Oracle® Identity Manager

Connector Guide for Novell GroupWise

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Oracle Identity Manager Connector Guide for Novell GroupWise, Release 9.0.3

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Preface

Oracle Identity Manager Connector Guide for Novell GroupWise provides information about integrating Oracle Identity Manager with Novell GroupWise.

> **Note:** Some parts of the product and documentation still refer to the original Thor company name and Xellerate product name and will be rebranded in future releases.

Audience

This guide is intended for users who want to deploy the Oracle Identity Manager connector for Novell GroupWise.

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Related Documents

For more information, refer to the following documents in the Oracle Identity Manager documentation library:

- *Oracle Identity Manager Release Notes*
- *Oracle Identity Manager Installation Guide for JBoss*
- *Oracle Identity Manager Installation Guide for Oracle Containers for J2EE*
- *Oracle Identity Manager Installation Guide for WebLogic*
- *Oracle Identity Manager Installation Guide for WebSphere*
- *Oracle Identity Manager Administrative and User Console Guide*
- *Oracle Identity Manager Administrative and User Console Customization Guide*
- *Oracle Identity Manager Design Console Guide*
- *Oracle Identity Manager Tools Reference Guide*
- *Oracle Identity Manager Audit Report Developer Guide*
- *Oracle Identity Manager Best Practices Guide*
- *Oracle Identity Manager Globalization Guide*
- *Oracle Identity Manager Glossary of Terms*

The following document is available in the Oracle Identity Manager Connector Pack documentation library:

- *Oracle Identity Manager Connector Framework Guide*

Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager 9.0.3 connector documentation set, visit Oracle Technology Network at

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

Conventions

This document uses the following text conventions:

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 Novell GroupWise?

This chapter provides an overview of the updates made to the connector and documentation for Novell GroupWise in release 9.0.3 of the Oracle Identity Manager connector pack.

> **See Also:** The 9.0.2 release of this guide for information about updates that were new for the 9.0.2 release

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

- Software Updates

  These include updates made to the connector software.

- Documentation-Specific Updates

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

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

Software Updates

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

Enhancement in the Multilanguage Support Feature

In addition to the three languages supported by the earlier release, this release of the connector supports seven new languages. All the supported languages are listed in the "Multilanguage Support" section on page 1-2.

Support for OC4J

Earlier releases of the connector supported the following application servers:

- JBoss Application Server
- BEA WebLogic
- IBM WebSphere

This release of the connector also supports Oracle Containers for J2EE (OC4J).

Documentation-Specific Updates

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

- In the "Enabling Logging" section on page 2-4, instructions for each of the application servers that are supported by this release of the connector have been added. In "Running Test Cases" section on page 3-1, Step 2 describing how to enable logging has been removed.

- In the "Step 6: Compiling Adapters" section on page 2-12, the instruction about restarting the node has been removed from Step 4 of the procedure to compile adapters.

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About the Connector

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

> **Note:** Oracle Identity Manager connectors were referred to as *resource adapters* prior to the acquisition of Thor Technologies by Oracle.

This chapter contains the following sections:

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

Supported Functionality

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

Function	Type	Description
Create Mailbox	Provisioning	Creates a mailbox
Delete Mailbox	Provisioning	Deletes a mailbox
Disable Mailbox	Provisioning	Disables a mailbox
Enable Mailbox	Provisioning	Enables a mailbox
Move Post Office	Provisioning	Moves a user from one post office to another
Update User	Provisioning	Updates the specified Novell GroupWise attribute of a user
Add User To Distribution List	Provisioning	Adds a user to a distribution list
Remove User From Distribution List	Provisioning	Removes a user from a distribution list

Function	Type	Description
Add Nickname to User	Provisioning	Adds a nickname or alias for a user
Delete Nickname of User	Provisioning	Deletes the nickname or alias of a user
Reset User Password	Provisioning	Updates a user's Novell GroupWise password
Create Mailbox	Reconciliation	Adds a user's mailbox information
Delete Mailbox	Reconciliation	Deletes a user's mailbox information
Disable Mailbox	Reconciliation	Disables a user's mailbox
Enable Mailbox	Reconciliation	Enables a user's mailbox
Update User	Reconciliation	Updates the user's profile by using user information retrieved from the Novell GroupWise system
Add User To Distribution List	Reconciliation	Adds the user's distribution group membership information by using user information retrieved from the Novell GroupWise system
Remove User From Distribution List	Reconciliation	Removes the user's distribution group membership information by using user information retrieved from the Novell GroupWise system
Add Nickname to User	Reconciliation	Adds the user's nickname information by using user information retrieved from the Novell GroupWise system
Delete Nickname of User	Reconciliation	Removes the user's nickname by using user information retrieved from the Novell GroupWise system

Multilanguage Support

This release of the connector supports the following languages:

- English
- Brazilian Portuguese
- French
- German
- Italian
- Japanese
- Korean
- Simplified Chinese
- Spanish
- Traditional Chinese

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

> **Note:** Novell GroupWise does not support the entry of non-ASCII characters. Refer to Chapter 4, "Known Issues" on page 4-1 for more information about this limitation.

Reconciliation Module

This section discusses the elements that the reconciliation module extracts from the target system in order to construct a reconciliation event record.

Reconciliation can be divided into the following types:

- Lookup Fields Reconciliation
- User Reconciliation

Lookup Fields Reconciliation

Lookup fields reconciliation involves reconciling the Distribution List and Post Office List lookup fields.

