Installation and MIGRATION Guide

Novell®
GroupWise® Server Migration Utility

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Contents

About This Guide

This Novell® *GroupWise® Server Migration Utility Installation and Migration Guide* explains how to use the GroupWise Server Migration Utility. The guide is divided into the following sections:

Audience

This guide is intended for network administrators who want to move their GroupWise systems from NetWare® or Windows* to Linux*.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comment feature at the bottom of each page of the online documentation, or go to www.novell.com/documentation/feedback.html and enter your comments there.

Documentation Updates

For the most recent version of the *GroupWise Server Migration Utility Installation and Migration Guide*, visit the GroupWise Utilities Documentation Web site (http://www.novell.com/documentation/gwutilities).

Additional Documentation

For additional GroupWise documentation, see the following guides at the GroupWise 7 Documentation Web site (http://www.novell.com/documentation/gw7):

- *Installation Guide*
- *Administration Guide*
- *Multi-System Administration Guide*
- *Interoperability Guide*
- *Troubleshooting Guides*
- *GroupWise Client User Guides*
- *GroupWise Client Frequently Asked Questions (FAQ)*

Documentation Conventions

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

A trademark symbol ([R], [TM], etc.) denotes a Novell trademark. An asterisk (*) denotes a third-party trademark.

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux, should use forward slashes as required by your software.

When a startup switch can be written with a forward slash for some platforms or a double hyphen for other platforms, the startup switch is presented with a forward slash. Users of platforms that require a double hyphen, such as Linux, should use double hyphens as required by your software.

What Is the Server Migration Utility?

<div style="text-align: right">1</div>

The GroupWise® Server Migration Utility is a tool to help you move GroupWise components (post offices, domains, and agents) from NetWare® or Windows servers to Linux servers. The utility prompts you for information so it can set up the connection between the source NetWare or Windows server where a GroupWise component is located and the destination Linux server where you want to migrate that GroupWise component. It then creates the connection, transfers the GroupWise data, and installs and starts the Linux GroupWise agent or agents for the component.

If you want to understand what happens "behind the scenes," continue reading this section. If you just want to install and run the utility, skip this section and continue with Chapter 2, "System Requirements," on page 13, Chapter 3, "Installing the Server Migration Utility," on page 15, and Chapter 4, "Planning Your GroupWise Server Migration," on page 17. You can return to this "behind the scenes" information during the migration procedure if you want.

- Section 1.1, "Mount Commands," on page 9
- Section 1.2, "Software Management," on page 10
- Section 1.3, "Post Office Migration Process," on page 10
- Section 1.4, "Domain Migration Process," on page 11

IMPORTANT: The Server Migration Utility moves GroupWise components from one server to another. It does not move GroupWise components to a different GroupWise system, a different eDirectory™ tree, or a different version of GroupWise software. The Server Migration Utility is not cluster aware. You can use it to move data to a Linux server that is part of a cluster, but the utility is not aware of the other nodes in the cluster.

1.1 Mount Commands

When you migrate a post office or a domain, the Server Migration Utility prompts you for some basic system information about the source and destination servers, then sets up the connection between your NetWare or Windows server and your Linux server. From the system information you provide, the utility constructs the following `mount` commands:

NetWare:
```
ncpmount -m -A server_address -S server_name -V volume
                    -U full_user_ID -P password /mount_point
```

Windows:
```
smbmount //server_name/share_name /mount_point
                    -o username=user_id,password=password
```

```
cifs.mount //server_name/share_name /mount_point
                    -o username=user_id,password=password
```

The Server Migration Utility also handles establishing a connection with the SSH (secure shell) daemon on Linux. This connection enables the Server Migration Utility to log in to the destination Linux server as `root` and execute programs there.

1.2 Software Management

During the migration, the Server Migration Utility needs access to CDs or CD images for GroupWise 7 for Linux or GroupWise 6.5 for Linux. You must use the media for the version of GroupWise that is already installed on your system. You cannot update to a new version as you migrate.

IMPORTANT: If you are planning on updating, you should update your existing system first, then perform the migration.

The Server Migration Utility copies a number of GroupWise agent and utility RPMs (Linux installation programs) to the destination Linux server. The RPMs are stored in a temporary location of your choosing and can be deleted by the utility after the migration is completed.

The Server Migration Utility uses the SSH connection to the Linux server to run the RPMs on the Linux server as if it were the `root` user. All aspects of GroupWise installation and administration require `root` user permissions.

1.3 Post Office Migration Process

A post office migration is carried out in two stages to minimize downtime for GroupWise users. During the first stage, the Server Migration Utility performs the following tasks:

- Mounts the source NetWare or Windows server as a file system to the destination Linux server
- Creates a connection to the SSH daemon on the destination Linux server
- Creates the directory structure necessary for the GroupWise software and the post office
- Copies GroupWise utility software to the Linux server and installs it
- Copies the GroupWise Linux POA software to the Linux server
- Copies the post office data to the Linux server by using the GroupWise Database Copy utility (DBCopy), which prevents post office files from being modified during the copy operation, using the same locking mechanism used by other GroupWise programs that access databases
- Copies certificate files and key files if SSL is in use
- Identifies remote document storage areas associated with libraries in the post office
- Installs, configures, and starts the POA on the Linux server
- Cleans up its temporary files, such as the utility software used during the migration process

After the first stage, you perform some testing of the migrated post office by:

- Logging in to a mailbox in the migrated post office
- Verifying the contents of the migrated mailbox

The Server Migration Utility then stops the Linux POA in preparation for the second stage of the post office migration. You also have some manual steps to perform in preparation for the second stage:

- In ConsoleOne®, you reconfigure the Post Office object and the POA object for their new locations on the Linux server.
- If the post office has remote document storage areas, you provide their new locations on Linux.

- You specify the new IP address for the POA on the Linux server.
- At the source POA Web console, you verify that the changes to the GroupWise objects have replicated to the domain.
- At the source server, you stop the source POA.

During the second stage, the Server Migration Utility performs the following tasks:

- Copies all post office data that has been modified since the first stage of the migration
- Verifies that all files and directories that have been copied to Linux are in lowercase and, if they are not, renames them to lowercase
- Performs an operation equivalent to GroupWise Check (GWCheck) with the `storelowercase` option to ensure that all filenames and directory names stored in the guardian database (ngwguard.db) are also converted to lowercase.
- Copies the contents of the message queue directories so that no incoming or outgoing messages are lost
- Deletes the temporary copy of the GroupWise Linux software that was used to install the Linux POA.
- Unmounts the source server from the Linux server

After the post office migration is complete, you have two more manual steps to perform:

- At the Linux server, you configure the Linux POA to run as a non-`root` user, which is a preferable configuration for security reasons.
- Finally, you start the Linux POA for the migrated post office.

Step-by-step instructions for each part of this process are found in .

1.4 Domain Migration Process

A domain migration is carried out in a single stage. Users are not directly affected when the MTA is down, and the volume of data to migrate is typically smaller for a domain that for a post office. Therefore, the migration goes more quickly.

Before the domain migration starts, you have some manual steps to perform in preparation for the domain migration:

- In ConsoleOne, you reconfigure the Domain object and the MTA object for their new locations on the Linux server.
- If you are migrating additional agents, you do the same for them.
- You specify the new IP address for the MTA on the Linux server.
- If you are migrating additional agents, you do the same for them.
- Using the Link Configuration utility in ConsoleOne, you verify that the changes to the Domain object have replicated to other domains.
- At the source server, you stop the source MTA and additional agents to migrate as needed.

Then, the Server Migration Utility performs the following tasks:

- Mounts the source NetWare or Windows server as a file system to the destination Linux server

- Creates a connection to the SSH daemon on the destination Linux server

- Creates the directory structure necessary for the GroupWise software and the domain

- Copies GroupWise utility software to the Linux server and installs it

- Copies the GroupWise Linux agent software to the Linux server

- Copies the domain data to the Linux server by using the GroupWise Database Copy utility (DBCopy)

- Copies certificate files and key files if SSL is in use

- Copies the MTA local working directory (`mslocal`) if it is located within the domain directory structure or if it is specified in the MTA startup file by using the /work switch.

- Copies agent subdirectories to the Linux server, such as those used by the Internet Agent (`\`*`domain`*`\wpgate\`*`gwia`*) and WebAccess Agent (`\`*`domain`*`\wpgate\`*`webac70a`*)

- Ensures, for the Internet Agent, that no port conflict with Postfix can occur

- Installs the agent software on the Linux server but does not start any agents

- Cleans up its temporary files, such as the utility software used during the migration process

After the domain migration is complete, you have a few manual steps to perform:

- At the Linux server, you configure the Linux agents to run as a non-`root` user, which is a preferable configuration for security reasons.

- You start the Linux MTA for the migrated domain, and start the Internet Agent and WebAccess Agent if they were also migrated.

Step-by-step instructions for each part of this process are found in Chapter 8, "Migrating a Domain and Its Agents to Linux," on page 47.

System Requirements

2

2.1 GroupWise Version Requirements

❑ GroupWise® 7 for Linux

or

❑ GroupWise 6.5 for Linux

IMPORTANT: You cannot update the version of your GroupWise software as part of the migration. You must use the same version of GroupWise that is already in use in source post offices and domains.

If you are planning to update your GroupWise system, update source post offices and domains first, then migrate the GroupWise 7 post offices and domains to Linux. This enables you to test your update in a known environment.

2.2 Source Server Operating System Requirements

The source server operating system requirements correspond to the supported operating system versions for your version of GroupWise.

Table 2-1 *Supported Source Server Operating Systems*

GroupWise 7	GroupWise 6.5
• Open Enterprise Server NetWare®	• NetWare 6.5
• NetWare 6.5	• NetWare 6
• NetWare 6	• NetWare 5.1
• NetWare 5.1	• NetWare 4.2
• Windows Server 2003	• Windows Server 2003
• Windows Server 2000	• Windows Server 2000
	• Windows NT* Server

2.3 Target Server Operating Requirements

The target server operating system requirements correspond to the supported operating system versions for your version of GroupWise for Linux.

Table 2-2 *Supported Target Server Operating Systems*

GroupWise 7	GroupWise 6.5
◆ Open Enterprise Server Linux	◆ SUSE Linux Enterprise Server 9
◆ SUSE® Linux Enterprise Server 10	◆ SUSE Linux Enterprise Server 8
◆ SUSE Linux Enterprise Server 9	◆ SUSE Linux Standard Server 8
	◆ Red Hat* Enterprise Linux AS
	◆ Red Hat Enterprise Linux 3 ES

IMPORTANT: If you are planning on upgrading your GroupWise 6.5 system to GroupWise 7, do not migrate it onto a version of Linux that is not supported for GroupWise 7.

2.4 Windows Workstation Requirements

The workstation where you run the Server Migration Utility has the same requirements as any GroupWise administrator workstation:

❑ Windows 2000/XP/2003

❑ Novell Client™

❑ ConsoleOne® 1.3.6 or later with the GroupWise snap-ins installed

If you are migrating from a Windows server, you can run the Server Migration Utility on the Windows server. Just make sure that the requirements for the Novell Client and ConsoleOne are met on the Windows server.

Installing the Server Migration Utility

<div style="text-align: right; font-size: 3em;">3</div>

1 From the Novell Downloads Web site (http://download.novell.com), download the GroupWise® Server Migration Utility (`gwsvrmig100.exe`) into a temporary directory.

2 Run `gwsvrmig100.exe` to extract the software into a convenient directory on a Windows machine that meets the requirements listed in Section 2.4, "Windows Workstation Requirements," on page 14.

This directory becomes the Server Migration Utility installation directory.

3 Run `gwsvrmig.exe` to start the Server Migration Utility.

4 Click Help on any page where you need assistance filling in the fields or where you want to know what the utility is doing.

