

# Novell DirXML® Driver for GroupWise®

2.1.1

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IMPLEMENTATION GUIDE

August 3, 2004



Novell®

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DirXML Driver for GroupWise Implementation Guide

[August 3, 2004](#)

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# About This Guide

This guide is for Novell® eDirectory™, DirXML®, and GroupWise® administrators who are using the DirXML Driver for GroupWise.

The driver provides data integration between users in eDirectory and GroupWise accounts in the GroupWise domain. For example, the driver can create e-mail accounts automatically when an employee is hired. The driver can also disable an e-mail account when a user is no longer active. This configurable solution gives organizations the ability to increase productivity and streamline business processes by integrating GroupWise and eDirectory.

The guide contains the following sections:

- ♦ Chapter 1, “Introducing the DirXML Driver for GroupWise,” on page 9
- ♦ Chapter 2, “Installing and Configuring the DirXML Driver for GroupWise,” on page 13
- ♦ Chapter 3, “Using Policies and Filters,” on page 29
- ♦ Chapter 4, “Troubleshooting the DirXML Driver for GroupWise,” on page 51
- ♦ Appendix A, “Class and Attribute Descriptions,” on page 55
- ♦ Appendix B, “Upgrading from the 1.0a Version of the Driver,” on page 61

## Additional Documentation

For documentation on using DirXML and the other DirXML drivers, see the [Identity Manager Documentation Web site \(http://www.novell.com/documentation/lg/dirxml20\)](http://www.novell.com/documentation/lg/dirxml20).

## Documentation Updates

For the most recent version of this document, see the [Drivers Documentation Web site \(http://www.novell.com/documentation/lg/dirxmldrivers/index.html\)](http://www.novell.com/documentation/lg/dirxmldrivers/index.html)

## Documentation Conventions

The term *driver* refers to all components of the DirXML Driver for GroupWise and not to any one particular component.

In this documentation, a greater-than symbol (>) is used to separate actions within a step and items within a cross-reference path.

A trademark symbol (®, ™, etc.) denotes a Novell trademark. An asterisk (\*) denotes a third-party trademark.

## User Comments

We want to hear your comments and suggestions about this manual and the other documentation included with Novell Nsure™ Identity Manager. To contact us, send e-mail to [proddoc@novell.com](mailto:proddoc@novell.com).



# 1

## Introducing the DirXML Driver for GroupWise

The DirXML<sup>®</sup> Driver for GroupWise<sup>®</sup> is designed to synchronize user data between Novell<sup>®</sup> eDirectory<sup>™</sup> and GroupWise, and to manage GroupWise accounts and account information. When a user in eDirectory is modified, created, renamed, moved, or deleted, the driver synchronizes the changes with the GroupWise account.

Because eDirectory is the authoritative data source, any data created, modified, renamed, and deleted in eDirectory synchronizes to GroupWise.

The driver runs on the Linux\*, Windows\* NT\*/2000/XP and NetWare<sup>®</sup> platforms. When used in conjunction with the Remote Loader, the driver can connect to a domain database on the Solaris platform.

### New Features

The following section contains information about the new driver features, as well as new features provided in Novell Nsure<sup>™</sup> Identity Manager.

#### Driver Features

This version of the driver provides the following new functionality:

- ◆ You can now install the driver locally on Linux.
- ◆ A driver running on NetWare server can connect to a domain on a remote NetWare server.
- ◆ A new matching rule has been added, as well as new classes and attributes to the schema.
- ◆ You can now synchronize eDirectory groups with GroupWise distribution lists.
- ◆ You can generate <add> events to create nicknames.
- ◆ You can Modify Global Configuration Values (GCVs) to control driver behavior.
- ◆ You can obtain record counts from <query> operations.

#### Identity Manager Features

For more information on the new features of Identity Manager, refer to the *Nsure Identity Manager 2 Administration Guide* (<http://www.novell.com/documentation/lg/dirxml20/admin/data/alxnk27.html>).

### Methods for Managing GroupWise Accounts

Before the DirXML driver for GroupWise was developed, you managed GroupWise accounts in conjunction with eDirectory entirely with the ConsoleOne<sup>®</sup> GroupWise snap-ins. Now, you can

also use the driver to manage certain components of GroupWise accounts. For instance, you can automatically provision new users from eDirectory or your HR system through the use of Identity Manager.

We recommend that you make account changes in eDirectory. You should use either iManager or ConsoleOne (without the GroupWise snap-ins) to administer users in eDirectory, then let the driver synchronize any changes into GroupWise.

Do not use the ConsoleOne GroupWise snap-ins for anything the driver is configured to do. When you have the driver installed, if you manage GroupWise user accounts with the ConsoleOne GroupWise snap-ins, it results in redundant synchronization of data because data changes are synchronized by both the snap-ins and the driver. Redundant synchronization of data might result in warnings or errors in the Identity Manager logs. However, these warnings or errors can usually be ignored.

**IMPORTANT:** If you create eDirectory users with ConsoleOne, be sure to use a ConsoleOne without the GroupWise snap-ins installed. The ConsoleOne snap-ins for GroupWise operate after the driver and remove some vital data from eDirectory. This has been fixed in the snap-ins released with GroupWise 6.5.

You should use the GroupWise ConsoleOne snap-ins to manage these components of GroupWise accounts:

- ◆ Distribution List administration
- ◆ GroupWise system-wide parameters, such as nickname expiration date
- ◆ X.400 information
- ◆ Resources
- ◆ Mailbox library maintenance
- ◆ Client options and preferences
- ◆ Grafting
- ◆ Backup and restore

## Driver Components

The driver uses the following components:

- ◆ GroupWise API
- ◆ Driver shim
- ◆ Driver configuration

### GroupWise API

This API is necessary for the driver to perform the required actions in GroupWise. This API is installed together with the driver shim.

### Driver Shim

A Java\* driver shim that communicates between the DirXML engine and the GroupWise API. This driver shim is installed together with the GroupWise API.

## Driver Configuration

This XML file contains all eDirectory objects necessary for the driver, including the appropriate policies for adding, modifying, and deleting or disabling GroupWise accounts. In addition, the driver configuration file controls the information being sent from eDirectory to GroupWise. The driver configuration file should be installed to the computer where your management tool (iManager) resides.

## Publisher Channel Issues

Objects in eDirectory also contain GroupWise attributes. The driver filter specifies the classes and attributes that GroupWise publishes to eDirectory. We do not recommend making changes to the driver filter regarding which attributes are published to eDirectory.

## Subscriber Channel Issues

GroupWise accounts are administered through eDirectory. Driver customizations are usually done in the Subscriber channel or at the driver level. The Subscriber channel receives commands from the DirXML engine and executes those commands in GroupWise. The Subscriber channel is used to synchronize eDirectory events with GroupWise. It watches for additions, modifications, renames, moves, and deletes in eDirectory and creates events in GroupWise to reflect those changes.

You can add to the base configuration that comes with the driver. However, do not remove or modify preconfigured attributes from the Subscriber filter or the Mapping policy.



# 2

## Installing and Configuring the DirXML Driver for GroupWise

This section helps you do the following:

- ◆ “Meeting the Requirements for the Driver” on page 13
- ◆ “Planning for the Installation” on page 13
- ◆ “Installing the Driver” on page 20
- ◆ “Upgrading from the 2.1 Version of the Driver” on page 23
- ◆ “Post-Installation Tasks” on page 24
- ◆ “Additional Considerations” on page 26

### Meeting the Requirements for the Driver

This section lists the software requirements for the DirXML<sup>®</sup> Driver for GroupWise<sup>®</sup>.

- Novell Nsure™ Identity Manager 2 DR1
- Novell Client™ 4.9 or later for Windows NT/2000
- We recommend using GroupWise 6.5

You can use earlier versions of GroupWise, but some new features may not be supported in earlier releases.

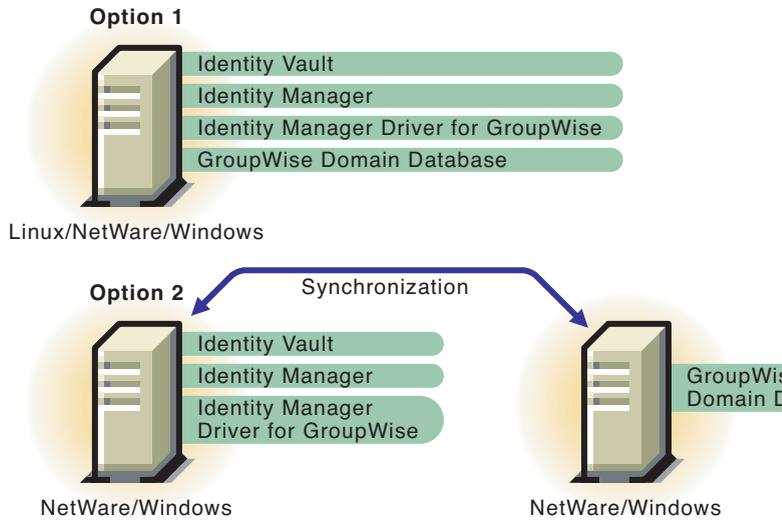
### Planning for the Installation

Before you install and use the driver, you must plan a local or remote installation and define user accounts for GroupWise driver access.

### Understanding a Local Installation

A local installation installs the driver on the same Windows NT/2000, Linux, or NetWare<sup>®</sup> computer where you installed Identity Manager and eDirectory™. The GroupWise domain database can either be on the same computer or a different computer.

## Local System Configuration



If . . .	Then . . .
The GroupWise driver is running on a NetWare server. . .	The GroupWise server (domain database) must also exist on NetWare.
The GroupWise driver is running a Linux server. . .	The GroupWise server (domain database) must be on the same server.

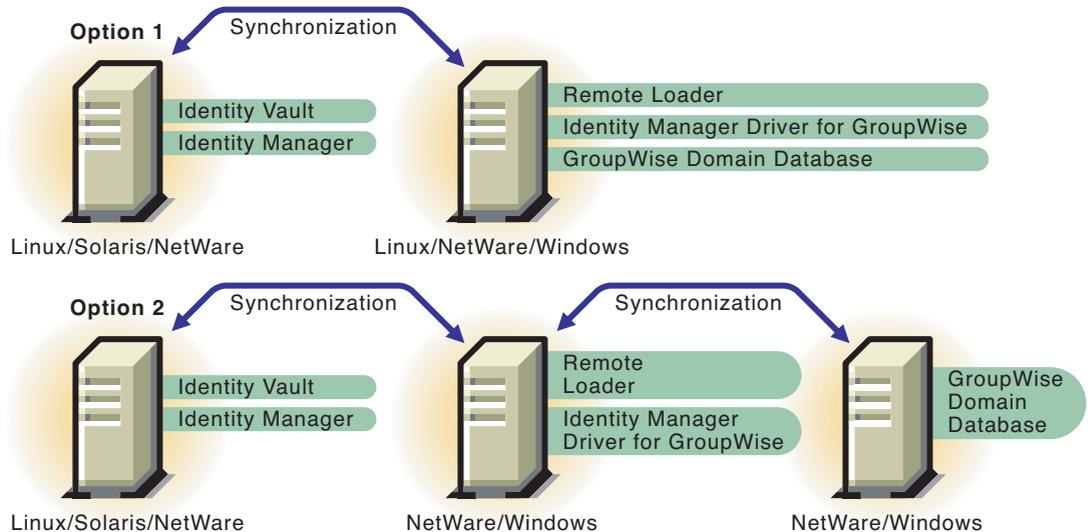
NOTE: NFS or any other type of mounted file system is not supported if the GroupWise driver connects to it. For example, the GroupWise driver running on Linux should not connect to a domain database on another server through a mounted file system; or a domain database on a Linux server should not be accessed by a GroupWise driver running on any other server, regardless of the operating system.

## Understanding a Remote Installation

A remote installation installs the driver on a different computer than the one where Identity Manager and eDirectory are installed. You should use this configuration when Identity Manager and eDirectory are installed on a Solaris\* platform. The driver is installed with the Remote Loader on a Linux, NetWare, or Windows NT/2000 system. The GroupWise domain database can be on any of the systems or on a separate system.

GroupWise can be installed on a separate system, on the system where the DirXML engine resides, or on the driver system (two-system installation); or all components can be installed on a single Linux, NetWare, or Windows NT/2000 system.

## Remote System Configuration



## Configuring Driver Authentication

In order for the driver to authenticate to the GroupWise domain, the driver must first authenticate to its local operating system, and then authenticate to the system holding the GroupWise domain. (If the driver is on the same computer as the domain database or running on Linux, you do not need to configure authentication.)

As part of configuring authentication, you create the same username and password on each system, and assign the account administrative rights.

**IMPORTANT:** To establish a connection between systems, you must create user accounts with the same username and password for each system.