User Reconciliation

The following fields are reconciled:

- User ID
- Visibility
- File ID
- Exp Date
- Gateway Account ID
- Gateway Access
- Distribution List
  - Dist List
  - Participation
- Nick Names
  - Nick Name
  - NNVisibility
- eDir Server Name
- GW Server Name

Provisioning Module

The following fields are provisioned:

- User ID
- Visibility
- File ID
- Exp Date
- Gateway Account ID

- Gateway Access
- Distribution List
  - Dist List
  - Participation
- Nick Names
  - Nick Name
  - NNVisibility
- eDir Server Name
- GW Server Name

Files and Directories That Comprise the Connector

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

```
Collaboration and Messaging Applications\Novell GroupWise
```

These files and directories are listed in the following table.

File in the Installation Media Directory	Description
`lib\tcGroupWise65.dll`	This DLL file contains the native code required to communicate with the Novell GroupWise client.
`lib\xliGroupWise65.jar`	This JAR file contains the class files required for provisioning and reconciliation.
Files in the `resources` directory	Each of these resource bundle files contains language-specific information that is used by the connector. **Note:** A **resource bundle** is a file containing localized versions of the text strings that are displayed on the user interface of Oracle Identity Manager. These text strings include GUI element labels and messages displayed on the Administrative and User Console.
`troubleshoot\tcGroupWise65.dll`	This file contains the native code required to interface with Novell GroupWise.
`troubleshoot\tstGroupWise65.jar`	This file contains the wrapper files and the test utility class.

`troubleshoot\testcreate.bat`
`troubleshoot\testmodify.bat`
`troubleshoot\testdelete.bat`
	These batch files are used to run specific tests on the connector. They call the appropriate method in the test utility class.

`troubleshoot\config.properties`	In this configuration file, connection information about Novell eDirectory and Novell GroupWise and other related parameters are specified.
`troubleshoot\log4j.properties`	This file is used to specify the directory in which the log file is to be created when you run the troubleshooting utility.
`troubleshoot\log4j-1.2.8.jar`	This file creates a log file for troubleshooting utility operations.

File in the Installation Media Directory	Description
xml\xliGroupwiseResourceObject.xml	This file contains definitions for the following components of the connector: ■ IT resource type ■ Custom process form ■ Process task and rule-generator adapters (along with their mappings) ■ Resource object ■ Provisioning process ■ Pre-populate rules that are used with this connector

> **Note:** The files in the troubleshoot directory are used only to run tests on the connector.

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

Determining the Release Number of the Connector

To determine the release number of the connector that you have deployed:

1. Extract the contents of the xliGroupWise65.jar file. For a connector that has been deployed, this file is in the following directory:

   OIM_home\xellerate\JavaTasks

2. Open the manifest.mf file in a text editor. The manifest.mf file is one of the files bundled inside the xliGroupWise65.jar file.

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

   > **See Also:** *Oracle Identity Manager Design Console Guide*

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Deploying the Connector

Deploying the connector involves the following steps:

- Step 1: Verifying Deployment Requirements
- Step 2: Copying the Connector Files and External Code
- Step 3: Configuring the Oracle Identity Manager Server
- Step 4: Importing the Connector XML File
- Step 5: Configuring Reconciliation
- Step 6: Compiling Adapters
- Step 7: Configuring SSL

If you want to configure the connector for multiple installations of Novell GroupWise, then perform the following procedure:

- Configuring the Connector for Multiple Installations of the Target System

Step 1: Verifying Deployment Requirements

The following table lists the deployment requirements for the connector.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3
Target systems	Novell GroupWise 6.5
Target system host platforms	Microsoft Windows 2000
Other systems	Novell eDirectory 8.7.3
External code	`tcGroupWise65.dll`
Target system user account	Novell GroupWise user account to which the Supervisor right has been assigned
	You provide the credentials of this user account while performing the procedure in the "Defining IT Resources" section on page 2-6.

In addition to the requirements listed in this table, you must also ensure that Novell Client and the remote manager are installed and running.

> **See Also:** *Oracle Identity Manager Installation Guide* for instructions about installing the remote manager

The following diagram shows the operating environment architecture of the connector.
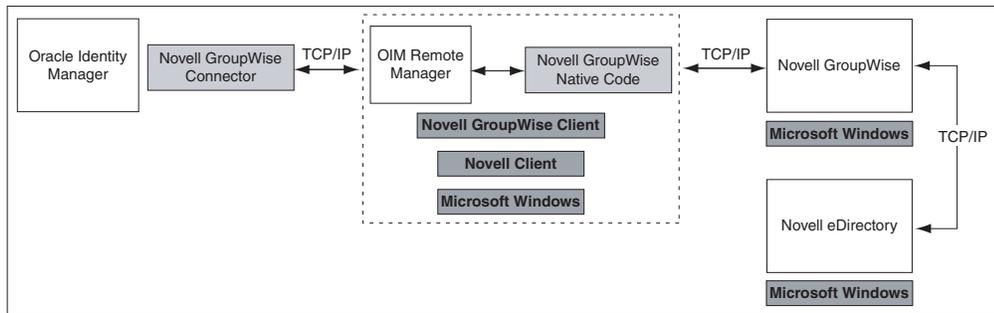
Step 2: Copying the Connector Files and External Code

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

> **Note:** The directory paths given in the first column of this table correspond to the location of the connector files in the following directory on the installation media:
>
> Collaboration and Messaging Applications\Novell GroupWise
>
> Refer to the "Files and Directories That Comprise the Connector" section on page 1-4 for more information about these files.