Planning Your GroupWise Server Migration

4

When you migrate your GroupWise® system from NetWare® or Windows servers to Linux servers, the Server Migration Utility prompts you for information about your system. The process goes more smoothly if you gather the information before you start. You can use the GroupWise Migration Worksheet to record the information. You should fill out a worksheet for each source/destination pair of servers that you are going to migrate.

4.1 Gathering Source Server Information

Your network might consist of only NetWare servers, only Windows servers, or a combination of both.

GROUPWISE MIGRATION WORKSHEET

Under Item 1: Source Platform, mark the source platform for the source/destination server pair.

The Server Migration Utility needs information about the source NetWare or Windows server in order to create a `mount` command for accessing the source server from the destination Linux server. This gives the utility access to the post office or domain directory structure that is copied during the migration process.

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Under Item 2: Source Server, specify the name of the source server and also its IP address or hostname. If the source server has multiple IP addresses, use the IP address that is accessible from the Linux server.

The Server Migration Utility needs to log in to the source NetWare or Windows server. It needs to use a user that has read/write access to the source server and to the post office or domain directory and its contents.

Under Item 3: Source Server Credentials, specify an appropriate username and password. For NetWare, specify the distinguished username, which includes the context of the User object in the eDirectory™ tree (for example, admin.users.novell). For Windows, specify a Windows username.

For more information about why the Server Migration Utility needs the source server credentials and what the utility does with them, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

4.2 Gathering Destination Server Information

The Server Migration Utility needs certain information in order to communicate with the SSH (secure shell) daemon on the destination Linux server. The SSH daemon allows `root` access for the utility to run the programs required for migration locally on the Linux server.

Under Item 4: Destination Server, specify the IP address or hostname of the destination Linux server.

Under Item 5: Destination Server Credential, specify the `root` password for the server.

For more information about why the Server Migration Utility needs the `root` password and what the utility does with it, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

The first time you attempt to log in to the Linux server, you are asked to verify the RSA key fingerprint for the server.

SSH does not use certificate files, key files, and Certificate Authorities as is done for SSL encryption. Instead, SSH generates a string of numbers that is a special checksum of the server host key. You obtain the equivalent string from the server itself by using the following command on the Linux server:

```
ssh-keygen -l -f /etc/ssh/ssh_host_rsa_key.pub
```

Compare the string you receive from the Linux server with the string presented by the Server Migration Utility. If the strings match, you have a secure connection.

In general, it is safe to simply accept the RSA key fingerprint presented by the Server Migration Utility. You might decide not to perform the actual comparison.

Under Item 6: RSA Key Fingerprint, record the string of letters and numbers that you received from the Linux server, if you want to perform the comparison.

4.3 Gathering Software Information

You can migrate GroupWise 7 components and GroupWise 6.5 components. If you are migrating a GroupWise 7 post office or domain, you must use GroupWise 7 software. If you are migrating a GroupWise 6.5 post office or domain, you must use GroupWise 6.5 software. You cannot use the Server Migration Utility to migrate domains and post offices from an earlier version of GroupWise.

The Server Migration Utility needs access to a GroupWise for Linux CD or CD image, such as a Support Pack. From the CD or CD image, the Server Migration Utility copies the agent and utility RPMs (Linux installation programs) that it needs for the migration into a temporary location on the Linux server. The default is `/tmp/groupwise/software`. Having the RPMs on the Linux server enables the Server Migration Utility to run the RPMs as `root` through the SSH connection. After the migration is complete, the Server Migration Utility can delete the RPMs to conserve disk space on your Linux server.

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Under Item 7: Software Locations, specify the root directory of a GroupWise for Linux CD or CD image, the full path to the location where you want to store RPMs during the migration, and whether you want to delete the RPMs after migration.

A GroupWise software distribution directory on a NetWare or Windows server does not contain GroupWise Linux software unless you have placed it there from a GroupWise for Linux CD or CD image.

4.4 Gathering GroupWise Component Information

- Section 4.4.1, "Post Offices or Domains," on page 19
- Section 4.4.2, "Additional Agents for a Domain," on page 20
- Section 4.4.3, "Remote Document Storage Areas for a Post Office," on page 21

4.4.1 Post Offices or Domains

For NetWare servers, the Server Migration Utility has an Auto-Detect feature that attempts to locate post offices and domains on the NetWare server. The Auto-Detect feature scans NCF files in the `sys:\system` directory and looks for `load` commands for the GroupWise agents (for example, `gwpoa.nlm` and `gwmta.nlm`). Each agent `load` command includes the post office directory or the domain directory as the setting for the /home switch. The Auto-Detect feature also identifies startup files for the POA (*post_office*.poa) and the MTA (*domain*.mta). If your NetWare server does not have GroupWise NCF files and agent startup files in `sys:\system`, then the Auto-Detect feature does not find any post offices, domains, or agents.

For Windows servers, the Auto-Detect feature is not available. You must manually specify the locations of post offices, domains, and agents. Post offices and domains could be located anywhere on the Windows server. By default, the Windows agents are installed to `c:\grpwise`.

By default, post offices and domains are migrated to the `/var/opt/novell/groupwise/mail` directory. This is the typical location for mail directories on Linux. You might prefer a shorter pathname (for example, `/gwsystem`). Be sure to include the post office directory or domain directory in the path (for example, `/gwsystem/sales`).

The Linux POA and MTA software is always installed to subdirectories of `/opt/novell/groupwise/agents`. On Linux, you can choose whether or not you want the agents to run as the `root` user, as described in "Running the Linux GroupWise Agents as a Non-root User" in "Installing GroupWise Agents" in the *GroupWise 7 Installation Guide*. Running as a non-`root` user is strongly preferred for security reasons.

If you are migrating a post office:

GROUPWISE MIGRATION WORKSHEET

Under Item 8: Post Office Information, specify the directory where the post office database (wphost.db) is located, the full path to the POA startup file, the full path to where you want to migrate the post office (the post office directory), and whether you want the POA to run as `root`.

If you have more than one POA for the post office, migrate the main one first. Additional POAs must be installed and configured manually.

To find out what changes the Server Migration Utility makes to the POA startup file when it migrates it to Linux, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

If you are migrating a domain, you also need to consider the MTA working directory (`mslocal`). By default, it is located under the domain directory, but it can be placed elsewhere by using the /work switch in the MTA startup file. The Server Migration Utility can copy the `mslocal` directory for you if it is under the domain directory, on the same NetWare volume, or on the same Windows server as the domain directory. In all cases, it is placed under the domain directory on the Linux server.

If it is located on a different NetWare volume or on a different server, the Server Migration Utility cannot copy it for you. You must copy it manually to the Linux server, as described in Section 8.9, "Manually Migrating the MTA Working Directory," on page 56. You can do this after you have migrated the domain.

If you are migrating a domain:

GROUPWISE MIGRATION WORKSHEET

Under Item 9: Domain Information, specify the directory where the domain database (wpdomain.db) is located, the full path to the MTA startup file, the full path to where you want to migrate the domain (the domain directory), the full path to the MTA working directory, and whether you want the MTA to run as `root`.

To find out what changes the Server Migration Utility makes to the MTA startup file when it migrates it to Linux, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

4.4.2 Additional Agents for a Domain

The Internet Agent and the WebAccess Agent startup files must be identified manually if you want the settings in the startup files to be migrated.

The Internet Agent startup file is `gwia.cfg`. On NetWare, the default location for the `gwia.cfg` file is `sys:\system`. On Windows, the default location for the `gwia.cfg` file is *domain*\wpgate*gwia.*

To find out what changes the Server Migration Utility makes to the Internet Agent startup file when it migrates it to Linux, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

If you are migrating the Internet Agent:

GROUPWISE MIGRATION WORKSHEET

Under Item 10: Internet Agent Information, specify the full path to the Internet Agent startup file and whether you want the Internet Agent to run as `root`.

The WebAccess Agent startup file is `webac70a.waa`. On NetWare, the default location for the `webac70a.waa` file is `sys:\system`. On Windows, the default location for the `webac70a.waa` file is `c:\webacc`.

To find out what changes the Server Migration Utility makes to the WebAccess Agent startup file when it migrates it to Linux, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

If you are migrating the WebAccess Agent:

GROUPWISE MIGRATION WORKSHEET

Under Item 11: WebAccess Agent Information, specify the full path to the WebAccess Agent startup file. The WebAccess Agent must run as `root`.

The Server Migration Utility migrates the WebAccess Agent but not the WebAccess Application that is installed to your Web server. If you want to use a Linux Web server with WebAccess, you can follow the instructions in "Manually Migrating the WebAccess and WebPublisher Applications to Linux" in "Migration" in the *GroupWise 7 Installation Guide* after you have migrated the WebAccess Agent.

4.4.3 Remote Document Storage Areas for a Post Office

The post office that you want to migrate might own libraries with remote document storage areas. A remote document storage area is a storage area that resides outside of the post office directory structure, rather than within it. A remote document storage area might be on the same server with the post office, or it might be on a different server. The Server Migration Utility currently cannot migrate remote document storage areas for you.

The utility can list all the remote document storage areas associated with a post office and can provide their locations. You need to decide where you want the document storage areas to reside after the post office has been migrated. You can move them to the same Linux server as the post office, or you can move them to different Linux servers, provided you mount the file systems where they are located to the Linux server where the post office resides.

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Under Item 8: Post Office Information, specify the location where you want to move each remote document storage area for libraries in the post office.

You must move the document storage areas before the second post office data migration starts. Instructions for manually copying the document data to the planned destinations are provided at the appropriate point in the migration process.

4.5 Handling the Potential Internet Agent Port Conflict

By default, Linux servers run the Postfix mail program. It typically uses an IP address of 127.0.0.1 and listens on port 25, which is the default for SMTP communication. By default, the Internet Agent binds to all IP addresses on the server and it also uses port 25. As a result, if Postfix is running on the Linux server, the Internet Agent cannot start because port 25 is already in use.

Occasionally, Postfix might be configured to listen on a different IP address. This would also cause a conflict if the Internet Agent is configured to use the same IP address. On the Linux server, use the following command to test for conflicts:

```
telnet IP_address 25
```

If you receive a response, then something is already listening on the specified IP address.

To resolve the conflict, you can bind the Internet Agent to a specific IP address that is not the address used by Postfix. As an alternative, you can disable Postfix. Disabling Postfix is not the preferred solution, because Postfix is responsible for sending system messages to the administrator.

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Under Item 10: Internet Agent Information, mark whether you want to bind the Internet Agent to a specific IP address and specify the IP address.

If you decide that you want to disable Postfix, rather than binding the Internet Agent to a specific IP address, you can do it now, during the planning phase, so that the Linux server is ready for the Internet Agent to run on it.

1 In a terminal window at the Linux server, log in as `root`.

2 Enter the following commands:

```
/etc/init.d/postfix stop
chkconfig postfix off
```

3 To ensure that Postfix is not running, enter the following command:

```
ps -eaf | grep postfix
```

You should see no Postfix processes running. The server is now ready for the Internet Agent to run on it.

4.6 Handling SSL Certificate and Key Files

If your GroupWise agents use SSL on the source server, they need a certificate file and a key file on the destination Linux server. Although you can have the Server Migration Utility copy the existing files from the source server to the Linux server, this is not a viable permanent solution, because the

original certificate file and key file have the IP address and hostname of the source server, not the destination Linux server. Unless the Linux server already has its own certificate file and key file, the recommendation is to generate a new certificate file and key file for the Linux server.

If you need to create new certificate and key files, you can do it now, during the planning phase, so that the Linux server is ready for the agents to run with SSL.

1 Create a new certificate file and key file for the Linux server as described in "Server Certificates and SSL Encryption" in "Security Administration" in the *GroupWise 7 Administration Guide*.