The following topics help you configure authentication:

- ♦ [“Creating a User Account for the System Containing the Driver for Windows NT/2000/XP” on page 15](#)
- ♦ [“Creating a User Account for the System Containing the GroupWise Domain” on page 18](#)

### Creating a User Account for the System Containing the Driver for Windows NT/2000/XP

As part of configuring authentication, you should create the same username and password on the system containing the driver, and assign the account administrative rights.

After you have created the user account for the driver system, refer to [“Creating a User Account for the System Containing the GroupWise Domain” on page 18](#).

## Defining an Account when the Driver Is on Windows NT

- 1 From the Start Menu, select Programs > Administrative Tools (Common), then click User Manager.
- 2 Select User > New User, then specify a new username.  
The user name must be the same on both systems.
- 3 Specify a case-sensitive password.  
The password must be the same on both systems.
- 4 Select Password Never Expires, then deselect all other boxes.
- 5 Select Groups, select Add Administrators to the “Member of”, then click OK.  
IMPORTANT: This user should be part of the administrator group.
- 6 Click OK.
- 7 Select the user you just created.
- 8 Select Policies > User Rights.
- 9 Select the Show Advanced User Rights check box.
- 10 Select Log on as a Service from the Rights drop-down list.
- 11 Click Add, then click Show Users.
- 12 Select the user you just created.
- 13 Click Add, then click OK.
- 14 Click OK.
- 15 Close the User Manager window.
- 16 Restart the system.

## Defining an Account when the Driver Is on Windows 2000

- 1 From the Start Menu, click Settings > Control Panel > Administrative Tools, then click Computer Management.
- 2 In the Tree view, open Local Users and Groups.
- 3 Click Users, click Action, then click New User.
- 4 Specify a username, and a case-sensitive password.  
The username and password must be the same on both systems.
- 5 Click Password Never Expires, click Create, then click Close.
- 6 Deselect all other boxes.
- 7 In the Tree view, select Groups.
- 8 Double-click Administrators.
- 9 Click Add.
- 10 Click Add to select the user you just created, then click OK.
- 11 Click OK.
- 12 Close the Computer Management window.

- 13 Select Local Security Policy from the Administrative Tools window.
- 14 Open Local Policies in the Tree view.
- 15 Select User Rights Assignment.
- 16 Double-click Log On As a Service.
- 17 Make sure your user is displayed and has the “effective rights” box checked.
- 18 Select Add, specify the user you just created, click Add, then click OK.
- 19 Click OK.
- 20 Close the Local Security Settings window.
- 21 Close the Administrative Tools window.
- 22 Restart your computer.

### **Defining an Account when the Driver Is on Windows XP**

To define a user account when the driver is on Windows XP:

- 1 From the Start Menu, click Control Panel, Administrative Tools, then click Computer Management.
- 2 In the Tree view, open Local Users and Groups.
- 3 Click Users > Action, then click New User.
- 4 Specify a username, and a case-sensitive password.  
The username and password must be the same on both systems.
- 5 Deselect all boxes except Password Never Expires, click Create, then click Close.
- 6 In the Tree view, select Groups.
- 7 Double-click Administrators.
- 8 Click Add.
- 9 Specify the user you just created, click Check Names to verify the name, then click OK.
- 10 Click OK.
- 11 Close the Computer Management window.
- 12 Open Local Security Policy from the Administrative Tools window.
- 13 Open Local Policies in the Tree view.
- 14 Select User Rights Assignment.
- 15 Double-click Log on As a Service.
- 16 Select Add User or Group, then specify the user you just created.
- 17 Click Check Names to verify the name, then Click OK.
- 18 Click OK.
- 19 Close the Local Security Settings window.
- 20 Close the Administrative Tools window.
- 21 Restart your computer.

## Defining an Account when the Driver Is on Windows 2000 AD Domain Controller

- 1 From the Start Menu, click Settings > Control Panel > Administrative Tools, then click Active Directory Users and Computers.
- 2 In the Tree view, click Users, click Action, click New, then click User.
- 3 Specify the full name, then specify the user login name.  
The user login name is used in the driver configuration. The user name must be the same on both systems.
- 4 Click Next.
- 5 Specify a case-sensitive password.  
The password must be the same on both systems.
- 6 Select Password Never Expires.
- 7 Click Next, then click Finish.
- 8 In the Tree, select Builtin, click Administrators > Members, then click Add.
- 9 Select the full name of the user you entered in step 3, click Add, then click OK.
- 10 Click OK.
- 11 Close the Active Directory Users and Computers window.
- 12 In the Administrative Tools window, select Domain Controller Security Policy.
- 13 In Tree, expand the Security Settings, click Local Policies, then User Rights Assignment.
- 14 Select Log On As a Service and select Define These Policy Settings. Click Add twice, then click Browse.
- 15 Browse to and select the user you created in step 3. Click Add, click OK, then click OK again.
- 16 Click OK and close the Domain Controller Security Policy window.
- 17 In the Administrative Tools window, select Local Security Policy.
- 18 In Tree, expand Local Policies, then click User Rights Assignment.
- 19 Select Logon as a service, select Local Policy Settings for the user created in step 3, then click OK.
- 20 Close the Local Security Policy window.
- 21 Restart the system.

## Creating a User Account for the System Containing the GroupWise Domain

As part of configuring authentication, you should create a username and password on the system containing the GroupWise domain and assign the account administrative rights.

**IMPORTANT:** To establish a connection between the driver and the GroupWise domain system, you should create user accounts with the same username and password for each system.

If the GroupWise domain exists on Linux, and the driver is on Windows NT/2000, the Linux account must be created in Samba. For all other platforms, use the following instructions.

If you have not created the user account for the driver system, refer to [“Creating a User Account for the System Containing the Driver for Windows NT/2000/XP” on page 15](#). (If the driver runs on Linux or NetWare, you do not need to create this user account.)

## **Defining an Account when the GroupWise Domain Is on Windows NT**

- 1 From the Start Menu, select Programs > Administrative Tools (Common) > User Manager.
- 2 Select User > New User > specify a name.  
The user name must be the same on both systems.
- 3 Specify a case-sensitive password.  
The password must be the same on both systems.
- 4 Select Password Never Expires and deselect all other boxes.
- 5 Select Groups > Add Administrators to the “Member of”, then click OK twice.
- 6 Click OK to close the User Manager window.
- 7 Double-click the My Computer icon on the desktop.
- 8 Right-click the drive that contains the GroupWise Domain > Properties > Sharing.
- 9 Select New Share.
- 10 Specify a share name to be used by the drive.
- 11 Restart the system.
- 12 Select Permissions > Everyone > Remove menu.
- 13 Select Add.
- 14 Select the user you added above.
- 15 Click Add, then click OK.
- 16 Select Permissions: Full Control, then click OK three times.
- 17 Restart the system.

## **Defining an Account when the GroupWise Domain Is on Windows 2000**

- 1 From the Start Menu, click Settings > Control Panel > Administrative Tools > Computer Management.
- 2 In the Tree view, open Local Users and Groups > Users > Action > New User.
- 3 Specify a username.  
The username must be the same on both systems.
- 4 Specify a case-sensitive password.
- 5 Select Password Never Expires, and then deselect all other boxes.
- 6 Click Create, then click Close.
- 7 Close the Windows Manager window.
- 8 Double-click the My Computer icon on the desktop.
- 9 Right-click the drive that contains the GroupWise Domain > Properties > Sharing.
- 10 Select New Share.
- 11 Specify a share name to be used by the drive.
- 12 Restart the system.
- 13 Select Permissions > Everyone > Remove menu.

- 14 Select Add.
- 15 Select the user you added above.
- 16 Click Add, then click OK.
- 17 Select Permissions: Full Control, then click OK three times.
- 18 Restart the system.

### **Defining an Account when the GroupWise Domain Is on NetWare**

If the driver is running on NetWare or Windows NT/2000 and the GroupWise domain is on a remote NetWare server, it's especially important to verify that this user has rights to the GroupWise directory tree. If access is not granted to this user, changes do not replicate to the rest of the GroupWise system.

- 1 In ConsoleOne, create a user in NetWare with the same username and password as the Windows user account.
- 2 Give the user Read, Write, Create, Erase, Modify, and File Scan access to the GroupWise primary domain directory and subdirectories.

## **Installing the Driver**

You install the driver as part of the Novell Nsure Identity Manager 2 installation program. For installation instructions, refer to the *Novell Nsure Identity Manager 2 Administration Guide* (<http://www.novell.com/documentation/lg/dirxml20/index.html>).

This section explains how to import the driver configuration for the DirXML Driver for GroupWise. Importing the driver configuration also creates the driver object. After you have imported the configuration, you can use iManager to configure and manage the driver.

In this section, you will find information for:

- ♦ “Importing the Driver Configuration” on page 20
- ♦ “Viewing Driver Parameters” on page 21
- ♦ “Modifying Global Configuration Values” on page 22
- ♦ “Activating the Driver” on page 24

## **Importing the Driver Configuration**

The Create Driver Wizard helps you import the basic driver configuration file for GroupWise. This file creates and configures the objects and policies needed to make the driver work properly. The following instructions explain how to create the driver and import the driver's configuration.

- 1 In Novell iManager, click DirXML Utilities > Create Driver.
- 2 Select a driver set.  
If you place this driver in a new driver set, you must specify a driver set name, context, and associated server.
- 3 Select Import a Driver Configuration from the Server, then select GroupWise.xml.  
The driver configuration files are installed on the Web server when you install Identity Manager. During the import, you will be prompted for the driver's parameters and other

information. Depending on the configuration options you select, you will be prompted for some combination of the following information:

- ◆ Driver name
  - ◆ Whether or not to use Role-based Entitlements
  - ◆ The DN of the default GroupWise post office
  - ◆ The version of the GroupWise Domain database
  - ◆ The server OS of the driver and the server OS of the GroupWise domain
  - ◆ Whether or not to run the driver locally or remotely
  - ◆ The name or address of the server containing the GroupWise primary domain
  - ◆ The path to the directory containing the GroupWise primary domain database
  - ◆ The username the driver uses to authenticate to the remote server containing the GroupWise domain database
  - ◆ The password for the username
  - ◆ The eDirectory context of the username
  - ◆ What action you want the GroupWise driver to take when an eDirectory user is created with a GroupWise account entitlement
  - ◆ What action you want the GroupWise driver to take when an eDirectory user is disabled with a GroupWise account entitlement
  - ◆ The host name or IP address and port number where the Remote Loader Service runs
  - ◆ The Driver Object password used by the Remote Loader Service
  - ◆ The Remote Loader password
- 4 After entering the import parameters, click OK to import the driver.

When the import is finished, you can define security equivalences and exclude administrative roles from replication.

The driver object must be granted sufficient eDirectory rights to any object it reads or writes. You can do this by granting Security Equivalence to the driver object. The driver must have Read/Write access to users, post offices, resources, and distribution lists, and Create, Read, and Write rights to the post office container. Normally, the driver should be given security equal to Admin.

- 5 Review the driver objects in the Summary page, then click Finish.

Keep in mind that installing the driver software lets you get the driver up and running, but it does not install the product license. Without the license and activation, the driver will not run after 90 days. For more information, refer to [“Activating Novell Identity Manager Products”](#).

## Viewing Driver Parameters

During the driver import process, you entered the driver configuration values. Use the following procedure to view or modify these values.

- 1 In iManager, click DirXML Management > Overview.
- 2 Browse to the driver set where the GroupWise driver exists.
- 3 Click the driver status icon, then click Edit Properties.

- 4 Click the Driver Configuration tab, then modify any of the parameters.

## Modifying Global Configuration Values

Global configuration values (GCVs) are new settings that are similar to driver parameters. Global configuration values can be specified for a driver set as well as an individual driver. If a driver does not have a GCV, the driver inherits the value for that GCV from the driver set.

GCVs allow you to specify settings for new Identity Manager features such as password synchronization and driver heartbeat, as well as settings that are specific to the GroupWise driver. For more information, refer to [“Using Global Configuration Values”](#) in the *Novell Nsure Identity Manager 2 Administration Guide*.

- 1 In iManager, click DirXML Management > Overview.
- 2 Browse to the driver set where the GroupWise driver exists.
- 3 Click the driver status icon, then click Edit Properties.
- 4 Click the Global Config Values tab, then modify any of the following GCVs.