File in the Installation Media Directory	Destination Directory
lib\xliGroupWise65.jar	*OIM_home*\xellerate\JavaTasks
lib\tcGroupWise65.dll	Copy this DLL file into a directory that is included in the PATH environment variable on the remote manager server.
Files in the resources directory	*OIM_home*\xellerate\connectorResources
Files in the troubleshoot directory	*OIM_home*\xellerate\groupwise\troubleshoot
xml\xliGroupwiseResourceObject.xml	*OIM_home*\xellerate\groupwise\xml

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

Step 3: Configuring the Oracle Identity Manager Server

Configuring the Oracle Identity Manager server involves performing the following procedures:

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

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

Configuring the Date Format

You must perform the following steps to configure the date format on the Oracle Identity Manager server:

1. Open the Oracle Identity Manager Design Console.

2. Open the Xellerate Administration\System Configuration form.

3. Add a new entry in the `Server` category. The following are the details:

   Name: `Default date format`

   Keyword: `XL.DefaultDateFormat`

   Value: `yyyy-MM-dd hh:mm:ss`

4. Click **Save.**

Changing to the Required Input Locale

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

To set the required input locale:

> **Note:** Depending on the operating system used, you may need to perform this procedure differently.

1. Open Control Panel.

2. Double-click **Regional Options**.

3. On the Input Locales tab of the Regional Options dialog box, add the input locale that you want to use and then switch to the input locale.

Clearing Content Related to Connector Resource Bundles from the Server Cache

Whenever you add a new resource bundle in the
`OIM_home`\xellerate\connectorResources directory or make a change in an existing resource bundle, you must clear content related to connector resource bundles from the server cache.

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

1. In a command window, change to the `OIM_home`\xellerate\bin directory.

2. Enter one of the following commands:

> **Note:** You must perform Step 1 before you perform this step. If you
> run the command as follows, then an exception is thrown:
>
> *OIM_home*\xellerate\bin*batch_file_name*

- On Microsoft Windows:

  ```
  PurgeCache.bat ConnectorResourceBundle
  ```

- On UNIX:

  ```
  PurgeCache.sh ConnectorResourceBundle
  ```

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

OIM_home\xellerate\config\xlConfig.xml

> **Note:** You can ignore the exception that is thrown when you perform
> Step 2.

Enabling Logging

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

- `ALL`

  This level enables logging for all events.

- `DEBUG`

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

- `INFO`

  This level enables logging of informational messages that highlight the progress of
  the application at 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 still 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 and the log file path depend on the application
server that you use:

- **For JBoss Application Server**

  To enable logging:

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

     ```
     <category name="XELLERATE">
         <priority value="log_level"/>
     </category>
     ```

  2. In the second XML code line, replace *log_level* with the log level that you want to set. For example:

     ```
     <category name="XELLERATE">
         <priority value="INFO"/>
     </category>
     ```

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

  JBoss_home\server\default\log\server.log

- **For IBM WebSphere:**

  To enable logging:

  1. Add the following line in the *OIM_home*\xellerate\config\log.properties file:

     ```
     log4j.logger.XELLERATE=log_level
     ```

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

     For example:

     ```
     log4j.logger.XELLERATE=INFO
     ```

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

  WebSphere_home\AppServer\logs*server_name*\startServer.log

- **For BEA WebLogic**

  To enable logging:

  1. Add the following line in the *OIM_home*\xellerate\config\log.properties file:

     ```
     log4j.logger.XELLERATE=log_level
     ```

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

     For example:

     ```
     log4j.logger.XELLERATE=INFO
     ```

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

  WebLogic_home\user_projects\domains*domain_name**server_name**server_name*.log

- **For OC4J**

  To enable logging:

  1. Add the following line in the *OIM_home*\xellerate\config\log.properties file:

```
log4j.logger.XELLERATE=log_level
```

2. In this line, replace `log_level` with the log level that you want to set.

   For example:

   ```
   log4j.logger.XELLERATE=INFO
   ```

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

   ```
   OC4J_home\opmn\logs\default_group~home~default_group~1.log
   ```

Step 4: Importing the Connector XML File

To import the connector XML file into Oracle Identity Manager:

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

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

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

4. Locate and open the `xliGroupwiseResourceObject.xml` file, which is in the `OIM_home\xellerate\groupwise\xml` directory. Details of this XML file are shown on the File Preview page.

5. Click **Add File**. The Substitutions page is displayed.

6. Click **Next**. The Confirmation page is displayed.

7. Click **Next**. The Provide IT Resource Instance Data page for the `GroupWise XRM` IT resource is displayed.

8. Specify values for the parameters of the `GroupWise XRM` IT resource. Refer to the table in the "Defining IT Resources" section on page 2-6 for information about the values to be specified.

9. Click **Next**. The Provide IT Resource Instance Data page for a new instance of the `Remote Manager` resource type is displayed.

10. Repeat Steps 7, 8, and 9 for the `Groupwise IT Resource` and `eDirectory IT Resource` IT resources.

11. Click **Skip** to specify that you do not want to define another IT resource. The Confirmation page is displayed.

    > **See Also:** If you want to define another IT resource, then refer to
    > *Oracle Identity Manager Tools Reference Guide* for instructions.

12. Click **View Selections**.

    The contents of the XML file are displayed on the Import page. You may see a cross-shaped icon along with some nodes. Remove these nodes by right-clicking each node and then selecting **Remove.**

13. Click **Import**. The connector file is imported into Oracle Identity Manager.

    After you import the connector XML file, proceed to the "Step 5: Configuring Reconciliation" section on page 2-10.