2 Save the new files in a convenient location on the Windows machine where you plan to run the Server Migration Utility.

3 On each Agent object in ConsoleOne®, remove the path information for the files on the source server and, if necessary, update the filenames of the certificate file and key file.

For instructions, see the following sections of the *GroupWise 7 Administration Guide*:

- ◆ "Securing the Post Office with SSL Connections to the POA"
- ◆ "Securing the Domain with SSL Connections to the MTA"
- ◆ "Securing Internet Agent Connections with SSL"
- ◆ "Securing WebAccess Agent Connections with SSL"

GROUPWISE MIGRATION WORKSHEET

Under Item 12: SSL Information, specify the full pathnames of the certificate file and key file if your GroupWise agents use SSL. You can specify either new (preferable) or old files.

4.7 Estimating Migration Time

There is no precise way to estimate how long it will take to migrate a particular post office or domain to Linux. The major determining factors are:

- ◆ Amount of data to migrate
- ◆ Connection speed between the source and target servers

Fortunately, the Server Migration Utility makes it easy to perform any number of practice runs. You can safely run the Server Migration Utility on a live post office or domain as long as you *do not* make any of the configuration changes in ConsoleOne that would be made during a real migration.

You can expect to see the Migration Utility move about 6 GB of data per hour. If performance is substantially slower than this, check your network configuration for slow links and make sure that none of the following processes are running while you are migrating data:

- ◆ GroupWise maintenance activities such as Mailbox/Library Maintenance or Nightly User Upkeep
- ◆ Indexing of messages and documents
- ◆ Backups of GroupWise databases

These activities can hold files open and cause the Migration Utility to wait, thus slowing the migration process.

One type of data that you might want to move out of post office directories and domain directories to speed migration is agent log files, especially if any of the following situations apply:

- You have been using the verbose log level.
- You retain log files for a long period of time.
- You have been generating MTA message log files.

Agent log files are stored in the following locations:

Table 4-1 *GroupWise Agent Log File Locations*

Agent	Log File Location
POA	*post_office*\wpcsout\ofs
MTA	*domain*\mslocal
Internet Agent	*domain*\wpgate*gwia*\000.prc
WebAccess	*domain*\wpgate*webac70a*\000.prc

4.8 GroupWise Migration Worksheet

Item	Explanation
1) Source Platform • NetWare • Windows	Mark the platform you're migrating the GroupWise component from. See Section 4.1, "Gathering Source Server Information," on page 17.
2) Source Server • Server name • IP address / hostname	Provide the name of the NetWare or Windows server, along with its IP address or hostname. See Section 4.1, "Gathering Source Server Information," on page 17.
3) Source Server Credentials • User ID • Password	Specify the username that the Server Migration Utility can use to log in to the NetWare or Windows server and provide the password. See Section 4.1, "Gathering Source Server Information," on page 17.
4) Destination Server • IP address / hostname	Specify the IP address or hostname of the Linux server. See Section 4.2, "Gathering Destination Server Information," on page 18.
5) Destination Server Credentials • Root user password	Specify the password for the root user on the Linux server. See Section 4.2, "Gathering Destination Server Information," on page 18.

Item	Explanation
6) RSA Key Fingerprint (optional)	Record the RSA key fingerprint for the Linux server. See Section 4.2, "Gathering Destination Server Information," on page 18.
7) Software Locations ◆ Software source ◆ Software destination ◆ Delete RPMs and temporary files? Yes | No	List the full path where the GroupWise for Linux software is available and the full path on the Linux server where you want to temporarily store the software during the migration. Also mark whether you want to delete the temporary copy. See Section 4.3, "Gathering Software Information," on page 19.
8) Post Office Information ◆ Post office directory ◆ POA startup file ◆ Destination directory ◆ Run as `root`? Yes | no ◆ Remote document storage areas	If you are migrating a post office, list the full path to the current post office directory, the full path and filename of the POA startup file, and the full path to the destination post office directory. Indicate whether you want to run the POA as `root`. If the post office has remote document storage areas for a libraries, specify where you want each storage area to be located on Linux. See "Post Offices or Domains" on page 19.
9) Domain Information ◆ Domain directory ◆ MTA startup file ◆ Destination directory ◆ MTA working directory ◆ Run as `root`? Yes | No	If you are migrating a domain, list the full path to the current domain directory, the full path and filename of the MTA startup file, the full path to the destination domain directory, and the full path to the MTA working directory (mslocal). Also indicate whether you want to run the MTA as `root`. See "Post Offices or Domains" on page 19.

Item	Explanation

10) Internet Agent Information
 	
  ◆ Startup file
  ◆ Run as `root`?
    Yes | No
  ◆ Bind to address?
    Yes | No
    IP address
	If you are migrating the Internet Agent along with a domain, list the full path and filename of the Internet Agent startup file. Also mark whether you want to run the Internet Agent as `root`.
	
	See "Additional Agents for a Domain" on page 20.
	
	Mark whether you want to bind the Internet Agent to a specific IP address. If you do, specify the address.
	
	See Section 4.5, "Handling the Potential Internet Agent Port Conflict," on page 22.

11) WebAccess Agent Information ◆ Startup file	If you are migrating the WebAccess Agent along with a domain, list the full path and filename of the WebAccess Agent startup file. See "Additional Agents for a Domain" on page 20.

12) SSL Information
 	
  ◆ Certificate file
  ◆ Key file
	If the GroupWise agents use SSL, provide the full pathname of the certificate file and the key file.
	
	See Section 4.6, "Handling SSL Certificate and Key Files," on page 22.

Meeting Migration Prerequisites

5

The GroupWise® Server Migration Utility cannot run successfully unless the prerequisites described in this section are met.

- Section 5.1, "NetWare Prerequisites," on page 27
- Section 5.2, "Windows Prerequisites," on page 28

5.1 NetWare Prerequisites

In order for the Server Migration Utility to run successfully, the following prerequisites must be met:

❑ **A drive is mapped to the NetWare Server.**

From the Windows workstation where you are running the Server Migration Utility, you need access to the source NetWare® server where the directory structure for the post office or domain is located. This enables the Server Migration Utility to copy the GroupWise data to the destination Linux server and to identify existing agent startup files to transfer to Linux.

❑ **The NCPFS package is installed on the Linux server.**

The NCPFS package enables the Server Migration Utility to create a NetWare Core Protocol™ (NCP™) file system mount of the source NetWare server to the destination Linux server.

At the Linux server, use the following command to determine if the NCPFS package is installed:

```
rpm -qa | grep ncpfs
```

If it is installed, the NCPFS package is listed. If the NCPFS package is not installed, use the Install and Remove Software option of YaST to install it from your Linux installation media.

❑ **The GroupWise Linux CD or Support Pack software is available. It must be the same GroupWise version that is installed on the source server.**

To prepare for the migration, the Server Migration Utility needs to copy the GroupWise agent and utility RPMs from an existing software location to a temporary location on the destination Linux server. If you are migrating a GroupWise 7 post office or domain, you must use GroupWise 7 software. If you are migrating a GroupWise 6.5 post office or domain, you must use GroupWise 6.5 software. You cannot use the GroupWise Server Migration Utility to migrate post offices and domains from an earlier version of GroupWise.

A GroupWise software distribution directory on a NetWare server does not contain GroupWise Linux software unless you have placed it there from a GroupWise for Linux CD or CD image.

❑ **The Novell Client and ConsoleOne are installed on the Windows workstation.**

If you are running the Server Migration Utility at the workstation where you typically administer GroupWise, these programs are already available. If they are not available on your current workstation, you can obtain them from:

Novell Downloads (http://download.novell.com)

❑ **The SSH daemon is running on the Linux server with SSH enabled for the root user.**

The SSH daemon is a secure shell program that allows the Server Migration Utility to log in to the destination Linux server as `root` and execute programs there. At the Linux server, use the following command to verify that the SSH daemon is running:

```
ps -eaf | grep sshd
```

If it is not running, use the following command to start it:

```
/etc/init.d/sshd start
```

You must also ensure that processes from outside the server's firewall can communicate with the SSH daemon. In YaST, click *Security and Users > Firewall*. Click *Next* until you reach the list of available services on the server. Make sure that *Secure Shell (ssh)* is selected, then click *Next* until you reach the end of the firewall configuration process. Click *Continue* to save your settings and restart the firewall.

❑ **The GroupWise client is installed on the Windows workstation.**

After you have done the initial copy of a post office and started the Linux POA, you use the Windows client to make sure that the user in the migrated post office can connect to his or her Online mailbox on the destination Linux server and that mailbox contents have been transferred.

❑ **Adequate disk space is available on the Linux server for the migration.**

Depending on how you want to set up your backup procedure for the domain or post office on Linux, you might need double the disk space occupied by the domain or post office so that you can maintain a current copy of the domain or post office to run your backup software against. To consider backup alternatives on Linux, see "GroupWise Target Service Agent for File Systems (TSAFSGW) for NetWare 6.x/OES and Linux " and "GroupWise Database Copy Utility" in "Databases" in the *GroupWise 7 Administration Guide*.

5.2 Windows Prerequisites

In order for the GroupWise Server Migration Utility to run successfully, the following prerequisites must be met:

❑ **A share on the Windows server provides read/write access to the domain or post office you are migrating. If you are not on the server where the share resides, a drive is mapped to the share.**

In order to provide access to the domain or post office data on the Windows server, you need to set up a share on that server that includes the domain or post office directory. The share needs to provide read/write access to the domain or post office directory for the user running the Server Migration Utility. This enables the Server Migration Utility to copy the GroupWise data from the Windows server to the destination Linux server and to access existing agent startup files so that existing configuration information can be transferred to Linux.

If you run the Server Migration Utility on a Windows workstation, rather than on the Windows server where the domain or post office is located, you need to map a drive to the Windows server so that the Server Migration Utility can access the domain and post office data.

❑ **The samba-client package is installed on the Linux server.**

The samba-client package provides the `mount` command so that the Server Migration Utility can create a Samba file system mount of the source Windows server to the destination Linux server.

At the Linux server, use the following command to determine if the samba-client package is installed:

```
rpm -qa | grep samba-client
```

If it is installed, the samba-client package is listed. If the samba-client package is not installed, use the Install and Remove Software option of YaST to install it from your Linux installation media.

❑ **The Samba server is running on the Linux server and you have mapped a drive to the Samba share from Windows.**

The Samba server enables the Server Migration Utility to create a Samba file system mount of the source Window server to the destination Linux server.

At the Linux server, use the following command to determine if the Samba server is running:

```
ps -eaf | grep samba
```

If you see both the `smbd` and `nmbd` daemons running, the Samba server is running.

Use your typical method of drive mapping to map a drive from the Windows machine where you plan to run the Server Migration Utility to the Linux server. Use the following format to specify the location on Linux:

```
\\Linux_hostname\Samba_sharename\path
```

This provides access between the Windows machine and the destination Linux server.

If the Server Migration Utility is unable to establish a Samba mount, it tries a CIFS mount instead. If the CIFS mount also fails, make sure that the cifs-mount package is installed.

❑ **The GroupWise Linux CD or Support Pack software is available. It must be the same GroupWise version that is installed on the source server.**

To prepare for the migration, the Server Migration Utility needs to copy the GroupWise agent and utility RPMs from an existing software location to a temporary location on the destination Linux server. If you are migrating a GroupWise 7 post office or domain, you must use GroupWise 7 software. If you are migrating a GroupWise 6.5 post office or domain, you must use GroupWise 6.5 software. You cannot use the GroupWise Server Migration Utility to migrate post offices and domains from an earlier version of GroupWise.

