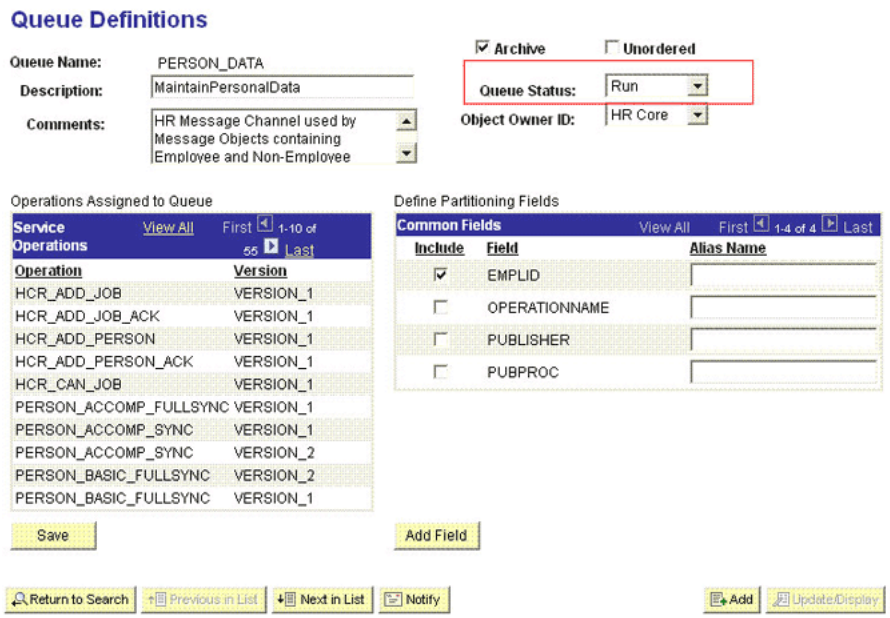
To ensure that the status of the queue for the PERSON_BASIC_FULLSYNC service operation is Run:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Queues.**
2. Search for the **PERSON_DATA** queue.
3. In the Queue Status list, ensure that **Run** is selected.

Note: If the queue status is not Run:

1. From the Queue Status list, select **Run.**
2. Click **Save.**

The queue status is highlighted in the following screenshot:



4. Click **Return to Search.**

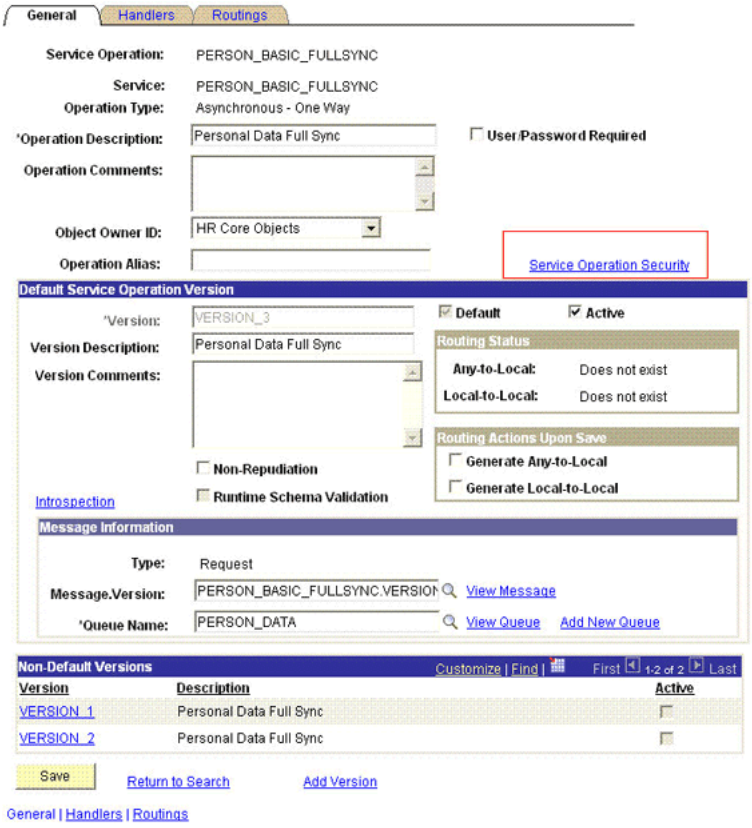
Setting Up the Security for the PERSON_BASIC_FULLSYNC Service Operation

A person on the target system who has permission to modify or add personal or job information of a person might not have access to send messages regarding these updates. Therefore, it is imperative to explicitly grant security to enable operations.

To set up the security for PERSON_BASIC_FULLSYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. Search for and open the **PERSON_BASIC_FULLSYNC** service operation.
3. On the General tab, click the **Service Operation Security** link.

   The link is highlighted in the following screenshot:



4. Attach the **OIMER** permission list to the PERSON_BASIC_FULLSYNC service operation. This list is created in Step 3 of the preinstallation procedure discussed in Section 2.1.2.2.1, "Creating a Permission List."

   To attach the permission list:

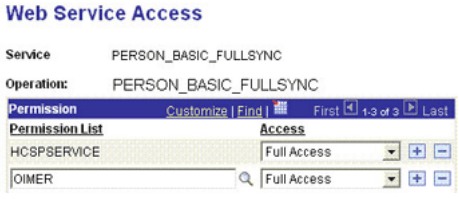
   a. Click the plus sign (+) to add a row to the Permission List field.

   b. In the Permission List field, enter `OIMER` and then click the Look up Permission List icon.

      The **OIMER** permission list appears.

   c. From the Access list, select **Full Access.**

      The following screenshot displays the preceding steps:



   d. Click **Save.**

   e. Click **Return to Search.**

Defining the Routing for the PERSON_BASIC_FULLSYNC Service Operation

Routing is defined to inform PeopleSoft about the origin and intended recipient of the message. You might have to transform the message being sent or received according to the business rules.

To define the routing for PERSON_BASIC_FULLSYNC service operation:

1. On the Routing tab, enter `PERSON_BASIC_FULLSYNC_HR_FILE` as the routing name and then click **Add.**
2. On the Routing Definitions tab, enter the following:

   Sender Node: `PSFT_HR`

   Note: The Sender Node is the default active local node. To locate the sender node:

   1. Click the Look up icon.
   2. Click **Default** to sort the results in descending order.

      The default active local node should meet the following criteria:

      Local Node: **1**

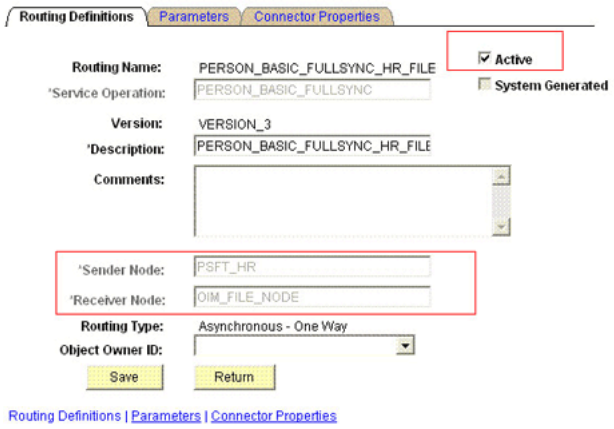
      Default Local Node: **Y**

      Node Type: **PIA**

      Only one node can meet all the above conditions at a time.
   3. Select the node.
   4. Click **Save.**

   Receiver Node: `OIM_FILE_NODE`

   The following screenshot displays the Sender and Receiver nodes:



3. Click **Save.**
4. Click **Return** to go back to the Routings tab of the service operation, and verify whether your routing is active.

Displaying the EI Repository Folder

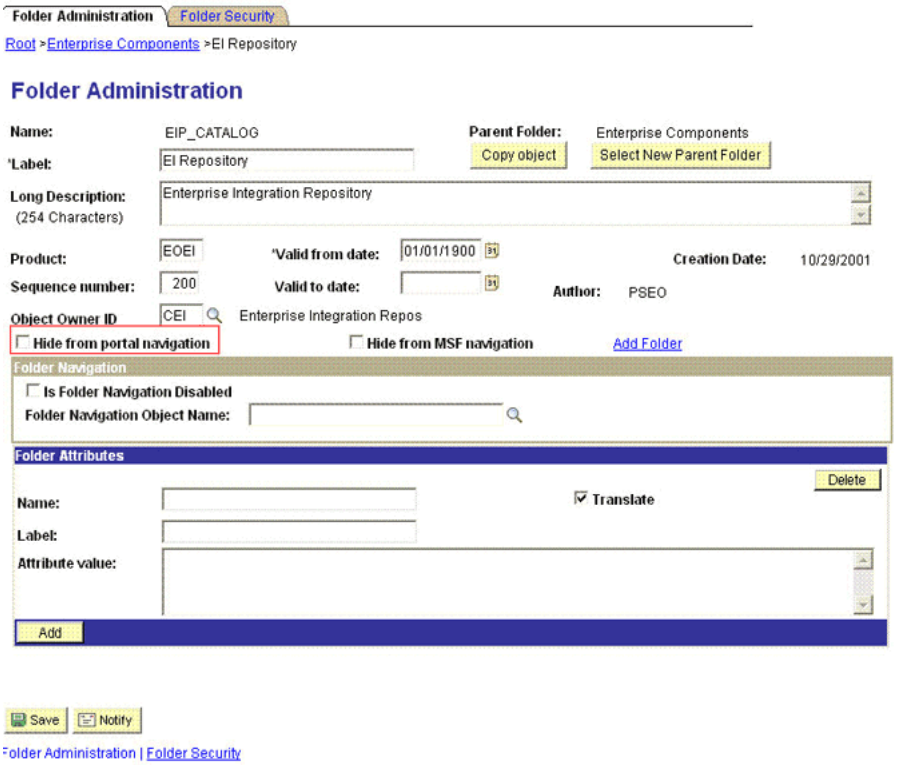
EI Repository is a hidden folder in PeopleSoft. Therefore, you must display this folder.

To display the EI Repository folder:

> **Note:** Perform this procedure using the PeopleSoft administrator credentials.

1. In the PeopleSoft Internet Architecture, expand **People Tools, Portal,** and then **Structure and Content.**
2. Click the **Enterprise Components** link.
3. Click the **Edit** link for EI Repository, and then uncheck **Hide from portal navigation.**

   The following screenshot displays the Hide from portal navigation check box:



4. Click **Save.**
5. Log out, and then log in.

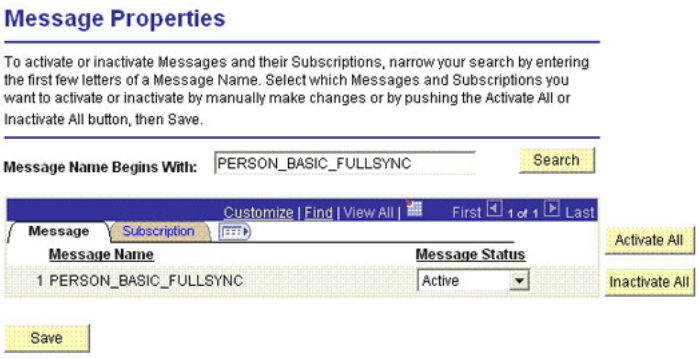
Activating the PERSON_BASIC_FULLSYNC Message

You must activate the PERSON_BASIC_FULLSYNC message so that it can be processed.

To activate the PERSON_BASIC_FULLSYNC message:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, EI Repository,** and then click **Message Properties.**
2. Search for and open the **PERSON_BASIC_FULLSYNC** message.
3. Click **Activate All.**

   The following screenshot displays the message to be activated:



4. Click the **Subscription** tab, and activate the Subscription PeopleCode if it exists.

> **Note:** To perform this step, your User Profile must have the EIR Administrator role consisting of **EOEI9000** and **EOCO9000** permission lists.

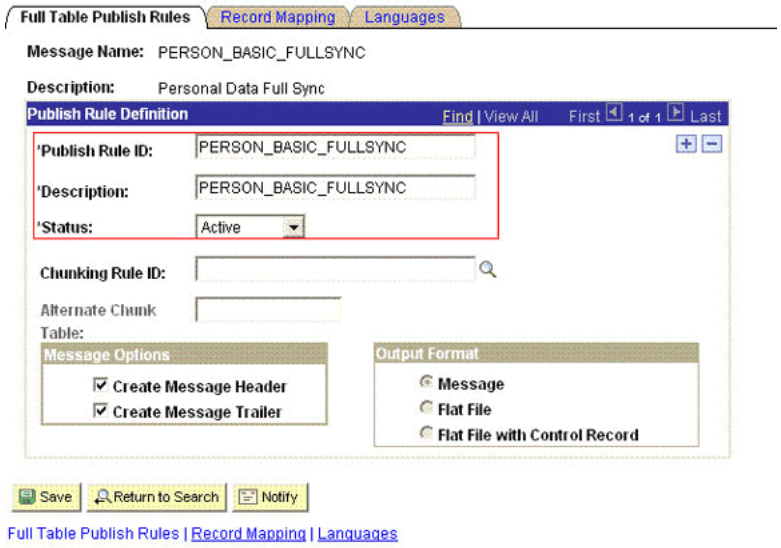
Activating the Full Data Publish Rule

You must define and activate the Full Data Publish rule, because it acts as a catalyst for the full reconciliation process. This rule provides the full reconciliation process the desired information to initiate reconciliation.

To activate the full data publish rule:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, Integration Definitions,** and then click **Full Data Publish Rules.**
2. Search for and open the PERSON_BASIC_FULLSYNC message.
3. In the Publish Rule Definition region:
   a. In the Publish Rule ID field, enter `PERSON_BASIC_FULLSYNC`.
   b. In the Description field, enter `PERSON_BASIC_FULLSYNC`.
   c. From the Status list, select **Active.**

   The following screenshot displays the preceding steps:



4. Click **Save.**

2.2.2.1.3 Configuring the WORKFORCE_FULLSYNC Service Operation The WORKFORCE_FULLSYNC message contains the job-related details of all persons. This information includes the Department, Supervisor ID, Manager ID, and Job Code.

To configure the WORKFORCE_FULLSYNC service operation, perform the following procedures:

- Activating the WORKFORCE_FULLSYNC Service Operation
- Verifying the Queue Status for the WORKFORCE_FULLSYNC Service Operation
- Setting Up the Security for the WORKFORCE_FULLSYNC Service Operation
- Defining the Routing for the WORKFORCE_FULLSYNC Service Operation
- Displaying the EI Repository Folder
- Activating the WORKFORCE_FULLSYNC Message
- Activating the Full Data Publish Rule

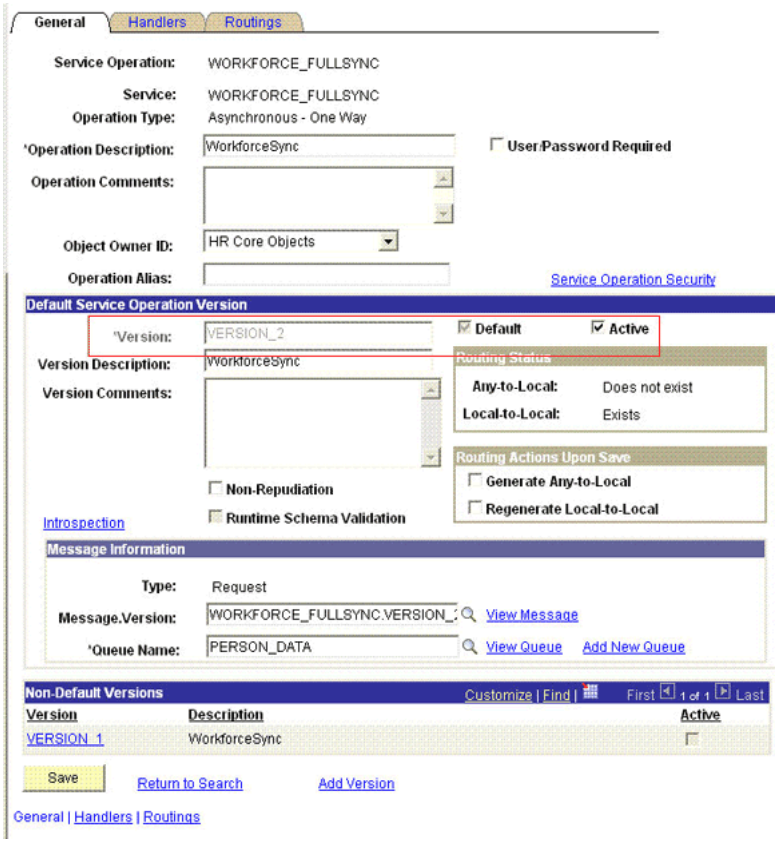
Activating the WORKFORCE_FULLSYNC Service Operation

To activate the WORKFORCE_FULLSYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. On the Find Service Operation tab, enter `WORKFORCE_FULLSYNC` in the **Service** field, and then click **Search.**
3. Click the **WORKFORCE_FULLSYNC** link.

Note: In PeopleSoft HRMS, there are two versions of the message associated with this service operation. But, when you integrate PeopleSoft HRMS 9.0 and Oracle Identity Manager, you must send `VERSION_2`. So, you must use the default version `VERSION_2` for HRMS 9.0.

The following screenshot displays the default version of the WORKFORCE_FULLSYNC service operation:



4. In the Default Service Operation Version region, click **Active.**
5. Click **Save.**

Verifying the Queue Status for the WORKFORCE_FULLSYNC Service Operation

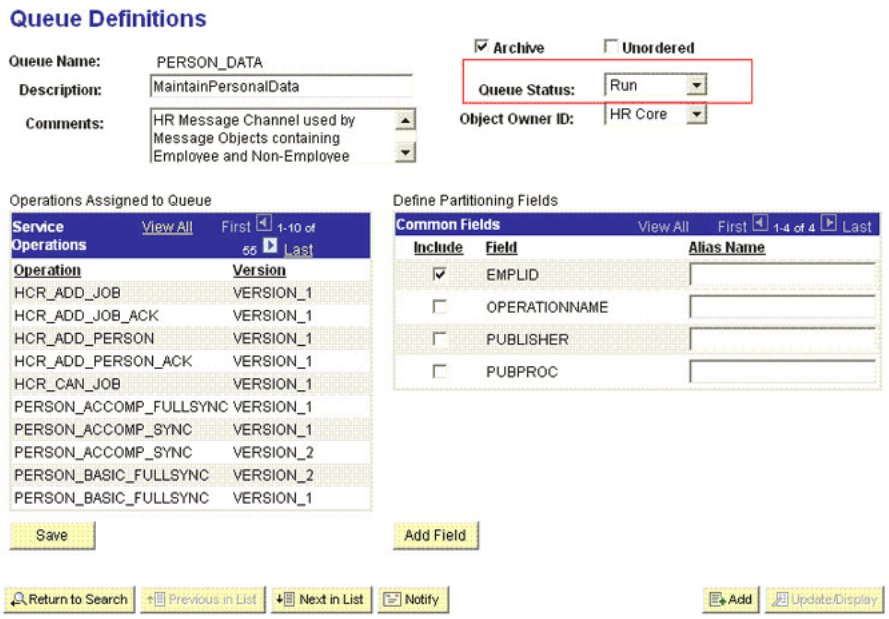
To ensure that the status of the queue for the WORKFORCE_FULLSYNC service operation is Run:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Queues.**
2. Search for the **PERSON_DATA** queue.
3. In the Queue Status list, ensure that **Run** is selected.

Note: If the queue status is not Run:

1. From the Queue Status list, select **Run.**
2. Click **Save.**

The queue status is shown in the following screenshot:



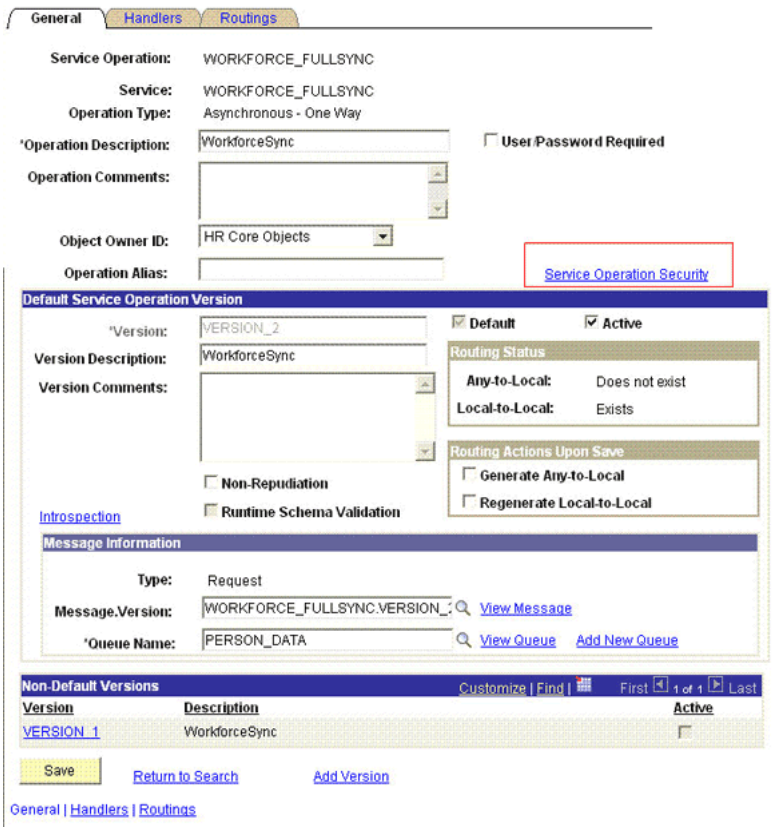
4. Click **Return to Search.**

Setting Up the Security for the WORKFORCE_FULLSYNC Service Operation

To set up the security for the WORKFORCE_FULLSYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. Search for an open the **WORKFORCE_FULLSYNC** service operation.
3. On the General tab, click the **Service Operation Security** link.

   The link is shown in the following screenshot:



4. Attach the **OIMER** permission list to the **WORKFORCE_FULLSYNC** service operation. This list is created in Step 3 of the preinstallation procedure discussed in Section 2.1.2.2.1, "Creating a Permission List."

   To attach the permission list:

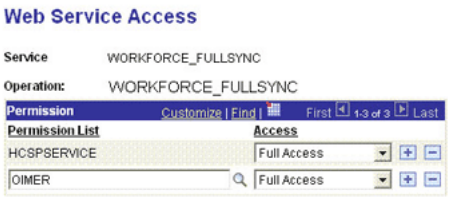
   a. Click the plus sign (+) to add a row to the Permission List field.

   b. In the Permission List field, enter `OIMER` and then click the **Look up Permission List** icon.

      The **OIMER** permission list appears.

   c. From the Access list, select **Full Access.**

      The following screenshot displays the Access list with Full Access:



   d. Click **Save.**

   e. Click **Return to Search.**

Defining the Routing for the WORKFORCE_FULLSYNC Service Operation

To define the routing for the WORKFORCE_FULLSYNC service operation:

1. On the Routing tab, enter `WORKFORCE_FULLSYNC_HR_FILE` as the routing name and then click **Add.**
2. On the Routing Definitions tab, enter the following:

   Sender Node: `PSFT_HR`

   Note: The Sender Node is the default active local node. To locate the sender node:

   1. Click the Look up icon.
   2. Click **Default** to sort the results in descending order.

      The default active local node should meet the following criteria:

      Local Node: **1**

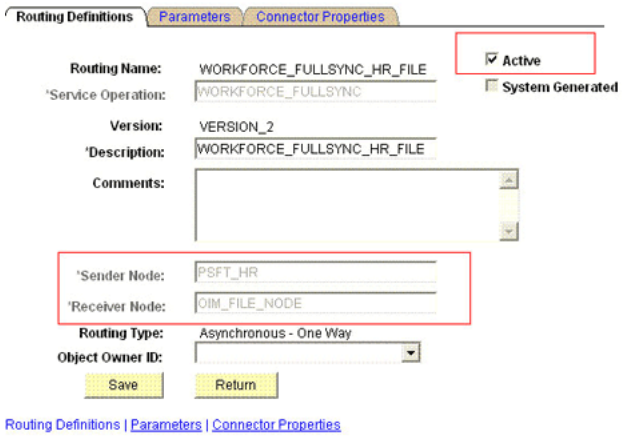
      Default Local Node: **Y**

      Node Type: **PIA**

      Only one node can meet all the above conditions at a time.
   3. Select the node.
   4. Click **Save.**

   Receiver Node: `OIM_FILE_NODE`

   The following graphic displays both the Sender and the Receiver nodes:



3. Click **Save.**
4. Click **Return** to go back to the Routings tab of the Service Operation, and verify whether your routing is active.