Defining IT Resources

This section provides information about the parameters for the following IT resources:

- GroupWise XRM
- eDirectory IT Resource
- Groupwise IT Resource

GroupWise XRM

You must specify values for the `Groupwise XRM` IT resource parameters listed in the following table.

Parameter	Description
Service Name	Name of the remote manager
	Default value: `RManager`
URL	Host name or IP address of the server hosting the remote manager
	Sample value: `//10.0.0.1:12345`

After you specify values for these IT resource parameters, proceed to Step 9 of the procedure to import connector XML files.

eDirectory IT Resource

You must specify values for the `eDirectory IT Resource` IT resource parameters listed in the following table.

Parameter	Description
Admin Id	DN of the user who has administrator rights on the target LDAP
	If this administrator has read/search rights, then that would be sufficient because this administrator is used only to search for existing users and no modification is done in Novell eDirectory.
	Sample value: `cn=Admin,ou=People, o=xyz`
Admin Password	Password of the administrator
	Sample value: `password`
Server Address	Host name or IP address of the server hosting Novell eDirectory
Root DN	Base DN from where the search for the user starts
	Sample value: `o=xyz`
Port	Port number of the Novell eDirectory server
	Sample value: `389`
SSL	Specifies whether or not SSL is to be used to secure communication between Oracle Identity Manager and Novell GroupWise
	The value can be `true` or `false`. If it is set to `true`, then you must import the certificate of the eDirectory server into Oracle Identity Manager.
	Note: It is recommended that you enable SSL to secure communication with the target system.

Parameter	Description
Last Recon TimeStamp	For the first reconciliation run, the time stamp value is not set. For subsequent rounds of reconciliation, the time at which the previous round of reconciliation was completed is stored in this parameter.
	Sample value: `2006-06-02 12:08:06`
Prov Attribute Lookup Code	Name of the lookup definition that has the target attribute mappings required for provisioning
	The value must be `AttrName.Prov.Map.EDIR`.
Recon Attribute Lookup Code	Name of the lookup definition that has the target attribute mappings required for reconciliation
	The value must be `AttrName.Recon.Map.EDIR`.
Use XL Org Structure	If set to `true`, then the Oracle Identity Manager Organization structure is used during provisioning and reconciliation.
	If set to `false`, then the value of the Organization field in the process form is used for provisioning and the organization or container in the target Oracle Internet Directory is used for reconciliation.

After you specify values for these IT resource parameters, proceed to Step 9 of the procedure to import connector XML files.

Groupwise IT Resource

You must specify values for the `Groupwise IT Resource` IT resource parameters listed in the following table.

Parameter	Description
GroupWise Domain DN or Path	Refer to "GroupWise Domain DN or Path" on page 2-9 for detailed information about this parameter.
Admin User ID	DN of the user who has administrator rights on the target Novell GroupWise server
	This administrator must have read/write access to the Novell GroupWise system/domain database.
	Ensure that this DN is entered in the dot format and not in the comma format. For example:
	`cn=admin.ou=admgrp (valid)`
	`cn=admin,ou=admgrp (invalid)`
Admin Password	Password of the administrator
eDir Context	The eDirectory context below which the administrator is present. The administrator ID plus this context should be the complete DN of the administrator. This context is usually one level below the eDirectory tree.
	For example:
	Suppose the DN of the administrator is as follows:
	`cn=admin.ou=admgrp.o=marketing`
	Then, the value of this parameter can be either `o=marketing` or `marketing`.

Parameter	Description
eDir Server Address	Host name or IP address of the server hosting Novell eDirectory
eDir Tree	Name of the Novell eDirectory tree under which the Novell GroupWise domain and the administrator are present This is the topmost level in Novell eDirectory. Sample value: AcmeWidgets
UseEDirAuth	Specifies whether the target Novell GroupWise uses eDirectory password or GroupWise password for authentication. If it is set to true, then the password is sent as an empty string when the Create Mailbox and Change User password/Reset Password functions are run. The password specified by the user is ignored. If it is set to false, then the password specified is set as the mailbox password.
Last Recon TimeStamp	The value is empty for the first reconciliation run. After that, the time at which the last reconciliation run was completed is stored in this parameter.
Recon Attribute Lookup Code	Contains the target attributes to be reconciled Sample lookup definition: AttrName.Recon.Map.GW

GroupWise Domain DN or Path

The complete DN of the Novell GroupWise domain or the path of the domain folder must be specified in one of the following ways:

■ Local System Path

The local system path can be specified in any one of the following ways:

– By using the Domain DN path as follows:

```
Domain DN: 'cn=GWdomain.ou=org_unit_name.dc=companyname.dc=com.o=org_name'
```

For example:

```
Domain DN: 'cn=MyGWdomain.ou=MyDomains.dc=AcmeWidgets.dc=com.o=ACME'
```

Note: Use dots (not commas) to separate the object classes as shown in the preceding example.

– By using the local directory path as follows:

```
drive:\\domain_directory_path
```

For example:

```
f:\\groupwise\\testdomain
```

■ UNC Path

The UNC path can be specified in any one of the following ways:

– By using the host name as follows

```
\\hostname\share\\domainfolder
```

For example

```
\\testsvr\\myshare\\testdomain
```

– By using the IP address as follows:

```
\\IPaddress\\share_name\\domain_name
```

For example:

```
\\10.0.0.1\\myshare\\testdomain
```

The recommended method is to use the DN or the local directory path. If the domain is on a different computer, then map that folder locally and mention the local path. Use this method if you are not able to connect to the domain by using the DN.

After you specify values for these IT resource parameters, proceed to Step 9 of the procedure to import connector XML files.