GCV Name	Description
GroupWise Domain Database Version	The version of the GroupWise domain database to which this driver should connect.
Synchronize Groups	Select True if you want this driver to synchronize eDirectory groups to GroupWise distribution lists. Otherwise, select False.
Create Nicknames	Select True to specify that the driver creates GroupWise nicknames when GroupWise accounts are renamed or moved to another post office. Otherwise, select False.
Reassign Resource Ownership	Select True to specify that this driver should reassign ownership of resources when GroupWise accounts are disabled or expired. Otherwise, select False.  If you select True, the resources are assigned to the default User ID you specify in the next parameter. This setting does not apply when a GroupWise account is deleted because the resources must be reassigned. The default is False.
Default Resource Owner User ID	Specify the prefix of the default user who will become the new owner of resources that are reassigned. The default is IS_admin.  You must specify this name even when the Reassign Resource Ownership option is False. When a GroupWise Account is deleted, its resources are assigned to this account. If the default User ID does not have a GroupWise account in the post office of the deleted account, an account is created.  IMPORTANT: The driver does not start if a default user prefix is not specified.
Create Accounts During Migration	Select True or False to specify that this driver should create new GroupWise accounts for users without a current account during a migration from eDirectory.  Migration causes Identity Manager to examine every object specified. When an object does not have a driver association, the Create policy is applied. If the object meets the Create rule criteria, the object is passed to the driver as an Add event. Otherwise, when you specify True, the driver creates a GroupWise account. When False is specified, the add event is ignored and the driver issues a warning that this option is set to False. The default value is False.

<b>GCV Name</b>	<b>Description</b>
Action on eDirectory User Delete	When a user is deleted in eDirectory, specify the action you want the driver to take on an associated GroupWise account. Choose from Delete the GroupWise Account, Disable the GroupWise Account, Expire the GroupWise Account, or Disable and Expire the GroupWise Account.
Action on eDirectory User Expire/Unexpire	When a user login in eDirectory is expired/unexpired, specify the action you want the driver to take on an associated GroupWise account. Choose from Expire/Unexpire the GroupWise Account, Disable/Enable the GroupWise Account, or Disable/Enable and Expire/Unexpire the GroupWise Account.
Action on eDirectory User Disable/Enable	When a user login in eDirectory is disabled/enabled, specify the action you want the driver to take on an associated GroupWise account. Choose from Expire/Unexpire the GroupWise Account, Disable/Enable the GroupWise Account, or Disable/Enable and Expire/Unexpire the GroupWise Account.
Remove GW Account from All Distribution Lists on Expire	Select True if you want the driver to remove the GroupWise account from all distribution lists when the account is expired. Otherwise, select False.
Remove GW Account from All Distribution Lists on Disable	Select True if you want the driver to remove the GroupWise account from all distribution lists when the account is disabled. Otherwise, select False.
Publisher Heartbeat Interval	Specify the Publisher channel heartbeat interval in minutes. Enter 0 to disable the heartbeat.
Set the Initial/Default GroupWise Password on Account Creation	If True, the GroupWise initial/default password is set when an account is created. The initial password value is specified in the Create Policy. If False, the initial password is not set.  GroupWise has two passwords, the initial password and regular password. In GroupWise, the initial password is stored in clear text and can be seen by an administrator. The regular password is encrypted and can not be viewed. When set, the regular password is used by GroupWise instead of the initial/default password. When a GroupWise user changes his or her password, it is stored as the regular password. In the interest of security, the initial password is never set to a password sent from eDirectory (nspmDistributionPassword attribute).
Synchronize the eDirectory Password to the GroupWise Regular Password	If True, allows passwords to flow from eDirectory to GroupWise. If False, the regular password is not set. GroupWise has two passwords, the initial password and the regular password.  In GroupWise, the initial password is stored in clear text and can be seen by an administrator. The regular password is encrypted and cannot be viewed. When set, the regular password is used by GroupWise instead of the initial/default password. When a GroupWise user changes his or her password, it is stored as the regular password. In the interest of security, the initial password is never set to a password sent from eDirectory (nspmDistributionPassword attribute).
Connected System or Driver Name	The name of the connected system, application, or DirXML driver. This value is used by the e-mail notification templates.

## Upgrading from the 2.1 Version of the Driver

Use the steps in this section to upgrade from the DirXML Driver 2.1 for GroupWise. You might want to export your existing driver configuration before upgrading. (Your existing driver configurations are converted to the Identity Manager 2 format when you modify policies.)

To upgrade from version 2.1:

- 1 In Novell iManager, click eDirectory Administration > Modify Object.
- 2 Specify the driver object's name, then click OK.

- 3 Scroll down to the Startup Option section, click Manual, then click OK.
- 4 Shut down eDirectory or the Remote Loader.
- 5 Run the Identity Manager 2 installation program and select the GroupWise driver.

You install the driver over the existing 2.1 driver files. This step updates all necessary driver files. Depending on where your iManager server resides, you might need to copy the driver configuration to that server (if it is a remote server.)

- 6 When the installation completes, reboot the computer where the driver exists. Also restart eDirectory or the Remote Loader.
- 7 You should delete GWADJ1.DLL from any DirXML-related directories. If the file exists in any other directory in the search path, you might encounter problems. Do not delete this file from the ConsoleOne® directory.

You should also delete gwenv1a.DLL and xgbas10a.DLL from the Novell\NDS directory after installing the update. Do not remove these files from the \Winnt\system32 directory if they exist there.

- 8 Migrate from eDirectory if the driver set or driver name changed.

## Activating the Driver

Activation must be completed within 90 days of installation or the driver will not run.

For activation information, refer to “Activating Novell Identity Manager Products” in the *Novell Nsure Identity Manager 2 Administration Guide* (<http://www.novell.com/documentation/ig/dirxml20/index.html>).

NOTE: If you are upgrading from the 2.1 version of the driver, you do not need to reactivate the driver.

## Post-Installation Tasks

This section outlines tasks you need to complete after a local or remote installation.

- ◆ “Modifying Policies” on page 25
- ◆ “Modifying Global Configuration Values” on page 22
- ◆ “Starting the Driver” on page 25
- ◆ “Verifying That the Driver is Working Properly” on page 25
- ◆ “Migrating eDirectory Users to GroupWise” on page 26
- ◆ Installation on NetWare

If you installed the driver on the same NetWare server where the GroupWise agents exist and run, you need to modify the autoexec.ncf file. Open the file and locate the following line:

```
SEARCH ADD SYS:\GRPWISE\AGENTS
```

The \GRPWISE\AGENTS directory specifies where the GroupWise agents are installed. Immediately below this line, you should see the following:

```
PROTECT SYS:\GRPWISE\AGENTS\GRPWISE.NCF
```

This SYS line might already exist. If it does, do not add it again, but ensure that “PROTECT” proceeds the command.

You should replace `\GRPWISE\AGENTS` with the path to where the GroupWise agents are installed on your server.

## Modifying Policies

Before you start the driver and use it to synchronize data between eDirectory and GroupWise, you must modify the driver's policies and filters for your specific business rules. See [Chapter 3, "Using Policies and Filters," on page 29](#) for complete information.

## Starting the Driver

- 1 In iManager, click DirXML Management > Overview.
- 2 Do one of the following options:
  - ♦ Click Search Entire Tree to search your entire tree for the Driver set that contains the driver you want to start, then click Search.
  - ♦ Click Search in Container, enter or browse for and select the container that holds the driver you want to start, then click Search.
- 3 Click the DirXML Driver for GroupWise driver status button, then click Start Driver.

NOTE: It is important not to disable the driver. When a driver is disabled, eDirectory events are not cached for the driver.

## Verifying That the Driver is Working Properly

After the driver is installed, the driver configuration is imported, and the rules and style sheets have been customized, you should test the driver to see that it is working properly. (For more information on customizing rules and style sheets, see [Chapter 3, "Using Policies and Filters," on page 29](#).)

Use the following steps to verify that the driver is working properly. When properly installed and configured, the driver synchronizes the changes to GroupWise. Use ConsoleOne with the GroupWise snap-ins to verify that the changes have been synchronized with GroupWise.

To verify the driver is working properly:

- 1 In Novell iManager, click DirXML Management > DirXML Overview.
- 2 Do one of the following options:
  - ♦ Click Search Entire Tree to search your entire tree for the Driver set that contains the driver, then click Search.
  - ♦ Click Search in Container, and enter or browse for and select the container that holds the driver, then click Search.
- 3 Click the DirXML Driver for GroupWise driver status button > click Start Driver.
- 4 Add a new user to eDirectory.

You need to specify only the Name and Surname attributes for this user.
- 5 Open ConsoleOne with the GroupWise snap-ins.
- 6 Verify that a new GroupWise account was created in the correct post office.
- 7 Using Novell iManager, delete the user from eDirectory.

- 8 Using ConsoleOne with the GroupWise snap-ins, verify that the GroupWise account is deleted from the post office.

WARNING: If you create eDirectory users with ConsoleOne, be sure to use a ConsoleOne without the GroupWise snap-ins installed. The ConsoleOne snap-ins for GroupWise follows the driver and removes some vital data from eDirectory. This has been fixed in the snap-ins released with GroupWise 6.5.

## Migrating eDirectory Users to GroupWise

Under most circumstances, eDirectory and GroupWise already contain information prior to the installation of Identity Manager. The Migrate function in Identity Manager lets you select the users in eDirectory, then perform a migration to GroupWise. You can use the migration function to establish the initial association between eDirectory and the GroupWise driver. The driver does not work properly unless you do this. You should also complete a migrate operation if the driver or driver set name changes.

This migration option in Novell iManager lets you select individual users to migrate from eDirectory into GroupWise. The DirXML engine applies all Matching, Placement, and Creation policies and the filter to the objects that you choose to migrate.

To migrate eDirectory users to GroupWise:

- 1 In Novell iManager, click DirXML Management > Overview.
- 2 Browse to the driver object to which you will be migrating data.
- 3 Click Migrate from eDirectory.
- 4 Click Add > select the container or user objects you want to migrate.
- 5 Click OK.

When using this functionality, take into consideration any global configuration setting that controls whether or not GroupWise accounts are created for selected users who don't already have an account.

## Additional Considerations

This section contains information to help you as you use the DirXML Driver for GroupWise.

- ◆ [“Disabling the Driver” on page 27](#)
- ◆ [“Partition Issues” on page 27](#)
- ◆ [“Driver Access Rights and Membership” on page 27](#)
- ◆ [“Managing Distribution Lists from the GroupWise Snap-ins” on page 27](#)
- ◆ [“Synchronizing Group Objects” on page 27](#)
- ◆ [“Removing a GroupWise Account Using the GroupWise Snap-Ins” on page 28](#)
- ◆ [“Re-associating a GroupWise Account with an eDirectory User” on page 28](#)
- ◆ [“User Renames” on page 28](#)
- ◆ [“Migrate from eDirectory” on page 28](#)
- ◆ [“Deleting Users and Accounts Using the GroupWise Snap-Ins” on page 28](#)

## Disabling the Driver

It is important not to disable the driver. When a driver is disabled, eDirectory events are not cached.

## Partition Issues

- ◆ The driver can only access eDirectory objects in the partitions on the server where the driver is installed.
- ◆ Users, post offices, resources, and distribution lists must be in the same partition. (Or, the partitions containing these objects must all have replicas on the server running the driver.)

## Driver Access Rights and Membership

The driver must have read/write access to User objects, post offices, resources, and distribution lists, and create rights to the post office container in eDirectory. Normally, the driver should be given security equal to Admin.

If you are creating external post offices, the driver also needs read/write access to the domain.

## Managing Distribution Lists from the GroupWise Snap-ins

The driver does not manage distribution lists directly and is not aware of the changes to distribution lists. Distribution lists must be managed by the GroupWise snap-ins. Through the user object, any user event can be modified to add or remove the user to or from specific distribution lists. You can also remove the user from all distribution lists.

## Synchronizing Group Objects

If the option to synchronize Groups (creating, deleting, renaming, or making membership changes) is enabled, the driver creates a Distribution List in GroupWise when the user creates a Group in eDirectory and then links the two together. If the Group is renamed, the description modified, or users are added or removed to or from the Group, the driver synchronizes the changes with the Distribution List in GroupWise. This corresponds to similar functionality in the GroupWise snap-ins for ConsoleOne®.

The default Placement policy adds the Distribution Lists to the post office specified when the driver is created. If you want the Distributions Lists to be added to a different post office, or various post offices depending on some criteria, you need to change the placement policy. See [“Specifying Distribution Lists” on page 33](#) for more information.

By default, this occurs for all Groups created in eDirectory. You should add rules to the Create policy to limit what Groups (by containment or attribute value) get processed by the driver.

GroupWise Distribution List objects in eDirectory are not treated this way by the driver. The driver does not respond to changes made to GroupWise distribution lists, because the only way to create, delete, or modify these objects is using the GroupWise snap-ins (and the snap-ins do the synchronization). However, you can add or remove users to or from the GroupWise distribution lists by modifying events on individual users.

## Removing a GroupWise Account Using the GroupWise Snap-Ins

Use the steps in this section if it is necessary to remove the GroupWise account using the GroupWise snap-ins.

1 Do one of the following:

- ◆ If a DirXML association exists, change the state to Disabled.