A GroupWise software distribution directory on a Windows server does not contain GroupWise Linux software unless you have placed it there from a GroupWise for Linux CD or CD image

❑ **The Novell Client and ConsoleOne are installed where you are running the utility.**

If you are running the Server Migration Utility at the workstation where you typically administer GroupWise, these programs are already available. If you are running the utility on the Windows server, they might not be available. You can obtain them from:

Novell Downloads (http://download.novell.com)

❑ **The SSH daemon is running on the Linux server with SSH enabled for the root user.**

The SSH daemon is a secure shell program that allows the Server Migration Utility to log in to the destination Linux server as `root` and execute programs there. At the Linux server, use the following command to verify that the SSH daemon is running:

```
ps -eaf | grep sshd
```

If it is not running, use the following command to start it:

```
/etc/init.d/sshd start
```

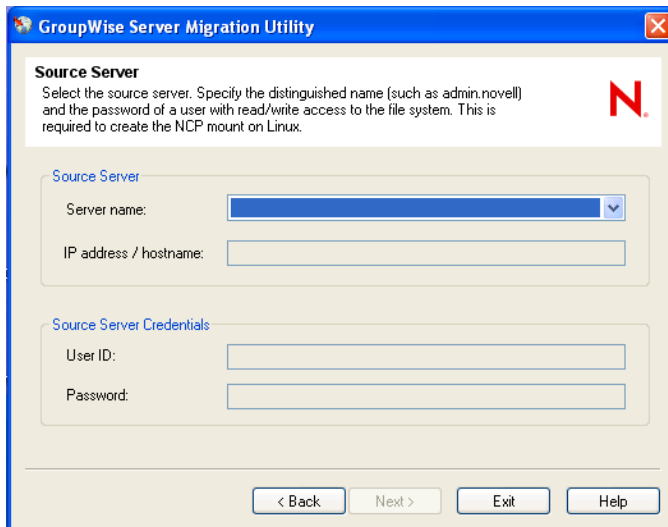You must also ensure that processes from outside the server's firewall can communicate with the SSH daemon. In YaST, click *Security and Users > Firewall*. Click *Next* until you reach the list of available services on the server. Make sure that *Secure Shell (ssh)* is selected, then click *Next* until you reach the end of the firewall configuration process. Click *Continue* to save your settings and restart the firewall.

Running the Server Migration Utility

After you have met the prerequisites listed in Chapter 5, "Meeting Migration Prerequisites," on page 27, you are ready to run the GroupWise® Server Migration Utility. The first few dialog boxes are the same, regardless of whether you are migrating a post office or a domain. This section describes those common dialog boxes. Chapter 7, "Migrating a Post Office and Its POA to Linux," on page 35 and Chapter 8, "Migrating a Domain and Its Agents to Linux," on page 47 provide instructions for migrating specific GroupWise components.

1 Make sure that the server you are migrating is not running any GroupWise maintenance processing, indexing, backups, or virus scanning.

Such activities on the server substantially slow down the migration process.

2 Start the Server Migration Utility by running `gwsvrmig.exe` in the directory you set up in Chapter 3, "Installing the Server Migration Utility," on page 15.

3 Review the Server Migration Utility overview, then click *Next*.

4 Accept the license agreement, then click *Next*.

5 Select the platform you are migrating from (worksheet item 1), then click *Next*.

6 Make sure you have met the prerequisites for your source platform, as described in Chapter 5, "Meeting Migration Prerequisites," on page 27, then click *Next* to display the Source Server page.

For information about why the Server Migration Utility needs the source server credentials and what the utility does with them, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

7 Provide the source server information (worksheet item 2).

8 Provide the source server login information (worksheet item 3), then click *Next* to display the Destination Server page.
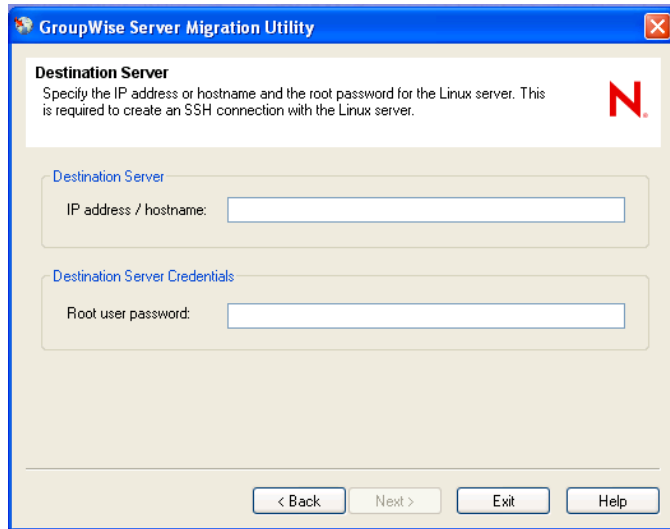
For information about why the Server Migration Utility needs the `root` password and what the utility does with it, see "GroupWise Server Migration Utility" in "Security Policies" in the *GroupWise 7 Administration Guide*.

9 Provide the destination server information (worksheet item 4).

10 Provide the destination server login information (worksheet item 5), then click *Next*.

If this is the first time you have connected to this Linux server, you are prompted to verify the RSA key fingerprint.
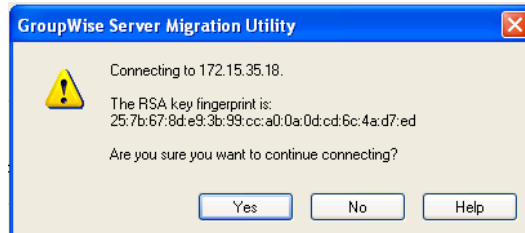
11 Click *Yes*.
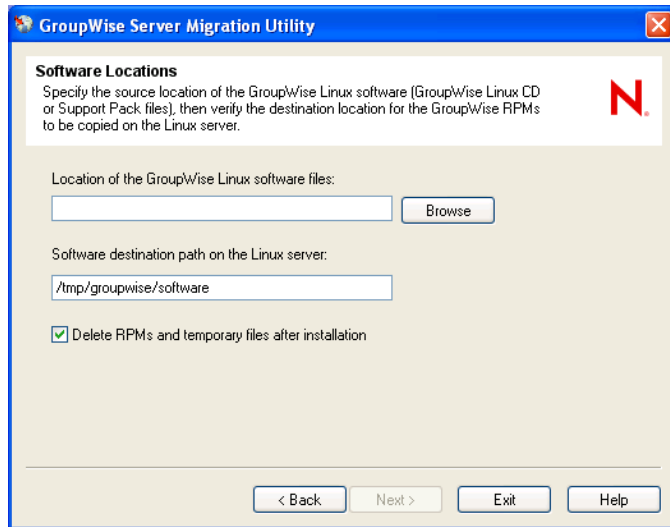
12 Browse to and select the directory where the GroupWise Linux CD or CD image is available (worksheet item 7).

A GroupWise software distribution directory on a NetWare® or Windows server does not contain GroupWise Linux software unless you have placed it there from a GroupWise Linux CD or CD image.

13 If you want to change the default, specify the full path to the directory on the Linux server where you want the GroupWise RPMs to be copied for use by the Server Migration Utility (worksheet item 7).

You can retain the default of deleting the RPMs and temporary files after installation. This temporary location is not related to a standard GroupWise software distribution directory.

14 Click *Next* to continue to the Component to Migrate page.
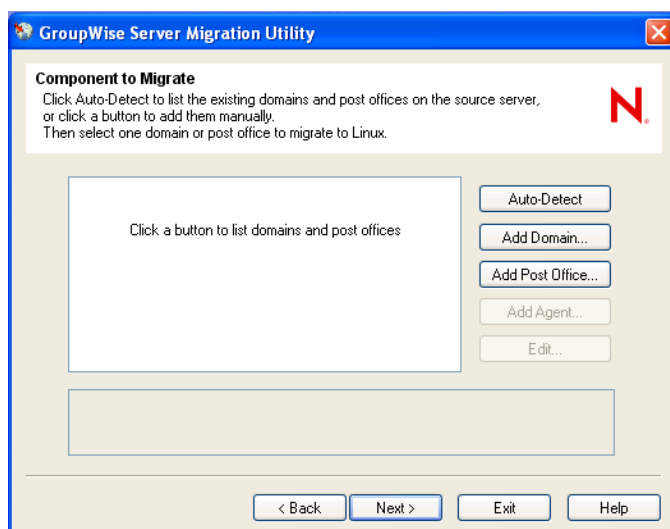
15 Continue with the task that you want to perform:

- Chapter 7, "Migrating a Post Office and Its POA to Linux," on page 35
- Chapter 8, "Migrating a Domain and Its Agents to Linux," on page 47

NOTE: The Server Migration Utility cannot migrate the Monitor Agent. You must migrate it manually. See "Manually Migrating Monitor to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

Migrating a Post Office and Its POA to Linux

7

The GroupWise® Server Migration Utility helps you migrate a post office and its POA to Linux.

7.1 Selecting a Post Office to Migrate

1 Start the Server Migration Utility and provide system information, as described in Chapter 6, "Running the Server Migration Utility," on page 31.

2 If you are migrating a post office on a NetWare® server:

   2a On the Component to Migrate page, click *Auto-Detect* to list identifiable post offices and domains.
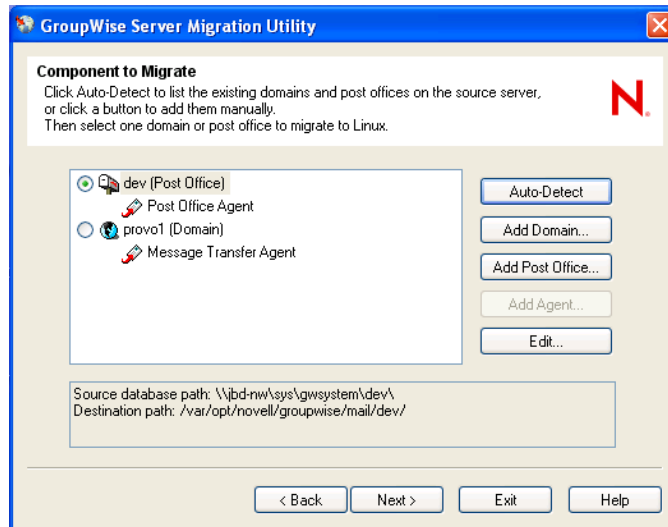
2b If you want to change the post office destination from the default of `/var/opt/ novell/groupwise/mail`:

2b1 Select the post office, then click *Edit*.

2b2 In the *Destination Path* field, specify the full path to the post office directory (worksheet item 8).

2b3 Click *OK* to return to the Component to Migrate page.

3 If you are migrating a post office on a Windows server, or if the *Auto-Detect* feature did not identify any post offices on your NetWare server:

3a Click *Add Post Office*.
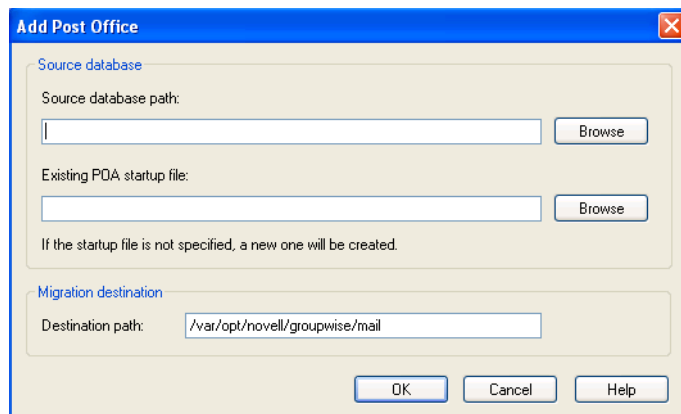
3b Provide the requested information about the post office and its POA (worksheet item 8).

3c Click *OK* to return to the Component to Migrate page.

The post office and POA that you identified are now listed.

NOTE: If you receive an error indicating that the startup path does not match the database source path, edit the POA startup file (`post_office.poa`) and modify the /home switch to use a UNC path (`\\server\volume\path`) instead of a mapped drive path (`drive:\path`).