Step 5: Configuring Reconciliation

Configuring reconciliation involves creating the reconciliation scheduled task as follows:

1. Open the Oracle Identity Manager Design Console.

2. Expand the **Xellerate Administration** folder.

3. Select **Task Scheduler.**

4. Click **Find**. The details of the predefined scheduled tasks are displayed on different tabs.

5. For the first scheduled task, enter a number in the **Max Retries** field. This number represents the number of times Oracle Identity Manager must attempt to complete the task before assigning the ERROR status to the task.

6. Ensure that the **Disabled** and **Stop Execution** check boxes are not selected.

7. In the Start region, double-click the **Start Time** field. From the date-time editor that is displayed, select the date and time at which you want the task to run.

8. In the Interval region, set the following schedule parameters:

   ■ To set the task to run on a recurring basis, select the **Daily**, **Weekly**, **Recurring Intervals**, **Monthly**, or **Yearly** option.

   If you select the **Recurring Intervals** option, then you must also specify the time interval at which you want the task to run on a recurring basis.

   ■ To set the task to run only once, select the **Once** option.

9. Provide values for the attributes of the scheduled task. Refer to the "Specifying Values for the Scheduled Task Attributes" section on page 2-11 for information about the values to be specified.

   > **See Also:** *Oracle Identity Manager Design Console Guide* for information about adding and removing task attributes

10. Click **Save**. The scheduled task is created. The INACTIVE status is displayed in the **Status** field, because the task is not currently running. The task is run at the date and time that you set in Step 7.

11. Repeat Steps 5 through 10 to create the remaining scheduled tasks.

After you create the remaining scheduled tasks, proceed to the "Step 6: Compiling Adapters" section on page 2-12.

Specifying Values for the Scheduled Task Attributes

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

- User Reconciliation Scheduled Task

- Distribution List Lookup Field Reconciliation Scheduled Task

- Post Office List Lookup Fields Reconciliation Scheduled Task

User Reconciliation Scheduled Task

You must specify values for the following attributes of the user reconciliation scheduled task.

> **Note:** Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.

Attribute	Description	Sample/Default Value
ITResourceName	Name of the IT resource for setting up a connection to Novell GroupWise	Groupwise IT Resource
eDirITResourceName	Name of the IT resource for setting up a connection to Novell eDirectory	eDirectory IT Resource
RemoteResourceName	Name of the IT resource in which the remote service name and URL are specified	GroupWise XRM
ResourceObjectName	Name of the resource object into which users need to be reconciled	Groupwise User
XLDeleteUsersAllowed	If this attribute is set to `true`, then the Delete reconciliation event is started. Users who are deleted from the target system are removed from Oracle Identity Manager. This requires all the users on the target system to be compared with all the users in Oracle Identity Manager. **Note:** This process affects performance.	true

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

Distribution List Lookup Field Reconciliation Scheduled Task

You must specify values for the following attributes of the Distribution List lookup fields reconciliation scheduled task.

> **Note:** Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.

Attribute	Description	Sample/Default Value
LookupCodeName	Name of the master distribution list lookup code table	Lookup.NGW.Distr ibutionLists
ITResourceName	Name of the IT resource for setting up a connection to Novell eDirectory	eDirectory IT Resource
SearchContext	Name of the Novell GroupWise context	O=mpaf_tree
ObjectClass	Name of the object class for the distribution list object	groupWiseDistrib utionList
ReconMode	Specify REFRESH to completely refresh the existing lookup. Specify UPDATE to update the lookup with the new values.	Refresh

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

Post Office List Lookup Fields Reconciliation Scheduled Task

You must specify values for the following attributes of the Post Office List lookup field reconciliation scheduled task.

> **Note:** Attribute values are predefined in the connector XML file that you import. Specify values only for those attributes that you want to change.

Attribute	Description	Sample/Default Value
LookupCodeName	Name of the master Post Office List lookup code table	Lookup.NGW.PostOffi ces
ITResourceName	Name of the IT resource for setting up a connection to Novell eDirectory	eDirectory IT Resource
SearchContext	Name of the Novell GroupWise context	O=mpaf_tree
ObjectClass	Name of the object class for the Post Office List object	groupWisePostOffice
ReconMode	Specify REFRESH to completely refresh the existing lookup. Specify UPDATE to update the lookup with new values.	Refresh

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

Step 6: Compiling Adapters

The following adapters are imported into Oracle Identity Manager when you import the connector XML file:

- NGW Create Mailbox

- NGW Delete Mailbox

- `NGW Disable Mailbox`

- `NGW Enable Mailbox`

- `NGW Move User to PostOffice`

- `NGW Add User to Distribution List`

- `NGW Remove User from Distribution List`

- `NGW Add Nickname to User`

- `NGW Reset Password`

- `NGW Change User Password`

- `NGW PP String`

- `NGW Delete Nickname of User`

You must compile these adapters before you can use them to provision accounts on the target system.

To compile adapters by using the Adapter Manager form:

1. Open the Adapter Manager form.

2. To compile all the adapters that you import into the current database, select **Compile All**.

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

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

3. Click **Start.** Oracle Identity Manager compiles the selected adapters.

4. If Oracle Identity Manager is installed in a clustered environment, then copy the compiled adapters from the `OIM_home`\xellerate\Adapter directory to the same directory on each of the other nodes of the cluster. If required, overwrite the adapter files on the other nodes.

