

Oracle® Identity Manager

Connector Guide for Novell GroupWise

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Preface

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

Note: This is a transitional release following Oracle's acquisition of Thor Technologies. 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.

Documentation Accessibility

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Related Documents

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

- *Oracle Identity Manager Release Notes*
- *Oracle Identity Manager Installation and Upgrade Guide for JBoss*
- *Oracle Identity Manager Installation and Upgrade Guide for WebLogic*
- *Oracle Identity Manager Installation and Upgrade 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 Connector Framework Guide*
- Connector guides for various third-party applications

Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager 9.0.1 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.
<i>italic</i>	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.

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](#)
- [Reconciliation Module](#)
- [Provisioning Module](#)
- [Files and Directories That Comprise 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 postoffice to another
Update User	Provisioning	Sets a user's specified Novell GroupWise attribute
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
Add Nickname to User	Provisioning	Adds a nickname or alias of a user
Delete Nickname of User	Provisioning	Deletes a alias or nickname of a user

Function	Type	Description
Reset User Password	Provisioning	Updates a user's Novell GroupWise password
Create Mailbox	Reconciliation	Adds a user's mailbox information in Xellerate User's target Novell GroupWise resource object
Delete Mailbox	Reconciliation	Deletes a user's mailbox information from Xellerate User's target Novell GroupWise resource object
Disable Mailbox	Reconciliation	Disables a user's mailbox information in Xellerate User's target Novell GroupWise resource object
Enable Mailbox	Reconciliation	Enables a user's mailbox information in Xellerate User's target Novell GroupWise resource object
Update User	Reconciliation	Updates the user's information in the user's target GroupWise resource object with the help of user information retrieved from the Novell GroupWise system
Add User To Distribution List	Reconciliation	Adds the user's distribution group membership information in the user's target GroupWise resource object with the help of user information retrieved from the Novell GroupWise system
Remove User From Distribution List	Reconciliation	Removes the user's distribution group membership information from the user's target GroupWise resource object with the help of user information retrieved from the Novell GroupWise system
Add Nickname to User	Reconciliation	Adds the user's nickname information in the user's target GroupWise resource object with the help of user information retrieved from the Novell GroupWise system
Delete Nickname of User	Reconciliation	Removes the user's nickname from the user's target GroupWise resource object with the help of user information retrieved from the Novell GroupWise system

Reconciliation Module

This section describes 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

User reconciliation involves reconciling the following user information fields in Novell GroupWise:

- User ID (Required field)
- 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 user information fields are provisioned:

- User ID (Required field)
- 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 ZIP file on the installation media:

Collaboration and Messaging Applications\Novell GroupWise\Novell GroupWise Rev 2.1.1.0.zip

These files and directories are listed in the following table.

File in the Installation Media Directory	Description
xml\xliGroupWise65UserObject.xml	This file contains the following components of the connector: <ul style="list-style-type: none"> ■ 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
lib\xliGroupWise65.jar	This JAR file contains the class files required for provisioning and reconciliation.
lib\tcGroupWise65.dll	This DLL file contains the native code required to communicate with the Novell GroupWise client.
troubleshoot\tstGroupWise65.jar	This file contains the wrapper files and the test utility class.
troubleshoot\tcGroupWise65.dll	This file contains the native code required to interface with Novell GroupWise.
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 specifies the logging parameters. By default, log data is stored in the debugGW.log file.
troubleshoot\log4j-1.2.8.jar	This is the log4j JAR file. This file creates a log file for troubleshooting utility operations.
troubleshoot\testcreate.bat troubleshoot\testmodify.bat troubleshoot\testdelete.bat	These batch files call the appropriate method in the test utility class.
docs\B31125_01.pdf docs\html	These are PDF and HTML versions of this guide, which provides instructions to deploy the connector.

The "[Step 3: Copying the Connector Files and External Code](#)" section on page 2-2 provides instructions to copy these files into the required directories.