---

4 Select the post office to migrate, then click *Next*.

5 If the post office has remote document storage areas, continue with Section 7.2, "Handling Remote Document Storage Areas," on page 37.

or

If you use SSL to secure the connections between agents, skip to Section 7.3, "Setting Up SSL," on page 38.

or

Skip to Section 7.4, "Performing the First Post Office Data Migration," on page 38.

7.2 Handling Remote Document Storage Areas

For background information about this process, see Section 4.4.3, "Remote Document Storage Areas for a Post Office," on page 21.

If the Server Migration Utility detects one or more remote document storage areas belonging to a post office, it provides a list of their locations.
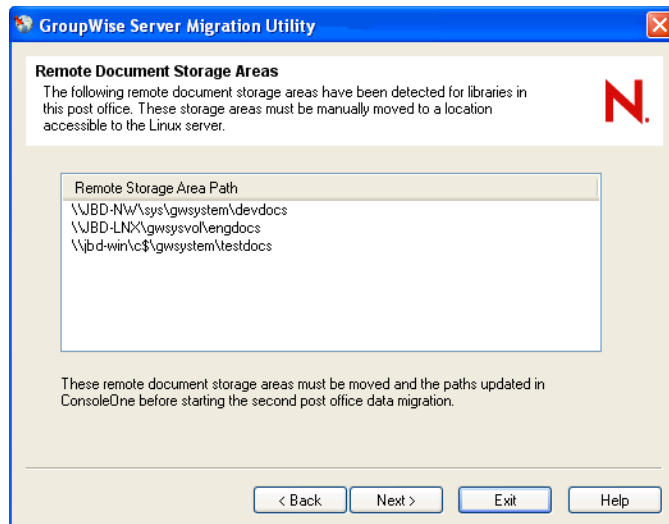
1 Mount each remote document storage area to the Linux server where you want the remote document storage area to reside.

If you need help with a mount command, see Section 1.1, "Mount Commands," on page 9 to review the mount commands used by the Server Migration Utility.

2 On the Linux server, change to the directory where you had the Server Migration Utility store the Linux RPMs during the migration (worksheet item 7)

The default location is /tmp/groupwise/software. At this point in the migration process, the GroupWise Database Copy utility (DBCopy) has been installed, so you can use it to manually copy the remote document storage areas.

3 Copy each remote document storage area to its planned destination (worksheet item 8), using the following dbcopy command:

```
./dbcopy -b /storage_area_directory /destination_directory
```

The -b switch indicates that DBCopy is being used to migrate a documentation storage area containing document BLOB (binary large object) files.

Instructions for updating the locations in ConsoleOne® are provided later, along with other ConsoleOne updates.

4 Click *Next* to display the Agent SSL Certificate and Key Files page.

5 If you do not use SSL, click *Next*, then skip to Section 7.4, "Performing the First Post Office Data Migration," on page 38.

or

Continue with Setting Up SSL.

7.3 Setting Up SSL

For background information about this process, see Section 4.6, "Handling SSL Certificate and Key Files," on page 22.

The Server Migration Utility can copy your certificate file and key file from the source server to the Linux server so that they are ready for use after you migrate the POA.
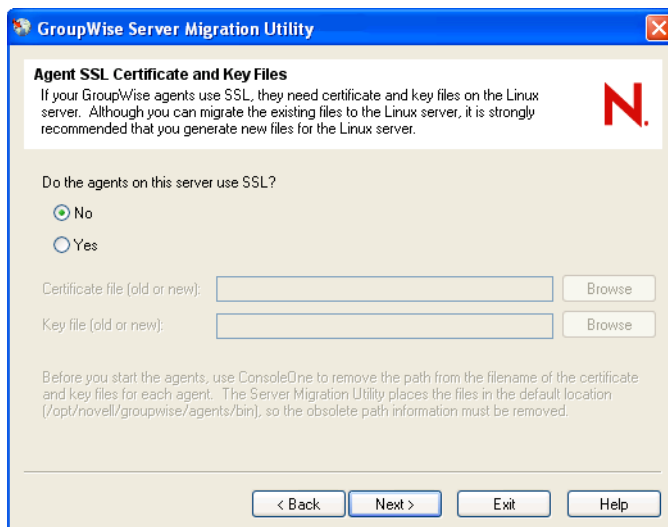
1 Select *Yes*.

2 Browse to and select the certificate file (worksheet item 12) that you want to copy to Linux.

3 Browse to and select the key file (worksheet item 12) that you want to copy to Linux.

4 Click *Next*.

5 Continue with Performing the First Post Office Data Migration.

7.4 Performing the First Post Office Data Migration

A summary of the information that the Server Migration Utility has gathered from you displays.

1 If the summary information is correct, click *Migrate*.

or

Click *Back* to change information as needed.

When the migration starts, the First Data Migration page keeps you informed about the progress of the post office migration with messages similar to the following:

```
Creating directories on Linux server...
Copying files...
Installing files...
Creating source server mount on Linux server...
Migrating data...
Copying agent configuration to Linux server...
Configuring agents...
Removing mount point...
```

For details about what happens during the first stage, see Section 1.3, "Post Office Migration Process," on page 10.

If you need to halt the process, click *Stop*. This returns you to the Summary page but does not delete files that have already been copied.

Depending on the size of the post office, the process can take several hours.

2 Continue with Testing the First Post Office Data Migration.

7.5 Testing the First Post Office Data Migration

After the first stage of the post office migration is complete, the Server Migration Utility prompts you to test the migration.
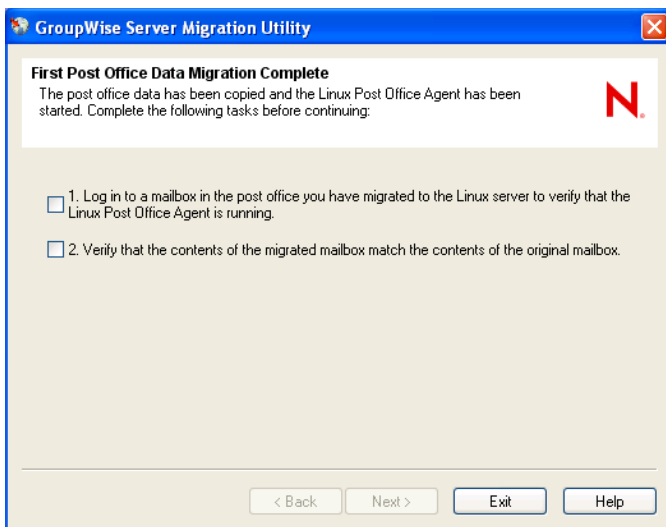
1 On the Windows workstation, log in to a migrated GroupWise mailbox.

Use the IP address of the destination Linux server and specify 1677 as the port number. This is the default POA client/server port number and is used by the Server Migration Utility when it configures the Linux POA. If you can log in and access the mailbox, it shows that the Linux POA is running for the migrated post office.

2 Verify that the contents of the migrated mailbox match the contents of the original mailbox.

If they match, the copy operation was successful.

If the first stage of the post office migration was not successful, review Chapter 5, "Meeting Migration Prerequisites," on page 27, then repeat the migration. If the first stage of the migration is still not successful using the Server Migration Utility, you can migrate the post office manually, as described in "Manually Migrating a Post Office and Its POA to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

3 If the migration test was successful, select both check boxes on the First Post Office Data Migration Complete page, then click *Next*.

The Server Migration Utility stops the Linux POA in preparation for the second stage of the post office migration and displays a list of manual tasks for you to complete before it can start the second stage of the post office migration.
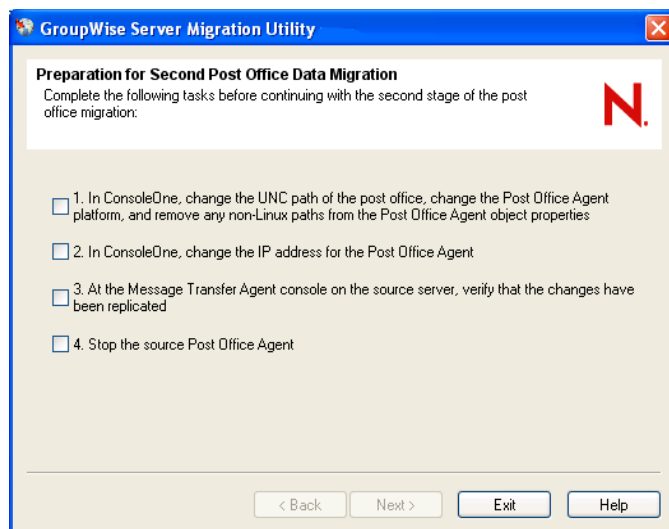
IMPORTANT: Do not proceed with the following steps unless you are ready to stop the source POA.

4 Leave the Server Migration Utility running while you perform the list of tasks.

5 Continue with Modifying Configuration Information in ConsoleOne.

7.6 Modifying Configuration Information in ConsoleOne

1 Start ConsoleOne on Windows.

2 Connect to the domain that owns the migrated post office.

3 Perform the following modifications:

- ◆ Section 7.6.1, "Reconfiguring the Migrated Post Office," on page 41
- ◆ Section 7.6.2, "Reconfiguring the Migrated POA," on page 41
- ◆ Section 7.6.3, "Reconfiguring Remote Document Storage Areas," on page 41
- ◆ Section 7.6.4, "Updating the POA IP Address," on page 42
- ◆ Section 7.6.5, "Verifying the Post Office Configuration Changes," on page 42

4 When you are finished working in ConsoleOne and have verified your configuration changes, skip to Section 7.7, "Stopping the Source POA," on page 42.

7.6.1 Reconfiguring the Migrated Post Office

1 Browse to and right-click the Post Office object, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *UNC Path* field, change the path to the location on the destination Linux server where you copied the post office. For example:

```
\\linuxsvr3\gwsystem\research
```

For a Linux server, ConsoleOne interprets the UNC path as a Linux path. Do not put a Linux path with front slashes in the *UNC Path* field, because backslashes are expected.

4 Click *OK* to save the new Linux path information for the post office.

5 Continue with Reconfiguring the Migrated POA.

7.6.2 Reconfiguring the Migrated POA

1 In ConsoleOne, browse to and right-click the POA object for the post office, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *Platform* field, select *Linux*, then click *Apply*.

4 Click *GroupWise > Log Settings*.

5 Make sure that the *Log File Path* field is empty so that the Linux POA creates its log files in the default location (`/var/log/novell/groupwise/`*post_office_name*`.poa`) on the Linux server.

6 Click *OK* to save the configuration information for the Linux POA.

7 If you have copied document storage areas to the Linux server, continue with Reconfiguring Remote Document Storage Areas.

or

7.6.3 Reconfiguring Remote Document Storage Areas

1 In ConsoleOne, browse to and right-click a Library object for the post office, then click *Properties*.

2 Click *GroupWise > Storage Areas*.

3 Select a storage area, then click *Edit*.

4 In the *Linux Path* field, specify the full path for the remote document storage area, then click *OK*.

5 Repeat Step 3 and Step 4 for each storage area in the list, then click *OK*.

6 Repeat Step 1 through Step 6 for each library in the post office.

7 Continue with Updating the POA IP Address.

7.6.4 Updating the POA IP Address

Updating the POA IP address must be the last configuration change you make in ConsoleOne. After you change the IP address, the POA can no longer communicate with the MTA because it is no longer using the IP address the MTA is configured to expect.

1 In ConsoleOne, browse to and right-click the POA object for the post office, then click *Properties*.

2 Click *GroupWise > Network Address*.

3 In the *TCP/IP Address* field, specify the IP address of the destination Linux server.

4 Click *OK* to save the new IP address.

5 Continue with Verifying the Post Office Configuration Changes.

7.6.5 Verifying the Post Office Configuration Changes

You can verify that the configuration changes have been replicated to the domain at the POA Web console.