To view detailed information about an adapter:

1. Highlight the adapter in the Adapter Manager form.

2. Double-click the row header of the adapter, or right-click the adapter.

3. Select **Launch Adapter** from the shortcut menu that is displayed. Details of the adapter are displayed.

   > **Note:** To compile one adapter at a time, use the Adapter Factory form. Refer to *Oracle Identity Manager Tools Reference Guide* for information about using the Adapter Factory and Adapter Manager forms.

Step 7: Configuring SSL

> **Note:** This is an optional step of the deployment procedure.

To set up SSL connectivity between Oracle Identity Manager and the Novell GroupWise server:

1. Import the certificate from the target system into the JSDK (the JSDK that is used during installation of Oracle Identity Manager) `cacerts` keystore as follows:

   ```
   keytool -import -alias alias_name -file
   certificate_file_name_with_complete_path -keystore
   java_home\jre\lib\security\cacerts
   ```

   Here, *java_home* is the JDK directory used for Oracle Identity Manager.

2. Restart Oracle Identity Manager.

3. In the `eDirectory IT Resource` IT resource:

   - Set the `SSL` parameter value to `true`.

   - Set the `Port` parameter value to the SSL port number. Typically, this number is `636`.

Configuring the Connector for Multiple Installations of the Target System

> **Note:** Perform this procedure only if you want to configure the connector for multiple installations of Novell GroupWise. Refer to *Oracle Identity Manager Design Console Guide* for detailed instructions on performing each step of this procedure.

To configure the connector for multiple installations of the target system:

1. Create and configure one resource object for each target system installation.

   The Resource Objects form is in the Resource Management folder. The `Groupwise User` resource object is created when you import the connector XML file. You can use this resource object as the template for creating the remaining resource objects.

2. Create and configure one IT resource for each resource object. Ensure that the IT resources are of the same IT resource type.

   The IT Resources form is in the Resource Management folder. The `Groupwise IT Resource` IT resource is created when you import the connector XML file. You can use this IT resource as the template for creating the remaining IT resources, of the same resource type.

3. Design process forms for each resource object.

   The Form Designer form is in the Development Tools folder. The following process forms are created when you import the connector XML file:

   - `UD_NGWS_USR` (main form)

   - `UD_NGW_NICK` (child form for multivalue attributes)

   - `UD_NGW_DIST` (child form for multivalue attributes)

   You can use these process forms as templates for creating the remaining process forms.

4. Create and configure one process definition per resource object.

   The Process Definition form is in the Process Management folder. The `GroupWise User` process definition is created when you import the connector XML file. You

can use this process definition as the template for creating the remaining process definitions.

While creating process definitions for each target system installation, the following steps that you must perform are specific to the creation of each process definition:

- From the **Object Name** lookup field, select the resource object that you create in Step 1.

- From the **Table Name** lookup field, select the process form that you create in Step 3.

- While mapping the adapter variables for the IT Resource data type, ensure that you select the IT resource that you create in Step 2 from the **Qualifier** list.

5. Configure reconciliation for each target system installation. Refer to the "Step 5: Configuring Reconciliation" section on page 2-10 for instructions. Note that only the values of the following attributes are to be changed for each reconciliation scheduled task:

- ITResourceName

- ResourceObjectName

When you use the Administrative and User Console to perform provisioning, you can specify the IT resource corresponding to the Novell GroupWise installation to which you want to provision the user.

3

Testing and Troubleshooting

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

- Running Test Cases
- Troubleshooting

Running Test Cases

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

To use the troubleshooting utility:

1. Specify the required values in the `config.properties` file.

   This file is in the *OIM_home*\xellerate\groupwise\troubleshoot directory. The following table describes the sections of this file in which you must provide information for running the tests.

Section	Information
Novell eDirectory Connection Parameters	Connection parameters required to connect to the Novell eDirectory system
	Refer to the "Defining IT Resources" section on page 2-6 for information about the values that you must provide.
Novell GroupWise Connection Parameters	Connection parameters required to connect to the Novell GroupWise system
	Refer to the "Defining IT Resources" section on page 2-6 for information about the values that you must provide.
Create Mailbox Parameters	Values required to create a mailbox
Modify Mailbox Parameters	Values required to modify a mailbox
Delete Mailbox Parameters	Values required to delete a mailbox

2. Use a text editor to open each of the BAT files in the *OIM_home*\xellerate\groupwise\troubleshoot directory. The names of the JAR files that must be added to the CLASSPATH environment variable are given in these BAT files. Copy these JAR files into the same directory as the BAT files and then add them to the CLASSPATH environment variable.

3. Run the appropriate BAT file to test the creation, modification, and deletion of users in Novell GroupWise:

- Create a user by running the `testcreate.bat` file.

  After you run the BAT file, check if the user is created in Novell GroupWise according to the details given in the `config.properties` file. If you run this BAT file from a command window, then the `User_Creation_Successful` message is displayed.

- Modify the user by running the `testmodify.bat` file.

  After you run the BAT file, check if the user is modified in Novell GroupWise according to the details given in the `config.properties` file. If you run this BAT file from a command window, then the `User_Modification_Successful` message is displayed.

- Delete the user by running the `testdelete.bat` file.

  After you run the BAT file, check if the user is deleted from Novell GroupWise. If you run this BAT file from a command window, then the `User_Deletion_Successful` message is displayed.

When you run troubleshooting utility, the `debugGW.log` file is created in the *OIM_home*\xellerate\groupwise\troubleshoot directory.

Troubleshooting

This section provides solutions to the following commonly encountered errors associated with the connector:

- Remote Method Invocation Errors
- Novell GroupWise Connector Errors

Remote Method Invocation Errors

The following are steps to resolve remote method invocation errors:

- Verify that the URL has been correctly specified in the `GroupWise XRM` IT resource definition.