Displaying the EI Repository Folder

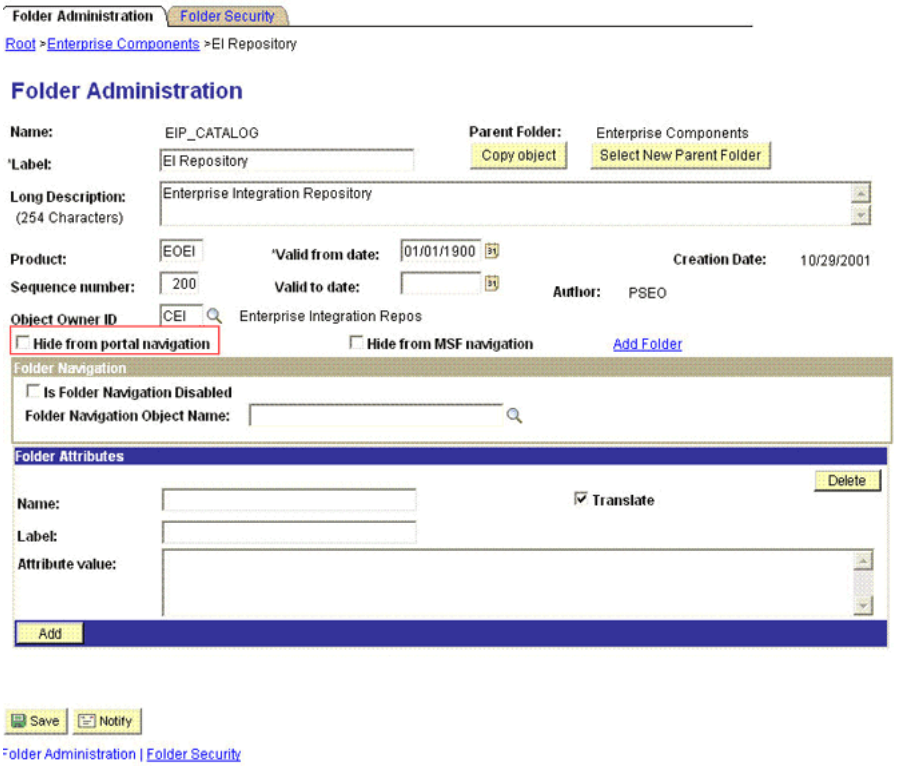
To display the EI Repository folder:

Note:

- If you have performed this procedure as described in "Displaying the EI Repository Folder" on page 2-24, then you can skip this section.
- Perform this procedure using the PeopleSoft administrator credentials.

1. In the PeopleSoft Internet Architecture, expand **People Tools, Portal,** and then **Structure and Content.**
2. Click the **Enterprise Components** link.
3. Click the **Edit** link for EI Repository, and then uncheck **Hide from portal navigation.**

   The following screenshot displays the Hide from portal navigation check box:



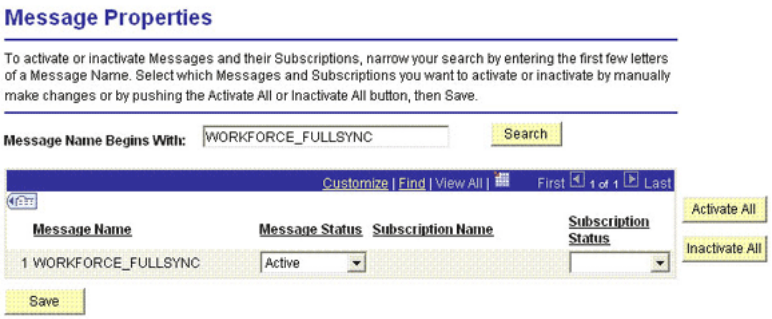
4. Click **Save.**
5. Log out, and then log in.

Activating the WORKFORCE_FULLSYNC Message

To activate the WORKFORCE_FULLSYNC message:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, EI Repository,** and then click **Message Properties.**
2. Search for and open the **WORKFORCE_FULLSYNC** message.
3. Click **Activate All.**

   The following screenshot displays the message to be activated:



4. Click the **Subscription** tab, and activate the Subscription PeopleCode if it exists.

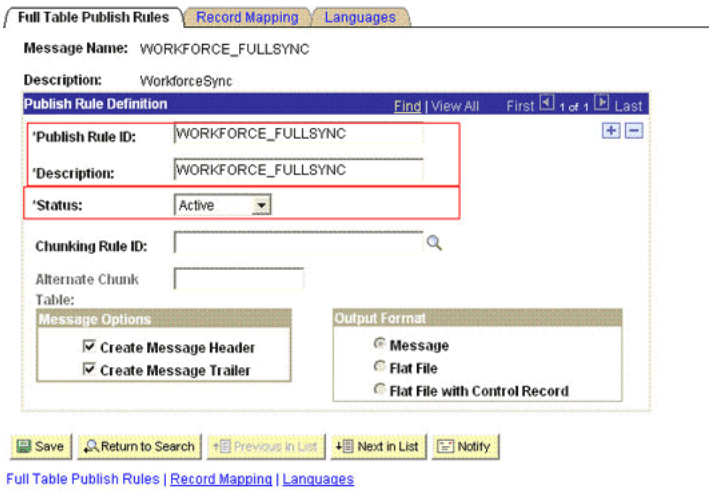
> **Note:** To perform this step, your User Profile must have the EIR Administrator role consisting of **EOEI9000** and **EOCO9000** permission lists.

Activating the Full Data Publish Rule

To activate the full data publish rule:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, Integration Definitions,** and then click **Full Data Publish Rules.**
2. Search for and open the **WORKFORCE_FULLSYNC** message.
3. In the Publish Rule Definition region:
   a. In the Publish Rule ID field, enter `WORKFORCE_FULLSYNC`.
   b. In the Description field, enter `WORKFORCE_FULLSYNC`.
   c. From the Status list, select **Active.**

   The following screenshot displays the preceding steps:



4. Click **Save.**

2.2.2.2 Configuring the Target System for Incremental Reconciliation

Configuring the target system for incremental reconciliation involves configuring PeopleSoft Integration Broker and configuring the PERSON_BASIC_SYNC and WORKFORCE_SYNC messages.

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

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.

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

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

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

- Section 2.2.2.2.1, "Configuring PeopleSoft Integration Broker"
- Section 2.2.2.2.2, "Configuring the PERSON_BASIC_SYNC Service Operation"
- Section 2.2.2.2.3, "Configuring the WORKFORCE_SYNC Service Operation"

2.2.2.2.1 Configuring PeopleSoft Integration Broker

The following sections explain the procedure to configure PeopleSoft Integration Broker:

Configuring PeopleSoft Integration Broker Gateway

Section "Configuring PeopleSoft Integration Broker Gateway" on page 2-18 describes the procedure to configure the PeopleSoft Integration Broker gateway.

Configuring PeopleSoft Integration Broker

To configure PeopleSoft Integration Broker:

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, `OIM_NODE`, and then click **Add.**
   c. On the Node Definition tab, enter a description for the node in the **Description** field. In addition, specify the SuperUserID in the **Default User ID** field. For example, `PS`.
   d. Make this node a remote node by deselecting the **Local Node** check box and selecting the **Active Node** check box.

e. Ensure Node Type is **PIA.**

f. On the **Connectors** tab, search for the following information by clicking the Lookup icon:

Gateway ID: LOCAL

Connector ID: HTTPTARGET

g. On the **Properties** page in the Connectors tab, enter the following information:

Property ID: HEADER

Property Name: sendUncompressed

Required value: Y

Property ID: HTTP PROPERTY

Property Name: Method

Required value: POST

Property ID: HEADER

Property Name: Host

Required value: Enter the value of the IT Resource name as configured for PeopleSoft HRMS

Sample value: PSFT Server

Property ID: PRIMARYURL

Property Name: URL

Required value: Enter the URL of the PeopleSoft listener that is configured to receive XML messages. This URL must be in the following format:

`http://`*`ORACLE_IDENTITY_MANAGER_SERVER_IPADDRESS`*`:`*`PORT`*`/PeopleSoftOIMListener`

The URL depends on the application server that you are using. For an environment on which SSL is not enabled, the URL must be in the following format:

For IBM WebSphere Application Server:

```
http://10.121.16.42:9080/PeopleSoftOIMListener
```

For JBoss Application Server:

```
http://10.121.16.42:8080/PeopleSoftOIMListener
```

For Oracle WebLogic Server:

```
http://10.121.16.42:7001/PeopleSoftOIMListener
```

For an environment on which SSL is enabled, the URL must be in the following format:

`https://`*`COMMON_NAME`*`:`*`PORT`*`/PeopleSoftOIMListener`

For IBM WebSphere Application Server:

```
https://example088196:9443/PeopleSoftOIMListener
```

For JBoss Application Server:

```
https://example088196:8443/PeopleSoftOIMListener
```

For Oracle WebLogic Server:

```
https://example088196:7002/PeopleSoftOIMListener
```

Note: The ports may vary depending on the installation that you are using.

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

i. Click the **Ping Node** button to check whether a connection is established with the specified IP address.

Before the XML messages are sent from the target system to Oracle Identity Manager, you must verify whether 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, Integration Setup,** and then **Nodes.**

2.2.2.2.2 Configuring the PERSON_BASIC_SYNC Service Operation

The PERSON_BASIC_SYNC message contains the updated information about a particular person. This information includes the Employee ID and the information that is added or modified.

To configure the PERSON_BASIC_SYNC service operation perform the following procedures:

- Activating the PERSON_BASIC_SYNC Service Operation
- Verifying the Queue Status for the PERSON_BASIC_SYNC Service Operation
- Setting Up the Security for the PERSON_BASIC_SYNC Service Operation
- Defining the Routing for the PERSON_BASIC_SYNC Service Operation
- Displaying the EI Repository
- Activating the PERSON_BASIC_SYNC Message

Activating the PERSON_BASIC_SYNC Service Operation

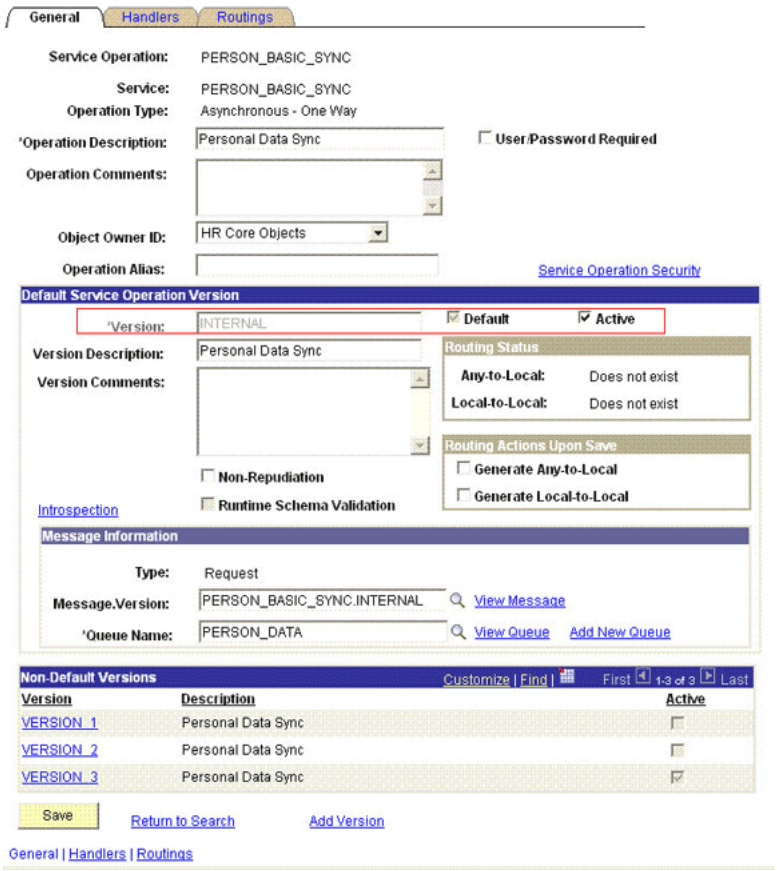
To activate the PERSON_BASIC_SYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. On the Find Service Operation tab, enter `PERSON_BASIC_SYNC` in the **Service** field, and then click **Search.**
3. Click the **PERSON_BASIC_SYNC** link.

Note: In PeopleSoft HRMS, there are four versions of the message associated with this service operation. But, when you integrate PeopleSoft HRMS 9.0 and Oracle Identity Manager, you must send `VERSION_3`. The default version for PeopleSoft HRMS is `INTERNAL`. Therefore, you must convert the default version to `VERSION_3`. This conversion is carried out using the transformation program `HMTF_TR_OA`.

4. In the Default Service Operation Version region, click **Active**.

The following screenshot displays the default version of the PERSON_BASIC_SYNC service operation:



5. Click **Save.**

Verifying the Queue Status for the PERSON_BASIC_SYNC Service Operation

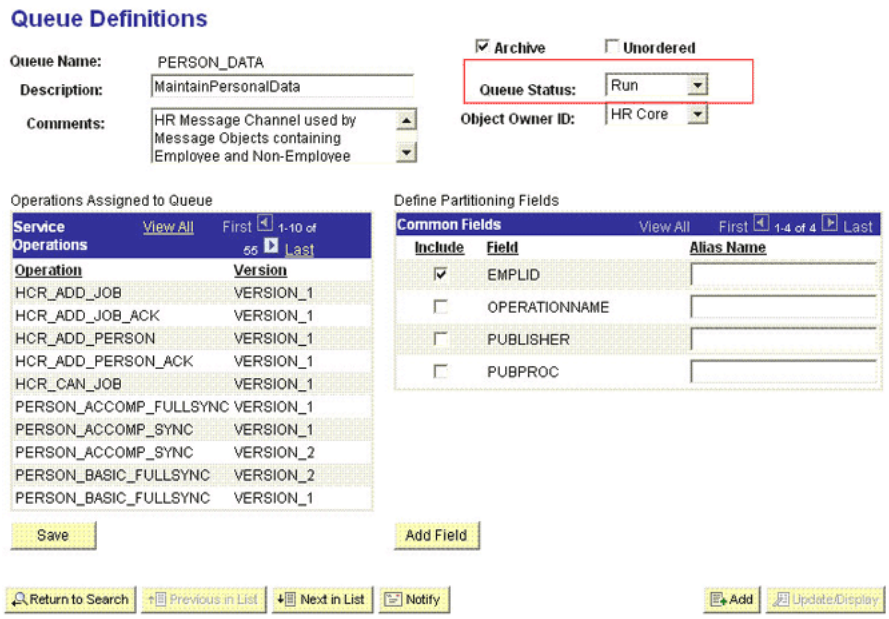
To ensure that the status of the queue for the PERSON_BASIC_SYNC service operation is Run:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Queues.**
2. Search for the **PERSON_DATA** queue.
3. In the Queue Status list, ensure that **Run** is selected.

Note: If the queue status is not Run:

1. From the Queue Status list, select **Run.**
2. Click **Save.**

The queue status is shown in the following screenshot:



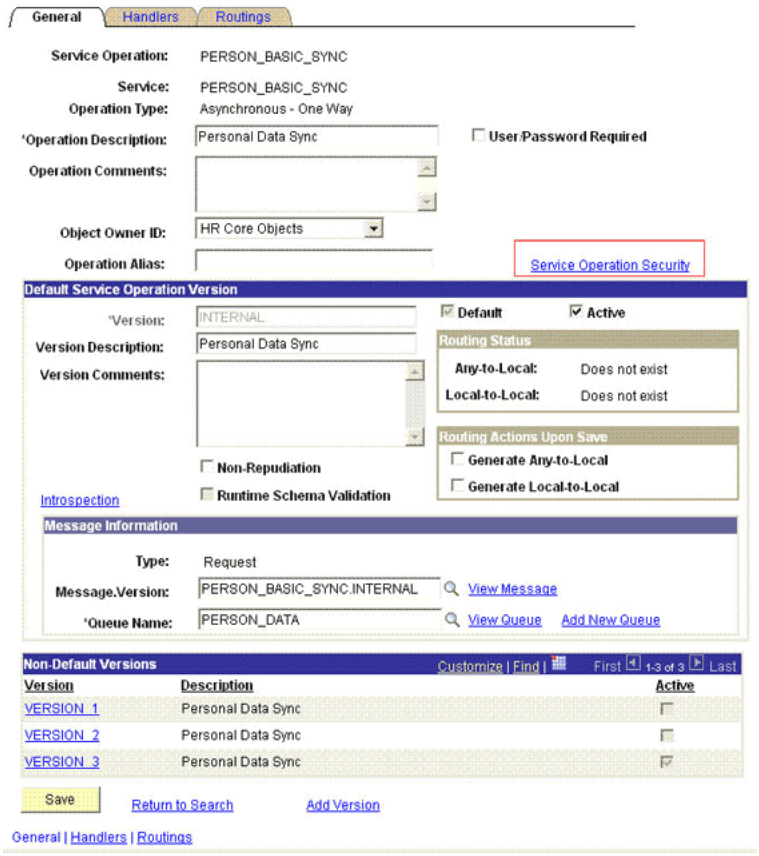
4. Click **Return to Search.**

Setting Up the Security for the PERSON_BASIC_SYNC Service Operation

To set up the security for the PERSON_BASIC_SYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. Search for an open the **PERSON_BASIC_SYNC** service operation.
3. On the General tab, click the **Service Operation Security** link.

   The link is shown in the following screenshot:



4. Attach the **OIMER** permission list to the **PERSON_BASIC_SYNC** service operation. This list is created in Step 3 of the preinstallation procedure discussed in Section 2.1.2.2.1, "Creating a Permission List."

   To attach the permission list:

   > **Note:** This procedure describes how to grant access to the OIMER permission list. The OIMER permission list is used as an example. But, to implement this procedure you must use the permission list (attached through a role) to the user profile that has the privilege to modify personal data in the target system.

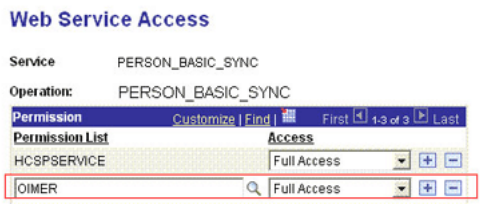
   a. Click the plus sign (+) to add a row for the Permission List field.

   b. In the Permission List field, enter `OIMER` and then click the Look up Permission List icon.

      The **OIMER** permission list appears.

   c. From the Access list, select **Full Access.**

      The following screenshot displays the permission list with Full Access:



d. Click **Save.**

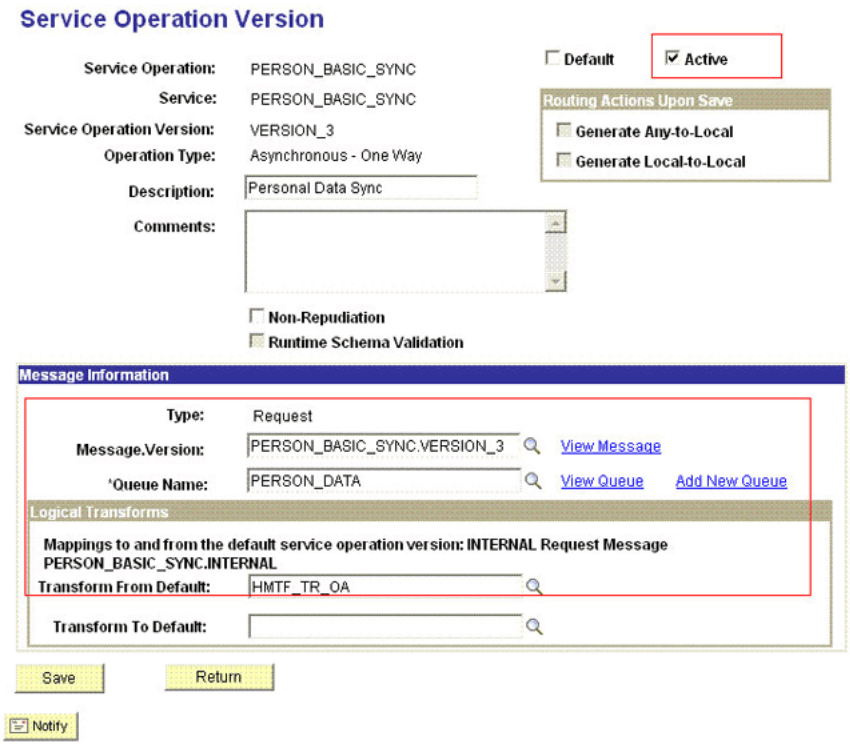
e. Click **Return to Search.**

5. In the Non-Default Version region, click the **VERSION_3** link to view the details.

a. Click **Active.**

b. In the **Logical Transforms** region, enter `HMTF_TR_OA` in the Transform From Default field.

The following screenshot displays the preceding steps:



c. Click **Save,** and then click **Return.**

6. On the Handlers Tab, ensure that the Status is **Active** for the Type column that contains **OnNotify** PeopleCode.

7. Click **Save.**

Defining the Routing for the PERSON_BASIC_SYNC Service Operation

To define the routing for the PERSON_BASIC_SYNC service operation:

1. On the Routing tab, enter `PERSON_BASIC_SYNC_HR_OIM` as the routing name and then click **Add.**

2. On the Routing Definitions tab, enter the following:

   Sender Node: `PSFT_HR`

   Note: The Sender Node is the default active local node. To locate the sender node:

   1. Click the Look up icon.
   2. Click **Default** to sort the results in descending order.

      The default active local node should meet the following criteria:

      Local Node: **1**

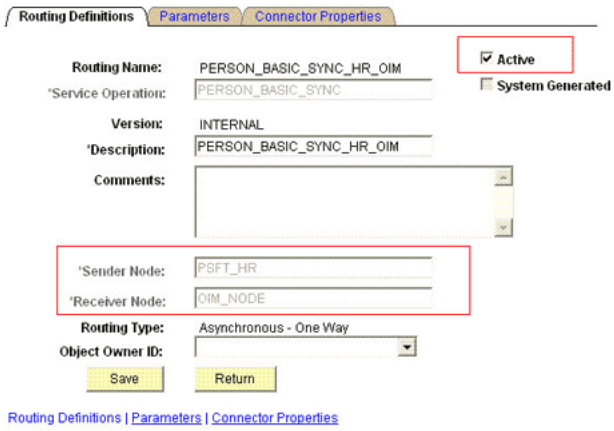
      Default Local Node: **Y**

      Node Type: **PIA**

      Only one node can meet all the above conditions at a time.
   3. Select the node.
   4. Click **Save.**

   Receiver Node: `OIM_NODE`

   The following screenshot displays the Sender and Receiver nodes:



3. On the Parameters tab, enter the following information:

   a. In the External Alias field, enter `PERSON_BASIC_SYNC.VERSION_3`.

   b. In the Message.Ver into Transform 1 field, enter `PERSON_BASIC_SYNC.INTERNAL`.

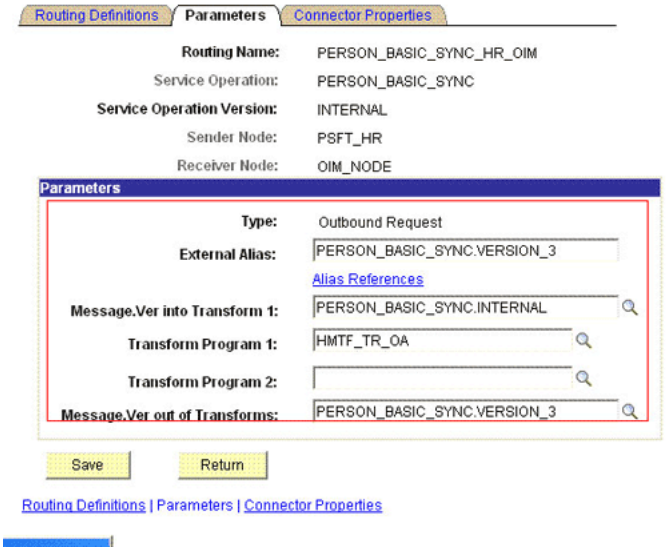
      Here, you specify the name of the default message that you must convert.

   c. In the Transform Program 1 field, enter the name of the transformation program, `HMTF_TR_OA`.

   d. In the Message.Ver out of Program field, enter `PERSON_BASIC_SYNC.VERSION_3`.

      Here, you specify the name into which you want to transform the message mentioned in Step b.

      The following screenshot displays the preceding steps:



e. Click **Save.**

f. Click **Return** to go back to the Routings tab of the Service Operation, and verify whether your routing is active.