When the user has a DirXML association to the driver with the state set to Disabled, and an attribute is changed in eDirectory, DirXML disregards the modify request.

- ◆ If a DirXML association does not exist, manually create one, set the associated object ID to any value, then set the state to Disabled.

When the user does not have a DirXML association and an attribute is changed on the eDirectory user, the GroupWise account is re-created. When a user has a DirXML association to the driver with the state set to Disabled, and an attribute is changed in eDirectory, DirXML discards the modify request.

2 Delete the GroupWise account.

3 To re-create the GroupWise account, delete the association.

4 Change an eDirectory attribute on the user that the driver watches for modifications or Resync.

## Re-associating a GroupWise Account with an eDirectory User

Administrators sometimes delete the value of the GroupWise ID attribute (disassociate) from an eDirectory user and then re-associate (graft) it. This action resets the relationship between an eDirectory user and a GroupWise account. This action only involves the GroupWise snap-ins and does not involve the driver. Care should be taken when using this procedure. Changes made to the eDirectory user between the time the GroupWise ID is deleted and the user is re-associated are not synchronized to GroupWise. This is not a recommended procedure. Refer to the GroupWise Documentation for known issues and precautions.

## User Renames

Using the GroupWise snap-ins to rename users is not recommended. However, if the user is renamed using the GroupWise snap-ins, it must be done with GroupWise 6 Support Pack 1 or higher. Otherwise, the driver could generate errors.

## Migrate from eDirectory

For more information, refer to [“Migrating eDirectory Users to GroupWise” on page 26](#).

## Deleting Users and Accounts Using the GroupWise Snap-Ins

You can delete an eDirectory User and the corresponding GroupWise account with the GroupWise snap-ins. The recommended procedure is to remove the user from the authoritative data source and let the driver remove the account from GroupWise. The eDirectory user must have a valid DirXML association to the driver for this to work. The driver might log a warning or error if the account is deleted using the GroupWise snap-ins. The object might have already been removed by the GroupWise snap-ins when the driver tries to delete it.

# 3

## Using Policies and Filters

This section explains how to use and modify policies and filters to synchronize data between Novell® eDirectory™ and GroupWise® according to your specific business rules.

### Using Policies

The DirXML® Driver for GroupWise synchronizes data and events from eDirectory through a series of policies. Policies help Identity Manager make decisions as the documents traverse a channel. A policy might determine that a document needs to be transformed in some way before continuing to the destination. For example, a Create policy specifies that a User object must have a value for the CN attribute, so any attempt to create a User object without a CN value is not allowed by that policy.

The policies in this chapter are examples of the many possible solutions for your company's business rules. The code segments show simple and partial solutions and do not cover all situations and conditions. In addition, the code segments only process the attributes of interest and do not handle other attributes.

### Default Driver Actions

The driver performs several actions by default:

- ♦ The user's eDirectory Common Name (CN) is used as the GroupWise MailboxID when a GroupWise account is created.
- ♦ The driver configuration uses a single post office. All accounts are created in a single post office.

### Modifying Default Settings in Policies and the Filter

You set defaults for policies and filters when you import the driver configuration. If you want to change the default behavior of the driver, we recommend that you make modifications in this order:

1. Modify the driver filter to include additional attributes to be synchronized. See [“Modifying the Driver Filter” on page 30](#) for more information.
2. Modify the Schema Mapping policy to include all attributes to be synchronized. See [“Adding Entries to the Schema Mapping Policy” on page 30](#) for more information.
3. Modify the Subscriber Create policy. See [“Modifying the Create Policy” on page 30](#) for more information.
4. Modify the Placement policy. See [“Modifying Policies” on page 31](#)

## Modifying the Driver Filter

The driver filter contains the eDirectory classes and attributes for the Publisher and Subscriber channels. The purpose of the filter is to define how attributes are shared between systems. All attributes in the driver filter are required for processing, so you should not remove attributes from the filter.

You can, however, make additions to the filter. If you add classes or attributes to the filter, you should append the “merge-authority” string to the added attribute in the Mapping policy.

For example:

```
<filter-attr attr-name="Description" merge-authority="edir"
publisher="ignore" subscriber="sync"/>
```

## Adding Entries to the Schema Mapping Policy

The Schema Mapping policy is contained in the driver object and applies to both the Subscriber and Publisher channel. The purpose of the Schema Mapping policy is to map schema names (particularly attribute names and class names) between the eDirectory namespace and the GroupWise namespace. Do not modify or remove existing entries in the Schema Mapping policy. You can, however, add entries to the Schema Mapping policy.

## Modifying the Create Policy

You modify the Create policy to implement your specific business rules. The Create policy determines whether or not a GroupWise account is created. A Create policy also can perform other modifications to the <add> event, such as providing default values for attributes.

In the driver configuration, the Create policy specifies two required attributes: CN and Surname.

The policy is controlled by a global configuration value (GCV) that sets the initial password to <surname>-<CN>. For more information on GCVs, refer to [“Understanding Global Configuration Values” on page 30](#).

## Modifying the Placement Policy

Matching policies define the minimum criteria that two objects must meet to be considered the same.

## Understanding Global Configuration Values

Global configuration values (GCVs) are new settings that are similar to driver parameters. Global configuration values can be specified for a driver set as well as an individual driver. If a driver does not have a GCV value, the driver inherits the value for that GCV from the driver set.

GCVs allow you to specify settings for new Identity Manager features such as password synchronization and driver heartbeat, as well as settings that are specific to the GroupWise driver. For more information, refer to [“Using Global Configuration Values”](#) in the *Novell Nsure Identity Manager 2 Administration Guide*.

## Modifying Policies

You can modify the existing driver policies to perform additional functionality.

- ◆ “Specifying the GroupWise Post Office” on page 31
- ◆ “Specifying Distribution Lists” on page 33
- ◆ “Removing a User from a Distribution List when He or She is No Longer a Manager” on page 36
- ◆ “Removing a User from All Distribution Lists” on page 37
- ◆ “Setting Defaults for GroupWise Attributes” on page 37
- ◆ “Configuring the GroupWise UserID” on page 38
- ◆ “Creating Mappings for Additional Attributes” on page 38
- ◆ “Getting a Record Count from a Query” on page 38
- ◆ “Deleting the GroupWise User without Deleting the eDirectory User” on page 39
- ◆ “Creating a GroupWise Nickname” on page 39
- ◆ “Creating a GroupWise Nickname Record” on page 40
- ◆ “Specifying a New Resource Owner on an Owner Delete” on page 41
- ◆ “Specifying a New Resource Owner on an Owner Disable or Expire” on page 41
- ◆ “Controlling Creation of GroupWise Accounts” on page 42
- ◆ “Moving Users from One Post Office to Another Post Office” on page 43
- ◆ “Adding Additional Attributes to Be Synchronized” on page 43
- ◆ “Renaming Users” on page 43
- ◆ “Creating a Gateway Alias” on page 45
- ◆ “Querying for a Nickname” on page 45
- ◆ “Querying for a Gateway Alias” on page 47
- ◆ “Querying for Internet EMail Address” on page 47
- ◆ “Synchronizing External Users” on page 48
- ◆ “Specifying an External Post Office in an Add Event” on page 49
- ◆ “Creating External Post Offices” on page 49
- ◆ “Specifying a Non-GroupWise Domain in an Add Event” on page 50

### Specifying the GroupWise Post Office

By default, the GroupWise Subscriber Placement rule puts all new users in the same post office. The Placement policy can also determine the post office based on an attribute value or the eDirectory user container.

The following example, created in Policy Builder, specifies the post office based on the eDirectory container where the user was created.

Description:

Users in sales container are placed in post office 01

Conditions

Select condition structure:

- OR Conditions, AND Groups
- AND Conditions, OR Groups

Append Condition Group

\* Required

**Condition Group 1**

If class name  
 Select operator: equal  
 Compare mode: case insensitive  
 Value: User

**And** If source DN  
 Select operator: in container  
 Value: Novell\GroupWise\Sales

Actions

**Action List**

Do set operation destination DN  
 Enter DN: "Novell\GroupWise\PO1"

Do break

The following graphic shows the policies needed to place users in the Sales container into PO1 and users in the Engineering container into PO2.



## Specifying Distribution Lists

You can automatically add new GroupWise accounts to a distribution list when they are created. Distribution lists are used by organizations to assure that the appropriate individuals are included in various internal communications. Wherever possible, organizations want to automatically assign new employees to these distribution lists so that they can immediately participate in the communications that are relevant to them.

Using a Subscriber Create policy, when an eDirectory user is created, the GroupWise account can be added to a distribution list based on the eDirectory container. When a user is created in the Sales container, the user is added to the Sales Distribution List. When a user is created in the Engineering container, the user is added to the Engineering Distribution List.

The policies in this section, created using Policy Builder, show how to configure the following actions:

- ◆ “Creating a New User as a Member of a Distribution List Based on the User’s eDirectory Container” on page 34
- ◆ “Adding a User to a Distribution List when He or She Becomes a Manager” on page 35
- ◆ “Removing a User from a Distribution List when He or She is No Longer a Manager” on page 36
- ◆ “Removing a User from All Distribution Lists” on page 37

Using Policy Builder, you can use these examples to create similar policies and Distribution Lists for your business rules and environment.

### Creating a New User as a Member of a Distribution List Based on the User's eDirectory Container

#### Rule Builder

Description:

Users in Engr container are placed in the EngrDL distribution list

#### Conditions

Select condition structure:

- OR Conditions, AND Groups
- AND Conditions, OR Groups

#### Append Condition Group

\* Required

	Condition Group 1		
	If class name		
	Select operator:*	equal	
	Compare mode:	case insensitive	
	Value:	User	
	And If source DN		
	Select operator:*	in container	
	Value:	Novell\GroupWise\Engr	

#### Actions

	Action List		
	Do set destination attribute value		
	Enter attribute name:*	Distribution List DN	
	Enter class name:	User	
	Select mode:	add to current operation	
	Select object:	Current object	
	Enter value type:	dn	
	Enter DN:*	"Novell\GroupWise\EngrDL"	
	Do break		

## Adding a User to a Distribution List when He or She Becomes a Manager

### Rule Builder

#### Description:

Add a user to the MgrDL distribution list when made a manager

### Conditions

Select condition structure:

- OR Conditions, AND Groups
- AND Conditions, OR Groups

#### Append Condition Group

\* Required

**Condition Group 1**

If class name

Select operator:\* equal

Compare mode: case insensitive

Value: User

And If operation attribute

Enter name:\* isManager

Select operator:\* changing to

Compare mode: case insensitive

Value: true

### Actions

#### Action List

Do set destination attribute value

Enter attribute name:\* Distribution List DN

Enter class name: User

Select mode: add to current operation

Select object: Current object

Enter value type: dn

Enter DN:\* "Novell\GroupWise\MgrDL"

## Removing a User from a Distribution List when He or She is No Longer a Manager

### Rule Builder

#### Description:

Remove a user from all distribution lists

### Conditions

Select condition structure:

- OR Conditions, AND Groups
- AND Conditions, OR Groups

#### Append Condition Group

\* Required

**Condition Group 1**    

**If**        

Select operator:\* equal 

Compare mode: case insensitive 

Value: User 

### Actions

#### Action List

**Do**        

Enter attribute name:\* Distribution List DN 

Enter class name: User 

Select mode: add to current operation 

Select object: Current object 

## Removing a User from All Distribution Lists

### Rule Builder

Description:  
Remove a user from all distribution lists

### Conditions

Select condition structure:

OR Conditions, AND Groups

AND Conditions, OR Groups

Append Condition Group \* Required

Condition Group 1

If class name

Select operator:\* equal

Compare mode: case insensitive

Value: User

### Actions

Action List

Do clear destination attribute value

Enter attribute name:\* Distribution List DN

Enter class name: User

Select mode: add to current operation

Select object: Current object

## Setting Defaults for GroupWise Attributes

Other attributes can be set in the GroupWise account using the Create policy. Some attributes must be set in both eDirectory and GroupWise. When the eDirectory user object contains a corresponding attribute, it must be set. It is important that attribute values are set in both eDirectory and GroupWise. If the attribute is only set in GroupWise, it could be overwritten with the value in eDirectory. You must customize the driver so that it updates values in eDirectory; the driver does not do this by default.

The following example shows setting the Description attribute (Visibility is another common attribute) in eDirectory and GroupWise. The attribute write-back = "true" causes the attribute to also be written in eDirectory.

```
<?xml version="1.0" encoding="UTF-8"?>
<create-rules>
  <create-rule class-name="User" description="GroupWise Account Required Attributes">
    <!-- Description attribute is given a default value in both eDirectory and in GroupWise
-->
    <required-attr attr-name="Description" write-back="true">
      <value type="String"><![CDATA[eDirectory User synchronized by GroupWise Driver]]></
value>
    </required-attr>
  </create-rule>
</create-rules>
```

## Configuring the GroupWise UserID

The CN attribute in eDirectory is used to name the GroupWise account. You must include this in the Create policy as a required attribute. The CN value from eDirectory can be ignored in the Subscriber Create policy and a CN based on other attributes can be generated. An example code segment from a Create policy is shown below. If you make modifications to this policy, the modify events coming from the engine also need to be modified.