Deploying the Connector

Deploying the connector involves the following steps:

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

Step 1: Verifying Deployment Requirements

The following table lists the deployment requirements for the connector.

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 8.5.3 or later
Target systems	Novell GroupWise 6.5
Target system host platforms	Microsoft Windows 2000
Other systems	Novell eDirectory 8.7.3
External code	tcGroupWise65.dll

Step 2: Configuring the Oracle Identity Manager Server

You must perform the following steps to configure the date in 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**.

Step 3: 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 ZIP file on the installation media:

Collaboration and Messaging Applications\Novell GroupWise\Novell GroupWise Rev 2.1.0.zip.

Refer to "[Files and Directories That Comprise the Connector](#)" on page 1-3 for more information about these files.

File in the Installation Media Directory	Destination Directory
xml\xliGroupWise65UserObject.xml	xellerate_home\xellerate\groupwise\xml
lib\xliGroupWise65.jar	xellerate_home\xellerate\JavaTasks
lib\tcGroupWise65.dll	Add this DLL file into a directory that is included in the PATH environment variable on the remote manager server.
The following files in the troubleshoot directory: config.properties debugGW.log log4j-1.2.8.jar log4j.properties tcGroupWise65.dll tstGroupWise65.jar	xellerate_home\xellerate\groupwise\troubleshoot
The following contents of the docs directory: B31125_01.pdf html	xellerate_home\xellerate\groupwise\docs

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 xliGroupwise65UserObject.xml file, which is in the xellerate_home\xellerate\connector_directory\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. Use the table given in the ["Defining IT Resources"](#) section on page 2-3 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. You must remove these nodes. To do this, right-click each such node and then select **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 2-6.

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 Name	Parameter Description
Service Name	Name of the remote manager Default value: <code>RManager</code>
URL	Host name or IP address of the server hosting the remote manager Sample value: <code>//10.0.0.1:12346</code>

After you specify values for these IT resource parameters, go 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 Name	Parameter Description
Admin Id	DN of the user who has admin rights in the target LDAP If this admin user has read/search rights, then that would be sufficient because this admin user is used only to search for existing users and no modification is done in eDirectory. Sample value: cn=Admin,ou=People, o=xyz
Admin Password	Password of the admin user Sample value: password
Server Address	Host name or IP address of the system hosting the eDirectory server Sample value: 164.164.164.164
Root DN	Base DN from where the search for the user starts and then goes below in the tree Sample value: o=xyz
Port	Port number of the 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. Sample value: true
Last Recon TimeStamp	The value is empty for the initial reconciliation run. After that, the time at which the last 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, go 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 Name	Parameter Description
GroupWise Domain DN or Path	Refer to " GroupWise Domain DN or Path " on page 2-6 for detailed information about this parameter.
Admin User ID	<p>DN of the user who has admin rights on the target Novell GroupWise server</p> <p>This admin user must have read/write access to the Novell GroupWise system/domain database.</p> <p>Sample Value: admin</p> <p>Ensure that this DN is entered in the dot format and not in the comma format. For example:</p> <p>cn=admin.ou=admgrp (valid)</p> <p>cn=admin,ou=admgrp (invalid)</p>
Admin Password	<p>Password of the admin user.</p> <p>Sample value: password</p>
eDir Context	<p>The eDirectory context below which the admin user is present. The admin user ID plus this context should be the complete DN of the admin user. This context is usually one level below the eDirectory Tree. Engineering</p> <p>The following are both valid: o=marketing and marketing</p> <p>Therefore, cn=admin.ou=admgrp.o=marketing is the complete DN of the admin user.</p>
eDir Server Address	<p>Host name or IP address of the system hosting the eDirectory server.</p> <p>Sample value: 10.0.0.2</p>
eDir Tree	<p>Name of the eDirectory Tree under which the GroupWise domain is present and also the admin user. This is the topmost level in the eDirectory.</p> <p>Sample value: AcmeWidgets</p>
UseEDirAuth	<p>Whether the target GroupWise uses eDirectory password or GroupWise password for authentication.</p> <p>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 tasks are run. The password specified by the user is ignored. If it is set to false, the password specified is set as the mailbox password.</p> <p>Sample value:</p> <p>false</p>
Last Recon TimeStamp	<p>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.</p>
Recon Attribute Lookup Code	<p>Contains the target attributes to be reconciled.</p> <p>Sample lookup definition:</p> <p>AttrName.Recon.Map.GW</p>