Displaying the EI Repository

To display the EI Repository:

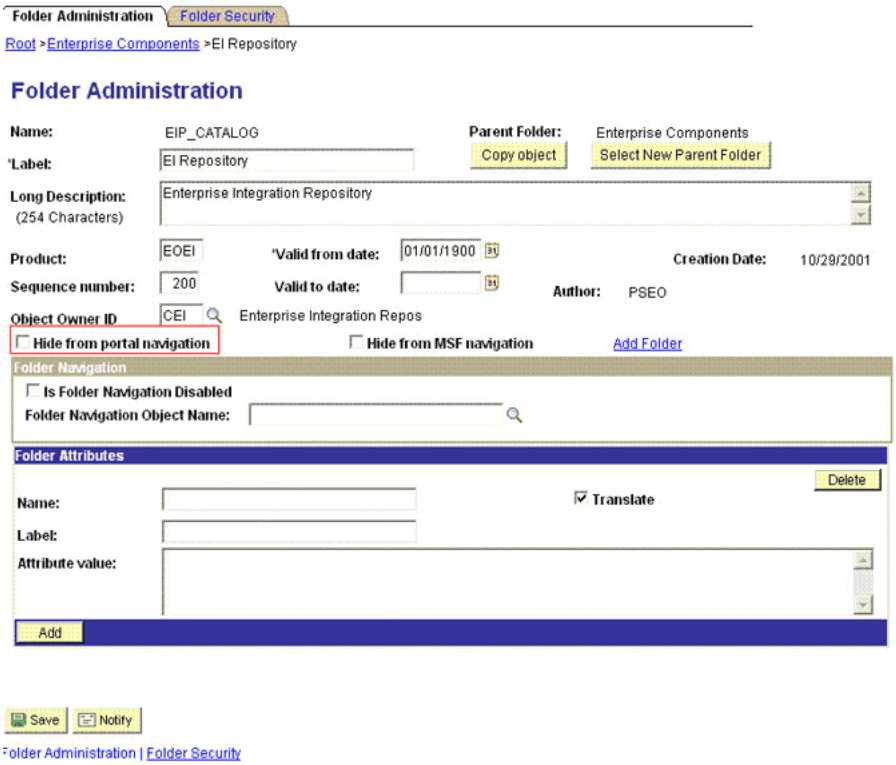
Note:

- If you have performed this procedure as described in "Displaying the EI Repository Folder" on page 2-24, then you can skip this section.
- Perform this procedure using the PeopleSoft administrator credentials.

---

1. In the PeopleSoft Internet Architecture, expand **People Tools, Portal,** and then **Structure and Content.**
2. Click the **Enterprise Components** link.
3. Click the **Edit** link for EI Repository, and then uncheck **Hide from portal navigation.**

   The following screenshot displays the Hide from portal navigation check box:



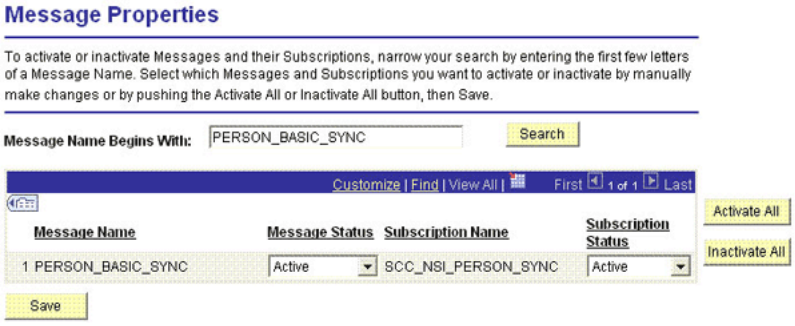
4. Click **Save.**
5. Log out, and then log in.

Activating the PERSON_BASIC_SYNC Message

To activate PERSON_BASIC_SYNC messages:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, EI Repository,** and then click **Message Properties.**
2. Search for and open the **PERSON_BASIC_SYNC** message.
3. Click **Activate All.**

   The following screenshot displays the message to be activated:



4. Click the **Subscription** tab, and activate the Subscription PeopleCode if it exists.

Note: To perform this step, your User Profile must have the EIR Administrator role consisting of **EOEI9000** and **EOCO9000** permission lists.

2.2.2.2.3 Configuring the WORKFORCE_SYNC Service Operation This message contains the job-related details of a particular person. This information includes Employee ID and the information that is added or modified.

To configure the WORKFORCE_SYNC service operation, perform the following procedures:

- Activating the WORKFORCE_SYNC Service Operation
- Verifying the Queue Status for the WORKFORCE_SYNC Service Operation
- Setting Up the Security for the WORKFORCE_SYNC Service Operation
- Defining the Routing for the WORKFORCE_SYNC Service Operation
- Displaying the EI Repository
- Activating the WORKFORCE_SYNC Message

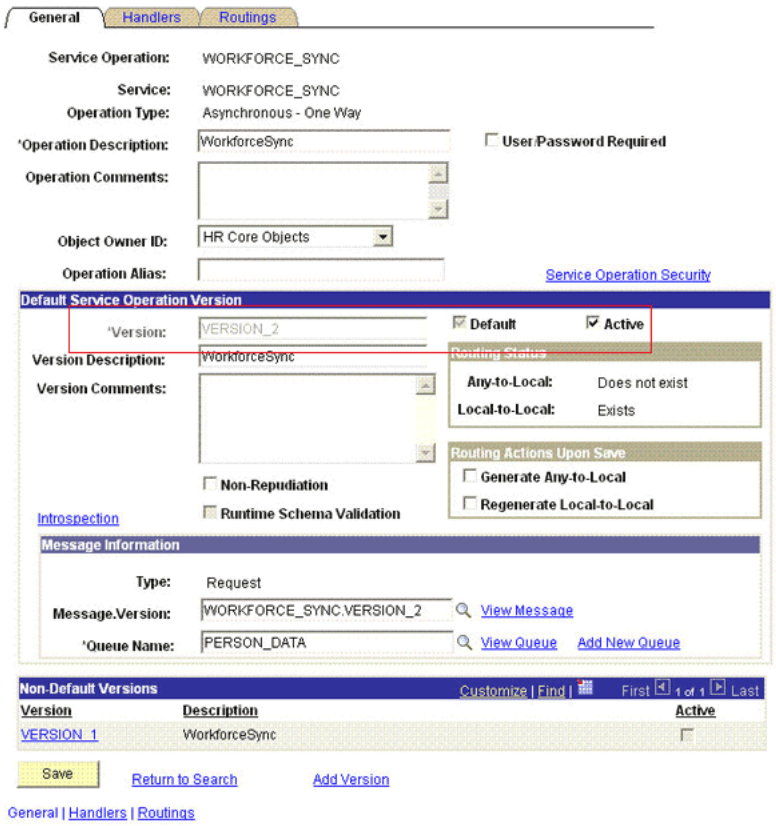
Activating the WORKFORCE_SYNC Service Operation

To activate the WORKFORCE_SYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. On the Find Service Operation tab, enter `WORKFORCE_SYNC` in the **Service** field, and then click **Search.**
3. Click the **WORKFORCE_SYNC** link.

Note: In PeopleSoft HRMS, there are two versions of the message associated with this service operation. But, when you integrate PeopleSoft HRMS 9.0 and Oracle Identity Manager, you must send `VERSION_2`. So, you must use `VERSION_2` for HRMS 9.0.

The following screenshot displays the default version of the WORKFORCE_SYNC service operation:



4. In the Default Service Operation Version region, click **Active.**
5. Click **Save.**

Verifying the Queue Status for the WORKFORCE_SYNC Service Operation

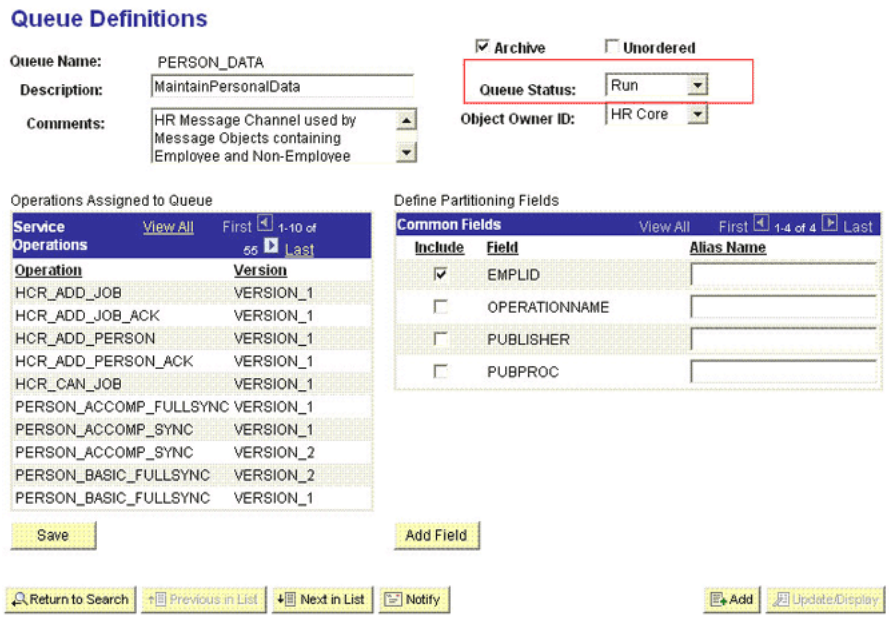
To ensure that the status of the queue for the WORKFORCE_SYNC service operation is Run:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Queues.**
2. Search for the **PERSON_DATA** queue.
3. In the Queue Status list, ensure that **Run** is selected.

Note: If the queue status is not Run:

1. From the Queue Status list, select **Run.**
2. Click **Save.**

The queue status is shown in the following screenshot:



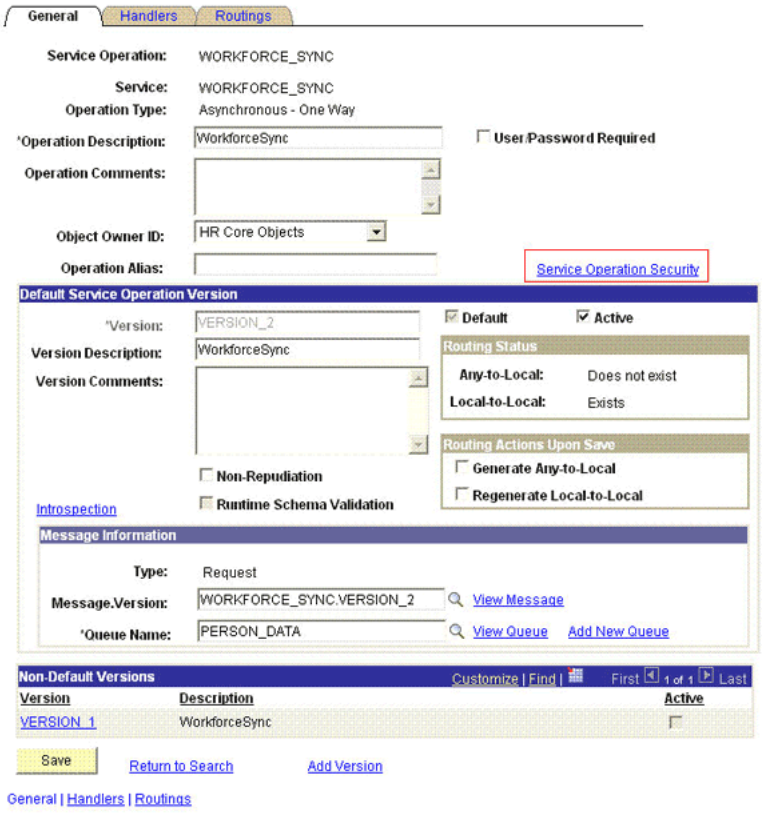
4. Click **Return to Search.**

Setting Up the Security for the WORKFORCE_SYNC Service Operation

To set up the security for the WORKFORCE_SYNC service operation:

1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Integration Setup,** and then click **Service Operations.**
2. Search for an open the **WORKFORCE_SYNC** service operation.
3. On the General tab, click **Service Operation Security** link.

   The following screenshot displays the link:



4. Attach the **OIMER** permission list to the **WORKFORCE_SYNC** service operation. This list is created in Step 3 of the preinstallation procedure discussed in Section 2.1.2.2.1, "Creating a Permission List."

   To attach the permission list:

   Note: This procedure describes how to grant access to the OIMER permission list. The OIMER permission list is used as an example. But, to implement this procedure you must use the permission list (attached through a role) to the user profile that has the privilege to modify job data in the target system.

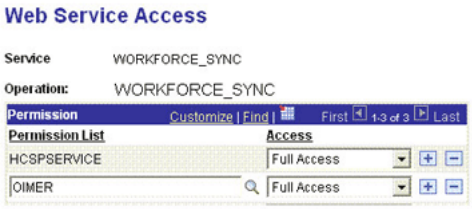
   a. Click the plus sign (+) to add a row to the Permission List field.

   b. In the Permission List field, enter `OIMER` and then click the Look up Permission List icon.

      The **OIMER** permission list appears.

   c. From the Access list, select **Full Access.**

      The following screenshot displays the permission list with Full Access:



d. Click **Save.**

e. Click **Return to Search.**

Defining the Routing for the WORKFORCE_SYNC Service Operation

To define the routing for the WORKFORCE_SYNC service operation:

1. On the Routing tab, enter `WORKFORCE_SYNC_HR_OIM` as the routing name and then click **Add.**
2. On the Routing Definitions tab, enter the following:

   Sender Node: `PSFT_HR`

   Note: The Sender Node is the default active local node. To locate the sender node:

   1. Click the Look up icon.
   2. Click **Default** to sort the results in descending order.

      The default active local node should meet the following criteria:

      Local Node: **1**

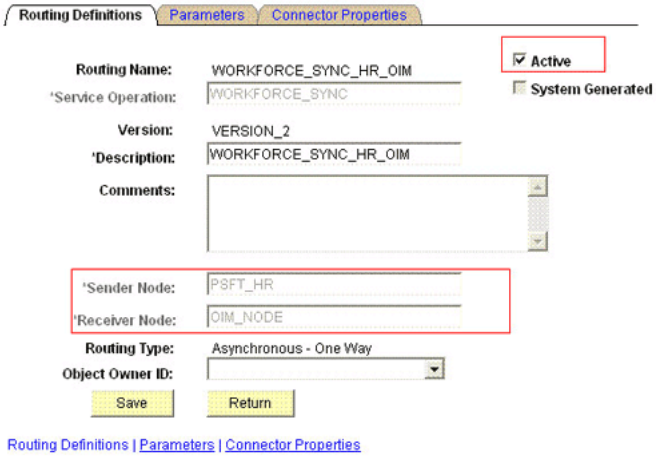
      Default Local Node: **Y**

      Node Type: **PIA**

      Only one node can meet all the above conditions at a time.
   3. Select the node.
   4. Click **Save.**

   Receiver Node: `OIM_NODE`

   The following screenshot displays the Sender and Receiver nodes:



3. Click **Save.**
4. Click **Return** to go back to the Routings tab of the Service Operation, and verify whether your routing is active.

Displaying the EI Repository

To display the EI Repository:

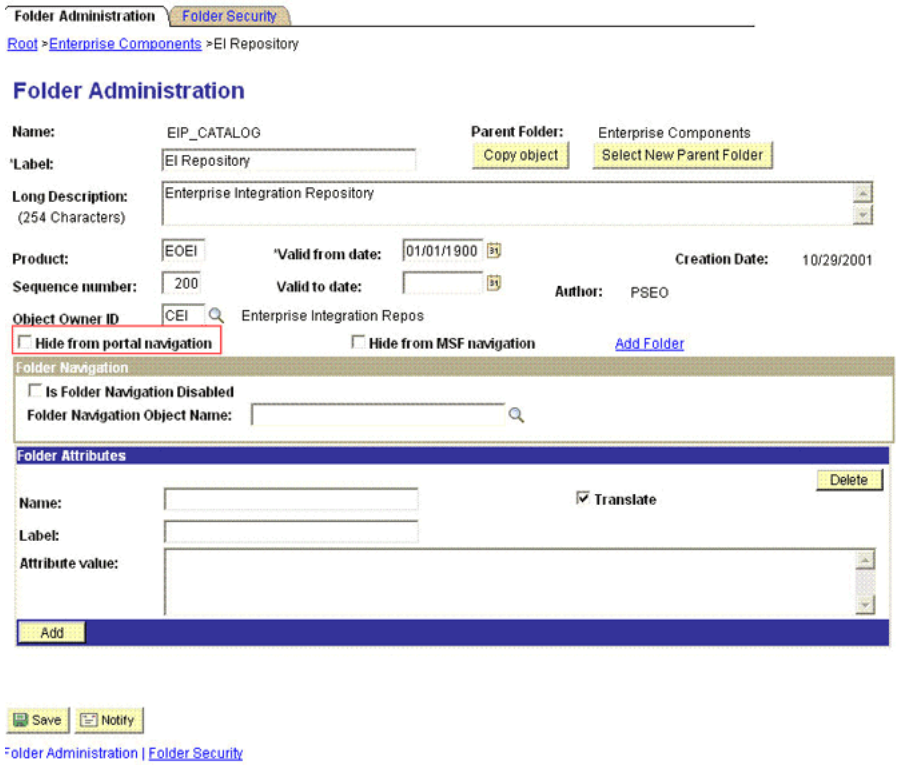
Note:

- If you have performed this procedure as described in "Displaying the EI Repository Folder" on page 2-24, then you can skip this section.
- Perform this procedure using the PeopleSoft administrator credentials.

---

1. In the PeopleSoft Internet Architecture, expand **People Tools, Portal,** and then **Structure and Content.**
2. Click the **Enterprise Components** link.
3. Click the **Edit** link for EI Repository, and then uncheck **Hide from portal navigation.**

   The following screenshot displays the Hide from portal navigation check box:



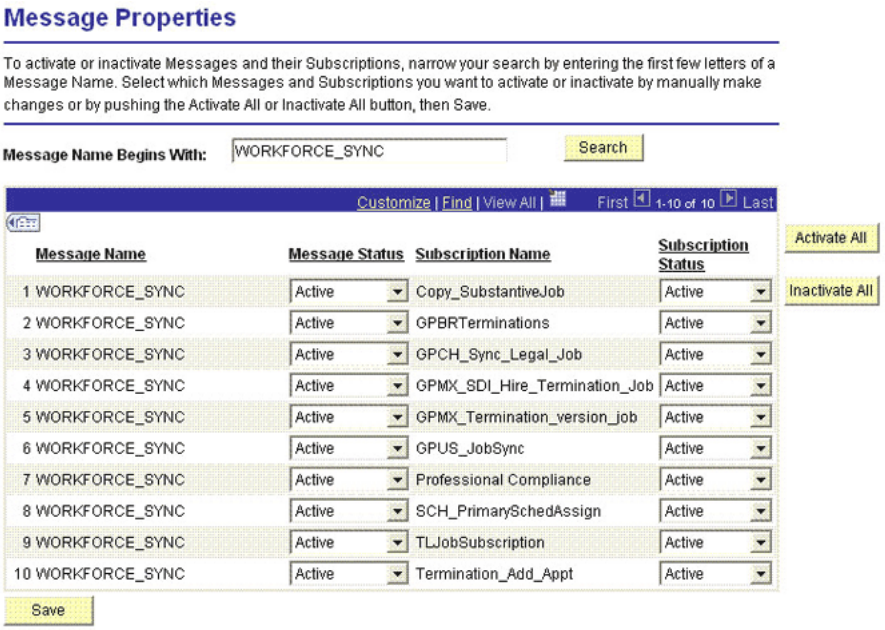
4. Click **Save.**
5. Log out, and then log in.

Activating the WORKFORCE_SYNC Message

To activate the WORKFORCE_SYNC message:

1. In the PeopleSoft Internet Architecture, expand **Enterprise Components, EI Repository,** and then click **Message Properties.**
2. Search for and open the **WORKFORCE_SYNC** message.
3. Click **Activate All.**

   The following screenshot displays the message to be activated:



4. Click the **Subscription** tab, and activate the Subscription PeopleCode.

> **Note:** To perform this step, your user profile must have the EIR Administrator role consisting of **EOEI9000** and **EOCO9000** permission lists.

2.3 Postinstallation

Postinstallation information is divided across the following sections:

- Section 2.3.1, "Postinstallation on Oracle Identity Manager"
- Section 2.3.2, "Postinstallation on the Target System"

2.3.1 Postinstallation on Oracle Identity Manager

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

- Section 2.3.1.1, "Enabling Logging"
- Section 2.3.1.2, "Setting Up the Lookup.PSFT.HRMS.ExclusionList Lookup Definition"
- Section 2.3.1.3, "Setting Up the Lookup.PSFT.Configuration Lookup Definition"
- Section 2.3.1.4, "Configuring SSL"

2.3.1.1 Enabling Logging

When you enable logging, Oracle Identity Manager automatically stores in a log file information about events that occur during 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:

- **IBM WebSphere Application Server**

  To enable logging:

  1. Make the following changes in the *OIM_HOME*/config/log.properties:
     - Search for the following line:

       ```
       log4j.rootLogger=WARN,stdout
       ```

       Make this line a comment and remove the comment the line preceding this line.

     - Locate and remove the comment from the following lines:

       ```
       #log4j.appender.logfile=org.apache.log4j.DailyRollingFileAppender
       #log4j.appender.logfile.DatePattern='.'yyyy-MM-dd
       #log4j.appender.logfile.File=c:/oracle/xellerate/logs/xel.log
       #log4j.appender.logfile.MaxBackupIndex=20
       #log4j.appender.logfile.layout=org.apache.log4j.PatternLayout
       #log4j.appender.logfile.layout.ConversionPattern=%p %t %c - %m%n
       ```

  2. Specify the name and the location of the file to which the preceding logs have to be written. You can do this by changing the value of the following line:

     ```
     log4j.appender.logfile.File=c:/oracle/xellerate/logs/xel.log
     ```

     In this format, change the value of c:/oracle/xellerate/logs to a valid directory location.

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

```
log4j.logger.OIMCP.PSFTER=LOG_LEVEL
log4j.logger.OIMCP.PSFTCOMMON=LOG_LEVEL
```

4. In this line, replace *LOG_LEVEL* with the log level that you want to set.

   For example:

   ```
   log4j.logger.OIMCP.PSFTER=DEBUG
   log4j.logger.OIMCP.PSFTCOMMON=DEBUG
   ```

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

DIRECTORY_PATH/xel.log

- **JBoss Application Server**

  To enable logging:

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

     ```
     <category name="OIMCP.PSFTER">
        <priority value="LOG_LEVEL"/>
     </category>
     <category name="OIMCP.PSFTCOMMON">
        <priority value="LOG_LEVEL"/>
     </category>
     ```

     In case of cluster, make the changes in the following file:

     JBOSS_HOME/server/all/conf/jboss-log4j.xml

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

     ```
     <category name="OIMCP.PSFTER">
        <priority value="DEBUG"/>
     </category>
     <category name="OIMCP.PSFTCOMMON">
        <priority value="DEBUG"/>
     </category>
     ```

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

  JBOSS_HOME\server\default\log\server.log

  In case of cluster, the log information is written to the following file:

  JBOSS_HOME\server\all\log\server.log

- **Oracle WebLogic Server**

  To enable logging:

  1. Make the following changes in the *OIM_HOME*/config/log.properties:
     - Search for the following line:

       ```
       log4j.rootLogger=WARN,stdout
       ```

       Make this line a comment and remove the comment the line preceding this line.

     - Locate and remove the comment from the following lines:

       ```
       #log4j.appender.logfile=org.apache.log4j.DailyRollingFileAppender
       ```

```
#log4j.appender.logfile.DatePattern='.'yyyy-MM-dd
#log4j.appender.logfile.File=c:/oracle/xellerate/logs/xel.log
#log4j.appender.logfile.MaxBackupIndex=20
#log4j.appender.logfile.layout=org.apache.log4j.PatternLayout
#log4j.appender.logfile.layout.ConversionPattern=%p %t %c - %m%n
```

2. Specify the name and the location of the file to which the preceding logs have to be written. You can do this by changing the value of the following line:

   `log4j.appender.logfile.File=`*`c:/oracle/xellerate/logs/`*`xel.log`

   In this format, change the value of c:/oracle/xellerate/logs to a valid directory location.

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

   `log4j.logger.OIMCP.PSFTER=`*`LOG_LEVEL`*

4. In this line, replace *LOG_LEVEL* with the log level that you want to set.

   For example:

   `log4j.logger.OIMCP.PSFTER=DEBUG`

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

DIRECTORY_PATH`/xel.log`

2.3.1.2 Setting Up the Lookup.PSFT.HRMS.ExclusionList Lookup Definition

In the Lookup.PSFT.HRMS.ExclusionList lookup definition, enter the user IDs of target system accounts for which you do not want to perform reconciliation. See Section 1.5.4.3.2, "Lookup.PSFT.HRMS.ExclusionList" for more information about this lookup definition.

1. On the Design Console, expand **Administration** and then double-click **Lookup Definition.**
2. Search for and open the **Lookup.PSFT.HRMS.ExclusionList** lookup definition.
3. Click **Add.**

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

4. In the Code Key and Decode columns, enter the first user ID to exclude.
5. Repeat Steps 3 and 4 for all the user IDs you want to exclude.