When an attribute used to construct the CN is modified, a GroupWise rename event should be generated via the policies. The UserID must be unique within a post office. If UserID is used to generate Internet EMail Address, it must be unique in the entire GroupWise system. The User ID contains 1 to 256 characters, and cannot contain the following characters: ( ) @ . : , { } \* ". The UserID must be unique within its namespace (UserID shares the same namespace as nicknames, resources, and distribution lists.) Do not use a "mapi" (reserved ID) for this value.

An Output Transformation or Event Transformation policy can monitor the attributes used to build the CN. If one of these attributes changes, a rename event should also be generated. Any attributes used here need to be added to the list of required attributes. In this case, rename events should still be forwarded to the driver with an empty <newname> element. See ["Renaming Users" on page 43](#) for more information.

```
<!--CN is used to set the GroupWise UserID.
Construct a new CN from Given Name.
-->

<xsl:template match="add-attr[@attr-name = 'CN']">
<!-- ignore the current CN and create a new one -->
  <add-attr attr-name="CN">
    <value type="string">
      <xsl:value-of select="../add-attr[@attr-name='Given Name']/value"/>
    </value>
  </add-attr>
</xsl:template>
```

## Creating Mappings for Additional Attributes

You can synchronize any attribute that can be represented as a string in eDirectory with one of twenty GroupWise generic attributes (excluding octet strings and structured attributes). You specify the eDirectory attribute you want to map in the filter. In addition, the eDirectory and GroupWise attribute names must be connected in the Schema Mapping policy.

The Schema Mapping rule code segment below connects the eDirectory attribute Location with the GroupWise attribute 55003. The twenty GroupWise attributes names are 50106 through 50115 and 55002 through 55011. Address book labels can be assigned to these GroupWise attributes through the GroupWise snap-ins. You should configure the same mappings in GroupWise as you do in the driver mappings.

```
<attr-name class-name="User">
  <nds-name>Location</nds-name>
  <app-name>55003</app-name>
</attr-name>
```

## Getting a Record Count from a Query

The following query, sent to the driver, will return the number of users in dom1.po1.

```
<nds dtdversion="1.1" ndsversion="8.6">
  <input>
    <query event-id="query-groupwise" scope="subtree">
```

```

        <search-class class-name="User" />

        <!-- Referenced Domain Name -->
        <search-attr attr-name="50035">
            <value>dom1</value>
        </search-attr>

        <!-- Referenced Post Office Name -->
        <search-attr attr-name="50062">
            <value>pol</value>
        </search-attr>

        <!-- return Record Count-->
        <read-attr attr-name="Record Count" />
    </query>
</input>
</nds>

```

If you remove the post office search attr, it will return the number of users in dom1. If you remove the domain search attr, it will return the number of users in the system. This search can be altered to apply to other search criteria.

## Deleting the GroupWise User without Deleting the eDirectory User

After deleting the user in GroupWise, the driver cleans up the GroupWise attributes in eDirectory. The result is the same as deleting the user with the GroupWise snap-ins and only selecting delete from GroupWise.

You will need to change the match criteria to match the needs of your environment.

```

<!-- delete the GroupWise user and clean up eDirectory when the eDirectory
user has not been deleted -->
<xsl:template match="modify[@class-name='User' and modify-attr[@attr-
name='50000' ]]">
    <delete xmlns:gw="http://www.novell.com/dirxml/gwdriver" gw:original-
event="modify">
        <!-- copy event attributes and association -->
        <xsl:apply-templates select="@*|association" />
    </delete>
</xsl:template>

```

## Creating a GroupWise Nickname

GroupWise nicknames can be automatically created when an eDirectory User is renamed or when a GroupWise account is moved. This is controlled in iManager on the driver through the Global Configuration Value page. When you set this option to True, nicknames are automatically created when an eDirectory rename occurs or when a GroupWise account is moved. When you set this option to False, nicknames are not created. Nickname creation requires GroupWise 6 SP1 or higher agents to be running.

You can override this option by adding code to the Output Transformation policy to specify whether a nickname should be created.

```

<!--
    Override the "Create Nicknames" Driver Option
-->
<xsl:template match="rename">
    <xsl:copy>
        <!-- Create a GroupWise nickname. -->

```

```

        <xsl:attribute xmlns:gw="http://www.novell.com/dirxml/gwdriver" name="gw:create-
nickname">true</xsl:attribute>
        <xsl:apply-templates select="@*|node()" />
    </xsl:copy>
</xsl:template>

```

## Creating a GroupWise Nickname Record

The following examples show two ways to create a nickname record. The first specifies the post office in which the nickname is created in the <dest-dn> attribute (this implies the domain). The second example uses <add-attr> nodes to specify the domain and post office.

The Nickname can contain 1 to 256 characters, and cannot contain the following characters: ()@.:,{}\*". It must be unique within its namespace (nicknames share the same namespace as users, resources, and distribution lists.)

```

<add class-name="GroupWise Nickname" dest-dn="Novell\dirxml\groupwise\xmlPO" event-id="0" >
  <!-- Domain of user this nickname refers to -->
  <add-attr attr-name="50068" >
    <value type="string">xmlDom</value>
  </add-attr>
  <!-- Post Office of user this nickname refers to -->
  <add-attr attr-name="50069" >
    <value type="string">xmlPO</value>
  </add-attr>
  <!-- user this nickname refers to -->
  <add-attr attr-name="50070" >
    <value type="string">Usern1</value>
  </add-attr>

  <!-- name of nickname record -->
  <add-attr attr-name="50073" >
    <value type="string">nn1</value>
  </add-attr>
</add>

```

OR

```

<add class-name="GroupWise Nickname" event-id="0" >
  <!-- Domain of user this nickname refers to -->
  <add-attr attr-name="50068" >
    <value type="string">xmlDom</value>
  </add-attr>
  <!-- Post Office of user this nickname refers to -->
  <add-attr attr-name="50069" >
    <value type="string">xmlPO</value>
  </add-attr>
  <!-- user this nickname refers to -->
  <add-attr attr-name="50070" >
    <value type="string">Usern1</value>
  </add-attr>

  <!-- Domain of nickname record -->
  <add-attr attr-name="50035" >
    <value type="string">xmlDom</value>
  </add-attr>
  <!-- Post Office of nickname record -->
  <add-attr attr-name="50062" >
    <value type="string">xmlPO</value>
  </add-attr>

```

```

<!-- name of nickname record -->
<add-attr attr-name="50073" >
  <value type="string">nn1</value>
</add-attr>
</add>

```

## Specifying a New Resource Owner on an Owner Delete

If the owner of a resource (a conference room, for instance) is deleted, the driver automatically assigns that resource to another owner. You must designate a default user for all resource assignments. At the time the resource is assigned, if the driver detects no default user account, it creates the default user account and assigns the resource to that user.

Through a policy, you can specify an override owner. Using the Output Transformation policy, the eDirectory User delete is selected. The special attribute, gw:resource-owner-dn, is used to notify the shim of the override resource owner. This special attribute is specified on the <delete> element. Resources are always reassigned on a delete. The new owner must already exist in GroupWise and be in the same post office as the user being deleted. If a failure occurs using the override owner, the resources are automatically assigned to the default user specified in the Driver Options. The XSLT code segment is:

```

<!-- User Delete Reassigns GroupWise Resource
  On an eDirectory User delete specify the GroupWise Account
  to reassign the GW resources to.
-->
<xsl:template match="delete[@class-name='User']">
  <!-- copy the delete through -->
  <xsl:copy>
    <!-- Specify the override resource owner on the <delete> -->
    <xsl:attribute xmlns:gw="http://www.novell.com/dirxml/gwdriver"
      name="gw:resource-owner-dn">\GWDRIVERTREE\novell\users\sales\ResourceOwner</
xsl:attribute>
    <!-- copy the rest of the stuff through -->
    <xsl:apply-templates select="@*|node()" />
  </xsl:copy>
</xsl:template>

```

## Specifying a New Resource Owner on an Owner Disable or Expire

If the owner of a resource (a conference room, for instance) is disabled or expired, you can configure the driver to automatically assign that resource to another owner (using GCVs.) In this process, you can designate a default user for all resource assignments. At the time a resource is being reassigned, if the driver detects no default user account, it creates a default user account and assigns it as the resource owner only if the Reassign Resource Ownership driver GCV is set to Yes.

When an eDirectory User Login Disabled attribute is set, the GroupWise resources of the disabled or expired account can be assigned to another GroupWise account. Normally, the new owner is a default user specified in the Default Resource Owner UserID parameter. Through a style sheet, an override owner can be specified. Using the Output Transformation style sheet, the eDirectory User login disable is selected. The special attribute, gw:resource-owner-dn, is used to notify the shim of the override resource owner. This special attribute is specified in the <modify-attr> element.

The resources are assigned to the override owner even when the Reassign Resource Ownership GCV is set to No. The new owner must already exist in GroupWise and be in the same post office as the user being expired. If a failure occurs using the override owner, the resources are automatically assigned to the default user specified in the Driver Options. The XSLT code segments for disabling and expiring are:

```

<!-- When a GroupWise Account is Disabled also specify the GroupWise Account to reassign the

```

```

GW resources to.-->
<xsl:template match="modify-attr[@attr-name='50058']">
  <!-- When Login Disabled is true, reassign the resource -->
  <xsl:if test="add-value//value[.='true']">
    <!-- copy the modify through -->
    <xsl:copy>
      <!-- Specify the override resource owner on the <modify-attr> -->
<xsl:attribute xmlns:gw=http://www.novell.com/dirxml/gwdriver
name="gw:resource-owner-dn">\GWDRIVERTREE\novell\users\sales\ResourceOwner</xsl:attribute>
      <!-- copy the rest of the stuff through -->
      <xsl:apply-templates select="*|node()"/>
    </xsl:copy>
  </xsl:if>
</xsl:template>

<!-- User Expire to GroupWise Expire and Reassign GroupWise Resources
When the eDirectory User Login Expiration Time attribute is modified,
change the GroupWise Mailbox Expiration Time and
specify the GroupWise Account to reassign the GroupWise resources to.
-->
<xsl:template match="modify-attr[@attr-name='Login Expiration Time']">
  <!-- copy the modify through -->
  <xsl:copy>
    <!-- copy all attributes through except for the attr-name -->
    <!-- we'll construct the GroupWise attr-name below -->
    <xsl:apply-templates select="*[name(.) != 'attr-name']"/>
    <!-- now create the attr-name attribute with the GroupWise name -->
    <xsl:attribute name="attr-name">50138</xsl:attribute>
    <!-- Specify the override resource owner on the <modify-attr> -->
    <xsl:attribute name="gw:resource-owner-dn"
      xmlns:gw="http://www.novell.com/dirxml
gwdriver">\GWDRIVERTREE\novell\users\sales\ResourceOwner</xsl:attribute>
    <!-- copy the rest of the stuff through, except for what we have already copied-->
    <xsl:apply-templates select="* | comment() | processing-instruction() | text()"/>
  </xsl:copy>
</xsl:template>

```

## Controlling Creation of GroupWise Accounts

There might be situations where an eDirectory user is created and you do not want to create a corresponding GroupWise account. In addition, not all eDirectory users initially have a GroupWise account. You can use the driver to control the creation of GroupWise accounts.

The recommended way to control the creation of an account is to define whether a GroupWise account is to be created (true/false). For example, the createGroupWiseAccount attribute.

The eDirectory schema must be extended to include the attribute createGroupWiseAccount. When the createGroupWiseAccount attribute is set to true, the GroupWise account is created. When the createGroupWiseAccount attribute is set to false, the GroupWise account is not created. Changing the value from false to true causes the GroupWise account to be created.

The createGroupWiseAccount attribute must be added to the Create policy as a required attribute and also added to the Subscriber Filter.

```

<!-- createGroupWiseAccount is used to control creation of the GroupWise Account -->
<match-attr attr-name="createGroupWiseAccount">
  <value><![CDATA[true]]></value>
</match-attr>

```

## Moving Users from One Post Office to Another Post Office

When a style sheet is not configured to move GroupWise accounts, we recommend that you use the GroupWise 6 snap-ins (or higher) for user moves. If you use an older version of the GroupWise snap-ins, it can cause the driver to generate errors.