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

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 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 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, go to Step 9 of the procedure to import connector XML files.

Step 5: Configuring Reconciliation

Configuring reconciliation involves creating scheduled tasks for lookup fields and user reconciliations. To create these scheduled tasks:

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 three different tabs.
 5. Enter a number in the **Max Retries** field. This number represents the number of times Oracle Identity Manager should attempt to complete the task before assigning the `ERROR` status to the task.
 6. Ensure that the **Disabled** and **Stop Execution** check boxes are cleared.
 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 appropriate table in the "[Specifying Values for the Scheduled Task Attributes](#)" section on page 2-7 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 2-9.

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 Name	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 is 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, go 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 Name	Description	Sample/Default Value
LookupCodeName	Name of the master distribution list lookup code table	Lookup.NGW.DistributionLists
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	groupwiseDistributionList
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, go 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 Name	Description	Sample/Default Value
LookupCodeName	Name of the master Post office list lookup code table	Lookup.NGW.PostOffices
ITResourceName	Name of the IT resource for setting up a connection to eDirectory	eDirectory IT Resource
SearchContext	Name of the Novell GroupWise context	O=mpaf_tree
ObjectClass	Name of the object class for the Postoffice list object	groupWisePostOffice
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, go 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. You must compile these adapters before you can use them to provision accounts on the target system.

- 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

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 the **Compile All** option.

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

3. Click **Start**. Oracle Identity Manager compiles the adapters that you specify.

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 multiple adapters simultaneously, use the Adapter Manager form. To compile one adapter at a time, use the Adapter Factory form. Refer to *Oracle Identity Manager Tools Reference Guide* for information about how to use these form.

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 -file certificate_file_name -alias ndscert -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`.
 - Change the `Port` parameter value to the SSL port number. Typically, this number is `636`.

Testing the Connector

After you deploy the connector, you must test it to ensure that it functions as expected.

This chapter contains the following sections:

- [Running Test Cases](#)
- [Troubleshooting](#)

Running Test Cases

This section discusses test cases that you can perform by using the troubleshooting utility.

You can use the troubleshooting utility to directly use the connector for identifying the cause of problems associated with connecting to the target system server and performing basic operations on the target system.

The troubleshooting utility should be extracted to a directory. This utility consists of the components described in the "[Files and Directories That Comprise the Connector](#)" section on page 1-3.

When you extract the troubleshooting utility, you must ensure that all the files in the `troubleshooting` directory are retained in the same directory.

Before you can use the troubleshooting utility, you must set the required values in the `config.properties` file. This file is in the `xellerate_home\xellerate\groupwise\troubleshoot` directory. The following table describes the sections of this file.

Section Name	Information
Novell GroupWise Connection Parameters	Connection parameters required to connect to the Novell GroupWise system
Novell eDirectory Connection Parameters	Connection parameters required to connect to the Novell eDirectory system
Create User	Values required to create a user
Modify User	Values required to modify a user
Delete User	DN of the user to be deleted

If required, edit the `log4j.properties` file to specify the location of the log file.