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

Code Key	Decode
User ID	User001~User002~User088

6. Click the Save icon.

2.3.1.3 Setting Up the Lookup.PSFT.Configuration Lookup Definition

Every standard PeopleSoft message has a message-specific configuration defined in the Lookup.PSFT.Configuration lookup definition. See Section 1.5.4.3.1, "Lookup.PSFT.Configuration" for more information about this lookup definition.

For example, the mapping for the PERSON_BASIC_SYNC message in this lookup definition is defined as follows:

Code Key: PERSON_BASIC_SYNC

Decode: Lookup.PSFT.Message.PersonBasicSync.Configuration

You can configure the message names, such as PERSON_BASIC_SYNC, WORKFORCE_SYNC, PERSON_BASIC_FULLSYNC, and WORKFORCE_FULLSYNC defined in this lookup definition.

Consider a scenario in which the target system sends the PERSON_BASIC_SYNC.VERSION_3 message. You must change the Code Key value in this lookup definition to implement the message sent by the target system.

To modify or set the Code Key value:

1. On the Design Console, expand **Administration** and then double-click **Lookup Definition.**
2. Search for and open the **Lookup.PSFT.Configuration** lookup definition.
3. Click **Add**.
4. In the Code Key column, enter the name of the message you want to modify. In this scenario define the mapping as follows:

   Code Key: PERSON_BASIC_SYNC.VERSION_3

   Decode: Lookup.PSFT.Message.PersonBasicSync.Configuration
5. Repeat Steps 3 and 4 to modify the Code Key values for all the standard PeopleSoft messages you want to rename in this lookup definition.
6. Click the Save icon.

2.3.1.4 Configuring SSL

The following sections describe the procedure to configure SSL connectivity between Oracle Identity Manager and the target system:

- Section 2.3.1.4.1, "Configuring SSL on IBM WebSphere Application Server"
- Section 2.3.1.4.2, "Configuring SSL on JBoss Application Server"
- Section 2.3.1.4.3, "Configuring SSL on Oracle WebLogic Server"

2.3.1.4.1 Configuring SSL on IBM WebSphere Application Server You can configure SSL connectivity on IBM WebSphere Application Server with either a self-signed certificate or a CA certificate. Perform the procedure described in one of the following sections:

- Configuring SSL on IBM WebSphere Application Server with a Self-Signed Certificate
- Configuring SSL on IBM WebSphere Application Server with a CA Certificate

Configuring SSL on IBM WebSphere Application Server with a Self-Signed Certificate

To configure SSL connectivity between Oracle Identity Manager on IBM WebSphere Application Server and the target system with a self-signed certificate, you must perform the following tasks:

1. Log in to the WebSphere Integrated Solutions Console. The URL may be similar to the following:

   `https://localhost:9043/ibm/console/logon.jsp`

2. Click **Security, SSL certificate and key management, Related items, Key stores and certificates, NodeDefaultKeyStore,** and then click **Personal certificates.**
3. Click **Create a self-signed certificate.**
4. In the **Alias** field, enter an alias name. You specify the alias name to identify the certificate request in the keystore.
5. In the CN field, enter a value for common name. The common name must be the fully qualified DNS host name or the name of the computer. The CN of the certificate must match the domain name or the name of the computer. For example, if the name of your domain is us.example.com, then the CN of the SSL certificate that you create for your domain must also be us.example.com.
6. In the **Organization** field, enter an organization name.
7. In the **Organization unit** field, specify the organization unit.
8. In the **Locality** field, enter the locality.
9. In the **State or Province** field, enter the state.
10. In the **Zip Code** field, enter the zip code.
11. From the **Country or region** list, select the country code.
12. Click **Apply** and then **Save.**
13. Click **Security, SSL certificate and key management, Related items, Key stores and certificates, NodeDefaultKeyStore,** and then click **Personal certificates.**
14. Select the check box for the new alias name.
15. Click **Extract.**
16. Specify the absolute file path where you want to extract the certificate under the certificate file name, for example, C:\SSLCerts\sslcert.cer.
17. Click **Apply** and then click **OK.**

Configuring SSL on IBM WebSphere Application Server with a CA Certificate

To configure SSL connectivity between Oracle Identity Manager on IBM WebSphere Application Server and the target system with a CA certificate, you must perform the following tasks:

1. Log in to the WebSphere Integrated Solutions Console. The URL may be similar to the following:

   `https://localhost:9043/ibm/console/logon.jsp`

2. Click **Security, SSL certificate and key management, Related items, Key stores and certificates, NodeDefaultKeyStore.**
3. On the Additional Properties tab, click **Personal certificate requests.**

4. Click **New.**
5. In the File for certificate request field, enter the full path where the certificate request is to be stored, and a file name. For example: `c:\servercertreq.arm` (for a computer running on Microsoft Windows).
6. In the **Key label** field, enter an alias name. You specify the alias name to identify the certificate request in the keystore.
7. In the CN field, enter a value for common name. The common name must be the fully-qualified DNS host name or the name of the computer. The CN of the certificate must match the domain name of your community. For example, if the name of your domain is us.example.com, then the CN of the SSL certificate that you create for your community must also be us.example.com.
8. In the **Organization** field, enter an organization name.
9. In the **Organization unit** field, specify the organization unit.
10. In the **Locality** field, enter the locality.
11. In the **State or Province** field, enter the state.
12. In the **Zip Code** field, enter the zip code.
13. From the **Country or region** list, select the country code.
14. Click **Apply** and then **Save.** The certificate request is created in the specified file location in the keystore. This request functions as a temporary placeholder for the signed certificate until you manually receive the certificate in the keystore.

    Note: Keystore tools such as iKeyman and keyTool cannot receive signed certificates that are generated by certificate requests from IBM WebSphere Application Server. Similarly, IBM WebSphere Application Server cannot accept certificates that are generated by certificate requests from other keystore utilities.

15. Send the certification request arm file to a CA for signing.
16. Create a backup of your keystore file. You must create this backup before receiving the CA-signed certificate into the keystore. The default password for the keystore is WebAS. The Integrated Solutions Console contains the path information for the location of the keystore. The path to the NodeDefaultKeyStore is listed in the Integrated Solutions Console as:

    was_profile_root`\config\cells\cell_name\nodes\node_name\key.p12`

    Now you can receive the CA-signed certificate into the keystore to complete the process of generating a signed certificate for IBM WebSphere Application Server.

To receive a signed certificate issued by a CA, perform the following tasks:

1. In the WebSphere Integrated Solutions Console, click **Security, SSL certificate and key management, Related items, Key stores and certificates, NodeDefaultKeyStore,** and then click **Personal Certificates.**
2. Click **Receive a certificate from a certificate authority.**
3. Enter the full path and name of the certificate file.
4. Select the default data type from the list.
5. Click **Apply** and then **Save.**

The keystore contains a new personal certificate that is issued by a CA. The SSL configuration is ready to use the new CA-signed personal certificate.

2.3.1.4.2 Configuring SSL on JBoss Application Server Before configuring SSL on JBoss Application Server, ensure that:

- JBoss Application Server is installed on the Oracle Identity Manager host computer
- Java Developer's Kit is installed on the JBoss Application Server host

You can configure SSL connectivity on JBoss Application Server with either a self-signed certificate or a CA certificate. The following sections describe this. If you are configuring SSL on JBoss Application Server with a self-signed certificate, then perform the following tasks:

- Creating the Self-Signed Certificate
- Moving the Keystore
- Updating the Configuration File

If you are configuring SSL on JBoss Application Server with a CA certificate, then perform the following tasks:

- Importing a CA Certificate
- Moving the Keystore
- Updating the Configuration File

Creating the Self-Signed Certificate

To create the self-signed certificate, see "Generating Keystore" on page 2-61.

Importing a CA Certificate

To import a CA certificate, perform the following tasks:

1. Run the following command:

```
keytool -genkey -alias ALIAS_NAME -keystore ABSOLUTE_KEYSTORE_PATH -keyalg
KEY_ALGORITHM -storepass KEYSTORE_PASSWORD -keypass PRIVATE_KEY_PASS
```

   For example:

```
keytool -genkey -alias example088196 -keystore c:\temp\keys\custom.keystore
-keyalg RSA -storepass example1234 -keypass example1234
```

   Note:

   - The keystore password and the private key password must be the same.

   - Typically, the alias is the name or the IP address of the computer on which you are configuring SSL.

   - The alias used in the various commands of this procedure must be the same.

2. When prompted, enter the information about the certificate, such as company and contact name. This information is displayed to employees attempting to access a secure page in the application. This is illustrated in the following example:

```
What is your first and last name?
  [Unknown]:  Must be the name or IP address of the computer
What is the name of your organizational unit?
  [Unknown]:  example
What is the name of your organization?
  [Unknown]:  example
What is the name of your City or Locality?
  [Unknown]:  New York
What is the name of your State or Province?
  [Unknown]:  New York
What is the two-letter country code for this unit?
  [Unknown]:  US
Is <CN=Name or IP address of the computer, OU=example, O=example, L=New York,
ST=New York, C=US> correct?
  [no]:  yes
```

When you enter yes in the last line of the preceding example, the custom keystore file is created in the c:\temp\keys\ directory.

3. Generate the certificate signing request by running the following command:

```
keytool -certreq -alias ALIAS_NAME -file ABSOLUTE_CSR_PATH  -keystore
ABSOLUTE_KEYSTORE_PATH
```

For example:

```
keytool -certreq -alias example088196 -file c:\temp\keys\certReq.csr -keystore
c:\temp\keys\custom.keystore
```

4. Submit the certReq.csr file on a CA Web site for downloading the CA certificate.

Ensure that your %JAVA_HOME%\jre\lib\security\cacerts has the root certificate of the CA that has generated the CA certificate.

To check all the root certificates that %JAVA_HOME%\jre\lib\security\cacerts contains, run the following command:

```
keytool -list -keystore %JAVA_HOME%\jre\lib\security\cacerts -storepass
cacerts_store_password
```

For example:

```
%JAVA_HOME%\jre\bin\keytool -list -keystore
%JAVA_HOME%\jre\lib\security\cacerts -storepass changeit
```

If the %JAVA_HOME%\jre\lib\security\cacerts keystore does not contain the root certificate of CA that has generated the CA certificate, then you must import the root certificate of CA into %JAVA_HOME%\jre\lib\security\cacerts.

Run the following command to import the root certificate of CA:

```
keytool -import  -alias <cacerts_key_entry_alias> -file <CARootCertificate.cer>
-keystore %JAVA_HOME%\jre\lib\security\cacerts  -storepass
cacerts_store_password
```

For example:

```
keytool -import -alias cakey -file "C:\temp\Thawte Test Root.cer" -keystore
%JAVA_HOME%\jre\lib\security\cacerts -storepass changeit
```

The certificate is added to the keystore.

5. Import the CA certificate by running the following command:

```
keytool -import -alias ALIAS_NAME -keystore ABSOLUTE_KEYSTORE_PATH
-trustcacerts -file ABSOLUTE_CACERT_PATH
```

ABSOLUTE_CACERT_PATH represents the path in which you have stored the certificate downloaded from CA.

For example:

```
keytool -import -alias example088196 -keystore c:\temp\keys\custom.keystore
 -trustcacerts -file c:\temp\keys\CACert.cer
```

When you run this command, you are prompted for the keystore password, as shown:

```
Enter keystore password:  example1234 [Enter]
Owner: CN=Thawte Test CA Root, OU=TEST TEST TEST, O=Thawte Certification,
ST=FOR TESTING PURPOSES ONLY, C=ZA
Issuer: CN=Thawte Test CA Root, OU=TEST TEST TEST, O=Thawte Certification,
ST=FOR TESTING PURPOSES ONLY, C=ZA
Serial number: 0
Valid from: Thu Aug 01 05:30:00 GMT+05:30 1996 until: Fri Jan 01 03:29:59
GMT+05:30 2021
Certificate fingerprints:
         MD5:  5E:E0:0E:1D:17:B7:CA:A5:7D:36:D6:02:DF:4D:26:A4
         SHA1: 39:C6:9D:27:AF:DC:EB:47:D6:33:36:6A:B2:05:F1:47:A9:B4:DA:EA
Trust this certificate? [no]:  yes [Enter]
```

In this example, the instances when you can press Enter are shown in bold.

Moving the Keystore

To move the certificate to a JBoss Application Server directory, copy the generated keystore to the conf directory of your JBoss installation. For example, the directory can be C:\Program Files\jboss-4.0.3\server\default\conf\.

Updating the Configuration File

Before updating the configuration file, shut down JBoss Application Server. The *JBOSS_HOME*/server/default/deploy/jbossweb-tomcat55.sar/server.xml file contains information about what Web features to enable when the server starts. Inside this file, there is a part that looks similar to the following:

```
<!-- SSL/TLS Connector configuration using the admin devl guide keystore
<Connector port="8443" address="${jboss.bind.address}"
  maxThreads="100" strategy="ms" maxHttpHeaderSize="8192"
  emptySessionPath="true"
  scheme="https" secure="true" clientAuth="false"
  keystoreFile="${jboss.server.home.dir}/conf/chap08.keystore"
  keystorePass="rmi+ssl" sslProtocol = "TLS" />
-->
```

In the code, make the following changes:

- Remove the comment from the block of code.
- Change the value of `Connector port` to `443` (default SSL port).
- Change the value of `keystoreFile` to the absolute path of the keystore generated in "Generating Keystore" on page 2-61.
- Change the value of `keystorePass` to the password of the keystore.

After the changes are made, the code block looks similar to the following:

```
<!-- SSL/TLS Connector configuration using the admin devl guide keystore -->
<Connector port="443" address="${jboss.bind.address}"
maxThreads="100" strategy="ms" maxHttpHeaderSize="8192"
emptySessionPath="true"
scheme="https" secure="true" clientAuth="false"
keystoreFile="${jboss.server.home.dir}/conf/ custom.keystore"
keystorePass=" example1234 " sslProtocol = "TLS" />
<!-- -->
```

SSL is now enabled. You can restart JBoss Application Server and browse to the following URL to verify whether SSL is enabled:

```
https://localhost:443
```

2.3.1.4.3 Configuring SSL on Oracle WebLogic Server You can configure SSL connectivity on Oracle WebLogic Server with either a self-signed certificate or a CA certificate. Perform the procedure described in one of the following sections:

- Configuring SSL on Oracle WebLogic Server with a Self-Signed Certificate
- Configuring SSL on Oracle WebLogic Server with a CA Certificate

Configuring SSL on Oracle WebLogic Server with a Self-Signed Certificate

To configure SSL connectivity between Oracle Identity Manager on Oracle WebLogic Server and the target system with a self-signed certificate, you must perform the following tasks:

- Generating Keystore
- Configuring Oracle WebLogic Server

Generating Keystore

To generate the keystore:

1. Run the following command:

   ```
   keytool -genkey -keystore ABSOLUTE_KEYSTORE_PATH -alias ALIAS_NAME -keyalg
   KEY_ALGORITHM -storepass KEYSTORE_PASSWORD -keypass PRIVATE_KEY_PASSWORD
   ```

   For example:

   ```
   keytool -genkey -keystore c:\temp\keys\keystore.jks -alias example088196
   -keyalg RSA -storepass example1234 -keypass example1234
   ```

   Note:

   - The keystore password and the private key password must be the same.

   - Typically, the alias is the name or the IP address of the computer on which you are configuring SSL.

   - The alias used in the various commands of this procedure must be the same.

2. When prompted, enter information about the certificate. This information is displayed to persons attempting to access a secure page in the application. This is illustrated in the following example:

```
keytool -genkey -keystore c:\temp\keys\keystore.jks -alias example088196
-keyalg RSA -storepass example1234 -keypass example1234
What is your first and last name?
  [Unknown]: Must be the name or IP address of the computer
What is the name of your organizational unit?
  [Unknown]:  example
What is the name of your organization?
  [Unknown]:  example
What is the name of your City or Locality?
  [Unknown]:  New York
What is the name of your State or Province?
  [Unknown]:  New York
What is the two-letter country code for this unit?
  [Unknown]:  US
Is <CN=Name or IP address of the computer
, OU=example, O=example, L=New York, ST=New York, C=US> correct?
  [no]:  yes
```

When you enter yes in the last line of the preceding example, the keystore.jks file is created in the c:\temp\keys\directory.

3. Export the keystore to a certificate file by running the following command:

   ```
   keytool -export -alias ALIAS_NAME -keystore ABSOLUTE_KEYSTORE_PATH -file
   CERTIFICATE_FILE_ABSOLUTE_PATH
   ```

   For example:

   ```
   keytool -export -alias example088196 -keystore c:\temp\keys\keystore.jks -file
   c:\temp\keys\keystore.cert
   ```

4. When prompted for the private key password, enter the same password used for the keystore, for example, `example1234`.

5. Import the keystore by running the following command:

   ```
   keytool -import -alias ALIAS_NAME -keystore NEW_KEYSTORE_ABSOLUTE_PATH -file
   CERTIFICATE_FILE_ABSOLUTE_PATH
   ```

   For example:

   ```
   keytool -import -alias example088196 -keystore c:\temp\keys\new.jks -file
   c:\temp\keys\keystore.cert
   ```

   When you run this command, it prompts for the keystore password, as shown in the following example:

   ```
   Enter keystore password:  example1234 [Enter]
   Trust this certificate? [no]:  yes [Enter]
   Certificate was added to keystore
   ```

   In this example, the instances when you can press Enter are shown in bold.

Configuring Oracle WebLogic Server

After generating and importing the keystore, start Oracle WebLogic Server. To configure Oracle WebLogic Server:

1. Log in to the Oracle WebLogic Server console at `http://localhost:7001/console` and perform the following:

   a. Expand the servers node and select the server instance.

   b. Select the **General** tab.

c. Select the **SSL Listen Port Enabled** option.

d. Ensure that a valid port is specified in the SSL Listen Port field. The default port is 7002.

e. Click **Apply** to save your changes.

2. Click the **Keystore & SSL** tab, and then click **Change.**

3. From the Keystores list, select **Custom identity And Java Standard Trust,** and then click **Continue.**

4. Configure the keystore properties. To do so:

a. In the Custom Identity Key Store File Name column, specify the full path of the keystore generated in Step 1 of "Generating Keystore" on page 2-61, for example, `c:\temp\keys\keystore.jks`. In the Custom Identity Key Store Type column, specify the type of keystore, for example, `JKS`. In the Custom Identity Key Store Pass Phrase and Confirm Custom Identity Key Store Pass Phrase columns, specify the keystore password.

b. Provide the Java standard trust keystore pass phrase and the Confirm Java standard trust keystore pass phrase. The default password is `changeit`, unless you change the password.

c. Click **Continue.**

5. Specify the private key alias, pass phrase and the confirm pass phrase as the keystore password. Click **Continue.**

6. Click **Finish.**

7. Restart Oracle WebLogic Server. If the server starts successfully with the SSL configuration, then lines similar to the following are recorded in the startup log:

```
<Apr 21, 2008 2:35:43 PM GMT+05:30> <Notice> <WebLogicServer> <BEA-000355>
<Thread "ListenThread.Default" listening on port 7001, ip address *.*>
<Apr 21, 2008 2:35:43 PM GMT+05:30> <Notice> <WebLogicServer> <BEA-000355>
<Thread "SSLListenThread.Default" listening on port 7002, ip address *.*>
```

Note: 7002 is the default SSL port for Oracle WebLogic Server.

Configuring SSL on Oracle WebLogic Server with a CA Certificate

To configure SSL connectivity between Oracle Identity Manager on Oracle WebLogic Server and the target system with a CA certificate, you must perform the following tasks:

Note: Although this is an optional step in the deployment procedure, Oracle strongly recommends that you configure SSL communication between the target system and Oracle Identity Manager.

- Generating Keystore
- Configuring Oracle WebLogic Server

Generating Keystore

The connector requires Certificate Services to be running on the host computer. To generate the keystore:

1. Run the following command:

   ```
   keytool -genkey -keystore ABSOLUTE_KEYSTORE_PATH -alias ALIAS_NAME -keyalg
   KEY_ALGORITHM -storepass KEYSTORE_PASSWORD -keypass PRIVATE_KEY_PASSWORD
   ```

   For example:

   ```
   keytool -genkey -keystore c:\temp\keys\keystore.jks -alias example088196
   -keyalg RSA -storepass example1234 -keypass example1234
   ```

   Note:

   The keystore password and the private key password must be the same.

   Typically, the alias name is the name or the IP address of the computer on which you are configuring SSL.

2. When prompted, enter the information about the certificate. This information is displayed to persons attempting to access a secure page in the application. This is illustrated in the following example:

   ```
   keytool -genkey -keystore c:\temp\keys\keystore.jks -alias example088196
   -keyalg RSA -storepass example1234 -keypass example1234
   What is your first and last name?
     [Unknown]:  Must be the name or IP address of the computer
   What is the name of your organizational unit?
     [Unknown]:  example
   What is the name of your organization?
     [Unknown]:  example
   What is the name of your City or Locality?
     [Unknown]:  New York
   What is the name of your State or Province?
     [Unknown]:  New York
   What is the two-letter country code for this unit?
     [Unknown]:  US
   Is <CN=Name or IP address of the computer, OU=example, O=example, L=New York,
   ST=New York, C=US> correct?
     [no]:  yes
   ```

   When you enter yes in the last line of the preceding example, the keystore.jks file is created in the c:\temp\keys\directory.

3. Generate the certificate signing request by running the following command:

   ```
   keytool -certreq -keystore ABSOLUTE_KEYSTORE_PATH -alias ALIAS_NAME -keyalg
   KEY_ALGORITHM -file CERTIFICATE_FILE_ABSOLUTE_PATH
   ```

   For example:

   ```
   keytool -certreq -keystore c:\temp\keys\keystore.jks -alias example088196
   -keyalg RSA -file c:\temp\keys\keystore.cert
   ```

   When prompted for the keystore password, enter the same password used for the keystore in Step 1, for example `example1234`. This stores a certificate request in the file that you specified in the preceding command.

4. Get the certificate from a CA by using the certificate request generated in the previous step and store the certificate in a file.

5. Export the keystore generated in Step 1 to a new certificate file, for example, myCert.cer, by running the following command:

   ```
   keytool -export -keystore ABSOLUTE_KEYSTORE_PATH -alias alias-name specified in step 1 -file CERTIFICATE_FILE_ABSOLUTE_PATH
   ```

   For example:

   ```
   keytool -export -keystore c:\temp\keys\keystore.jks -alias example088196 -file c:\temp\keys\myCert.cer
   ```

6. Import the CA certificate to a new keystore by running the following command:

   ```
   keytool -import -alias ALIAS_NAME -file CERTIFICATE_FILE_ABSOLUTE_PATH
   -keystore NEW_KEYSTORE_ABSOLUTE_PATH -storepass KEYSTORE_PASSWORD generated in Step 1
   ```

   For example:

   ```
   keytool -import -alias example088196 -file c:\temp\keys\rootCert.cert -keystore
   c:\temp\keys\rootkeystore.jks
   ```

   When you run this command, it prompts for the keystore password, as shown:

   ```
   Enter keystore password:  example1234 [Enter]
   Trust this certificate? [no]:  yes [Enter]
   Certificate was added to keystore
   ```

   In this example, the instances when you can press Enter are shown in bold.

Configuring Oracle WebLogic Server

After creating and importing the keystore to the system, start Oracle WebLogic Server. To configure Oracle WebLogic Server:

1. Log in to the Oracle WebLogic Server console ((http://*localhost*:7001/console) and perform the following:
   a. Expand the server node and select the server instance.
   b. Select the **General** tab.
   c. Select the **SSL Port Enabled** option.
   d. Ensure that a valid port is specified in the SSL Listen Port field. The default port is 7002.
   e. Click **Apply** to save your changes.
2. Click the **Keystore & SSL** tab, and click the **Change** link.
3. From the Keystores list, select **Custom Identity And Custom Trust,** and then click **Continue.**
4. Configure the keystore properties. To do so:
   a. In the Custom Identity Key Store File Name column, specify the full path of the keystore generated in Step 1 of "Generating Keystore" on page 2-63, for example, `c:\temp\keys\keystore.jks`. In the Custom Identity Key Store Type column, specify the type of keystore, for example, `JKS`. In the Custom Identity Key Store Pass Phrase and Confirm Custom Identity Key Store Pass Phrase columns, specify the keystore password.
   b. In the Custom Trust and Custom Trust Key Store File Name column, specify the full path of the keystore generated in Step 1 of "Generating Keystore" on

page 2-63, for example, `c:\temp\keys\rootkeystore.jks`. In the Custom Trust Key Store Type column, specify the type of keystore, for example, `JKS`. In the Custom Trust Key Store Pass Phrase and Confirm Custom Trust Key Store Pass Phrase columns, specify the keystore password.

c. Provide the Java standard trust keystore password. The default password is `changeit`, unless you change the password.

d. Click **Continue.**

5. Specify the alias name and private key password. Click **Continue.**

6. Click **Finish.**

7. Restart Oracle WebLogic Server. If the server starts successfully with the SSL configuration, then lines similar to the following are recorded in the startup log:

```
<Apr 21, 2008 2:35:43 PM GMT+05:30> <Notice> <WebLogicServer> <BEA-000355>
<Thread "ListenThread.Default" listening on port 7001, ip address *.*>
<Apr 21, 2008 2:35:43 PM GMT+05:30> <Notice> <WebLogicServer> <BEA-000355>
<Thread "SSLListenThread.Default" listening on port 7002, ip address *.*>
```

Note: 7002 is the default SSL port for Oracle WebLogic Server.