- In the remote manager form, ensure that the **Running** check box is selected for the `GroupWise XRM` IT resource. If it is not selected, then the remote manager may not be running.

Novell GroupWise Connector Errors

Errors discussed in this section are divided on the basis of response codes:

- Common Response Codes for All Use Cases
- Use Case-Specific Response Codes

Common Response Codes for All Use Cases

The errors discussed in the following table correspond to common response codes for all use cases.

Problem Description	Solution
Oracle Identity Manager cannot establish a connection with Novell eDirectory. **Returned Error Message:** Unable to communicate with the eDirectory server **Returned Error Code:** GW_EDIR_COMMUNICATION_ERROR	■ Ensure that the Novell eDirectory server is running. ■ Ensure that Oracle Identity Manager is running. ■ Ensure that all the adapters have been compiled. ■ Use the IT Resources form to examine the Oracle Identity Manager record. Ensure that the IP address, admin ID, and admin password are correct. ■ Check if the SSL IT resource parameter is set to false. It must be set to true if the Novell eDirectory server is accepting only SSL connections. ■ Check if the specified eDirectory connection values (in the Novell eDirectory IT resource) are correct.
Target not available. **Returned Error Message:** eDirectory server is probably unavailable **Returned Error Code:** GW_EDIR_TARGET_UNAVAILABLE_ERROR	■ Check if Novell eDirectory is running. ■ Check if the Novell eDirectory connection values specified in the eDirectory IT resource definition are correct. ■ Check if the server IP address in the Novell eDirectory/GroupWise connection information is correct.
Authentication error **Returned Error Message:** Unable to authenticate to the Novell eDirectory server **Returned Error Code:** GW_EDIR_AUTHENTICATION_ERROR	■ Check if the Novell eDirectory connection values, especially the admin credentials, specified in the IT resource definition are correct. ■ Check if the SSL IT resource parameter is set to false. It must be set to true if SSL has been enabled on the Novell eDirectory server.
Naming error **Returned Error Message:** Naming exception occurred while trying to connect to the Novell eDirectory server **Returned Error Code:** GW_EDIR_INVALID_NAMING_ERROR	Check if the Novell eDirectory connection values specified in the IT resource definition are correct.
Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS). **Returned Error Message:** NDS Connection failed **Returned Error Code:** GW_NDS_CONNECTION_FAILED	■ Ensure that Novell eDirectory is running. ■ Ensure that Oracle Identity Manager is running. ■ Ensure that all the adapters have been compiled. ■ Use the IT Resources form to examine the Oracle Identity Manager record. Ensure that the IP address, admin ID, and admin password are correct. ■ Check if the Novell GroupWise connection values specified in the IT resource definition are correct. ■ Check if some other user is connected to the NDS server through Novell Client. If yes, then close that connection.
Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS). **Returned Error Message:** Invalid NDS eDirectory credentials **Returned Error Code:** GW_NDS_INVALID_CREDENTIALS	■ Check if the Novell GroupWise connection values, especially the admin credentials, specified in the IT resource definition are correct. ■ Check if some other user is connected to the NDS server through Novell Client. If yes, then close that connection.

Problem Description	Solution
Oracle Identity Manager cannot establish a connection to Novell GroupWise. **Returned Error Message:** Failed to create instance of GroupWise class **Returned Error Code:** GW_FAILED_TO_CREATE_INSTANCE	▪ Check if Novell Client has been installed on the computer on which the remote manager is installed. ▪ Check if the Novell GroupWise client has been installed on the computer on which the remote manager is installed.
Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS) or Novell GroupWise. **Returned Error Message:** Invalid eDirectory Tree **Returned Error Code:** GW_INVALID_TREE	Check if the Novell GroupWise connection values, especially the eDirectory tree, specified in the IT resource definition are correct.
Oracle Identity Manager cannot establish a connection to Novell GroupWise. **Returned Error Message:** Invalid Domain DN or Path **Returned Error Code:** GW_INVALID_DOMAIN_DN_OR_PATH	▪ Check if the Novell GroupWise connection values specified in the IT resource definition, especially the GroupWise domain DN or path, are correct. ▪ Check if the connection values have been specified in the format given in this document. ▪ Check if the Novell GroupWise domain database is corrupted.
JNI out of memory **Returned Error Message:** JNI Out of memory error **Returned Error Code:** GW_JNI_OUT_OF_MEMORY_ERROR	JNI has run out of memory. Increase JVM memory on the server on which the remote manager is installed.
Internal error has occurred **Returned Error Message:** An internal error has occurred in GroupWise. **Returned Error Code:** GW_INTERNAL_ERROR	Review the log file to determine the exact error.
Invalid argument **Returned Error Message:** Invalid arguments passed to method **Returned Error Code:** GW_INVALID_ARGUMENTS	Check if the Novell GroupWise connection values specified in the IT resource definition are correct.
User commit failed **Returned Error Message:** User commit failed **Returned Error Code:** GW_USER_COMMIT_FAILED	▪ The user has insufficient NDS rights to the object. ▪ The disk is full. ▪ Check if you are using an evaluation version of Novell eDirectory and exceeding its limitations.