When the Output Transformation style sheet is configured to move GroupWise accounts, we recommend that user moves be made in eDirectory and that the driver assign the object to a new post office in GroupWise. The XSLT code segment for the Output Transformation policy is shown below. The dest-dn attribute on the parent element specifies the new post office.

```
<!--
  On an eDirectory User Move add the GroupWise Post Office DN
  based on the User's new container
-->
<xsl:template match="move[@class-name='User']">
  <!-- copy the Move through -->
  <xsl:copy>
    <!-- copy the attributes from the <move> element -->
    <xsl:apply-templates select="@*" />
    <association>
      <xsl:value-of select="association" />
    </association>
    <parent>
      <xsl:attribute name="src-dn">
        <xsl:value-of select="parent/@src-dn" />
      </xsl:attribute>
      <!-- Specify the post office DN based on the container -->
      <xsl:choose>
        <xsl:when test="parent/@src-dn = '\GWDRIVERTREE\Novell\Users\Sales'">
          <xsl:attribute name="dest-dn">
            \GWDRIVERTREE\Novell\GroupWise\Post Offices\Sales PO</xsl:attribute>
          </xsl:when>
        <xsl:when test="parent/@src-dn = '\GWDRIVERTREE\Novell\Users\Engineering'">
          <xsl:attribute name="dest-dn">
            \GWDRIVERTREE\Novell\GroupWise\Post Offices\Engineering PO</xsl:attribute>
          </xsl:when>
        </xsl:choose>
      </parent>
    </xsl:copy>
  </xsl:template>
```

## Adding Additional Attributes to Be Synchronized

You can map up to twenty user eDirectory attributes to generic GroupWise attributes and display them in the address book. For these attributes, you use the ranges 50106-50115 or 55002-55011. You must first add these eDirectory attributes to the filter. Any attribute names you add to the filter must be added to the Schema Mapping policy. You must configure these attributes in the GroupWise snap-ins for these attributes to appear in the GroupWise address book.

## Renaming Users

We recommend that you rename users by changing the naming attribute in eDirectory and letting the driver rename the GroupWise account. When CN is the naming attribute (this is the default), no special style sheet coding is required for a rename process. However, the GroupWise MailboxID can be built from attributes other than CN. When one of these attributes is modified,

the GroupWise account should also be renamed. The XSLT code segment is shown below. In this example, the eDirectory attribute Given Name is used to name the GroupWise account. When Given Name is modified, a GroupWise rename is generated.

The second template below, `<xsl:template match="rename[@class-name='User']">`, handles the case where the eDirectory User object was renamed. In this case the `<rename>` command is passed through to the driver. The empty `<new-name/>` element blocks the driver from renaming the GroupWise account. Even though the GroupWise account is not renamed, the rename event must pass to the driver.

We do not recommend that you use the GroupWise snap-ins to do a rename. However, if the user is renamed using the GroupWise snap-ins, it must be done with GroupWise 6 SP1 or higher. If you use an older version of the GroupWise snap-ins, it can cause the driver to generate errors.

### Example 1

```
<!-- When the attribute used to set CN changes, in this case Given Name, create an element
<new-name> to rename the GroupWise Account
-->
<xsl:template match="modify[@class-name='User']">
  <!-- Given Name is used the for GroupWise CN, when it changes do a rename -->
  <xsl:if test="modify-attr[@attr-name='50091']">
    <!-- Copy the <modify> through so all changes get made -->
    <xsl:copy>
      <xsl:apply-templates select="@*|node()"/>
    </xsl:copy>
    <!-- generate a <rename> -->
    <rename class-name="User">
      <!-- copy the attributes from the <modify-attr> element to the <rename> element -->
      <xsl:apply-templates select="@*"/>
      <!-- The object was not renamed in eDir so use src-dn for src-dn and old-src-dn -->
      <xsl:attribute name="old-src-dn">
        <xsl:value-of select="@src-dn"/>
      </xsl:attribute>
      <!-- copy the children from the <modify> element to the <rename> element -->
      <xsl:apply-templates select="node()"/>
      <new-name>
        <xsl:value-of select="modify-attr[@attr-name='50091']/add-value/value"/>
      </new-name>
    </rename>
  </xsl:if>
</xsl:template>
```

### Example 2

```
<!--
When the User object is renamed in eDirectory, the GroupWise account is not renamed since it
is named by the Given Name attribute
-->
<xsl:template match="rename[@class-name='User']">
  <!-- Copy the rename through except new-name -->
  <xsl:copy>
    <xsl:apply-templates select="@*|node()[name() != 'new-name']"/>
    <!-- <new-name> does not change since the GW account is named by the Given Name
attribute -->
    <new-name/>
  </xsl:copy>
</xsl:template>
```

## Creating a Gateway Alias

The following XSLT code segment shows how to create a gateway alias in the Output Transformation policy. Your code is responsible for generating the value of attributes 50140 and 50077.

```
<xsl:template match="add[@class-name='User']">
  <xsl:copy>
    <xsl:apply-templates select="*" />
    <add-attr attr-name="Gateway Alias">
      <value type="structured">
        <component name="50140"><![CDATA[SMTP]]</component>
        <component name="50077"><![CDATA[UserOne@novell.com]]>
        </component>
      </value>
    </add-attr>
    <xsl:apply-templates select="* | comment() | processing-instruction()
  | text()" />
  </xsl:copy>
</xsl:template>
```

## Querying for a Nickname

The following Output Transformation policy shows how to query for the GroupWise Nickname. The search-attrs in this style sheet are optional. They are used to scope the search. When you specify a Post Office name (50069), you must also specify a Domain name (50068). More than one Nickname can be returned.

For example, User2a is renamed to User2b, then renamed to User2c. There will be two Nickname records (User2a and User2b) which both reference User2c.

This code sample queries the User of the current event for nicknames. You should use a different match criteria.

```
<xsl:template match="modify[@class-name='User']">
  <xsl:copy>
    <xsl:apply-templates select="*|node()" />
  </xsl:copy>
  <xsl:variable name="query">
    <nds dtdversion="1.0" ndsversion="8.5">
      <input>
        <query class-name="{@class-name}" event-id="query-groupwise" cope="entry">
          <association>
            <xsl:value-of select="association" />
          </association>
          <!-- User Domain Name -->
          <read-attr attr-name="50035" />
          <!-- User Post Office Name -->
          <read-attr attr-name="50062" />
          <!-- User Object Name -->
          <read-attr attr-name="50073" />
        </query>
      </input>
    </nds>
  </xsl:variable>
  <xsl:variable name="gw-data" select="query:query($destQueryProcessor, $query)//instance" />
  <xsl:variable name="query2">
    <nds dtdversion="1.0" ndsversion="8.5">
      <input>
        <query event-id="query-groupwise" scope="subtree">
```

```

        <search-class class-name="GroupWise Nickname"/>
        <!-- Referenced Domain Name -->
        <search-attr attr-name="50068">
            <value>
                <xsl:value-of select="$gw-data//attr[@attr-name='50035']/value"/>
            </value>
        </search-attr>
        <!-- Referenced Post Office Name -->
        <search-attr attr-name="50069">
            <value>
                <xsl:value-of select="$gw-data//attr[@attr-name='50062']/value"/>
            </value>
        </search-attr>
        <!-- Referenced Object Name -->
        <search-attr attr-name="50070">
            <value>
                <xsl:value-of select="$gw-data//attr[@attr-name='50073']/value"/>
            </value>
        </search-attr>
        <!-- Domain Name of Nickname Record -->
        <read-attr attr-name="50035"/>
        <!-- Post Office Name of Nickname Record -->
        <read-attr attr-name="50062"/>
        <!-- Object Name of Nickname Record -->
        <read-attr attr-name="50073"/>
    </query>
</input>
</nds>
</xsl:variable>
<xsl:variable name="gw-nickname" select="query:query($destQueryProcessor, $query2)//
instance"/>
</xsl:template>

```

## Result

```

<nds dtdversion="1.1" ndsversion="8.6">
    <source>
        <product build="20020409_1220" instance="GroupWise ZDS Driver" version="1.0a Beta">DirXML
Driver for GroupWise</product>
        <contact>Novell, Inc.</contact>
    </source>
    <output>
        <instance class-name="GroupWise Nickname" event-id="0">
            <attr attr-name="50035">
                <value type="string">TaoDom</value>
            </attr>
            <attr attr-name="50062">
                <value type="string">TaoPO</value>
            </attr>
            <attr attr-name="50073">
                <value type="string">User2b</value>
            </attr>
        </instance>
        <instance class-name="GroupWise Nickname" event-id="0">
            <attr attr-name="50035">
                <value type="string">TaoDom</value>
            </attr>
            <attr attr-name="50062">
                <value type="string">TaoPO</value>
            </attr>
        </instance>
    </output>
</nds>

```

```

        <attr attr-name="50073">
            <value type="string">User2a</value>
        </attr>
    </instance>
    <status level="success"/>
</output>
</nds>

```

## Querying for a Gateway Alias

The following XSLT code segment shows how to query in the Output Transformation policy for the gateway alias.

```

<xsl:template match="modify[@class-name='User']">
    <xsl:copy>
        <xsl:apply-templates select="@*|node()"/>
    </xsl:copy>
    <xsl:variable name="query">
        <nds dtdversion="1.0" ndsversion="8.5">
            <input>
                <query class-name="{@class-name}" event-id="query-groupwise" scope="entry">
                    <association>
                        <xsl:value-of select="association"/>
                    </association>
                    <read-attr attr-name="Gateway Alias"/>
                </query>
            </input>
        </nds>
    </xsl:variable>
    <xsl:variable name="gw-aliases" select="query:query($destQueryProcessor, $query)//instance"/> </xsl:template>
</xsl:template>

```

## Result

```

<nds dtdversion="1.0" ndsversion="8.5">
    <source>
        <product version="1.0 SP1 Beta, 20020307_1205">GroupWise ZDS Driver</product>
        <contact>Novell, Inc.</contact>
    </source>
    <output>
        <instance class-name="User" event-id="0" src-dn="TaoDom.TaoPO.User1{106}DFD036A0-0776-0000-A246-4100F0001300">
            <association>TaoDom.TaoPO.User1{106}DFD036A0-0776-0000-A246-4100F0001300<association>
                <attr attr-name="Gateway Alias">
                    <value type="structured">
                        <component name="50140">SMTP</component>
                        <component name="50077">UserOne@novell.com</component>
                    </value>
                </attr>
            </instance>
            <status level="success"/>
        </output>
    </nds>

```

## Querying for Internet EMail Address

The following XSLT code segment shows how to query in the Output Transformation policy for the Internet Email Address generated by GroupWise.

```

<xsl:template match="modify[@class-name='User']">
  <xsl:copy>
    <xsl:apply-templates select="@*|node()"/>
  </xsl:copy>
  <xsl:variable name="query">
    <nds dtdversion="1.0" ndsversion="8.5">
      <input>
        <query class-name="{@class-name}" event-id="query-groupwise" scope="entry">
          <association>
            <xsl:value-of select="association"/>
          </association>
          <read-attr attr-name="Internet EMail Address"/>
        </query>
      </input>
    </nds>
  </xsl:variable>
  <xsl:variable name="inet-address" select="query:query($destQueryProcessor, $query)//
instance"/>
</xsl:template>

```

## Results

```

<nds dtdversion="1.1" ndsversion="8.6">
  <source>
    <product build="20020502_1251" instance="GroupWise Driver"
      version="1.0a Beta">DirXML Driver for GroupWise</product>
    <contact>Novell, Inc.</contact>
  </source>
  <output>
    <instance class-name="User" event-id="0"
      src-dn="TaoDom.TaoPO.User2{106}5B8C40F0-0E79-0000-9ADA-350037009300">
      <association>TaoDom.TaoPO.User2{106}5B8C40F0-0E79-0000-9ADA-350037009300</association>
      <attr attr-name="Internet EMail Address">
        <value type="string">User2@domain.com</value>
      </attr>
    </instance>
    <status level="success"/>
  </output>
</nds>

```

## Synchronizing External Users

In your business, you might have several different e-mail applications. Although not all employees will have GroupWise e-mail accounts, you want the GroupWise address book to contain all employee information. The driver has the ability to create GroupWise external users, which enables the driver to obtain data from other e-mail systems (via eDirectory) and display it in the GroupWise address book. eDirectory users can be linked to GroupWise external users.

If you are using multiple e-mail systems (GroupWise and NetMail/Notes/Exchange) you can create external users and external post offices to add the users in the non-GroupWise systems to the GroupWise address book.

To synchronize data between external e-mail systems and GroupWise, your implementation must meet the following conditions:

- ◆ External users must be assigned to or be created in an external post office.
- ◆ External post offices must belong to a non-GroupWise domain.

The default driver configuration does not include this customization. To implement this functionality, you should make appropriate changes to your filters, rules, and style sheets based on your business processes.