2.3.2 Postinstallation on the Target System

Postinstallation on the target system consists of the following procedure:

Configuring SSL

To configure SSL:

1. Copy the certificate to the computer on which PeopleSoft HRMS/HCM is installed.

Note: If you are using IBM WebSphere Application Server, then you must download the root certificate from a CA.

2. Run the following command:

```
PEOPLESOFT_HOME/webserv/peoplesoft/bin/pskeymanager.cmd -import
```

3. When prompted, enter the current keystore password.

4. When prompted, enter the alias of the certificate to import.

Note: The alias must be the same as the one created when the keystore was generated.

If you are using IBM WebSphere Application Server, then enter `root` as the alias.

5. When prompted, enter the full path and name of the certificate and press **Enter.**

Note: If you are using IBM WebSphere Application Server, then enter the path of the root certificate.

6. When prompted for the following:

   ```
   Trust this certificate? [no]: yes
   ```

   Select `yes` and press **Enter.**

7. Restart the Web server of the target system.

3

Using the Connector

After you deploy the connector, you must configure it to meet your requirements. This chapter discusses the following connector configuration procedures:

- Section 3.1, "Summary of Steps to Use the Connector"
- Section 3.2, "Performing Full Reconciliation"
- Section 3.3, "Performing Incremental Reconciliation"
- Section 3.4, "Limited Reconciliation"
- Section 3.5, "Resending Messages That Are Not Received by the PeopleSoft Listener"
- Section 3.6, "Configuring Scheduled Tasks"

3.1 Summary of Steps to Use the Connector

The following is a summary of the steps to use the connector for full reconciliation:

> **Note:** It is assumed that you have performed all the procedures described in the preceding chapter.

1. Generate XML files for the PERSON_BASIC_FULLSYNC message for all persons. See Section 3.2.1.1, "Running the PERSON_BASIC_FULLSYNC Message" for more information.
2. Generate XML files for the WORKFORCE_FULLSYNC message for the same set of persons. See Section 3.2.1.2, "Running the WORKFORCE_FULLSYNC Message" for more information.

> **Note:** The XML files that you generate in Steps 1 and 2 must reside in different directories.

3. Copy these XML files to a directory on the Oracle Identity Manager host computer.
4. Configure the Peoplesoft HRMS Trusted Reconciliation scheduled task for the PERSON_BASIC_FULLSYNC message. The XML files are read by this scheduled task to generate reconciliation events. See Section 3.2.2.1, "Configuring the Scheduled Task for Person Data Reconciliation" for more information.
5. Configure the Peoplesoft HRMS Trusted Reconciliation scheduled task for the WORKFORCE_FULLSYNC message. The XML files are read by this scheduled

task to generate reconciliation events. See Section 3.2.2.1, "Configuring the Scheduled Task for Person Data Reconciliation" for more information.

Change from full reconciliation to incremental reconciliation. See Section 3.3, "Performing Incremental Reconciliation" for instructions.

3.2 Performing Full Reconciliation

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

The following sections discuss the procedures involved in full reconciliation:

- Section 3.2.1, "Generating XML Files"
- Section 3.2.2, "Importing XML Files into Oracle Identity Manager"

3.2.1 Generating XML Files

You must generate XML files for all existing persons in the target system.

Note: Before performing the procedure to generate XML files, you must ensure that you have configured the PERSON_BASIC_FULLSYNC and WORKFORCE_FULLSYNC messages. See Section 2.2.2, "Installation on the Target System" for more information.

To generate XML files for full reconciliation perform the procedures described in the following section:

Running the Messages for Full Data Publish

This section describes the procedures for generating XML files.

- Section 3.2.1.1, "Running the PERSON_BASIC_FULLSYNC Message"
- Section 3.2.1.2, "Running the WORKFORCE_FULLSYNC Message"

3.2.1.1 Running the PERSON_BASIC_FULLSYNC Message

To run the PERSON_BASIC_FULLSYNC message:

1. In PeopleSoft Internet Architecture, expand **Enterprise Components, Integration Definitions, Initiate Processes,** and then click **Full Data Publish.**
2. Click the **Add a New Value** tab.
3. In the Run Control ID field, enter a value and then click **ADD.**
4. In the **Process Request** region, provide the following values:

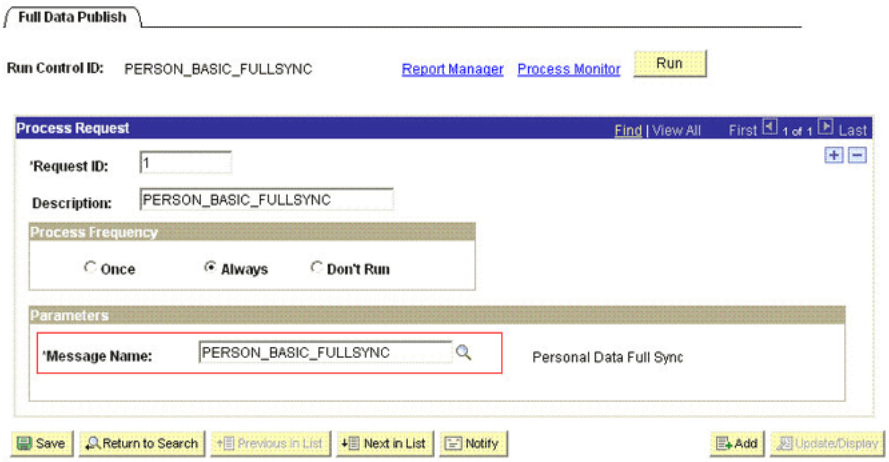
   Request ID: Enter a request ID.

   Description: Enter a description for the process request.

   Process Frequency: Select **Always.**

   Message Name: Select **PERSON_BASIC_FULLSYNC.**

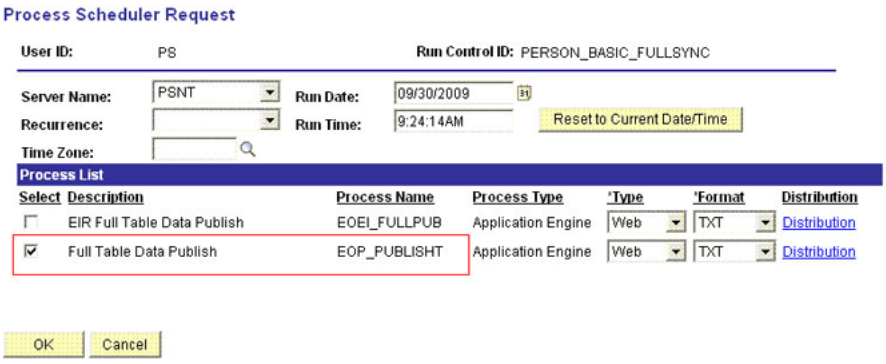
   The following screenshot displays the preceding steps:



5. Click **Save** to save the configuration.
6. Click **Run.**

   The Process Scheduler Request page appears.
7. From the **Server Name** list, select the appropriate server.
8. Select **Full Table Data Publish** process list, and click **OK.**

   The following screenshot displays the process list:



9. Click **Process Monitor** to verify the status of EOP_PUBLISHT Application Engine. The **Run Status** is **Success** if the transaction is successfully completed.

   On successful completion of the transaction, XML files for the PERSON_BASIC_FULLSYNC message are generated at a location that you specified in the FilePath property while creating the OIM_FILE_NODE node for PeopleSoft Application Server. See "Configuring PeopleSoft Integration Broker" on page 2-18 section for more information.

   You must copy these XML files to a directory on the Oracle Identity Manager host computer.

> **Note:** After you have performed this procedure, remove the permission list created in "Setting Up the Security for the PERSON_BASIC_FULLSYNC Service Operation" on page 2-22 section. This is for security purposes.

3.2.1.2 Running the WORKFORCE_FULLSYNC Message

To run the WORKFORCE_FULLSYNC message:

1. In PeopleSoft Internet Architecture, expand **Enterprise Components, Integration Definitions, Initiate Processes,** and then click **Full Data Publish.**
2. Click the **Add a New Value** tab.
3. In the Run Control ID field, enter a value and then click **ADD.**
4. In the **Process Request** region, provide the following values:

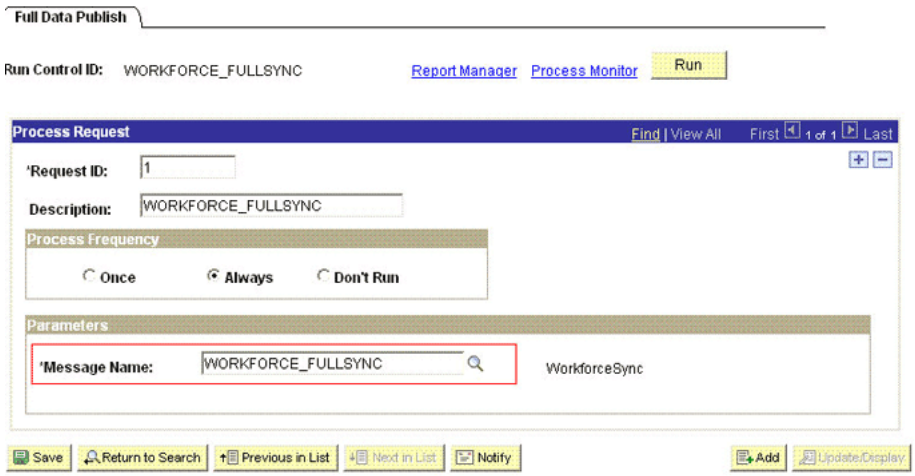
   Request ID: Enter a request ID.

   Description: Enter a description for the process request.

   Process Frequency: Select **Always.**

   Message Name: Select **WORKFORCE_FULLSYNC.**

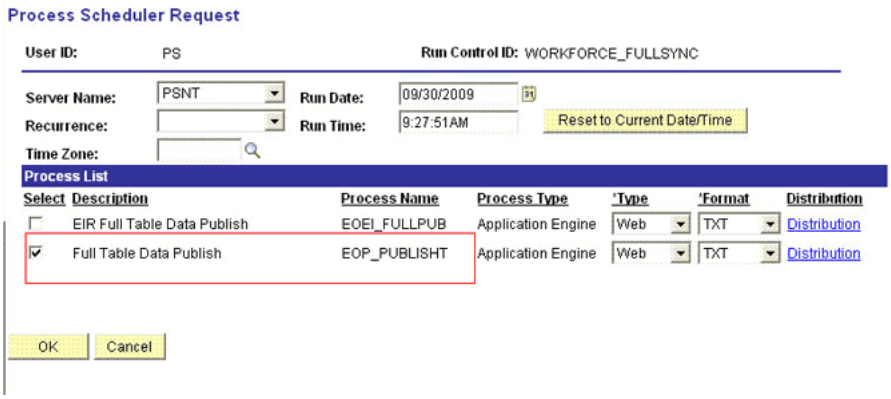
   The following screenshot displays the preceding steps:



5. Click **Save** to save the configuration.
6. Click **Run.**

   The Process Scheduler Request page appears.
7. From the **Server Name** list, select the appropriate server.
8. Select the **Full Table Data Publish** process list, and click **OK.**

   The following screenshot displays the process list:



9. Click **Process Monitor** to verify the status of EOP_PUBLISHT Application Engine. The **Run Status** is **Success** if the transaction is successfully completed.

   On successful completion of the transaction, XML files for the WORKFORCE_FULLSYNC message are generated at a location that you specified in the FilePath property while creating the OIM_FILE_NODE node for PeopleSoft Application Server. See "Configuring PeopleSoft Integration Broker" on page 2-18 section for more information.

   You must copy these XML files to a directory on the Oracle Identity Manager host computer.

   Note: After you have performed this procedure, remove the permission list created in "Setting Up the Security for the WORKFORCE_FULLSYNC Service Operation" on page 2-29 section. This is for security purposes.

3.2.2 Importing XML Files into Oracle Identity Manager

Section 3.2.2.1, "Configuring the Scheduled Task for Person Data Reconciliation" section describes the procedure to configure the scheduled task.

Section 3.2.2.2, "Running the PeopleSoft HRMS Manager Reconciliation Scheduled Task" describes the procedure to configure the scheduled task for reconciliation of Manager ID values.

3.2.2.1 Configuring the Scheduled Task for Person Data Reconciliation

When you run the Connector Installer, the PeopleSoft HRMS Trusted Reconciliation scheduled task is automatically created in Oracle Identity Manager.

To perform a full reconciliation run, you must configure the scheduled task to reconcile all person data into Oracle Identity Manager depending on the values that you specified in the scheduled task attributes. Table 3–1 describes the attributes of this scheduled task. See Section 3.6, "Configuring Scheduled Tasks" for instructions on running the scheduled task.

Note: Before you configure the scheduled task, you must ensure that the mapping for all Actions to be performed on the target system is defined in the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition. See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information.

The Peoplesoft HRMS Trusted Reconciliation scheduled task is used to transfer XML file data from the file to the parser. The parser then converts this data into reconciliation events.

Table 3–1 Attributes of the Peoplesoft HRMS Trusted Reconciliation Scheduled Task

Attribute	Description
Archive Mode	Enter `yes` if you want XML files used during full reconciliation to be archived. After archival the file is deleted from the original location. If `no`, the XML file is not archived.
Archive Path	Enter the full path and name of the directory in which you want XML files used during full reconciliation to be archived. You must enter a value for the Archive Path attribute only if you specify `yes` as the value for the Archive Mode attribute. Sample value: `/usr/archive`
File Path	Enter the path of the directory on the Oracle Identity Manager host computer into which you copy the file containing XML data. Sample value: `/usr/data`
IT Resource Name	Enter the name of the IT resource that you create by performing the procedure described in Section 2.2.1.3, "Configuring the IT Resource." Default value: `PSFT Server`

Message Implementation Class	Enter the name of the Implementation class for the message handler required to process the message. For example, the implementation class for the following messages are provided by default:
	For the PERSON_BASIC_FULLSYNC message:
	`oracle.iam.connectors.psft.common.handler.impl.PSFTPersonSyncReconMessageHandlerImpl`
	For the WORKFORCE_FULLSYNC message:
	`oracle.iam.connectors.psft.common.handler.impl.PSFTWorkForceSyncReconMessageHandlerImpl`

Message Name	Use this attribute to specify the name of the delivered message used for full reconciliation. Sample value: `PERSON_BASIC_FULLSYNC or WORKFORCE_FULLSYNC`
Task Name	This attribute holds the name of the scheduled task. Value: `Peoplesoft HRMS Trusted Reconciliation`

3.2.2.2 Running the PeopleSoft HRMS Manager Reconciliation Scheduled Task

Manager ID values is not reconciled during full reconciliation run.

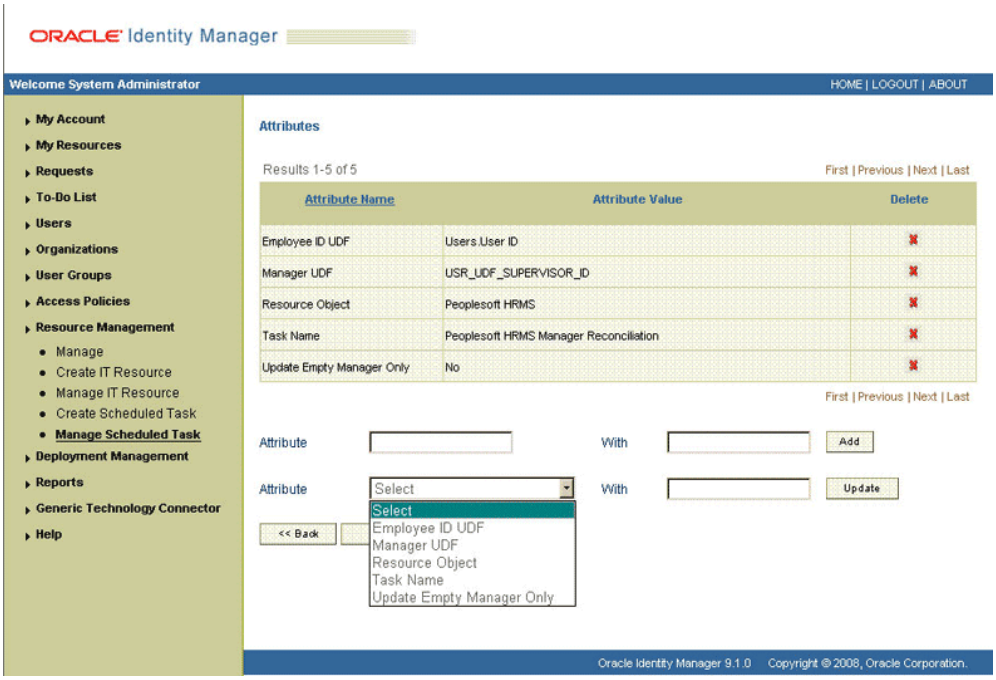
You must configure and run the PeopleSoft HRMS Manager Reconciliation scheduled task. Table 3–2 describes the attributes of this scheduled task.

Table 3–2 Attributes of the PeopleSoft HRMS Manager Reconciliation Scheduled Task

Attribute	Description
Employee ID UDF	This attribute holds the metadata of the field of the person form with which EMPL ID from the target system is mapped. Sample value: `Users.User ID`
Manager UDF	This attribute holds the metadata of the Supervisor ID field of the person form. Sample value: `UDF_USR_SUPERVISOR_ID`
Resource Object	Enter the name of the resource object. Default value: `Peoplesoft HRMS`
Task Name	This attribute holds the name of the scheduled task. Default value: `Peoplesoft HRMS Manager Reconciliation`
Update Empty Manager Only	Set this value to `Yes` to update empty Manager ID of a Person. Default value: `No`

Before you run this scheduled task, you must specify a value for the Update Empty Manager Only attribute.

The attributes of the PeopleSoft HRMS Manager Reconciliation scheduled task are shown in the following screenshot:



- Enter `yes` if you want the scheduled task to populate Manager ID values in OIM User records that do not have this value. Existing Manager ID values in other OIM User records are not modified.
- Enter `no` if you want the scheduled task to fetch and populate Manager ID values for all OIM User records, regardless of whether the Manager ID attribute in these records currently contains a value.

When it is run, this scheduled task performs the process described in Section 1.4.8, "Reconciliation of the Manager ID Attribute."

3.3 Performing Incremental Reconciliation

You do not require additional configuration for incremental reconciliation.

It is assumed that you have deployed the PeopleSoft listener as described in Section 2.2.1.4, "Deploying the PeopleSoft Listener."

Note: You must ensure that you have defined the mapping for all Actions to be performed on the target system in the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition. See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information.

3.4 Limited Reconciliation

By default, all target system records that are added or modified after the last reconciliation run are reconciled during the current incremental reconciliation run. For full reconciliation, all target system records are fetched into Oracle Identity Manager.

You configure segment filtering to specify the attributes whose values you want to fetch into Oracle Identity Manager. Similarly, you can configure limited reconciliation to specify the subset of target system records that must be fetched into Oracle Identity Manager.

You configure limited reconciliation by specifying a query condition as the value of the Custom Query attribute in the message-specific configuration lookup.

You must use the following format to specify a value for the Custom Query attribute:

```
RESOURCE_OBJECT_ATTRIBUTE_NAME=VALUE
```

For example, suppose you specify the following as the value of the Custom Query attribute:

```
Last Name=Doe
```

With this query condition, only records for persons whose last name is Doe are considered for reconciliation.

You can add multiple query conditions by using the ampersand (&) as the AND operator and the vertical bar (|) as the OR operator. For example, the following query condition is used to limit reconciliation to records of those persons whose first name is John and last name is Doe:

```
First Name=John  & Last Name=Doe
```

You can limit reconciliation to the records of those persons whose first name is either John or their User ID is 219786 using the following query:

```
First Name=John | User ID=219786
```

To configure limited reconciliation:

1. Ensure that the OIM User attribute to use in the query exists in the Lookup.PSFT.HRMS.CustomQuery lookup definition. This lookup definition maps the resource object attributes with OIM User form fields.

   See Also: Section 1.5.4.3.3, "Lookup.PSFT.HRMS.CustomQuery" for a listing of the default contents of this lookup definition

You must add a new row in this lookup definition whenever you add a new UDF in the process form. See Section 4.6, "Setting Up the Lookup.PSFT.HRMS.CustomQuery Lookup Definition" for adding an entry in this lookup definition and Section 4.2, "Adding New Attributes for Incremental Reconciliation" for adding a UDF.

2. Create the query condition. Apply the following guidelines when you create the query condition:

   - Use only the equal sign (=), the ampersand (&), and the vertical bar (|) in the query condition. Do not include any other special characters in the query condition. Any other character that is included is treated as part of the value that you specify.
   - Add a space before and after the ampersand and vertical bar used in the query condition. For example:

     ```
     First Name=John & Last Name=Doe
     ```

     This is to help the system distinguish between ampersands and vertical bars used in the query and the same characters included as part of attribute values specified in the query condition.
   - You must not include unnecessary blank spaces between operators and values in the query condition.

     A query condition with spaces separating values and operators would yield different results as compared to a query condition that does not contain spaces between values and operators. For example, the output of the following query conditions would be different:

     ```
     First Name=John & Last Name=Doe

     First Name= John & Last Name= Doe
     ```

     In the second query condition, the reconciliation engine would look for first name and last name values that contain a space at the start.
   - Ensure that attribute names that you use in the query condition are in the same case (uppercase or lowercase) as the case of values in the Lookup.PSFT.HRMS.CustomQuery lookup definitions. For example, the following query condition would fail:

     fiRst Name = John

3. Configure the message-specific configuration lookup with the query condition as the value of the Custom Query attribute. For example, to specify the query condition for the PERSON_BASIC_FULLSYNC message, search and open the **Lookup.PSFT.Message.PersonBasicSync.Configuration** lookup. Specify the query condition in the Decode column of the **Custom Query** attribute.

3.5 Resending Messages That Are Not Received by the PeopleSoft Listener

The messages are generated and sent to Oracle Identity Manager regardless of whether the WAR file is running or not. Reconciliation events are not created for the messages that are sent to Oracle Identity Manager while the WAR file is unavailable. To ensure that all the messages generated on the target system reach Oracle Identity Manager, perform the following procedure:

Manually Sending Messages

If Oracle Identity Manager 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 a specific message, the status is listed as `Timeout` or `Error`.

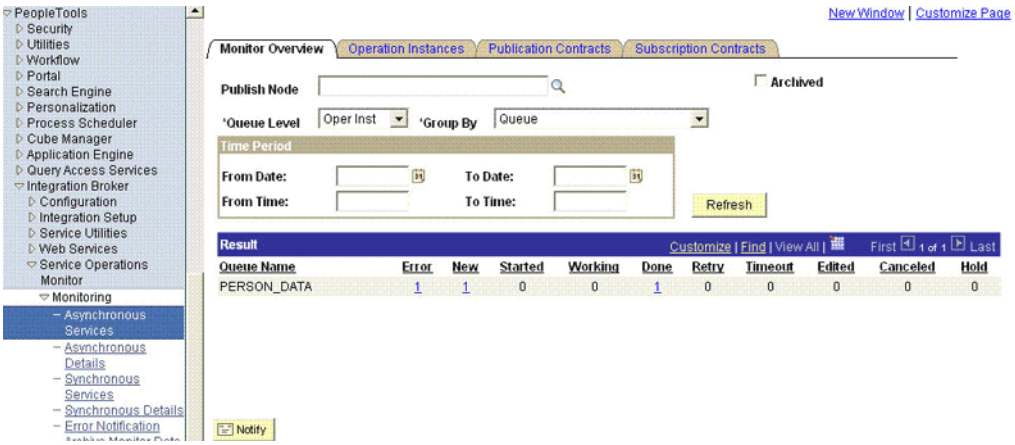
To publish a message in the queue to Oracle Identity Manager, resubmit the message when Oracle Identity Manager is running.

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 Oracle Identity Manager.