Problem Description	Solution
Required information missing **Returned Error Message:** Empty or null arguments were passed for mandatory fields or for connection information **Returned Error Code:** GW_INSUFFICIENT_INFO_PROVIDED	■ Ensure that the IP address, admin ID, and admin password are correct. ■ Ensure that the following connection information has been provided IT resource definition: **Information about the Novell eDirectory connection:** - Novell eDirectory server name - Novell eDirectory port number - Novell eDirectory root context - Admin user DN - Admin user password - Whether or not SSL is to be used **Information about the Novell GroupWise connection:** - Novell eDirectory tree - Novell eDirectory context - Novell admin user DN - Novell admin password - Novell GroupWise domain DN or path The required information also includes other process data, such as the user ID.
User not present **Returned Error Message:** User does not exist **Returned Error Code:** GW_USER_DOESNOT_EXIST	The specified user ID does not exist in Novell eDirectory.
Mailbox not present **Returned Error Message:** Mailbox does not exist **Returned Error Code:** GW_MAILBOX_DOESNOT_EXIST	The specified mailbox does not exist in Novell GroupWise.
Mailbox already present **Returned Error Message:** Mailbox already exists **Returned Error Code:** GW_MAILBOX_ALREADY_EXISTS	The specified mailbox already exists in Novell GroupWise.
Post office not present **Returned Error Message:** PostOffice does not exist **Returned Error Code:** GW_POSTOFFICE_DOES_NOT_EXIST	The specified post office does not exist in Novell GroupWise.

Problem Description	Solution
Distribution list not present **Returned Error Message:** Distribution List does not exist **Returned Error Code:** GW_DISTLIST_DOES_NOT_EXIST	The specified distribution list does not exist in Novell GroupWise.
Nickname not present **Returned Error Message:** Nickname does not exist **Returned Error Code:** GW_NICKNAME_DOES_NOT_EXIST	The specified nickname does not exist in Novell GroupWise.

Use Case-Specific Response Codes

The errors discussed in the following table correspond to response codes that are specific to use cases. For all the errors listed in the table, you must review the log file to determine the exact error.

Problem Description	Solutions
Oracle Identity Manager cannot create a user or mailbox in Novell GroupWise. **Returned Error Message:** Create Mailbox failed **Returned Error Code:** GW_MAILBOX_CREATE_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot delete a user or mailbox in Novell GroupWise. **Returned Error Message:** Delete Mailbox failed **Returned Error Code:** GW_MAILBOX_DELETE_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot disable a user or mailbox in Novell GroupWise. **Returned Error Message:** Disable Mailbox failed **Returned Error Code:** GW_MAILBOX_DISABLE_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot add a nickname to the user. **Returned Error Message:** Nickname add failed **Returned Error Code:** GW_NICKNAME_ADD_FAILED	A nickname already exists for the specified user. Review the log file to determine the exact error.

Problem Description	Solutions
Oracle Identity Manager cannot remove the nickname of a user. **Returned Error Message:** Nickname remove failed **Returned Error Code:** GW_NICKNAME_REMOVE_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot add a user to a distribution list. **Returned Error Message:** Add user to distribution list failed **Returned Error Code:** GW_DISTLIST_USERADD_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot remove a user from a distribution list. **Returned Error Message:** Remove user from distribution list failed **Returned Error Code:** GW_DISTLIST_USERREMOVE_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot reset the password of a user. **Returned Error Message:** Password reset failed **Returned Error Code:** GW_PASSWORD_RESET_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot move a user to the specified post office. **Returned Error Message:** Move user to postoffice failed **Returned Error Code:** GW_POSTOFFICE_MOVEUSER_FAILED	Review the log file to determine the exact error.
Oracle Identity Manager cannot modify an attribute of a user. **Returned Error Message:** User attribute modify failed **Returned Error Code:** GW_USER_ATTRIBUTE_SET_FAILED	The specified attribute name may be invalid. Review the log file to determine the exact error.

4

Known Issues

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

- The user search operation is based on the user ID only.

- Changes in distribution list data and nickname list data are not reconciled because the connector does not update the `modifyTimeStamp` field.

- If the distribution list or nickname list is empty, then reconciliation is performed with the `[None]` string value as the Distribution List and Nick Name List values in Oracle Identity Manager.

- Fields in the `AttrName.Recon.Map.GW` lookup table that do not begin with the `ldap` prefix cannot have duplicate values.

- Versions 6.5 and 7.0 of Novell GroupWise do not support the entry of non-ASCII characters. Therefore, you cannot transfer non-ASCII data through the connector. However, error messages and response codes would be displayed in Oracle Identity Manager in the language corresponding to the language that you select.

A

Attribute Mappings Between Oracle Identity Manager and Novell GroupWise

The following table discusses attribute mappings between Oracle Identity Manager and Novell GroupWise.

Oracle Identity Manager Attribute	Novell GroupWise Attribute	Description
User ID	cn	User's login ID
Visibility	nGWVisibility	Visibility of user in GroupWise system
File ID	nGWFileID	GroupWise user's unique FileID
Post Office	nGWPostOffice	Post Office for addressing Messages
Exp Date	nGWMailboxExpirationTime	GroupWise Mailbox expiration time
Account ID	nGWAccountID	User's GateWay account ID
Gateway Access	nGWGatewayAccess	Restricts access to a GroupWise gateway
ldapObjectClass	objectclass	Named group of attributes
ldapUserObjectClass	inetOrgPerson	Objectclass to create a user
ldapUserDNPrefix	cn	common name
ldapTargetResourceTimeStampField	modifyTimestamp	Modified time stamp of the user
ldapMultiValAttr	Distribution List, Dist List, Participant, Nick Names, Nick Name, NNVisibility	Multivalue Attributes
Dist List	distlist	Public address list
Participant	participant	Participation type (To, Cc, or Bcc)
Nick Name	nickname	Alternative address
NNVisibility	visibility	Determines which post office the object's information is distributed to

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