1 Display the POA Web console.

```
http://source_server_address:port_number
```

For more information about the POA Web console, see "Using the POA Web Console" in "Post Office Agent" in the *GroupWise 7 Administration Guide*.

2 Click *MTP Status* to check the status of the link between the MTA for the domain and the source POA on NetWare or Windows.

The *Receive* link should display *Closed* because the MTA is now configured to communicate with the migrated post office's POA on a new IP address.

3 Continue with Stopping the Source POA.

7.7 Stopping the Source POA

Because you have migrated the post office to Linux, the source POA no longer has an active post office to service and the MTA can no longer communicate with it. Therefore, the source POA is no longer a necessary part of your GroupWise system.

1 Go to the source NetWare or Windows server where the original POA is still running.

2 Display the POA server console.

3 Stop the original POA on the source server.

4 Continue with Performing the Second Post Office Data Migration.

7.8 Performing the Second Post Office Data Migration

1 Return to the location where you are running the Server Migration Utility.

The Preparation for Second Post Office Data Migration page should still be displayed.
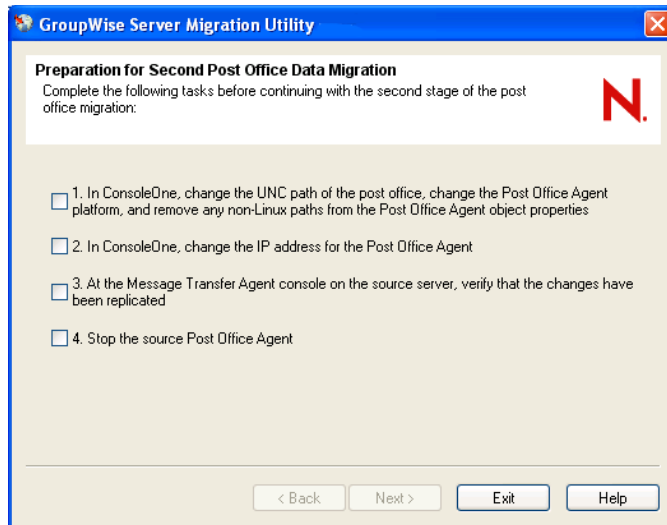
2 After you complete the manual tasks to finish the first stage of the migration, select the four check boxes, then click *Next* to continue with the second stage of the post office migration.

When the second stage of the post office migration starts, the Second Post Office Data Migration page keeps you informed about the progress of the migration with messages similar to the following:

```
Creating source server mount point...

Migrating data...

Removing mount point...
```

For details about what goes on during the second stage, see Section 1.3, "Post Office Migration Process," on page 10.

3 Continue with Finishing the Post Office Migration.

7.9 Finishing the Post Office Migration

When the second stage is finished, the Server Migration Utility gives you the opportunity to start the Linux POA immediately.
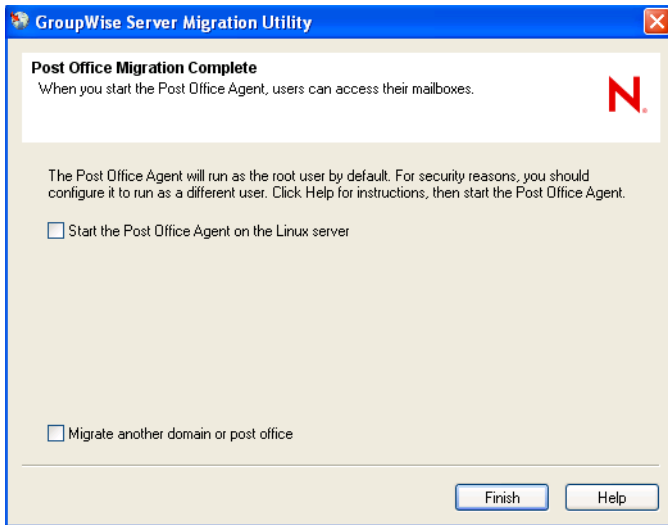
However, it is preferable to configure the Linux POA to run as a non-`root` user before you start it.

1 Access the Linux server, then follow the instructions in "Running the Linux GroupWise Agents as a Non-root User" in "Installing GroupWise Agents" in the *GroupWise 7 Installation Guide*.

2 Return to the Server Migration Utility, then select *Start the Post Office Agent on the Linux Server*.

3 If you have more GroupWise components to migrate from the same source server to the same destination server, select *Migrate Another Domain or Post Office* to return to the Component to Migrate page.

4 Click *Finish*.

5 Continue with Post-Migration Tasks for a Post Office.

7.10 Post-Migration Tasks for a Post Office

1 Check the Server Migration Utility log file to verify the success of the migration.

The log file is named gwsvrmig_*mmddyyyy_nnnn*.log and is found in the utility installation directory if the utility can write to that location. Otherwise, it is found in the /temp directory. It provides a migration summary and a listing of all actions taking by the Server Migration Utility.

2 If you see problems in the utility log file, check the GroupWise Database Copy utility (DBCopy) log file to obtain additional detail. The DBCopy log file is named *mmdd*gwbk.*nnn* and is found in the post office directory on the Linux server.

3 If you have problems starting the migrated POA, see Appendix A, "Troubleshooting Post-Migration Problems," on page 61.

4 If the post office migration is not successful using the Server Migration Utility, migrate the post office manually, as described in "Manually Migrating a Post Office and Its POA to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

5 Check the migrated POA startup file (*post_office*.poa in the /opt/novell/ groupwise/agents/share directory on the Linux server) to see if any startup switches have been commented out during migration, and as needed, adjust them for the new Linux environment.

The Server Migration Utility comments out any startup switches whose values contain NetWare or Windows paths or the IP address of the source server.

6 Set up a GroupWise name server to help GroupWise clients connect to the new IP address, as described in "Simplifying Client/Server Access with a GroupWise Name Server" in "Post Office Agent" in the *GroupWise 7 Administration Guide*.

7 If you copied remote document storage areas to Linux at the beginning of the migration process, copy them again using a slightly different `dbcopy` command:

```
./dbcopy -b -i mm-dd-yyyy /storage_area_directory
                                /destination_directory
```

This copies only the files that have been modified since you first copied the document storage area, like an incremental backup.

8 If you want to use the Monitor Agent to monitor the migrated POA on Linux, migrate the Monitor Agent manually.

See "Manually Migrating Monitor to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

9 If you want to migrate domains now, see Chapter 8, "Migrating a Domain and Its Agents to Linux," on page 47.

10 When you are completely finished with your migration to Linux, see Chapter 9, "What's Next," on page 59 for information about cleaning up the servers that you are no longer using for GroupWise.

Migrating a Domain and Its Agents to Linux

<div style="text-align: right; font-size: 2em; font-weight: bold;">8</div>

The GroupWise® Server Migration Utility helps you migrate a domain and its MTA to Linux.

IMPORTANT: If the domain has gateways, you should stop them before proceeding with the domain migration.

◆ Section 8.1, "Selecting a Domain to Migrate," on page 47
◆ Section 8.2, "Selecting Additional Agents to Migrate," on page 49
◆ Section 8.3, "Setting Up SSL," on page 49
◆ Section 8.4, "Preventing an Internet Agent Port Conflict," on page 50
◆ Section 8.5, "Modifying Configuration Information in ConsoleOne," on page 52
◆ Section 8.6, "Stopping the Source Domain Agents," on page 54
◆ Section 8.7, "Migrating the Domain Data," on page 55
◆ Section 8.8, "Finishing the Domain Migration," on page 55
◆ Section 8.9, "Manually Migrating the MTA Working Directory," on page 56
◆ Section 8.10, "Post-Migration Tasks for a Domain," on page 57

8.1 Selecting a Domain to Migrate

1 Start the Server Migration Utility and provide system information, as described in Chapter 6, "Running the Server Migration Utility," on page 31.

2 If you are migrating a domain on a NetWare® server:

2a On the Component to Migrate page, click *Auto-Detect* to list identifiable post offices and domains.
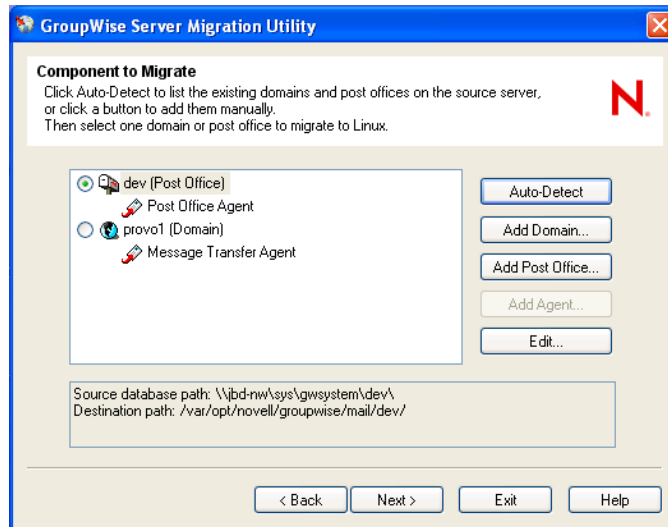
2b If you want to change the domain destination from the default `/var/opt/novell/groupwise/mail`:

2b1 Select the domain, then click *Edit*.

2b2 In the *Destination Path* field, specify the full path to the domain directory (worksheet item 9).

2b3 Click *OK* to return to the Component to Migrate page.

3 If you are migrating a domain on a Windows server, or if the *Auto-Detect* feature did not identify any domains on your NetWare server:

3a Click *Add Domain*.
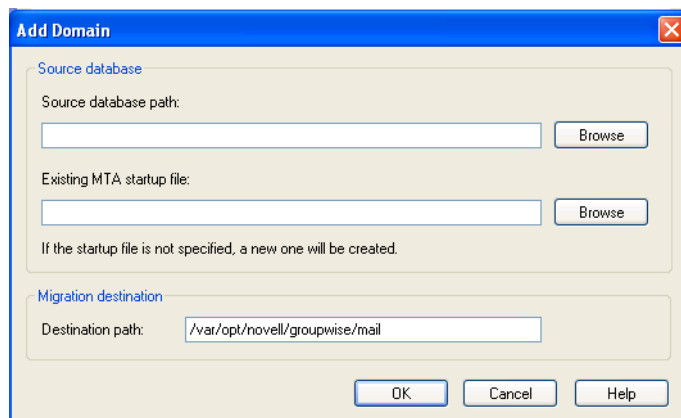
3b Provide the requested information about the domain and its MTA (worksheet item 9).

3c Click *OK* to return to the Component to Migration page.

The domain and MTA that you identified are now listed.

NOTE: If you receive an error indicating that the startup path does not match the database source path, edit the MTA startup file (`domain.mta`) and modify the /home switch to use a UNC path (`\\server\volume\path`) instead of a mapped drive path (`drive:\path`).

---

4 Select the domain to migrate.

5 Continue with Selecting Additional Agents to Migrate.

8.2 Selecting Additional Agents to Migrate

If the domain has agents in addition to the MTA:

1 Click *Add Agent*.
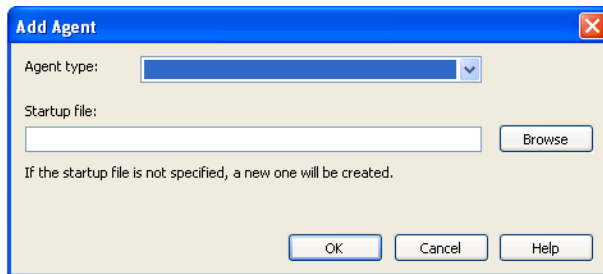
2 In the *Agent Type* drop-down list, select the type of agent to add (*Internet Agent* or *WebAccess Agent*).