Note: PeopleSoft supports this functionality for a limited rights user created in Section 2.1.2.2.2, "Creating a Role for a Limited Rights User." But, you can specify persons who have rights to perform this task based on the security policy of your organization.

To manually resend messages in Error or TimeOut status:

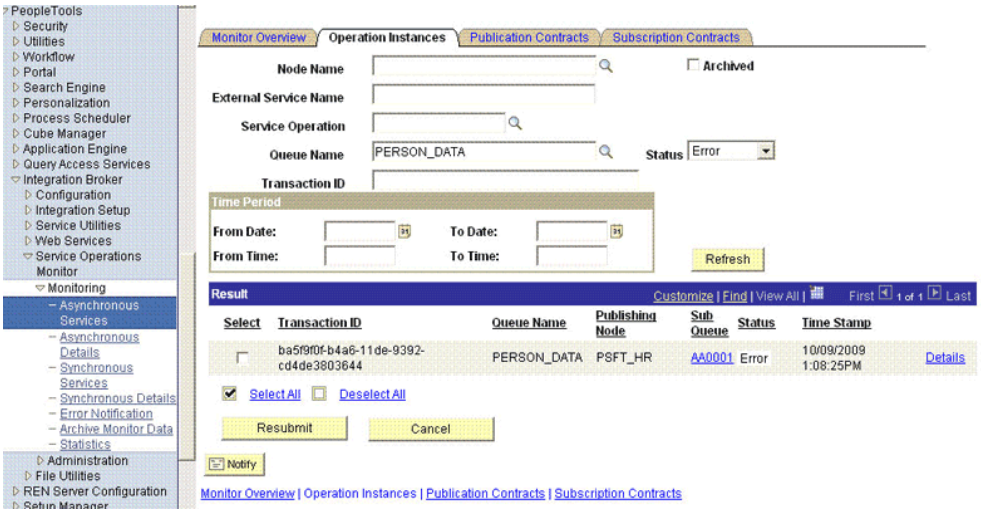
1. In PeopleSoft Internet Architecture, expand **PeopleTools, Integration Broker, Service Operations Monitor, Monitoring,** and then click **Asynchronous Services.**
2. From the Group By list, select **Service Operation** or **Queue** to view the number of messages in Error, TimeOut, Done, and so on.



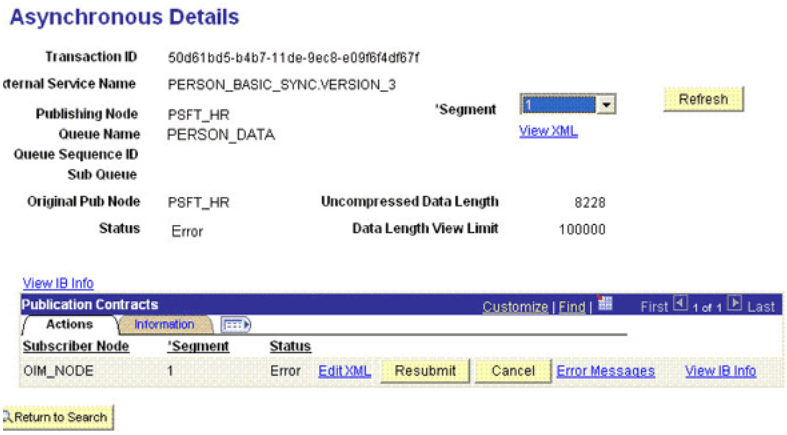
   The number is in the form of a link, which when clicked displays the details of the message.

3. Click the link pertaining to the message to be resent, for example, the link under the Error or the TimeOut column.

   You are taken to the Operation Instance tab.



4. Click the **Details** link of the message to be resent. A new window appears.



5. Click the **Error Messages** link to check the error description.
6. Click **ReSubmit** after you have resolved the issue.

3.6 Configuring Scheduled Tasks

This section describes the procedure to configure scheduled tasks. You can apply this procedure to configure the scheduled tasks for reconciliation.

Table 3–3 lists the scheduled tasks that you must configure.

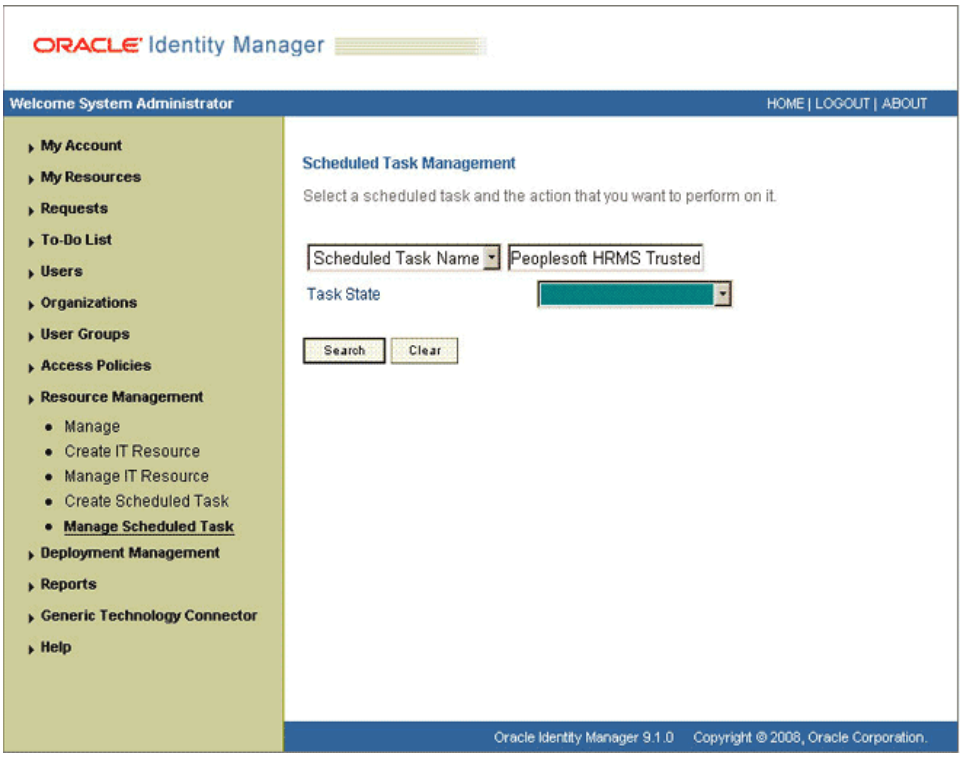
Table 3–3 Scheduled Tasks for Reconciliation

Scheduled Task	Description
PeopleSoft HRMS Trusted Reconciliation	This scheduled task is used during full reconciliation. It parses the contents of the XML files and then creates reconciliation events for each record. See Section 3.2.2.1, "Configuring the Scheduled Task for Person Data Reconciliation" for information about this scheduled task.
PeopleSoft HRMS Manager Reconciliation	This scheduled task is used for reconciling Manager ID values during full reconciliation. See Section 3.2.2.2, "Running the PeopleSoft HRMS Manager Reconciliation Scheduled Task" for information about this scheduled task.

To configure a scheduled task:

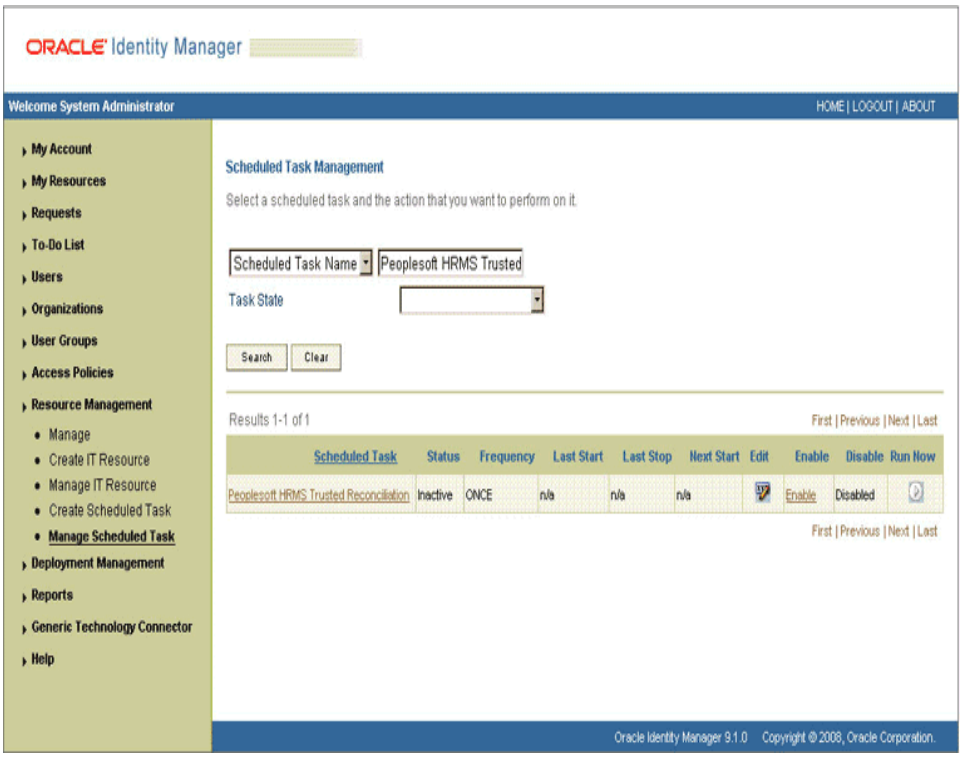
1. Log in to the Administrative and User Console.
2. Expand **Resource Management.**
3. Click **Manage Scheduled Task.**
4. On the Scheduled Task Management page, you can use any one or a combination of the search options provided to locate a scheduled task. Click **Search** after you specify the search criteria.

   The following screenshot shows the Scheduled Task Management page:



5. In the search results table, click the edit icon in the Edit column for the scheduled task.

   The following screenshot shows the Scheduled Task Details page:



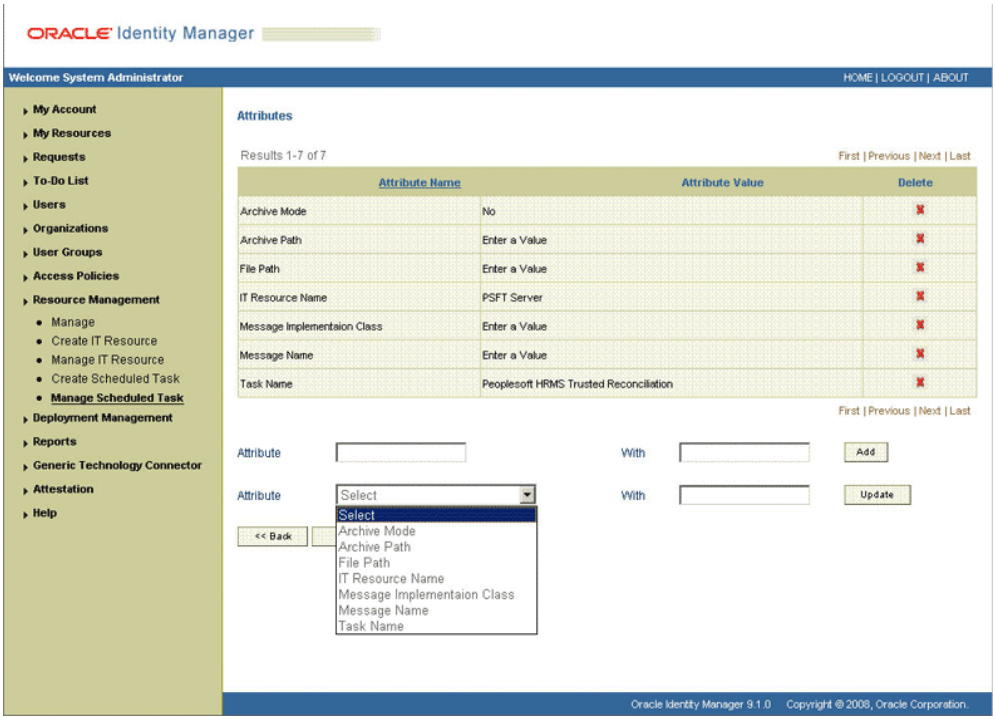
6. On the Edit Scheduled Task Details page, you can modify the following details of the scheduled task by clicking **Edit:**

   - **Status:** Specify whether you want to leave the task in the enabled state. In the enabled state, the task is ready for use.
   - **Max Retries:** Enter an integer value in this field. This number represents the number of times Oracle Identity Manager must attempt to complete the task before assigning the ERROR status to the task. The default value is 1.
   - **Next Start:** Use the date editor to specify the date when you want the task to run. After you select a date value in the date editor, you can modify the time value that is automatically displayed in the Next Start field.
   - **Frequency:** Specify the frequency at which you want the task to run.

7. After modifying the values for the scheduled task details listed in the previous step, click **Continue.**

8. Specify values for the attributes of the scheduled task. To do so, select each attribute from the Attribute list, specify a value in the field provided, and then click **Update.**

   The following screenshot shows the Attributes page. The attributes of the scheduled task that you select for modification are displayed on this page.



Note:

- Attribute values are predefined in the connector XML that is imported during the installation of the connector. Specify values only for the attributes to change.
- If you want to stop a scheduled task while it is running, the process is terminated only after the complete processing of the file that is being run. For instance, you want to reconcile data from five XML files. But, if you stop the scheduled task when it is reconciling data from the third file, then the reconciliation will stop only after processing the third file completely.

9. Click **Save Changes** to commit all the changes to the database.

Note: The Stop Execution option is not available in the Administrative and User Console. If you want to stop a task, then click **Stop Execution** on the Task Scheduler form of the Design Console.

4

Extending the Functionality of the Connector

This chapter discusses the following optional procedures:

4.1 Adding New Attributes for Full Reconciliation

You can modify the default field mappings between Oracle Identity Manager and the target system. For example, the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition for the PERSON_BASIC_FULLSYNC message holds the default attribute mappings. If required, you can add to this predefined set of attribute mappings.

To add new attributes for full reconciliation:

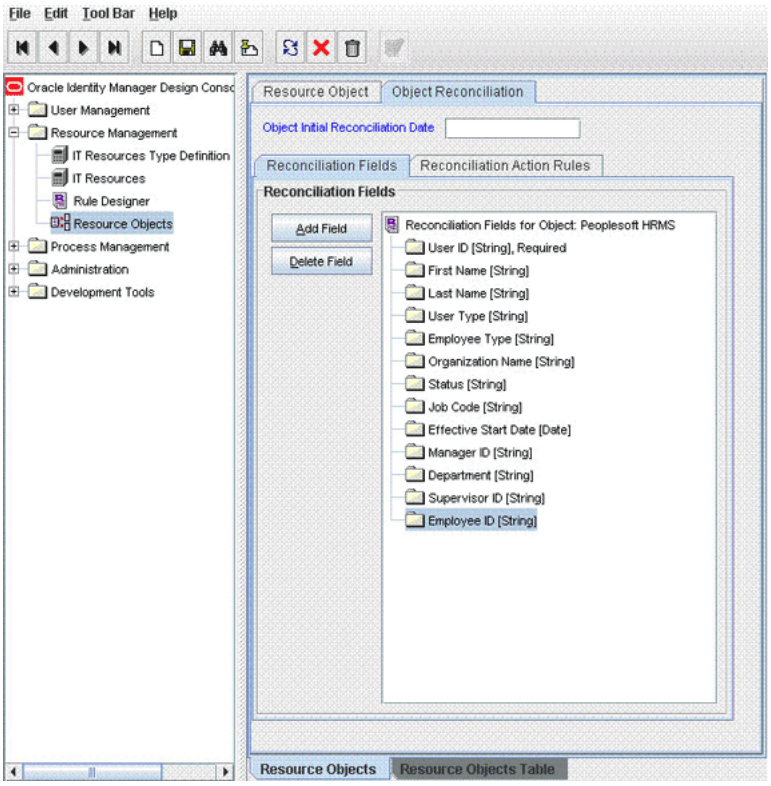
Note: If you do not want to add new fields for full reconciliation, then you need not perform this procedure.

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

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

   a. Create a new user-defined field. For the procedure to create a user-defined field, see "Creating a New User-Defined Field" on page 4-5.

b. Add a reconciliation field corresponding to the new field in the Peoplesoft HRMS resource object. For example, you can add the `Employee ID` reconciliation field.



c. Modify the PeopleSoft HRMS Person process definition to include the mapping between the newly added field and the corresponding reconciliation field. For the example described earlier, the mapping is as follows:

```
Employee ID = Employee ID
```

2. Add the new field in the message-specific attribute mapping lookup definition. For example, the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition for the PERSON_BASIC_FULLSYNC message.

The following is the format of the values stored in this table:

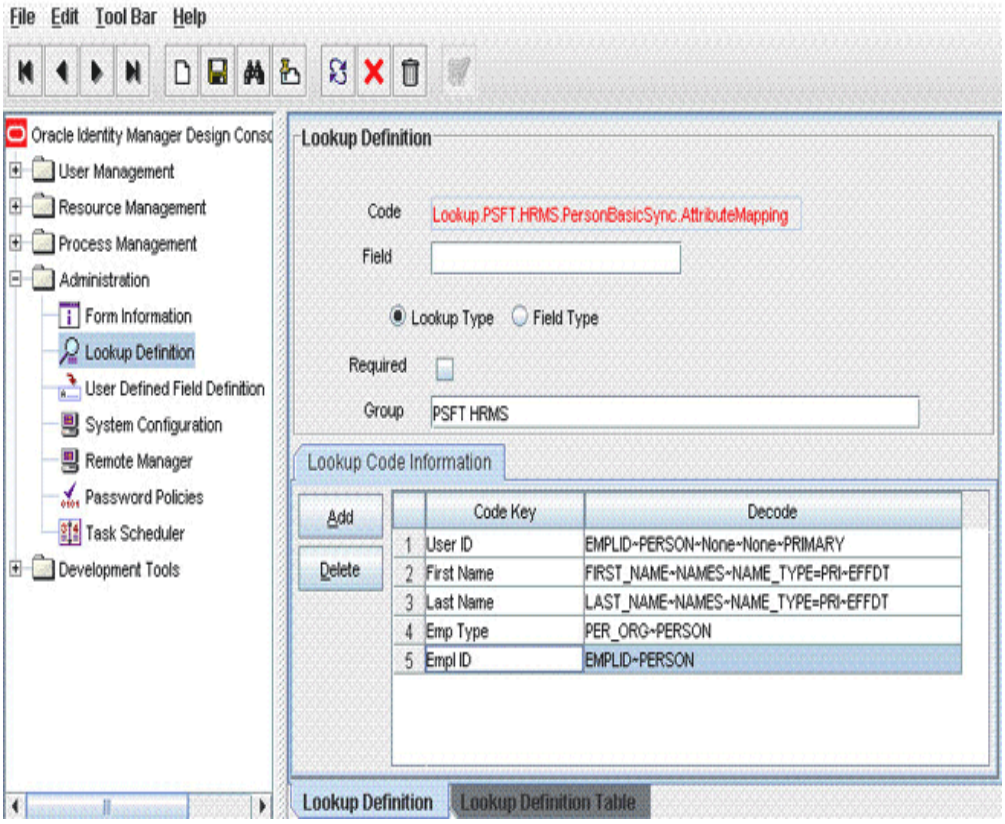
Code Key	Decode
AttributeName	NODE~PARENT NODE~NODE TYPE=Value~EFFECTIVE DATED NODE~PRIMARY

For example:

```
Code Key: Empl ID
Decode: EMPLID~PERSON
```

In this example, `Empl ID` is the reconciliation field and its equivalent target system field is `EMPLID`.

The mapping is shown in the following screenshot:



3. Add the new field in the Resource Object attribute reconciliation lookup definition. For example, the Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup for the PERSON_BASIC_FULLSYNC message.

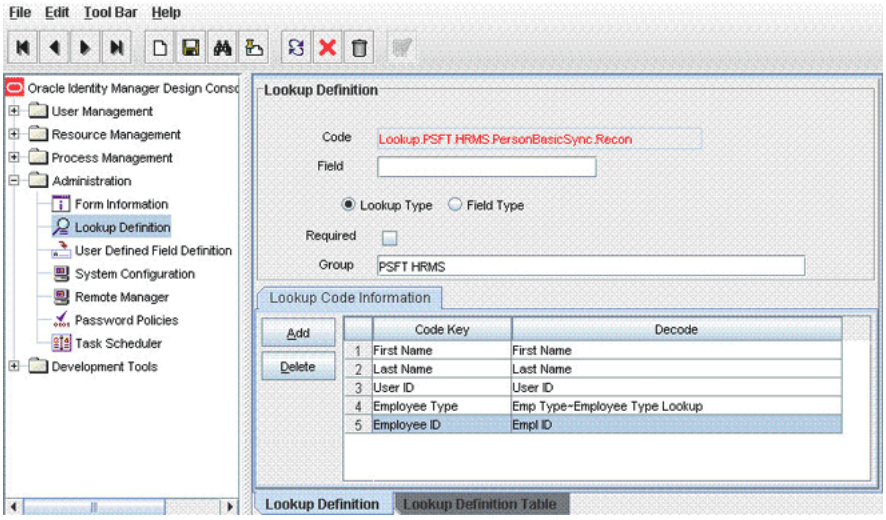
   The following is the format of the values stored in this table:

Code Key	Decode
RO Attribute	Attribute field~Lookup Name

   For example:

```
Code Key: Employee ID
Decode: Empl ID
```

   The following screenshot displays the mapping:



In this example, RO Attribute refers to the resource object attribute name added in the preceding steps. The decode key is the code key in the message-specific attribute mapping lookup definition.

4. Add the new field in the Custom Query lookup definition. See Section 4.6, "Setting Up the Lookup.PSFT.HRMS.CustomQuery Lookup Definition" for more information.

4.2 Adding New Attributes for Incremental Reconciliation

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

Note: If you do not want to add new attributes for incremental reconciliation, then you can skip this section.

To add new attributes for incremental reconciliation:

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

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

   a. Create a new user-defined field. For the procedure to create a user-defined field, see "Creating a New User-Defined Field" on page 4-5.

   b. Add a reconciliation field corresponding to the new field in the Peoplesoft HRMS resource object. For the example described earlier, you can add the Employee ID reconciliation field.

   c. Modify the PeopleSoft HRMS Person process definition to include the mapping between the newly added field and the corresponding reconciliation field. For the example described earlier, the mapping is as follows:

   ```
   Employee ID = Employee ID
   ```

2. Add the new field in the message specific attribute mapping lookup definition, for example, the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping lookup definition for the PERSON_BASIC_SYNC message.

   The following is the format of the values stored in this table:

Code Key	Decode
AttributeName	NODE~PARENT NODE~NODE TYPE=Value~EFFECTIVE DATED NODE~PRIMARY

   For example:

```
Code Key: Empl ID
Decode: EMPLID~PERSON
```

   In this example, `Empl ID` is the reconciliation field and its equivalent target system field is EMPLID.

3. Add the new field in the Resource Object attribute reconciliation lookup definition, for example the Lookup.PSFT.HRMS.PersonBasicSync.Recon lookup for the PERSON_BASIC_SYNC message.

   The following is the format of the values stored in this table:

Code Key	Decode
RO Attribute	Attribute field~Lookup Name

   For example:

```
Code Key: Employee ID
Decode: Empl ID
```

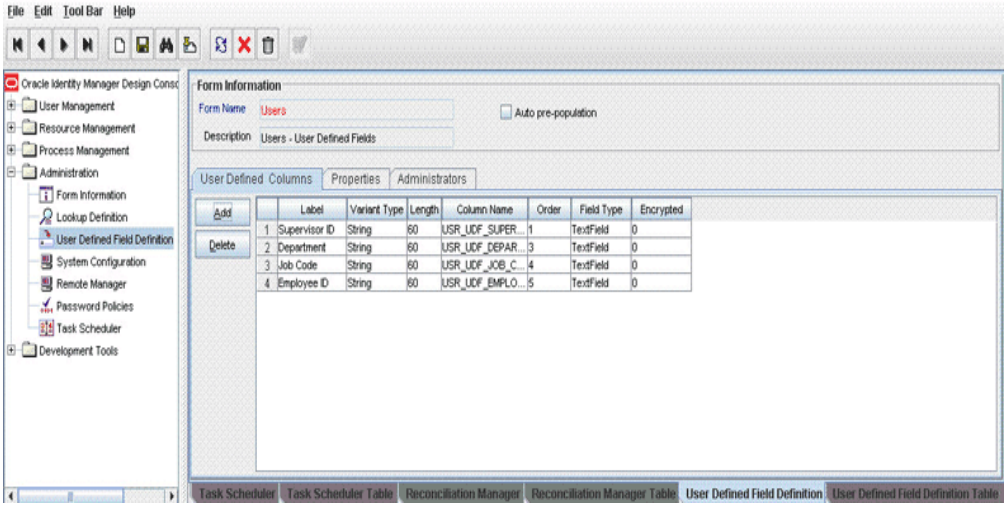
   In this example, RO Attribute refers to the resource object attribute name added in the preceding steps. The Decode value is the Code Key defined in the message-specific attribute mapping lookup definition.