TIP: In the `\\nt\dirxml\drivers\groupwise\extensions` directory of the software, you can find examples of how to implement this solution. These are samples only and not intended for production use; customization is required. If users are in a tree other than where the GroupWise users are, you can use the simple example. If the GroupWise and non-GroupWise users are in the same tree, use the merged example.

## Creating External Users

There are two ways you can specify placement when creating external users:

- ◆ In the Placement rule, you can specify the DN of an eDirectory object associated with the external post office. For additional information, refer to [“Creating External Post Offices” on page 49](#).
- ◆ Identify the external post office by [“Specifying an External Post Office in an Add Event” on page 49](#).

You must modify the Schema Mapping policy or Output Transformation policy so that it modifies the class name of the user based on some criterion, such as the parent container name.

IMPORTANT: When creating accounts in eDirectory for a non-GroupWise user, the user's class name must become GroupWise External User before the driver receives the event.

When a new GroupWise External User is added to GroupWise, the driver creates an association on the eDirectory user. If the non-GroupWise user's information changes in eDirectory, the driver synchronizes those changes to GroupWise. If the association key is altered or deleted, the connection is broken, and the driver does not synchronize any changes made to the eDirectory user to GroupWise.

## Specifying an External Post Office in an Add Event

If you do not use the driver to create an external post office, you need to generate the following information in the XML Add event. You must replace the external post office name and non-GroupWise domain values with names specific to your system.

```
<!-- The external post office name to which the user belongs. -->
  <add-attr attr-name="50062">
    <value type="string"><![CDATA[External post office name]]></value>
  </add-attr>

<!-- The non-GroupWise domain name to which the external post office belongs.
-->
  <add-attr attr-name="50035">
    <value type="string"><![CDATA[Non-GroupWise domain name]]></value>
  </add-attr>
```

NOTE: If you include the additional XML in the Add event, the value in your Placement policy is overridden.

## Creating External Post Offices

There are two ways you can create external post offices:

- ◆ Let the driver create a GroupWise external post office and associate it to an eDirectory object, such as an Organizational Unit (recommended).
- ◆ Create an external post office through ConsoleOne®.

If you want the driver to create an external post office, you should modify the Schema Mapping policy or Output Transformation policy so that it changes the class name to GroupWise External Post Office.

NOTE: Before you can create an external post office, you must create a non-GroupWise domain in ConsoleOne.

There are two ways you can specify placement when creating external post offices:

- ◆ In the Placement policy, you can specify the name of the non-GroupWise domain in which to create the external post office.
- ◆ Identify the non-GroupWise domain by generating XML code to specify the non-GroupWise domain. For additional information, refer to [“Specifying a Non-GroupWise Domain in an Add Event” on page 50](#).

### Specifying a Non-GroupWise Domain in an Add Event

You can generate the following information in the XML Add event. You must replace the non-GroupWise domain value with the name specific to your system.

```
<!-- The non-GroupWise domain name to which the external post office belongs.
-->
    <add-attr attr-name="50035">
        <value type="string"><![CDATA[Non-GroupWise domain name]]></value>
    </add-attr>
```

NOTE: If you include the additional XML in the Add event, the value in your Placement policy is overridden.

If you associate the external post office with an Organizational Unit, you must also map the OU attribute to the CN attribute for the Organizational Unit class, and the driver will use that attribute value for the post office name.

NOTE: The Schema Mapping policy has a mapping for the OU attribute on the User class. Do not change the User class mapping.

When creating external users, you should use the DN of the Organizational Unit in the Placement policy. When an external post office is added, you should specify the GroupWise domain to which the external post office belongs:

When you create an external post office with the driver, GroupWise uses the default time zone setting on the non-GroupWise domain. If you want to change the time zone setting for the post office, generate the following XML in the Add event. Insert the appropriate time zone value in place of "EST."

```
<add-attr attr-name="50088" >
    <value type="string">EST</value>
</add-attr>
```

# 4

## Troubleshooting the DirXML Driver for GroupWise

This section explains how to troubleshoot the DirXML<sup>®</sup> Driver for GroupWise<sup>®</sup>.

### Viewing Driver Errors in the DS Trace Screen

For each event or operation received from the engine, the driver returns an XML document containing a status report in DS Trace. If the operation or event is not successful, the status report also contains a text message describing the error condition.

The following table lists values for the status levels:

Status Level	Description
Success	Operation or event was successful.
Warning	Operation or event was partially successful.
Error	Operation or event failed.
Fatal	A fatal error occurred. The driver shuts down.
Retry	Application server was unavailable. Send this event or operation later.

### Understanding Error Text Descriptions

The table below contains errors from the driver that display in the Trace screen. The Error Reason Text column in the table contains the error condition text returned to the DirXML engine in the Trace screen. The Level column in the table specifies the status level. The Description column describes the situations that might cause the condition and possible actions you can take to fix the problem. The status level and error condition text are recorded in the Driver log.

Error Reason Text	Level	Description	Recommended Action
Driver initialization error	Fatal	On driver initialization, no parameters were provided.	

Error Reason Text	Level	Description	Recommended Action
Failure initializing GroupWise	Fatal	<p>During initialization the driver cannot communicate with GroupWise. &lt;text&gt; can be one of the following:</p> <p>Error getting driver DN from src-dn attribute</p> <ul style="list-style-type: none"> <li>♦ The src-dn attribute value in &lt;init-params&gt; did not have a value or the value was not recognized by the driver.</li> </ul> <p>Invalid GroupWise Primary Domain Path initialization parameter</p> <ul style="list-style-type: none"> <li>♦ An invalid format was used to specify the domain path.</li> </ul> <p>Invalid "Admin User ID."</p> <ul style="list-style-type: none"> <li>♦ The value of this parameter cannot be "mapi", which is a reserved ID.</li> </ul> <p>Missing domain path initialization parameter.</p> <ul style="list-style-type: none"> <li>♦ The GroupWise primary domain path has not been specified in the Driver Parameters page in iManager.</li> </ul> <p>Missing "Admin User ID" initialization parameter</p> <ul style="list-style-type: none"> <li>♦ The Admin User ID has not been specified in the Driver Parameters page in iManager.</li> </ul> <p>Invalid character in "Admin User ID."</p> <ul style="list-style-type: none"> <li>♦ An invalid character is used in the Admin User ID in the Driver Parameters page in iManager.</li> </ul> <p>The User ID contains 1 to 256 characters, and cannot contain the following characters: ()@.:{ }*. The UserID must be unique within its namespace (UserID shares the same namespace as nicknames, resources, and distribution lists.) Do not use "mapi" (reserved IDs) for this value.</p> <p>Various text messages.</p> <ul style="list-style-type: none"> <li>♦ JNDI Naming exception, class not found exception, unsatisfied link error (can't load .dll), unable to determine initial context, or domain path not correct.</li> </ul> <p>Unable to make connection with remote server</p> <ul style="list-style-type: none"> <li>♦ Missing or invalid authentication information.</li> <li>♦ Incorrect setup of authentication accounts.</li> </ul>	

Error Reason Text	Level	Description	Recommended Action
GroupWise error	Error	<ul style="list-style-type: none"> <li>◆ Invalid post office specified. Either the post office does not exist or the driver does not have eDirectory access rights (read/write).</li> <li>◆ The parent of an external post office must be an external domain.</li> <li>◆ Invalid post office or domain specified.</li> <li>◆ Query Scope Entry: No base object identified.</li> <li>◆ Requested Query operation is not supported.</li> <li>◆ Unsupported Class. The driver received an event for an object other than a Novell® eDirectory™ User object.</li> <li>◆ No username specified. The CN attribute was not specified.</li> <li>◆ java.lang.NullPointerException. The XML document is not correctly formed. It may be syntactically correct, but it doesn't make sense.</li> </ul>	
Unsupported operation	Error	The driver does not understand the XML event.	
Event failed. The DirXML association for this driver has been removed.	Error	The driver received an event for an object without an expected GroupWise ID. This is most likely caused when the GroupWise account is deleted through the GroupWise snap-ins. The driver has removed the DirXML association to the driver in eDirectory for this object.	
Move pending	Retry	When GroupWise is in the process of moving an account from one post office to another, other operations cannot be performed on the account.	
Prior modification pending	Retry	Attempted to move a user to another post office, but previous modifications have not been processed.	
Name already exists in GroupWise	Error	This can occur on an account create, rename, or post office move event.	
Event is for a different system.	Warning (for event)	The received event is not for this GroupWise system and is ignored by the driver. There can be multiple GroupWise systems in a single eDirectory tree. An instance of the driver supports only a single GroupWise system.	Add a rule to allow only items for this GroupWise system.
Event is for a different system.	Error (for query)	The received query is not for this GroupWise system and is ignored by the driver. There can be multiple GroupWise systems in a single eDirectory tree. An instance of the driver supports only a single GroupWise system.	Add a rule to allow only items for this GroupWise system
Error publishing to eDirectory.	Error	<p>GroupWise tried to update attributes in eDirectory for an object. The error message is from DirXML or eDirectory.</p> <p>You might have a GroupWise object without a corresponding object in eDirectory. If the corresponding object does exist in eDirectory, the attribute values in eDirectory might not be correct.</p>	

Error Reason Text	Level	Description	Recommended Action
No commands to execute	Error	An input document without any commands was received. This is a probably a style sheet error, where the style sheet didn't pass any commands through.	
Query posted to publisher failed	Error	This error is generated for the following conditions: <ul style="list-style-type: none"> <li>♦ The driver received a query for an object other than user.</li> <li>♦ The object to be queried does not exist or cannot be read.</li> </ul>	
Waiting for publisher to start	Retry	The Subscriber channel does not process events until the Publisher channel is initialized and running. The Subscriber channel can initialize before the Publisher channel. Normally both channels initialize within a short time.	
Invalid reference to GroupWise	Warning	This error occurred because there is an invalid reference to GroupWise. This is OK if it occurred on a modify event that is generated by eDirectory in response to a move event.  This could also occur if required data is missing, incorrect, invalid, or refers to the wrong type of object. In these cases, the error message includes specific information.	
Password synchronization was not processed	Success	The post office security is set to LDAP Authentication. You cannot set the GroupWise password, which would be ignored.	
Rename or Move	Warning	Rename or Move error: The operation might not be supported with this GroupWise domain version.  An error most likely occurred processing a move or rename. Part of the event might have been processed. Most likely, this operation is not supported in the GroupWise domain version. Please upgrade the GroupWise system.	
eDirectory Error	Retry or Error	This attempt to read from or write to eDirectory failed. See the error message and prior result from eDirectory for more details.	

# A

## Class and Attribute Descriptions

The table in this section lists each Novell® eDirectory™ class and attribute used by the DirXML Driver for GroupWise®. The Secondary Effects column in the table contains information about how the attribute is used, special handling, conversions, and relationships of the attributes to other attributes.

eDirectory Class or Attribute	GroupWise Attribute	Description	Secondary Effects
NDS User			
	50319	Preferred Internet eMail ID	Example: JohnDoe “map!” is not allowed because it is reserved.  This ID must be unique in the entire GroupWise system. It contains 1 to 256 characters, and cannot contain the following characters: ( ) @ . : , { } * “. The ID must be unique within its namespace (UserID, nicknames, resources, and distribution lists share the same namespace.)
	50045	Internet domain name	Example: MyDomain.com
	59028	LDAP authentication ID in typeful format	Example: cn=admin, o=novell
	50013	Preferred Internet address format (numeric value)	0 - Full (Name.PostOffice.Domain@IDomain.com) 1 - Host and User ID (Name.PostOffice@IDomain.com) 2 - User ID (Name@IDomain.com) 3 - Lastname.firstname 4 - Firstname.lastname 5 - No setting (reserved) 6 - First initial and last name
	50320	Disallowed Internet address formats (bit settings)	0 - None 1 - Full 2 - Host 4 - User ID 8 - Lastname.Firstname 16 - Firstname.Lastname 32 - First initial and last name  You should not set this attribute value to bit one. It is an illegal operation to disallow the Full format.  You can “or” values together. For instance, to allow only full name (but disallow all but full name) you would use a value of 62 (0x3E).