3 In the *Startup File* field, browse to and select the agent startup file (worksheet item 10 or worksheet item 11).

4 Click *OK*.

5 If you need to add another agent for the domain, repeat Step 1 through Step 4.

6 When all domain agents are listed, click *Next* to display the Agent SSL Certificate and Key Files page.

7 If you do not use SSL, click *Next*, then skip to Section 8.4, "Preventing an Internet Agent Port Conflict," on page 50 if applicable, or skip to Section 8.5, "Modifying Configuration Information in ConsoleOne," on page 52.

or

Continue with Setting Up SSL.

8.3 Setting Up SSL

For background information about this process, see Section 4.6, "Handling SSL Certificate and Key Files," on page 22.

The Server Migration Utility can copy your certificate file and key file from the source server to the Linux server so that they are ready for use after you migrate the agents.
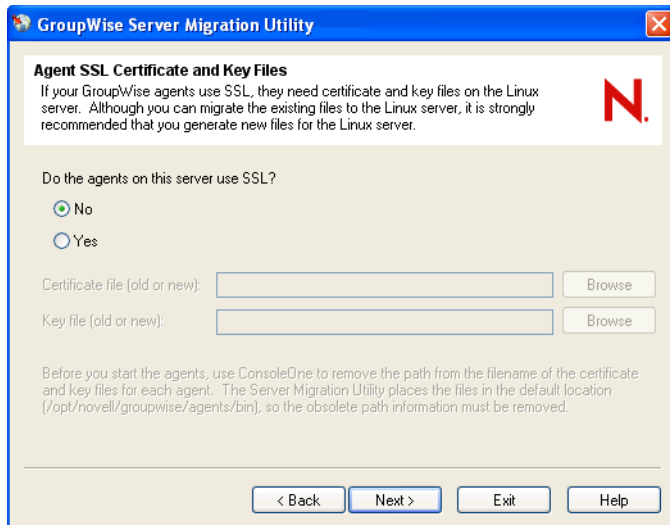
1 Select *Yes*.

2 Browse to and select the certificate file (worksheet item 12) that you want to copy to Linux.

3 Browse to and select the key file (worksheet item 12) that you want to copy to Linux.

4 Click *Next*.

5 If you are migrating the Internet Agent, continue with Preventing an Internet Agent Port Conflict.

   or

   Skip to Section 8.5, "Modifying Configuration Information in ConsoleOne," on page 52.

8.4 Preventing an Internet Agent Port Conflict

For background information about this issue, see Section 4.5, "Handling the Potential Internet Agent Port Conflict," on page 22.

If you are migrating the Internet Agent, the Server Migration Utility helps you avoid a potential port or IP address conflict between the Internet Agent and Postfix, a common Linux mail program.
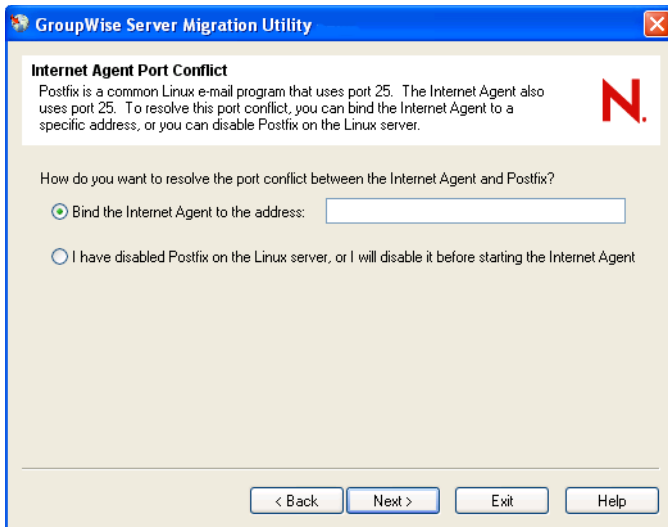
1 Specify the IP address of the Linux server (worksheet item 10)

or

Select *I have disabled Postfix on the Linux server...*

If you select this option, make sure that Postfix is disabled. If it is not, the Internet Agent cannot start at the end of the migration process. If you did not disabling Postfix during the planning stage, see Section 4.5, "Handling the Potential Internet Agent Port Conflict," on page 22.

2 Click *Next* to display a list of manual tasks for you to complete before the Server Migration Utility can start the domain migration.
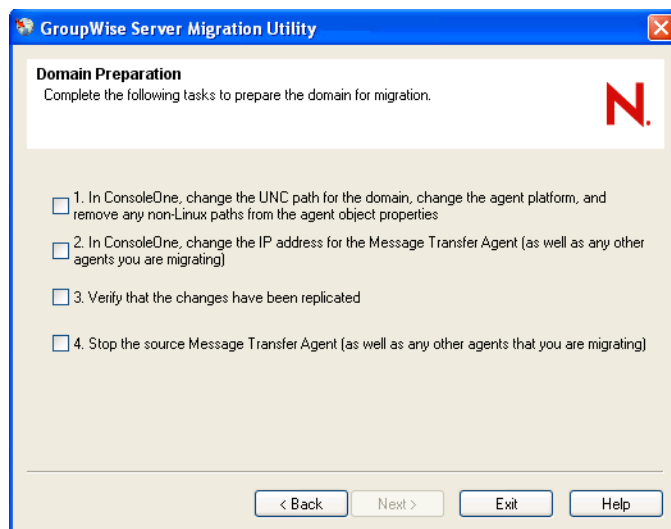
IMPORTANT: Do not proceed with the following steps unless you are ready to stop the source domain agents.

3 Leave the Server Migration Utility running while you perform the list of tasks.

4 Continue with Modifying Configuration Information in ConsoleOne.

8.5 Modifying Configuration Information in ConsoleOne

1 Start ConsoleOne® on Windows.

2 Connect to the source domain.

3 Perform the following modifications:

- Section 8.5.1, "Reconfiguring the Migrated Domain," on page 52
- Section 8.5.2, "Reconfiguring the Migrated MTA," on page 52
- Section 8.5.3, "Reconfiguring the Migrated Internet Agent," on page 53
- Section 8.5.4, "Reconfiguring the Migrated WebAccess Agent," on page 53
- Section 8.5.5, "Updating the IP Addresses of the Agents," on page 53
- Section 8.5.6, "Verifying the Domain Configuration Changes," on page 54

8.5.1 Reconfiguring the Migrated Domain

1 Browse to and right-click the Domain object, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *UNC Path* field, change the path to the location on the destination Linux server where you copied the domain. For example:

```
\\linuxsvr3\gwsystem\provo1
```

For a Linux server, ConsoleOne interprets the UNC path as a Linux path. Do not put a Linux path with front slashes in the *UNC Path* field, because backslashes are expected.

4 Click *OK* to save the new Linux path information for the domain.

5 Continue with Reconfiguring the Migrated MTA.

8.5.2 Reconfiguring the Migrated MTA

1 In ConsoleOne, browse to and right-click the MTA object for the domain, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *Platform* field, select *Linux*, then click *Apply*.

4 Click *GroupWise > Log Settings*.

5 Make sure that the *Log File Path* field is empty so that the Linux MTA creates its log files in the default location (`/var/log/novell/groupwise/domain_name.mta`) on the Linux server.

6 Click *OK* to save the configuration information for the Linux MTA.

7 Continue with the sections that apply to your domain:

- Section 8.5.3, "Reconfiguring the Migrated Internet Agent," on page 53
- Section 8.5.4, "Reconfiguring the Migrated WebAccess Agent," on page 53

or

Skip to Section 8.5.5, "Updating the IP Addresses of the Agents," on page 53.

8.5.3 Reconfiguring the Migrated Internet Agent

1 In ConsoleOne, browse to and right-click the Internet Agent object for the domain, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *Platform* field, select *Linux*, then click *Apply*.

4 Click *GroupWise > Log Settings*.

5 Make sure that the *Log File Path* field is empty so that the Linux Internet Agent creates its log files in the default location (`/var/log/novell/groupwise/`*domain_name*`.gwia`) on the Linux server.

6 Click *OK* to save the configuration information for the Linux Internet Agent.

7 Continue with Reconfiguring the Migrated WebAccess Agent

or

Skip to Section 8.5.5, "Updating the IP Addresses of the Agents," on page 53.

8.5.4 Reconfiguring the Migrated WebAccess Agent

1 In ConsoleOne, browse to and right-click the WebAccess Agent object for the domain, then click *Properties*.

2 Click *GroupWise > Identification*.

3 In the *Platform* field, select *Linux*, then click *Apply*.

4 Click *GroupWise > Log Settings*.

5 Make sure that the *Log File Path* field is empty so that the Linux WebAccess Agent creates its log files in the default location (`/var/log/novell/groupwise/`*domain_name*`.webac70a`) on the Linux server.

6 Click *OK* to save the configuration information for the Linux WebAccess Agent.

The Server Migration Utility migrates the WebAccess Agent but not the WebAccess Application that is installed with your Web server. If you want to use a Linux Web server with WebAccess, you can follow the instructions in "Manually Migrating the WebAccess and WebPublisher Applications to Linux" in "Migration" in the *GroupWise 7 Installation Guide* after you have finished migrating the domain.

7 Continue with Updating the IP Addresses of the Agents.

8.5.5 Updating the IP Addresses of the Agents

Updating the agent IP address information must be the last configuration change you make in ConsoleOne. After you change the IP address, the agents can no longer communicate with other GroupWise agents because they are no longer using the IP address the other GroupWise agents are configured to expect.

1 In ConsoleOne, browse to and right-click the MTA object for the domain, then click *Properties*.

2 Click *GroupWise > Network Address*.

3 In the *TCP/IP Address* field, specify the IP address of the destination Linux server.

4 Click *OK* to save the new IP address for the agent.

5 If you are migrating the Internet Agent, repeat Step 1 through Step 4 for the Internet Agent object.

6 If you are migrating the WebAccess Agent, repeat Step 1 through Step 4 for the WebAccess Agent object.

7 Continue with Verifying the Domain Configuration Changes.

8.5.6 Verifying the Domain Configuration Changes

When the configuration changes have been replicated, the link from the Message Transfer Agent to other Message Transfer Agents in your system reflects the Linux location.

1 In ConsoleOne, browse to and select the Domain object for the domain you have migrated, then click *Tools > GroupWise Utilities > Link Configuration*.

2 In the Inbound Links box, double-click a domain that links to the migrated domain.

The *IP Address* field should display the new Linux IP address for the migrated domain.

3 Click *Cancel*, then click *File > Exit* to exit the Link Configuration utility.

4 Continue with Stopping the Source Domain Agents.

You can also verify that the configuration have been replicated to domains and post offices at the MTA Web console.

1 Display the MTA Web console.

```
http://source_server_address:port_number
```

For more information about the MTA Web console, see "Using the MTA Web Console" in "Message Transfer Agent" in the *GroupWise 7 Administration Guide*.

2 Click *Links* to check the status of the links between the source MTA and other domains and post offices on NetWare or Windows.

The links should display *Closed* because the migrated MTA is now configured to communicate on a new IP address.

3 Continue with Stopping the Source Domain Agents.

8.6 Stopping the Source Domain Agents

Because you have migrated the domain to Linux, the source MTA, Internet Agent, and WebAccess Agent no longer have an active domain to service and other agents in the GroupWise system can no longer communicate with them. Therefore, the source domain agents are no longer a necessary part of your GroupWise system.