4. Add the new field in the Custom Query lookup definition. See Section 4.6, "Setting Up the Lookup.PSFT.HRMS.CustomQuery Lookup Definition" for more information.

Creating a New User-Defined Field

To create a new user-defined field:

1. Log in to the Oracle Identity Manager Design Console.
2. Expand the **Administration** folder.
3. Double-click **User Defined Field Definition.**



4. Search for and open the **Users** form.
5. Click **Add.**
6. Enter the details of the field.

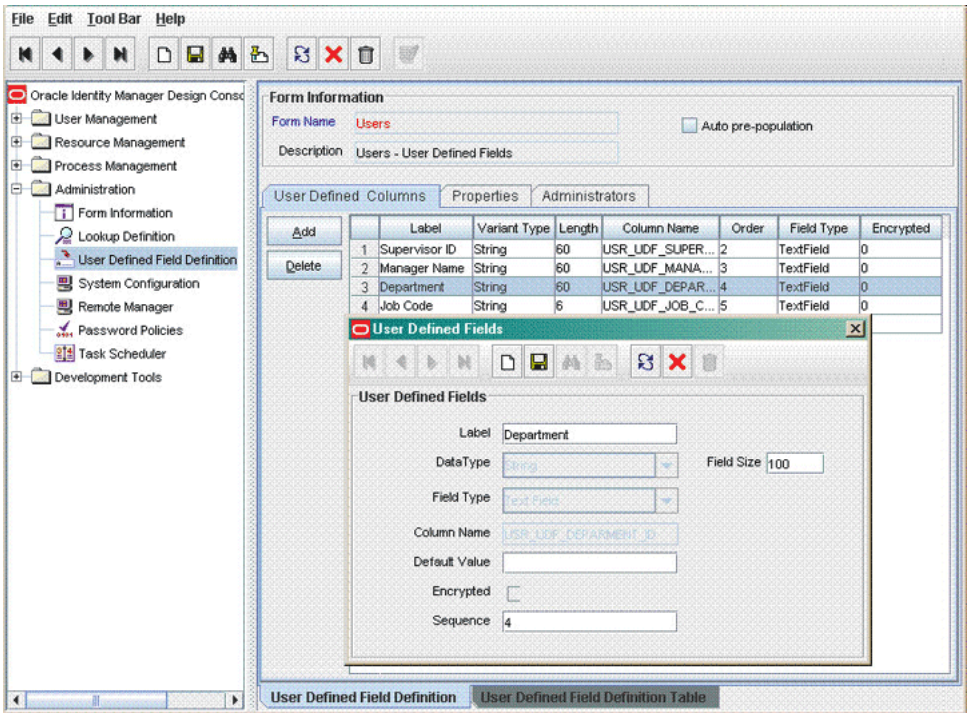
   For example, if you are adding the Employee ID field, then enter `Employee ID` in the Label field, set the data type to String, enter USR_UDF_EMPLOYEE_ID as the column name, and enter a field size value.
7. Click **Save.**

4.3 Modifying Field Lengths on the OIM User Form

You might want to modify the lengths of the fields (attributes) on the OIM User form. For example, if you use the Japanese locale, then you might want to increase the lengths of OIM User form fields to accommodate multibyte data from the target system.

If you want to modify the length of a field on the OIM User form, then:

1. Log in to the Design Console.
2. Expand **Administration,** and double-click **User Defined Field Definition.**



3. Search for and open the **Users** form.
4. Modify the length of the required field.
5. Click the Save icon.

4.4 Configuring Validation of Data During Reconciliation

You can configure validation of reconciled single-valued data according to your requirements. For example, you can validate data fetched from the First Name attribute to ensure that it does not contain the number sign (#). In addition, you can validate data entered in the First Name field on the user form so that the number sign (#) is not sent to Oracle Identity Manager during reconciliation operations.

For data that fails the validation check, the following message is displayed or recorded in the log file:

`Value returned for field` *`FIELD_NAME`* `is false.`

To configure validation of data:

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

   This validation class must implement the oracle.iam.connectors.common.validate.Validator interface and the validate method.

   > **See Also:** The Javadocs shipped with the connector for more information about this interface

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

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

```
        * You must write code to validate attributes. Parent
        * data values can be fetched by using hmUserDetails.get(field)
        * For child data values, loop through the
        * ArrayList/Vector fetched by hmEntitlementDetails.get("Child Table")
        * Depending on the outcome of the validation operation,
        * the code must return true or false.
        */
        /*
        * In this sample code, the value "false" is returned if the field
        * contains the number sign (#). Otherwise, the value "true" is
        * returned.
        */
           boolean valid=true;
           String sFirstName=(String) hmUserDetails.get(field);
           for(int i=0;i<sFirstName.length();i++){
             if (sFirstName.charAt(i) == '#'){
                   valid=false;
                   break;
             }
           }
           return valid;
    }
```

2. Create a JAR file to hold the Java class.
3. Copy the JAR file into the JavaTasks or ScheduleTask directory.
4. If you created the Java class for validating a process form field for reconciliation, then:
   a. Log in to the Design Console.
   b. Search for and open the message-specific configuration lookup definition.

      For example, locate the **Lookup.PSFT.Message.WorkForceSync.Configuration** lookup definition for the WORKFORCE_SYNC message. See Section 1.5.4.2.1, "Lookup.PSFT.Message.WorkForceSync.Configuration" for information about this lookup definition. Check for the parameter Validation Lookup Definition in this lookup definition. The Decode value specifies the name of the validation lookup. In this example, the Decode value is Lookup.PSFT.HRMS.WorkForceSync.Validation.
   c. Search for and open the **Lookup.PSFT.HRMS.WorkForceSync.Validation** lookup definition.
   d. In the Code Key, enter the resource object field name. In the Decode, enter the class name.

      For example, to perform validation on the First Name attribute you must define the following mapping in the lookup definition:

      Code Key: First Name

      Decode: oracle.iam.connectors.recon.validation

      Here, the Code Key specifies the name of the resource object attribute on which validation is applied and Decode is the complete package name of the Implementation class.
   e. Save the changes to the lookup definition.

f. Search for and open the message-specific configuration lookup definition, in this example, the Lookup.PSFT.Message.WorkForceSync.Configuration lookup definition.

g. Set the value of the **Use Validation** entry to `yes`.

h. Save the changes to the lookup definition.

5. Remove the PeopleSoftOIMListener.war file from the application server.

6. Copy the *OIM_HOME*/XLIntegrations/PSFTER/WAR/PeopleSoftOIMListener.war file into a temporary folder. Enter the following command to extract the contents of the PeopleSoftOIMListener.war file:

```
jar -xvf PeopleSoftOIMListener.war
```

7. Copy the transformation JAR file created in Step 2 to the following directory of the extracted PeopleSoftOIMListener.war file:

```
WEB-INF/lib
```

8. Delete the PeopleSoftOIMListener.war file from the temporary directory into which you extracted its contents.

9. Use the following command to re-create the file:

```
jar -cvf PeoplesoftOIMListener.war
```

10. Redeploy the PeopleSoftOIMListener.war file on the application server. See Section 2.2.1.4, "Deploying the PeopleSoft Listener" for the procedure to deploy the WAR file.

4.5 Configuring Transformation of Data During Reconciliation

You can configure the transformation of reconciled single-valued data according to your requirements. For example, you can use First Name and Last Name values to create a value for the Full Name field in Oracle Identity Manager.

To configure the transformation of data:

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

   This transformation class must implement the oracle.iam.connectors.common.transform.Transformation interface and the transform method.

   See Also: The Javadocs shipped with the connector for more information about this interface

   The following sample transformation class creates a value for the Full Name attribute by using values fetched from the First Name and Last Name attributes of the target system:

```
package oracle.iam.connectors.common.transform;

import java.util.HashMap;

public class TransformAttribute implements Transformation {

      /*
      Description:Abstract method for transforming the attributes

      param hmUserDetails<String,Object>
```

```
      HashMap containing parent data details

      param hmEntitlementDetails <String,Object>

      HashMap containing child data details

      */
      public Object transform(HashMap hmUserDetails, HashMap
hmEntitlementDetails,String sField) {
      /*
       * You must write code to transform the attributes.
       Parent data attribute values can be fetched by
       using hmUserDetails.get("Field Name").
       *To fetch child data values, loop through the
       * ArrayList/Vector fetched by hmEntitlementDetails.get("Child Table")
       * Return the transformed attribute.
       */
      String sFirstName= (String)hmUserDetails.get("First Name");
      String sLastName= (String)hmUserDetails.get("Last Name");
      String sFullName=sFirstName+"."+sLastName;
      return sFullName;
      }
}
```

2. Create a JAR file to hold the Java class.
3. Copy the JAR file into the `JavaTasks` or `ScheduleTask` directory.
4. If you created the Java class for validating a process form field for reconciliation, then:
   a. Log in to the Design Console.
   b. Search for and open the message-specific configuration lookup definition, in this example, the **Lookup.PSFT.Message.WorkForceSync.Configuration** lookup definition for the WORKFORCE_SYNC message.

      See Section 1.5.4.2.1, "Lookup.PSFT.Message.WorkForceSync.Configuration" for information about this lookup definition. Check for the parameter Transformation Lookup Definition in this lookup definition. The Decode value specifies the name of the transformation lookup. In this example, the Decode value is Lookup.PSFT.HRMS.WorkForceSync.Transformation.
   c. Search for and open the **Lookup.PSFT.HRMS.WorkForceSync.Transformation** lookup definition.
   d. In the Code Key, enter the resource object field name. In the Decode, enter the class name.

      For example, to perform transformation on the First Name attribute, you must define the following mapping in the lookup definition:

      Code Key: First Name

      Decode: oracle.iam.connectors.recon.transformation

      Here, the Code Key specifies the name of the resource object attribute on which transformation is applied and Decode is the complete package name of the Implementation class.
   e. Save the changes to the lookup definition.

f. Search for and open the message-specific configuration lookup definition, in this example, the Lookup.PSFT.Message.WorkForceSync.Configuration lookup definition.

g. Set the value of the **Use Transformation** entry to `yes`.

h. Save the changes to the lookup definition.

5. Remove the PeopleSoftOIMListener.war file from the application server.

6. Copy the *OIM_HOME*/XLIntegrations/PSFTER/WAR/PeopleSoftOIMListener.war file into a temporary folder. Enter the following command to extract the contents of the PeopleSoftOIMListener.war file:

```
jar -xvf PeopleSoftOIMListener.war
```

7. Copy the validation JAR file created in Step 2 to the following directory of the extracted PeopleSoftOIMListener.war file:

```
WEB-INF/lib
```

8. Delete the PeopleSoftOIMListener.war file from the temporary directory into which you extracted its contents.

9. Use the following command to re-create the file:

```
jar -cvf PeoplesoftOIMListener.war
```

10. Redeploy the PeopleSoftOIMListener.war file on the application server. See Section 2.2.1.4, "Deploying the PeopleSoft Listener" for the procedure to deploy the WAR file.

4.6 Setting Up the Lookup.PSFT.HRMS.CustomQuery Lookup Definition

You configure limited reconciliation by specifying a query condition as the value of the Custom Query attribute in the message-specific configuration lookup. See Section 1.5.4.3.3, "Lookup.PSFT.HRMS.CustomQuery" for more information about this lookup definition.

You must ensure that the OIM User attribute to use in the query exists in the Lookup.PSFT.HRMS.CustomQuery lookup definition. You must add a row in this lookup definition whenever you add a UDF in the user form.

To add a new UDF to this lookup definition:

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

2. Search for and open the **Lookup.PSFT.HRMS.CustomQuery** lookup definition.

3. Click **Add.**

> **Note:** The Code Key represents the resource object field name and the Decode specifies the column name of the USR table.

4. In the Code Key and Decode columns, enter the values for the UDF.

   The following is the format of the values stored in this table:

Code Key	Decode
RO Attribute Name	Column name of the USR table

If you have added a UDF Empl ID with column name as USR_UDF_EMPLOYEE_ID, then define the following entry in this lookup definition:

Code Key: Empl ID

Decode: USR_UDF_EMPLOYEE_ID

5. Click the Save icon.

4.7 Setting Up the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus Lookup Definition

The Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition maps the value retrieved from the ACTION node in the WORKFORCE_SYNC message XML with the status to be shown on Oracle Identity Manager for the employee. See Section 1.5.4.2.4, "Lookup.PSFT.HRMS.WorkForceSync.EmpStatus" for more information about this lookup definition.

The following section describes how to add an action, for example Suspension in this lookup definition.

To add an action in the Lookup.PSFT.HRMS.WorkForceSync.EmpStats lookup definition:

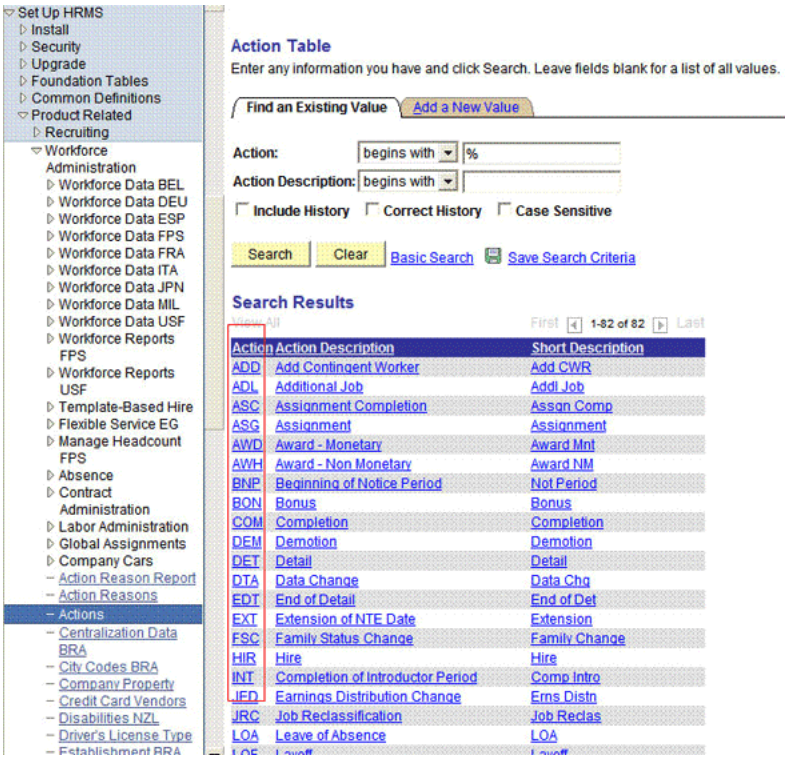
1. Obtain the Code Key and the description for the action to be added from your PeopleSoft functional resource.

   The Code Key is usually a three-character string.

   The path to obtain the Action values and its description in PeopleSoft HRMS 9.0 is as follows:

   From the Main Menu, select **Set Up HRMS, Product Related, Workforce Administration,** and then **Actions.**

   The following screenshot displays all the Actions:



2. Log in to the Design Console of Oracle Identity Manager.
3. Expand **Administration,** and then double-click **Lookup Definition.**
4. Search for and open the **Lookup.PSFT.HRMS.WorkForceSync.EmpStats** lookup definition.
5. Click **Add.**

Note: The following is the format of the values stored in this lookup definition:

Code Key: ACTION value retrieved from the WORKFORCE_SYNC message XML

Decode: Active or Disabled in Oracle Identity Manager

---

6. In the Code Key and Decode columns, enter the values for the following values:

   Code Key: SUS

   Decode: Disabled

   In this example, SUS is retrieved from the ACTION node of the WORKFORCE_SYNC message XML for the action suspension. The corresponding mapping for this action is defined as Disabled in Oracle Identity Manager.

Note: You must define the mapping for all Actions to be performed on the target system in this lookup definition.

---

7. Click the Save icon.

4.8 Configuring the Connector for Multiple Installations of the Target System

You might want to configure the connector for multiple installations of the target system. The following example illustrates this requirement:

The London and New York offices of Example Multinational Inc. have their own installations of the target system. The company has recently installed Oracle Identity Manager, and they want to configure Oracle Identity Manager to link all the installations of the target system.

To meet the requirement posed by such a scenario, you can create copies of connector objects, such as the IT resource and resource object.

The decision to create a copy of a connector object is based on a requirement. For example, an IT resource can hold connection information for one target system installation. Therefore, it is mandatory to create a copy of the IT resource for each target system installation.

With some other connector objects, you do not need to create copies at all. For example, a single attribute-mapping lookup definition can be used for all installations of the target system.

All connector objects are linked. For example, a scheduled task holds the name of the IT resource. Similarly, the IT resource holds the name of the common configuration lookup definition, which is Lookup.PSFT.Configuration. If you create a copy of an object, then you must specify the name of the copy in other connector object. Table 4–1 lists association between connector objects whose copies can be created and the other objects that reference these objects. When you create a copy of an object, use this information to change the associations of that object with other objects.

Table 4–1 Connector Objects and Their Associations

Connector Object	Name	Referenced By	Description
IT Resource	PSFT Server	■ Scheduled Task: Peoplesoft HRMS Trusted Reconciliation ■ Resource Object: Peoplesoft HRMS	You need to create a copy of IT Resource with a different name.
Resource Object	Peoplesoft HRMS	Message-specific configuration lookup definitions: ■ Lookup.PSFT.Message.PersonBasicSync.Configuration ■ Lookup. PSFT.Message. WorkForceSync. Configuration	It is optional to create a copy of a resource object. If you are reconciling the same set of attributes from the other target system, then you need not create a new resource object. **Note:** Create copies of this resource object only if there are differences in attributes between the two installations of the target system.

Table 4–1 (Cont.) Connector Objects and Their Associations

Connector Object	Name	Referenced By	Description
Common Configuration Lookup Definition	Lookup.PSFT.Configuration	Message-specific configuration lookup definitions: ▪ Lookup.PSFT.Message.PersonBasicSync.Configuration ▪ Lookup.PSFT.Message.WorkForceSync.Configuration	It is optional to create a copy of the common configuration lookup definition. **Note:** Create copies of this lookup definition only if there are differences in attributes between the two installations of the target system.
Message-specific Configuration Lookup Definition	▪ Lookup.PSFT.Message.PersonBasicSync.Configuration ▪ Lookup.PSFT.Message.WorkForceSync.Configuration	Attribute mapping lookup definitions: ▪ Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping ▪ Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping	It is optional to create a copy of the message-specific lookup definitions. **Note:** Create copies of this lookup definition only if there are differences in attributes between the two installations of the target system.
Attribute Mapping Lookup Definition	▪ Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping ▪ Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping	NA	This lookup definition holds the information of the attributes reconciled from the XML message file from the target system. **Note:** Create copies of this lookup definition only if there are differences in attributes between the two installations of the target system.
Recon Map Lookup Definition	▪ Lookup.PSFT.HRMS.PersonBasicSync.Recon ▪ Lookup.PSFT.HRMS.WorkForceSync.Recon	NA	This lookup definition maps the resource object field with the data reconciled from the message. **Note:** Create copies of this lookup definition only if there are differences in attributes between the two installations of the target system.

To create copies of the connector objects:

> **Note:** See the *Oracle Identity Manager Design Console Guide* for detailed information about the steps in this procedure.

1. Create a copy of the IT resource. See Section 2.2.1.3, "Configuring the IT Resource" for information about this IT resource.
2. Create a copy of the Peoplesoft HRMS resource object.
3. Create copy of the PERSON_BASIC_SYNC and WORKFORCE_SYNC message-specific configuration lookup.

4. Create a copy of the Lookup.PSFT.Configuration lookup definition. See Section 1.5.4.3.1, "Lookup.PSFT.Configuration" for information about this lookup definition.
5. Create a copy of the message-specific attribute mapping and Recon lookup definition, for example, the Lookup.PSFT.HRMS.PersonBasicSync.AttributeMapping and the Lookup.PSFT.HRMS.PersonBasicSync.Recon for PERSON_BASIC_SYNC message. Similarly, the Lookup.PSFT.HRMS.WorkForceSync.AttributeMapping and the Lookup.PSFT.HRMS.WorkForceSync.Recon for WORKFORCE_SYNC message.
6. Create a copy of the Peoplesoft HRMS Trusted Reconciliation scheduled task. See Section 3.2.2.1, "Configuring the Scheduled Task for Person Data Reconciliation" for information about this scheduled task.
7. Remove the PeopleSoftOIMListener.war file as described in Section 2.2.1.5, "Removing the PeopleSoft Listener."
8. Extract the removed PeopleSoftOIMListener.war file to a temporary folder.
9. Edit the web.xml file as follows:
   a. Search for the </servlet> tag in the file.
   b. Add the following lines above the </servlet> tag:

```
<init-param>
<!-- Specify Message Handler Impl classes -->
<param-name>IT_RESOURCE_NAME</param-name>
<param-value>MESSAGE~IMPLEMENTATION_CLASS;MESSAGE~IMPLEMENTATION_CLASS;MESS
AGE~IMPLEMENTATION_CLASS</param-value>
</init-param>
```

   Here, IT_RESOURCE_NAME refers to the new IT Resource name defined in Step 1 of this procedure.

   Modify the second line as described in Step 4 (e) of the procedure in Section 2.2.1.4, "Deploying the PeopleSoft Listener."
10. Deploy the PeopleSoftOIMListener.war file as described in Section 2.2.1.4, "Deploying the PeopleSoft Listener."

To reconcile data from a particular target system installation, specify the name of the IT resource for that target system installation as the value of the `ITResource` scheduled task attribute.

5

Testing and Troubleshooting

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

5.1 Testing Reconciliation

The testing utility enables you to test the functionality of the connector. The testing utility takes as input the XML file or message generated by the target system. It can be used for testing full and incremental reconciliation.

The testing utility is located in the /test directory of the installation media.

It has the following directories:

- config: Contains configuration-related information
- scripts: Contains the scripts to run

To run the testing utility:

1. Copy the testing utility files in the following folders:

   config: *OIM_HOME*/XLIntegrations/PSFT/config

   scripts: *OIM_HOME*/XLIntegrations/PSFT/scripts

2. Copy the log4j.jar file in the following directory:

   OIM_HOME/Xellerate/ThirdParty

3. Modify the files present in the *OIM_HOME*/XLIntegrations/PSFT/config directory as follows:

   a. Modify the log.properties file as described in Section 2.3.1.1, "Enabling Logging."

   b. Open and edit the reconConfig.properties file as follows:

      i) Provide the PeopleSoftOIMListener servlet URL for ListenerURL in following syntax:

      ```
      http://HOSTNAME:PORT/PeopleSoftOIMListener
      ```

      For example:

      ```
      ListenerURL=http://10.1.6.83:8080/PeopleSoftOIMListener
      ```

      ii) Provide the absolute XML message file path for XMLFilePath as follows:

```
XMLFilePath=c:/xmlmessages/person_basic_sync.xml
```

Note: There should not be any space in the directory path.

iii) Provide the value for the MessageType. In case of the ping message, specify **Ping, None,** or **otherwise** as follows:

```
MessageType=None
```

iv) Specify the value for **ITResourceName.** This value should match the active IT resource in Oracle Identity Manager.

For example:

```
ITResourceName=PSFT Server
```

v) Provide the name of the message for which you run the testing utility.

For example:

```
MessageName=PERSON_BASIC_SYNC
```

c. Open a command window, and switch to the following directory:

OIM_HOME/XLIntegrations/PSFT/scripts

d. Run the following file:

For Microsoft Windows:

```
OIM_HOME/XLIntegrations/PSFT/Test/scripts/InvokeListener.bat
```

For UNIX:

```
OIM_HOME/XLIntegrations/PSFT/Test/scripts/InvokeListener.sh
```

After the testing utility completes the 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 specified in the message-specific XML file.

5.2 Troubleshooting

The following table lists solutions to some commonly encountered issues associated with the PeopleSoft Employee Reconciliation connector:

Problem Description	Solution

You might receive the following error message while reconciling job data:
`ERROR [PSFTCOMMON]`
`==========`
`ERROR [PSFTCOMMON]`
`oracle.iam.connectors.psft.common.handler.HandlerFactory:`
`getMessageHandler:`
`No Lookup defined for`
`message WORKFORCE_SYNC.VERSION_2`
`ERROR [PSFTCOMMON]`
`==========`
 	
`ERROR [PSFTCOMMON]`
`==========`
`ERROR [PSFTCOMMON]`
`oracle.iam.connectors.psft.common.listener.PeopleSoftOIMListener:`
`process: Message specific handler`
`couldn'tbe initialized.`
`Please check if lookup definition`
`has been`
`specified for the message`
`"WORKFORCE_SYNC.VERSION_2".`
`ERROR [PSFTCOMMON]`
`==========`
 	
This indicates that the target system is sending the WORKFORCE_SYNC message with the name WORKFORCE_SYNC.VERSION_2.
	You must modify the Code Key value of the WORKFORCE_SYNC attribute in the Lookup.PSFT.Configuration lookup definition as follows:
	Code Key: WORKFORCE_SYNC.VERSION_2
	Decode: Lookup.PSFT.Message.WorkForceSync.Configuration

If the WORKFORCE_FULLSYNC message is processed before the PERSON_BASIC_FULLSYNC message, then the Oracle Identity Manager stores the data for all those events in the Event Received state. You might receive an event in the Event Received state with an empty Status field.	You must check the value of the Action applicable for the Person in the Lookup.PSFT.HRMS.WorkForceSync.EmpStatus lookup definition. This lookup definition stores the mapping between the Action applicable for a Person and the OIM User status.