eDirectory Class or Attribute	GroupWise Attribute	Description	Secondary Effects
	50157	Exclusive use of Internet domain name	0 = Off (requires setting an Internet domain name--50045) 1 = On (only recognizes the domain name set in Internet domain name--50045)
CN	None	Common Name of a User object.	When a GroupWise account is created or renamed, this value is used to name the GroupWise account and to set NGW: Object ID. For all other operations, this value is ignored.
Given Name	50091	User's first name	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
Surname	50093	User's last name	Synchronizes from eDirectory to GroupWise on create and modify events. This attribute is only used on the Publisher channel when creating a default user for resource reassignment. See the note at the end of this table for additional information about this attribute.
Title	50096	User's title	Synchronizes from eDirectory to GroupWise create and modify events. See the note at the end of this table for additional information about this attribute.
OU	50089	User's department	Synchronizes from eDirectory to GroupWise create and modify events. See the note at the end of this table for additional information about this attribute.
Telephone Number	50095	User's telephone number	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
Facsimile Telephone Number	50145	User's facsimile telephone number	Only synchronizes the telephone number portion from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
Description	50032	Provides additional information.	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
company	55022 50310 for GW 6.5 or later	User's company.	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
Initials	55019 50322 for GW 6.5 or later	Middle initials, up to 8 characters.	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
Generational Qualifier	55020 50323 for GW 6.5 or later	Jr., III, and so forth, up to 8 characters.	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.
personalTitle	55021 50324 for GW 6.5 or later	Dr., Mr., Ms., and so forth, up to 8 characters.	Synchronizes from eDirectory to GroupWise on create and modify events. See the note at the end of this table for additional information about this attribute.

eDirectory Class or Attribute	GroupWise Attribute	Description	Secondary Effects
NGW: Object ID	50073	GW mailbox name. The name must be unique within a post office. The name contains 1 to 256 characters, and can not contain the following characters: ()@.:",{}*.	<p>This attribute takes its value from the CN attribute. The shim writes it via the Publisher channel to eDirectory. It is set when an account is created and modified, and when an account is renamed. Modifying this value might cause the following attributes to be modified:</p> <ul style="list-style-type: none"> <li>♦ Email Address</li> <li>♦ Internet Email Address</li> <li>♦ NGW: GroupWise ID</li> <li>♦ DirXML association key</li> </ul> <p>This attribute should not be modified except as the result of a rename.</p>
NGW: Account ID	50116	Optional field for accounting. It can contain a cost account used for posting charges to this user.	When an account is created, the shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. Normally the driver does not set this value. However, this attribute can be set through the Create rule or Create style sheet. See the note at the end of this table for additional information about this attribute.
NGW: Gateway Access	59001		When an account is created, the shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. Normally the driver does not set this value. However, this attribute can be set through the Create rule or style sheet. See the note at the end of this table for additional information.
NGW: Mailbox Expiration Time	50138		When an account is created, the shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. This attribute can be set through the Create rule or style sheet. For example, the default Output Transformation style sheet uses the eDirectory login expiration time to set this value.
Login Disabled	50058	A Boolean value that indicates whether eDirectory login (authentication) is allowed.	Synchronizes from eDirectory to GroupWise on create and modify events. The shim converts true to 1 and false to 0. Setting the GroupWise 50058 attributes to 1 disables the GroupWise account. See the note at the end of this table for additional information.
Login Expiration Time	None	Date and time when authentication rights expire.	This eDirectory attribute has no corresponding GroupWise attribute. The value of this attribute is used to set the eDirectory attribute NGW: Mailbox Expiration Time and the GW attribute 50138, which are connected through the Schema Mapping rule.
NGW: File ID	50038	Three characters used to name system files for the user. The value must be unique within a post office. This value is set by GroupWise.	This attribute is set in GroupWise by GroupWise when an account is created. The shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. A move operation could cause this attribute to change. This attribute should not be modified in any style sheet.

eDirectory Class or Attribute	GroupWise Attribute	Description	Secondary Effects
NGW: GroupWise ID	None	Uniquely identifies an object in GroupWise. This value is used for the DirXML association.	<p>When an account is created or modified, the shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. A GroupWise move operation or a rename causes this attribute to change. On any modify operation, the shim reads this value through the GroupWise API and, if it has changed, writes it to eDirectory through the Publisher channel. The shim also changes the DirXML association value.</p> <p>This attribute only comes through the Subscriber channel when the GroupWise snap-ins change this value. The shim then changes the DirXML association key.</p> <p>This value, not the association key, is used to read the GroupWise object. If the association key does not match this attribute value, the association key is updated. This is because the GroupWise snap-ins can change this attribute and the GroupWise snap-ins do not update the association key.</p> <p>On all events, except delete, the shim queries eDirectory for this value. If the value does not exist, the event is discarded.</p> <p>If the shim cannot read the GroupWise object using this value, an error is returned to DirXML. This is a rare occurrence.</p>
NGW: Visibility	50076	Visibility is used to specify the databases into which an object should be replicated. Controls whether objects appear in the address book.	This attribute is set in GroupWise by GroupWise when an account is created. The shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory. Normally the driver does not set this value. However, this attribute can be set through the Create rule or style sheet. To set, add code to the Create rule. Use "2" for global visibility, or "4" for no visibility. See the note at the end of this table for additional information about this attribute.
Email Address	None		This attribute is generated by GroupWise on create, rename, or move operations. The shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory.
Internet Email Address	None		This attribute is generated by GroupWise on a create or rename operation, or when any attributes used to generate Internet Email Address are modified. The shim queries GroupWise for this value and writes it via the Publisher channel to eDirectory.
NGW: Post Office	None	DN of the Post Office object.	The driver writes this on create and move operations.
Any User attribute whose value can be represented as a string.	50106 to 50115, 55002 to 55011	Up to 20 eDirectory user attributes can be mapped to generic GroupWise attributes and displayed in the address book.	<p>The eDirectory attribute names must be added to the filter. The eDirectory and GroupWise attribute names must be added to the Schema Mapping rule.</p> <p>NOTE: For these attributes to appear in the address book, GroupWise must be configured through ConsoleOne®. See the note at the end of this table for additional information about this attribute.</p>
GroupWise Post Office			

eDirectory Class or Attribute	GroupWise Attribute	Description	Secondary Effects
Member	None		On a user create, the shim writes the eDirectory DN of the user to this attribute using the Publisher channel. On a post office move, the shim deletes the user DN from the old post office and writes the user DN to the new post office.
GroupWise Resource			
NGW: Owner	50081	The user (NGW: Object ID) that owns the resource. An owner is identified by its Object Name.	The shim writes this value to GroupWise and to eDirectory via the Publisher channel. The value is provided by a style sheet or driver option. See the note at the end of this table for additional information about this attribute.
GroupWise Distribution List			
Member	None		On eDirectory user create or modify operations, a set of Distribution Lists can be specified. The user can only be added as a Member. The shim fills in this attribute through the Publisher channel. On a modify event, a user can be removed from a specified Distribution List (member, BC or CC) or from all distribution lists (member, BC or CC). The shim will remove the user from the appropriate distribution list.
NGW: Blind Copy Member	None		The driver cannot set this attribute. This attribute is populated only via the GroupWise snap-in.
NGW: Carbon Copy Member	None		The driver cannot set this attribute. This attribute is populated only via the GroupWise snap-in.

IMPORTANT: When the Visibility GroupWise attribute is explicitly changed by a style sheet, the corresponding eDirectory attribute must also be updated by the style sheet. Otherwise, the eDirectory User and the GroupWise account are not properly synchronized.

For this attribute, eDirectory is considered the authoritative data source. When the attributes are not synchronized, it is possible that the old value in eDirectory could be used to incorrectly update the correct value in the GroupWise account. Updating the corresponding attribute in eDirectory can prevent this. In the example XSLT code segment below, when an eDirectory User is disabled, the GroupWise account is disabled and the visibility attribute is set to "4." This prevents the account from appearing in the address book. The visibility attribute (50076) is set in GroupWise, together with the disable. The visibility attribute (NGW: Visibility) is set in eDirectory using the channel write-back DirXML functionality.

```
<!-- User Disable, Remove Address Book Visibility
  When a GroupWise Account is Disabled
  remove the account from the address book visibility.
  Keep eDirectory and GroupWise object synchronized by
  updating the attributes in both systems.
-->
<xsl:template match="modify-attr[@attr-name='50058']">
  <!-- When Login Disabled is true -->
  <xsl:if test="add-value//value[.='true']">
    <!-- Update the visibility attribute in GroupWise -->
    <!-- Copy the <modify> through to update GroupWise -->
```

```

<xsl:copy>
  <!-- copy everything through -->
  <xsl:apply-templates select="@*|node()"/>
</xsl:copy>
<!-- Set the GroupWise visibility attribute (50076) to "4"
so the account does not show in the address book -->
<modify-attr attr-name="50076">
  <remove-all-values/>
  <add-value>
    <value type="int">4</value>
  </add-value>
</modify-attr>
<!-- Update the visibility attribute in eDirectory -->
<!-- Send a command to modify "NGW: Visibility" in the eDirectory User object -->
<xsl:variable name="command">
  <modify class-name="User">
    <!-- dest-dn and dest-entry-id identify the User object in eDirectory -->
    <xsl:attribute name="dest-dn">
      <xsl:value-of select="../@src-dn"/>
    </xsl:attribute>
    <xsl:attribute name="dest-entry-id">
      <xsl:value-of select="../@src-entry-id"/>
    </xsl:attribute>
    <!-- Set NGW: Visibility (50076) in eDirectory to "4" -->
    <modify-attr attr-name="NGW: Visibility">
      <remove-all-values/>
      <add-value>
        <value type="int">4</value>
      </add-value>
    </modify-attr>
  </modify>
</xsl:variable>
  <xsl:variable name="result" select="cmd:execute($srcCommandProcessor, $command)"/>
</xsl:if>
</xsl:template>

```

# B

## Upgrading from the 1.0a Version of the Driver

Use the steps in this section to upgrade the DirXML<sup>®</sup> Driver 1.0a for GroupWise<sup>®</sup>, which released with DirXML 1.1a.

After you upgrade the driver, you must obtain a new activation credential for the DirXML Driver 2.0 for GroupWise. If you do not complete the activation process within 90 days, the upgraded driver does not run. For additional information, refer to [“Activating the Driver” on page 24](#).

To upgrade to version 2.0:

- 1 In Novell<sup>®</sup> iManager, click eDirectory Administration > Modify Object.
- 2 Specify the driver object's name, then click OK.
- 3 Scroll down to the Startup Option section, click Manual, then click OK.
- 4 Shut down eDirectory<sup>™</sup> or the Remote Loader.
- 5 Run the DirXML Driver 2.0 for GroupWise installation program.  
You install the driver over the existing 1.0a driver files. This step updates all necessary driver files.
- 6 Start eDirectory or the Remote Loader, then open Novell iManager.
- 7 In Novell iManager, click eDirectory Administration > Modify Object.
- 8 Specify the driver object's name, then click OK.
- 9 Click the Driver Configuration tab > Authentication context.
- 10 Do one of the following:
  - ♦ If the driver is installed on Windows and the GroupWise domain database is on NetWare<sup>®</sup>, provide the eDirectory context of the specified Authentication ID. Otherwise, you should leave this field blank.
  - ♦ If the driver is installed on NetWare, you should leave the eDirectory context of the specified Authentication blank.
- 11 In Novell iManager, add the following attributes to the User Class in the Subscriber channel filter:
  - ♦ company
  - ♦ Generational Qualifier
  - ♦ Initials
  - ♦ personalTitle
- 12 Add the following definitions to the Schema Mapping rule.  
If you are using GroupWise 5.5 or 6.0:

```

<attr-name class-name="User">
  <nds-name>company</nds-name>
  <app-name>55022</app-name>
</attr-name>
<attr-name class-name="User">
  <nds-name>Initials</nds-name>
  <app-name>55019</app-name>
</attr-name>
<attr-name class-name="User">
  <nds-name>Generational Qualifier</nds-name>
  <app-name>55020</app-name>
</attr-name>
<attr-name class-name="User">
  <nds-name>personalTitle</nds-name>
  <app-name>55021</app-name>
</attr-name>

```

If you are using or upgrading to GroupWise 6.5:

```

<attr-name class-name="User">
  <nds-name>company</nds-name>
  <app-name>50310</app-name>
</attr-name>
<attr-name class-name="User">
  <nds-name>Initials</nds-name>
  <app-name>50322</app-name>
</attr-name>
<attr-name class-name="User">
  <nds-name>Generational Qualifier</nds-name>
  <app-name>50323</app-name> ` `l
</attr-name>
<attr-name class-name="User">
  <nds-name>personalTitle</nds-name>
  <app-name>50324</app-name>
</attr-name>

```

**13** In Novell iManager, click eDirectory Administration > Modify Object.

**14** Specify the driver object's name, then click OK.

**15** Scroll down to the Startup Option section, click Auto Start, then click OK.

**IMPORTANT:** When working with Distribution Lists, you must change all instances of the Groups attribute to Distribution DN in all style sheets. Previous versions of the driver supported the Groups attribute; however, the 2.1.1 version of driver does not support this attribute.

If you are upgrading the driver on the Windows platform, the installation program removes gwadj1.dll and replaces it with gwadj2.dll. You should search the system where the driver resides for additional copies of gwadj1.dll and delete these files (do not delete copies of this file that reside in the ConsoleOne® directory.) If both versions of the DLL exist, the driver uses the older version.