Run the appropriate batch file to test the creation, modification, and deletion of users in Novell GroupWise as follows:

- Create a user.
Double-click the `testcreate.bat` file. Then, check if the user is created in Novell GroupWise with the details given in the `config.properties` file. If you run this BAT file from the command window, then the `User_Creation_Successful` message is displayed.
- Modify the user.
Double-click the `testmodify.bat` file. Then, check if the user is modified in Novell GroupWise with the details given in the `config.properties` file. If you run this BAT file from the command window, then the `User_Modification_Successful` message is displayed.
- Delete the user.
Double-click the `testdelete.bat` file. Then, check if the user is deleted in GroupWise with the details given in the `config.properties` file. If you run this BAT file from the command window, then the `User_Deletion_Successful` message is displayed.

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 GroupWise XRM IT resource has the right URL value.
- 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 into the following categories:

- [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
<p>Oracle Identity Manager cannot establish a connection with Novell eDirectory.</p> <p>Returned Error Message:</p> <p>Unable to communicate with the eDirectory server</p> <p>Returned Error Code:</p> <p>GW_EDIR_COMMUNICATION_ERROR</p>	<ul style="list-style-type: none"> ■ Ensure that the Novell eDirectory server is running. ■ Ensure that Oracle Identity Manager is running (that is, the database is running). ■ Ensure that all the adapters have been compiled. ■ Examine the Oracle Identity Manager record (from the IT Resources form). Ensure that the IP address, admin ID, and admin password are correct. ■ Check if the SSL IT resource parameter is set to <code>false</code>. It must be set to <code>true</code> 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.
<p>Target not available.</p> <p>Returned Error Message:</p> <p>eDirectory server is probably unavailable</p> <p>Returned Error Code:</p> <p>GW_EDIR_TARGET_UNAVAILABLE_ERROR</p>	<ul style="list-style-type: none"> ■ Check if the Novell eDirectory server is down. ■ Check if the given Novell eDirectory connection values (in the eDirectory IT resource) are correct. ■ Check if the server name in the eDirectory/GroupWise connection information is correct.
<p>Authentication error</p> <p>Returned Error Message:</p> <p>Unable to authenticate to the eDirectory server</p> <p>Returned Error Code:</p> <p>GW_EDIR_AUTHENTICATION_ERROR</p>	<ul style="list-style-type: none"> ■ Check if the specified Novell eDirectory connection values (especially the admin credentials in the eDirectory IT resource) are correct. ■ Check if the SSL flag is set to <code>false</code>. It must be set to <code>true</code> if the eDirectory server is accepting only SSL connections.
<p>Naming error</p> <p>Returned Error Message:</p> <p>Naming exception occurred while trying to connect to the eDirectory server</p> <p>Returned Error Code:</p> <p>GW_EDIR_INVALID_NAMING_ERROR</p>	<p>Check if the specified Novell eDirectory connection values (in the eDirectory IT Resource IT resource) are correct.</p>
<p>Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS).</p> <p>Returned Error Message:</p> <p>NDS Connection failed</p> <p>Returned Error Code:</p> <p>GW_NDS_CONNECTION_FAILED</p>	<ul style="list-style-type: none"> ■ Ensure that the eDirectory is up and running. ■ Ensure that Oracle Identity Manager is running (that is, the database is running). ■ Ensure that all the adapters have been compiled. ■ Examine the Oracle Identity Manager record (from the IT Resources form). Ensure that the IP address, admin ID, and admin password are correct. ■ Check if the given Novell GroupWise connection values (in the GroupWise IT resource) 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
<p>Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS).</p> <p>Returned Error Message: Invalid NDS eDirectory credentials</p> <p>Returned Error Code: GW_NDS_INVALID_CREDENTIALS</p>	<ul style="list-style-type: none"> ■ Check if the specified Novell GroupWise connection values (especially the admin DN & password in the <code>GroupWise IT Resource IT</code> resource) are correct. ■ Check if some other user is connected to the NDS server through Novell Client. If yes, then close that connection.
<p>Oracle Identity Manager cannot establish a connection to GroupWise.</p> <p>Returned Error Message: Failed to create instance of GroupWise class</p> <p>Returned Error Code: GW_FAILED_TO_CREATE_INSTANCE</p>	<ul style="list-style-type: none"> ■ Check if Novell Client has been installed on the computer where the remote manager is installed. ■ Check if the Novell GroupWise client has been installed on the computer where the remote manager is installed.
<p>Oracle Identity Manager cannot establish a connection to Novell Directory Services (NDS) or GroupWise.</p> <p>Returned Error Message: Invalid eDirectory Tree</p> <p>Returned Error Code: GW_INVALID_TREE</p>	<p>Check if the given Novell GroupWise connection values (especially the eDirectory Tree in the <code>GroupWise IT Resource IT</code> resource) are correct.</p>
<p>Oracle Identity Manager cannot establish a connection to GroupWise.</p> <p>Returned Error Message: Invalid Domain DN or Path</p> <p>Returned Error Code: GW_INVALID_DOMAIN_DN_OR_PATH</p>	<ul style="list-style-type: none"> ■ Check if the given Novell GroupWise connection values (especially the GroupWise domain DN or path in the <code>GroupWise IT Resource IT</code> resource) are correct and if it has been entered in the format specified in this document. ■ Check if the Novell GroupWise domain database is corrupted.
<p>JNI out of memory.</p> <p>Returned Error Message: JNI Out of memory error</p> <p>Returned Error Code: GW_JNI_OUT_OF_MEMORY_ERROR</p>	<p>JNI has run out of memory. Increase JVM memory on the server on which the remote manager is installed.</p>
<p>Internal error has occurred</p> <p>Returned Error Message: An internal error has occurred in GroupWise.</p> <p>Returned Error Code: GW_INTERNAL_ERROR</p>	<p>Some unknown error has occurred. Review the log file to determine the exact error.</p>
<p>Invalid argument</p> <p>Returned Error Message: Invalid arguments passed to method</p> <p>Returned Error Code: GW_INVALID_ARGUMENTS</p>	<p>Check if the given Novell GroupWise connection values (especially the eDirectory Port, which has a numeric value in the <code>GroupWise IT Resource IT</code> resource) are correct.</p>