6

Known Issues

The following is a known issue associated with this release of the connector:

Bug 8923935

The connector does not support direct deletion of Person records.

Bug 9235222

The connector supports only the English language.

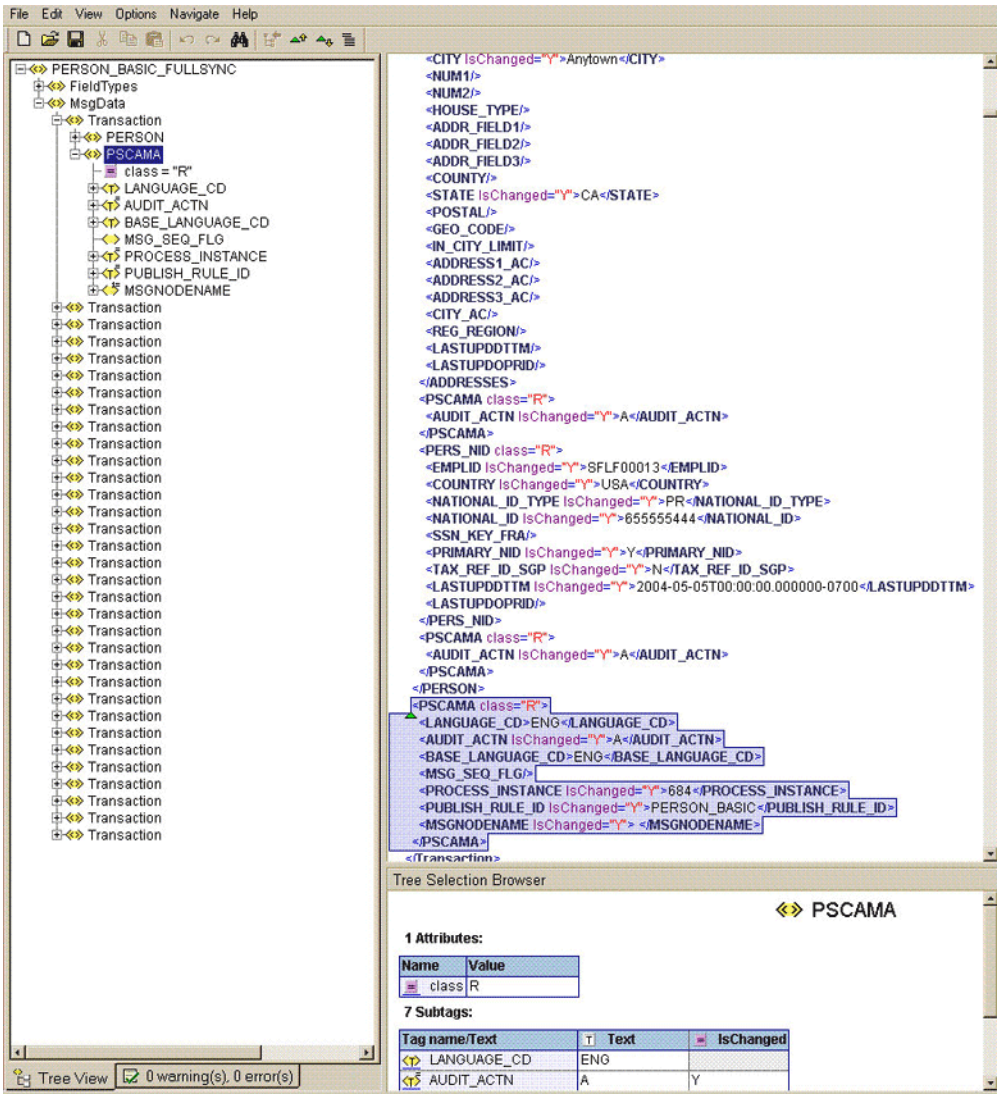
A

Determining the Root Audit Action Details

An XML message that is published by PeopleSoft contains a Transaction node. In case of full reconciliation, the XML files for PERSON_BASIC_FULLSYNC and WORKFORCE_FULLSYNC messages have multiple transaction nodes. However, in case of incremental reconciliation, the XML messages PERSON_BASIC_SYNC and WORKFORCE_SYNC have only one transaction node.

Every transaction node has a PeopleSoft Common Application Messaging Attributes (PSCAMA) subnode.

The following screenshot shows the PSCAMA node:



PSCAMA is an XML tag that contains fields common to all messages. The PSCAMA tag is repeated for each row in each level of the Transaction section of the message. PSCAMA provides the following information about the message data:

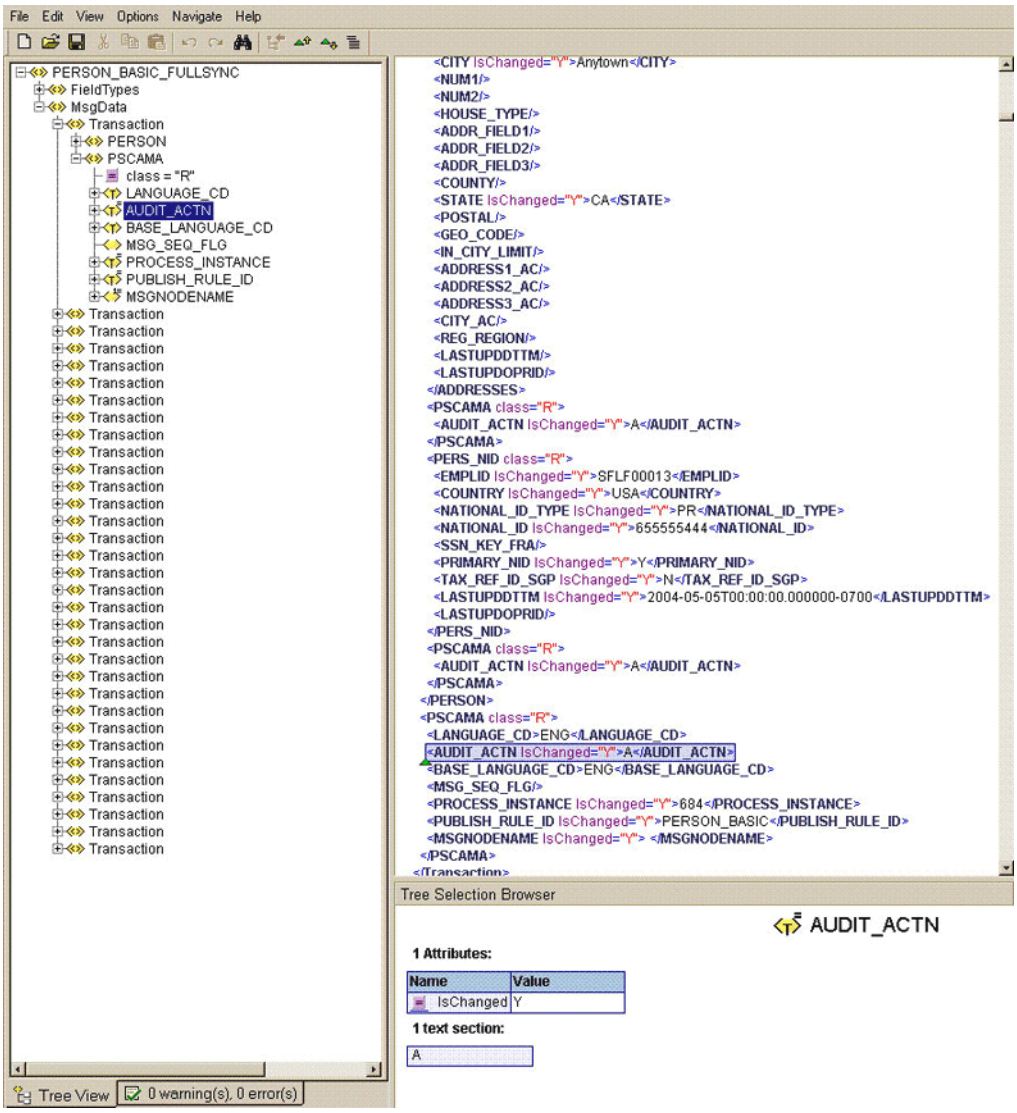
- Language in which the data is written
- Type of transaction the row represents, such as add or update

When receiving a message, PeopleCode inspects the PSCAMA node for this information and responds accordingly.

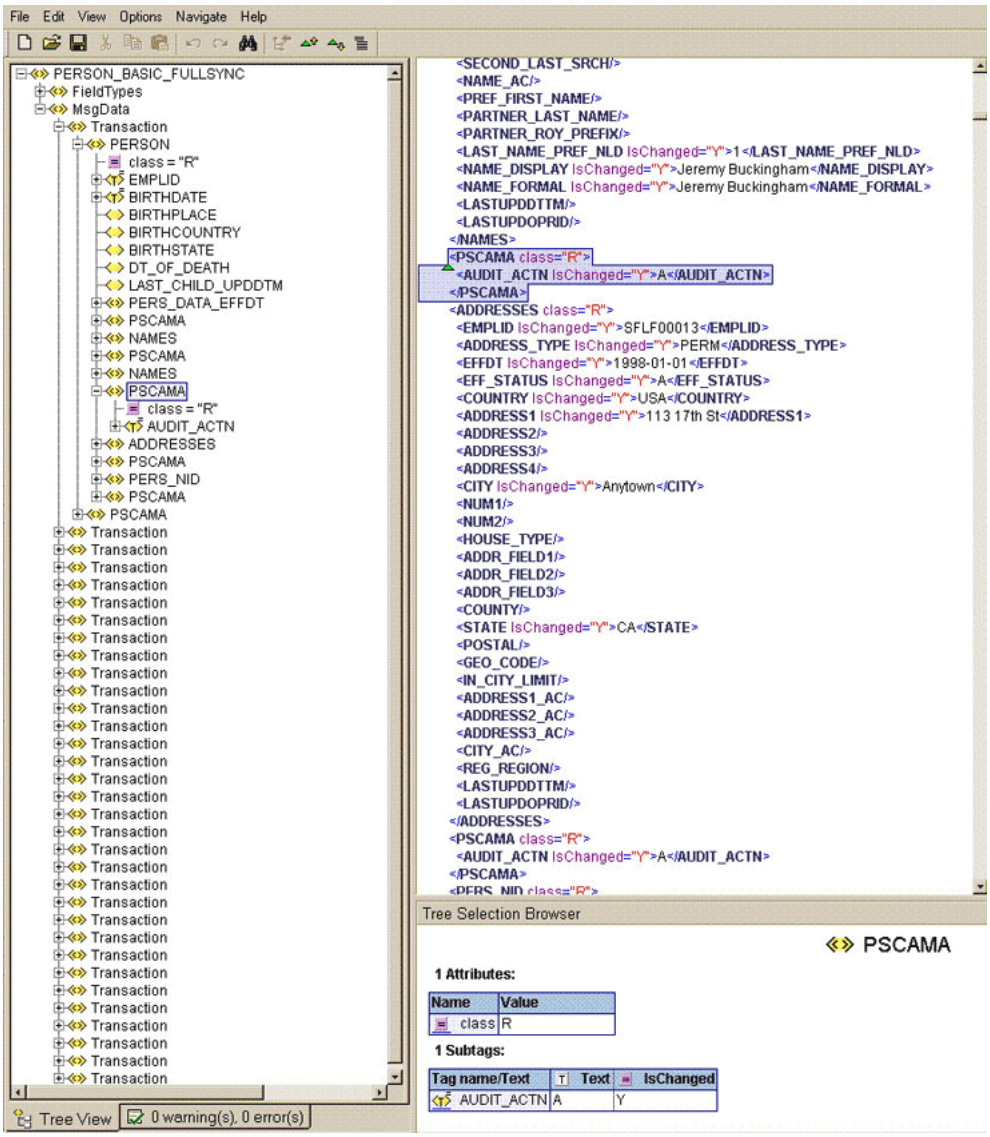
The AUDIT_ACTN subnode of PSCAMA, known as Root Audit Action, filters the data records in an XML message. It indicates the action taken against a person, such as Add or Change in Oracle Identity Manager.

If the biographical information is changed for a person on the target system, then the Root Audit Action value is C. If a person is added, then the Root Audit Action is either A or empty.

The Add Root Audit Action is shown in the following screenshot:



The nonzero level PSCAMA node and its Root Audit Action are shown in the following screenshot:


File Edit View Options Navigate Help
PERSON_BASIC_FULLSYNC
FieldTypes
MsgData
Transaction
PERSON
class = "R"
EMPLID
BIRTHDATE
BIRTHPLACE
BIRTHCOUNTRY
BIRTHSTATE
DT_OF_DEATH
LAST_CHILD_UPDDTM
PERS_DATA_EFFDT
PSCAMA
NAMES
PSCAMA
NAMES
PSCAMA
class = "R"
AUDIT_ACTN
ADDRESSES
PSCAMA
PERS_NID
PSCAMA
PSCAMA
Transaction
Tree View
0 warning(s), 0 error(s)
<SECOND_LAST_SRCH/>
<NAME_AC/>
<PREF_FIRST_NAME/>
<PARTNER_LAST_NAME/>
<PARTNER_ROY_PREFIX/>
<LAST_NAME_PREF_NLD IsChanged="Y">1</LAST_NAME_PREF_NLD>
<NAME_DISPLAY IsChanged="Y">Jeremy Buckingham</NAME_DISPLAY>
<NAME_FORMAL IsChanged="Y">Jeremy Buckingham</NAME_FORMAL>
<LASTUPDDTTM/>
<LASTUPDOPRID/>
</NAMES>
<PSCAMA class="R">
<AUDIT_ACTN IsChanged="Y">A</AUDIT_ACTN>
</PSCAMA>
<ADDRESSES class="R">
<EMPLID IsChanged="Y">SFLF00013</EMPLID>
<ADDRESS_TYPE IsChanged="Y">PERM</ADDRESS_TYPE>
<EFFDT IsChanged="Y">1998-01-01</EFFDT>
<EFF_STATUS IsChanged="Y">A</EFF_STATUS>
<COUNTRY IsChanged="Y">USA</COUNTRY>
<ADDRESS1 IsChanged="Y">113 17th St</ADDRESS1>
<ADDRESS2/>
<ADDRESS3/>
<ADDRESS4/>
<CITY IsChanged="Y">Anytown</CITY>
<NUM1/>
<NUM2/>
<HOUSE_TYPE/>
<ADDR_FIELD1/>
<ADDR_FIELD2/>
<ADDR_FIELD3/>
<COUNTY/>
<STATE IsChanged="Y">CA</STATE>
<POSTAL/>
<GEO_CODE/>
<IN_CITY_LIMIT/>
<ADDRESS1_AC/>
<ADDRESS2_AC/>
<ADDRESS3_AC/>
<CITY_AC/>
<REG_REGION/>
<LASTUPDDTTM/>
<LASTUPDOPRID/>
</ADDRESSES>
<PSCAMA class="R">
<AUDIT_ACTN IsChanged="Y">A</AUDIT_ACTN>
</PSCAMA>
Tree Selection Browser
PSCAMA
1 Attributes:
Name
Value
class
R
1 Subtags:
Tag name/Text
Text
IsChanged
AUDIT_ACTN
A
Y

B

Configuring the Connector Messages

You can configure the connector messages of release 9.1.0.x.y with that of the current release as follows:

To configure the messages:

1. Add the following lookup definitions:
   - Lookup.PSFT.Message.XellerateUser.Configuration
   - Lookup.PSFT.HRMS.XellerateUser.EmpStatus
   - Lookup.PSFT.HRMS.XellerateUser.EmpType
   - Lookup.PSFT.HRMS.XellerateUser.AttributeMapping
   - Lookup.PSFT.HRMS.XellerateUser.Recon

   To add a lookup definition:

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

   b. Expand **Administration** and then double-click **Lookup Definition.**

   c. In the **Code** field, enter the name of the lookup definition, for example, `Lookup.PSFT.Message.XellerateUser.Configuration.`

   d. In the **Group** field, enter the name with which you want to associate the lookup definition, for example, `PSFT HRMS.`

   e. Click the Save icon.

   f. Add the Code Key and Decode values specified in "Lookup Definitions Used to Configure the Messages" section. To do so:

      i) Click **Add**.

      A new row is added.

      ii) Enter the following values:

      Code Key: Attribute Mapping Lookup

      Decode: Lookup.PSFT.HRMS. XellerateUser.AttributeMapping

      iii) Repeat Steps i) and ii) to add the remaining entries in the lookup definition.

      iv) Click the Save icon.

2. Modify the Lookup.PSFT.Configuration lookup definition as follows:

   a. Add the following entry in the lookup definition:

Code Key: Name of the message sent by PeopleSoft, for example, XELLERATE_USR_MSG

Decode: Lookup.PSFT.Message.XellerateUser.Configuration

b. Modify the value of the following entry in the lookup definition:

Code Key: Ignore Root Audit Action

Decode: Yes

c. Click the Save icon.

3. Write code that implements the required message handler or message parser logic in a Java class. See the following files in the /samples directory of the installation media for more information about the Java code.

- PSFTXellerateUserReconMessageHandlerImpl.java
- XellerateUserMessageParser.java

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

5. Copy the JAR file into the JavaTasks directory.

6. Remove PeopleSoftOIMListener.war file from the application server.

7. Copy the *OIM_HOME*/XLIntegrations/PSFTER/WAR/PeopleSoftOIMListener.war file into a temporary folder. Enter the following command to extract the contents of the PeopleSoftOIMListener.war file:

```
jar -xvf PeopleSoftOIMListener.war
```

8. Copy the JAR file created in Step 4 to the following directory of the extracted PeopleSoftOIMListener.war file:

```
WEB-INF/lib
```

9. Add the message name and the implementation class in the web.xml file as follows:

a. Search for the </servlet> tag in the file.

b. Edit the following lines above the </servlet> tag:

```
<init-param>
<!-- Specify Message Handler Impl classes -->
<param-name>IT_RESOURCE_NAME</param-name>
<param-value>MESSAGE~IMPLEMENTATION_CLASS;MESSAGE~IMPLEMENTATION_CLASS;MESS
AGE~IMPLEMENTATION_CLASS</param-value>
</init-param>
```

Replace IT_RESOURCE_NAME with the name of the IT Resource, for example, PSFT Server.

Replace MESSAGE~IMPLEMENTATION_CLASS with the actual message name~message handler implementation class of the respective message.

10. Delete the PeopleSoftOIMListener.war file from the temporary directory into which you extracted its contents.

11. Use the following command to re-create the file:

```
jar -cvf PeoplesoftOIMListener.war
```

12. Redeploy the PeopleSoftOIMListener.war on the application server. See Section 2.2.1.4, "Deploying the PeopleSoft Listener" for the procedure to deploy the WAR file.

13. Modify the PeopleSoft Integration Broker configuration as follows:

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

    b. On the Find an Existing Value tab, enter the node name, for example, `OIM_ER_NODE`, and then click **Search.**

    c. On the **Connectors** tab, search for the following information by clicking on the Lookup icon:

    Gateway ID: LOCAL

    Connector ID: HTTPTARGET

    d. On the **Properties** page in the Connectors tab, enter the following information:

    Property ID: HEADER

    Property Name: sendUncompressed

    Required value: Y

    Property ID: HTTP PROPERTY

    Property Name: Method

    Required value: POST

    Property ID: HEADER

    Property Name: Host

    Required value: Enter the value of IT Resource name as configured for PeopleSoft HRMS

    Sample value: PSFT Server

    Property ID: PRIMARYURL

    Property Name: URL

    Required value: Enter the URL of the PeopleSoft listener that is configured to receive XML messages. This URL must be in the following format:

    `http://`*`ORACLE_IDENTITY_MANAGER_SERVER_IPADDRESS`*`:`*`PORT`*`/PeopleSoftOIMListener`

    The URL depends on the application server that you are using. For an environment on which SSL is not enabled, the URL must be in the following format:

    For IBM WebSphere Application Server:

    `http://10.121.16.42:9080/PeopleSoftOIMListener`

    For JBoss Application Server:

    `http://10.121.16.42:8080/PeopleSoftOIMListener`

    For Oracle WebLogic Server:

    `http://10.121.16.42:7001/PeopleSoftOIMListener`

For an environment on which SSL is enabled, the URL must be in the following format:

`https://COMMON_NAME:PORT/PeopleSoftOIMListener`

For IBM WebSphere Application Server:

`https://example088196:9443/PeopleSoftOIMListener`

For JBoss Application Server:

`https://example088196:8443/PeopleSoftOIMListener`

For Oracle WebLogic Server:

`https://example088196:7002/PeopleSoftOIMListener`

Note: The ports may vary depending on the installation that you are using.

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

f. Click the **Ping Node** button to check whether a connection is established with the specified IP address.

Lookup Definitions Used to Configure the Messages

You must add the following lookup definitions to configure the messages of release 9.1.0:

- Lookup.PSFT.Message.XellerateUser.Configuration
- Lookup.PSFT.HRMS.XellerateUser.EmpStatus
- Lookup.PSFT.HRMS.XellerateUser.EmpType
- Lookup.PSFT.HRMS.XellerateUser.AttributeMapping
- Lookup.PSFT.HRMS.XellerateUser.Recon

Lookup.PSFT.Message.XellerateUser.Configuration

Code Key	Decode
Attribute Mapping Lookup	Lookup.PSFT.HRMS. XellerateUser.AttributeMapping
Custom Query	Enter a Value
Custom Query Lookup Definition	Lookup.PSFT.HRMS.CustomQuery
Data Node Name	Transaction
Employee Status Lookup	Lookup.PSFT.HRMS.XellerateUser.EmpStatus
Employee Type Lookup	Lookup.PSFT.HRMS.XellerateUser.EmpType
Recon Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Recon
Message Handler Class	oracle.iam.connectors.psft.common.handler.impl. PSFTXellerateUserReconMessageHandlerImpl
Message Parser	oracle.iam.connectors.psft.common.parser.impl. XellerateUserMessageParser
Organization	Xellerate Users

Code Key	Decode
Resource Object	Peoplesoft HRMS
Transformation Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Transformation
User Type	End-User
Use Transformation	No
Use Validation	No
Validation Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Validation

Lookup.PSFT.Message.XellerateUser.Configuration

Code Key	Decode
Attribute Mapping Lookup	Lookup.PSFT.HRMS.XellerateUser.AttributeMapping
Custom Query	Enter a Value
Custom Query Lookup Definition	Lookup.PSFT.HRMS.CustomQuery
Data Node Name	Transaction
Employee Status Lookup	Lookup.PSFT.HRMS.XellerateUser.EmpStatus
Employee Type Lookup	Lookup.PSFT.HRMS.XellerateUser.EmpType
Recon Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Recon
Message Handler Class	oracle.iam.connectors.psft.common.handler.impl.PSFTXellerateUserReconMessageHandlerImpl
Message Parser	oracle.iam.connectors.psft.common.parser.impl.XellerateUserMessageParser
Organization	Xellerate Users
Resource Object	Peoplesoft HRMS
Transformation Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Transformation
User Type	End-User
Use Transformation	No
Use Validation	No
Validation Lookup Definition	Lookup.PSFT.HRMS.XellerateUser.Validation

Lookup.PSFT.HRMS.XellerateUser.EmpStatus

Code Key	Decode
A	Active
I	Inactive

Lookup.PSFT.HRMS.XellerateUser.AttributeMapping

Code Key	Decode
Department	DEPTID~JOB

Code Key	Decode
Emp Type	EMPLOYEETYPE~JOB
First Name	FIRST_NAME~PERSONAL_DATA
Last Name	LAST_NAME~PERSONAL_DATA
Job ID	JOBCODE~JOB
Status	STATUS~JOB
User ID	EMPLID~PERSONAL_DATA~None~None~PRIMARY

Lookup.PSFT.HRMS.XellerateUser.Recon

Code Key	Decode
Department	Department
Employee Type	Emp Type~Employee Type Lookup
First Name	First Name
Last Name	Last Name
Job Code	Job ID
Status	Status~Employee Status Lookup
User ID	User ID

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