Problem Description	Solution
<p>User commit failed</p> <p>Returned Error Message:</p> <p>User commit failed</p> <p>Returned Error Code:</p> <p>GW_USER_COMMIT_FAILED</p>	<ul style="list-style-type: none"> ■ 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.
<p>Required information missing</p> <p>Returned Error Message:</p> <p>Empty or null arguments were passed for mandatory fields or for connection information</p> <p>Returned Error Code:</p> <p>GW_INSUFFICIENT_INFO_PROVIDED</p>	<ul style="list-style-type: none"> ■ Ensure that the IP address, admin ID, and admin password are correct. ■ Ensure that the required information has been provided as values of the following IT resource parameters: <ul style="list-style-type: none"> 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 <p>The required information also includes other process data, such as the user ID.</p>
<p>User not present</p> <p>Returned Error Message:</p> <p>User does not exist</p> <p>Returned Error Code:</p> <p>GW_USER_DOESNOT_EXIST</p>	<p>The specified user ID does not exist in Novell eDirectory.</p>
<p>Mailbox not present</p> <p>Returned Error Message:</p> <p>Mailbox does not exist</p> <p>Returned Error Code:</p> <p>GW_MAILBOX_DOESNOT_EXIST</p>	<p>The specified mailbox does not exist in Novell GroupWise.</p>
<p>Mailbox already present</p> <p>Returned Error Message:</p> <p>Mailbox already exists</p> <p>Returned Error Code:</p> <p>GW_MAILBOX_ALREADY_EXISTS</p>	<p>The specified mailbox already exists in Novell GroupWise.</p>

Problem Description	Solution
PostOffice 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.
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 have to 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	Some unknown error has occurred. 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	Some unknown error has occurred. 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	Some unknown error has occurred. Review the log file to determine the exact error.

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

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 a `[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.

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