1 Go to the source NetWare or Windows server where the original MTA and other domain agents are still running.

2 Display the MTA server console.

3 Stop the original MTA on the source server.

4 If applicable, stop the original Internet Agent on the source server.

5 If applicable, stop the original WebAccess Agent on the source server.

6 Continue with Migrating the Domain Data.

8.7 Migrating the Domain Data

1 Return to where you are running the Server Migration Utility.

The Domain Preparation page should still be displayed.
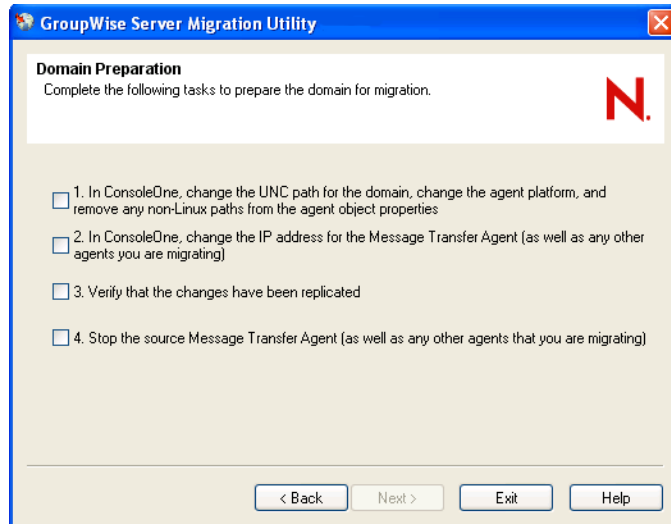
2 Select the check box for each task you have completed, then click *Next* to display a summary of the information that the Server Migration Utility has gathered from you.

3 If the information is correct, click *Migrate*.

or

Click *Back* to change information as needed.

When the domain migration starts, the Domain Data Migration page keeps you informed about the progress of the domain migration with messages similar to the following:

```
Creating directories on Linux server...
Copying files...
Installing files...
Creating source server mount on Linux server...
Migrating data...
Copying agent configuration to Linux server...
Configuring agents...
Removing mount point...
```

For details about what happens, see Section 1.4, "Domain Migration Process," on page 11.

If you need to halt the process, click *Stop*. This returns you to the Summary page but does not delete files that have already been copied.

4 Continue with Finishing the Domain Migration.

8.8 Finishing the Domain Migration

When the domain migration is completed, the Server Migration Utility gives you the opportunity to start the Linux MTA and other agents immediately.
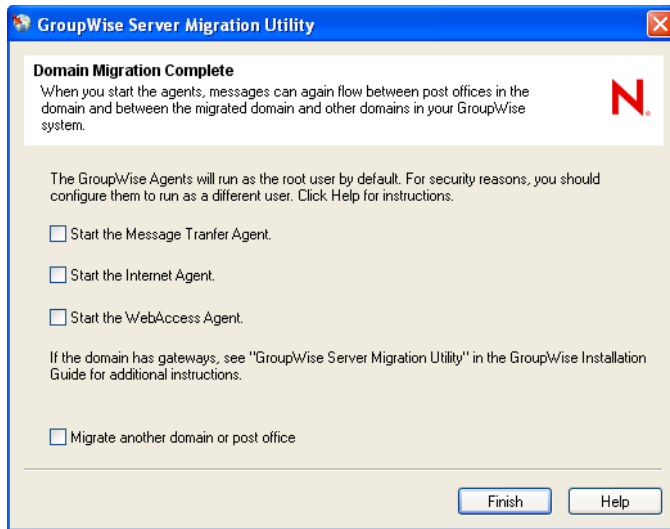
However, it is preferable to configure the Linux agents to run as a non-`root` user before you start them.

1 Access the Linux server, then follow the instructions in "Running the Linux GroupWise Agents as a Non-root User" in "Installing GroupWise Agents" in the *GroupWise 7 Installation Guide*.

2 Return to the Server Migration Utility, then select the check box for each agent that you want to start.

3 If you have more GroupWise components to migrate, select *Migrate Another Domain or Post Office* to return to the Component to Migrate page and select another GroupWise component to migrate from the same source server to the same destination server.

4 Click *Finish*.

5 If necessary, continue with Manually Migrating the MTA Working Directory.

or

Skip to Section 8.10, "Post-Migration Tasks for a Domain," on page 57.

8.9 Manually Migrating the MTA Working Directory

If the MTA's working directory (`mslocal`) was located where the Server Migration Utility could not copy it, such as on a different volume of a NetWare server from where the domain directory was located:

1 Copy the `mslocal` directory and its contents to the desired location on the Linux server.

2 Edit the MTA startup file (*domain*.mta in the `/opt/novell/groupwise/agents/share` directory).

3 Set the --work switch to the new location of the `mslocal` directory.

4 Start or restart the Linux MTA, so that it reads its modified startup file, as described in "Starting the Linux GroupWise Agents as Daemons" in "Installing GroupWise Agents" in the *GroupWise 7 Installation Guide*.

5 Continue with Post-Migration Tasks for a Domain.

8.10 Post-Migration Tasks for a Domain

1. Check the Server Migration Utility log file to verify the success of the migration.

   The log file is named `gwsvrmig_`*`mmddyyyy_nnnn`*`.log` and is found in the utility installation directory if the utility can write to that location. Otherwise, it is found in the `/temp` directory. It provides a migration summary and a listing of all actions taking by the Server Migration Utility.

2. If you see problems in the utility log file, check the GroupWise Database Copy utility (DBCopy) log file to obtain additional detail. The DBCopy log file is named *`mmdd`*`gwbk.`*`nnn`* and is found in the domain directory on the Linux server.

3. If the domain migration is not successful using the Server Migration Utility, migrate the domain manually, as described in "Manually Migrating a Domain and Its MTA to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

4. Check the migrated agent startup files (*`domain`*`.mta`, *`gwia`*`.cfg`, and *`webac70a`*`.waa` in the `/opt/novell/groupwise/agents/share` directory on the Linux server) to see if any startup switches have been commented out during migration, and as needed, adjust them for the new Linux environment.

   The Server Migration Utility comments out any startup switches whose values contain NetWare or Windows paths or the IP address of the source server.

5. If the domain has gateways, leave them where they are on the source server or consolidate them onto a single NetWare or Linux server.

   GroupWise gateways cannot be migrated to Linux because there are no versions that run on Linux. You must keep them on the platform where they are currently running. If you set up a domain solely for gateways on your source platform and set up all gateways in that domain, it simplifies gateway administration after the rest of your GroupWise system has been migrated to Linux.

6. If you want to use the Monitor Agent to monitor the migrated agents on Linux, migrate the Monitor Agent manually.

   See "Manually Migrating Monitor to Linux" in "Migration" in the *GroupWise 7 Installation Guide*.

7. When you are completely finished with your migration to Linux, see Chapter 9, "What's Next," on page 59 for information about cleaning up the servers that you are no longer using for GroupWise.

What's Next

After you have migrated all your GroupWise® post offices and domains to Linux, you have NetWare® or Windows servers that are no longer being used for GroupWise. If you plan to use those servers for other purposes in the future, you need to remove the GroupWise data and software from them.

- Section 9.1, "Directories," on page 59
- Section 9.2, "NetWare Software," on page 59
- Section 9.3, "Windows Software," on page 60

9.1 Directories

Remove the following directories from NetWare and Windows servers:

Table 9-1 *GroupWise Directories*

GroupWise 7 Instructions	GroupWise 6.5 Instructions
- Domain directory - Post office directory - MTA working directory (if it is not under the domain) - Software distribution directory	- Domain directory - Post office directory - MTA working directory (if it is not under the domain) - Software distribution directory

The links in the table provide information about the directories so that you can identify them on the source server.

9.2 NetWare Software

For a NetWare server, uninstall the following GroupWise agent software:

Table 9-2 *GroupWise NetWare Agent Software*

GroupWise 7 Instructions	GroupWise 6.5 Instructions
- MTA and POA - Internet Agent - WebAccess	- MTA and POA - Internet Agent - WebAccess

The links in the table provide NetWare uninstallation instructions. Be sure to remove the migrated agents from the NetWare `autoexec.ncf` file so that the server does not try to start the migrated agents automatically when it is restarted.

NOTE: The GroupWise 7 uninstallation procedures can be used for the GroupWise 6.5 agents.

9.3 Windows Software

For a Windows server, uninstall the following GroupWise agent software:

Table 9-3 *GroupWise Windows Agent Software*

GroupWise 7 Instructions	GroupWise 6.5 Instructions
◆ MTA and POA	◆ MTA and POA
◆ Internet Agent	◆ Internet Agent
◆ WebAccess	◆ WebAccess

The links in the table provide Windows uninstallation instructions.

NOTE: The GroupWise 7 uninstallation procedures can be used for the GroupWise 6.5 agents.

Troubleshooting Post-Migration Problems

<div style="float:right; font-size:4em; font-weight:bold">A</div>

- "Messages are not flowing between the migrated POA and the MTA for the domain" on page 61
- "The POA cannot start" on page 61
- "The POA cannot start due to incorrect permissions" on page 62
- "The POA cannot start due to a C06B error" on page 62
- "The POA starts with SSL errors" on page 63
- "The POA starts with TCP/IP errors" on page 63

Messages are not flowing between the migrated POA and the MTA for the domain

Problem: The migrated POA and the MTA for the domain are not able to communicate with each other.

Possible Cause: The source POA was stopped before the configuration changes described in Section 7.6, "Modifying Configuration Information in ConsoleOne," on page 40 replicated to the POA.

Action: Manually configure the MTP link between the source POA and the MTA for the domain.

   1 Display the POA Web console.

      `http://source_server_address:port_number`

      For more information about the POA Web console, see "Using the POA Web Console" in "Post Office Agent" in the *GroupWise 7 Administration Guide*.

   2 Click *MTP Status*.

      The status in the *Receive* column shows *Closed*.

   3 Click the *Closed* link,

   4 In the *Address* field, specify the new IP address of the POA, then select *Start MTP Receive*.

   5 Click *Submit* to execute the actions.

The POA cannot start

Problem: The POA tries to start, but exits.

Possible Cause: The POA log file path information has not yet been reconfigured, as described in Section 7.6.2, "Reconfiguring the Migrated POA," on page 41.

Action: Properly configure the log file path.

   1 Start the POA with the /noconfig switch so that the POA ignores the troublesome configuration settings and starts successfully.

2 Because of the /noconfig switch, manually configure the link between the POA and the MTA for the domain as described in "Messages are not flowing between the migrated POA and the MTA for the domain" on page 61

3 Follow the instructions in Section 7.6.2, "Reconfiguring the Migrated POA," on page 41 to configure the log file path correctly.

4 Allow time for the configuration information to replicate from ConsoleOne to the post office database (wphost.db) so that the POA has the correct configuration settings.

5 Start the POA again.

It should start successfully this time.

The POA cannot start due to incorrect permissions

Problem: The POA cannot start and displays the following message:

```
Error: Running the agent with conflicting effective users
```

Possible Cause: You are trying to set the POA up to run as a non-root user, as described in "Running the Linux GroupWise Agents as a Non-root User" in "Installing GroupWise Agents" in the *GroupWise 7 Installation Guide*, but you have already run the POA as root.

Action: Remove the file that is preventing the POA from running as a non-root user.

1 On the Linux server, change to the post office directory.

2 Delete the uid.run file.

3 Start the POA again.

It should start successfully this time.

The POA cannot start due to a C06B error

Problem: The POA tries to start, but displays a C06B error and exits.

Possible Cause: The post office owns a library that has one or more remote document storage areas and they have not been configured with Linux paths, as described in Section 7.6.3, "Reconfiguring Remote Document Storage Areas," on page 41.

Action: Properly configure the remote document storage area.

1 Start the POA with the /noconfig switch so that the POA ignores the troublesome configuration settings and starts successfully.

2 Because of the /noconfig switch, manually configure the link between the POA and the MTA for the domain as described in "Messages are not flowing between the migrated POA and the MTA for the domain" on page 61

3 Follow the instructions in Section 7.6.3, "Reconfiguring Remote Document Storage Areas," on page 41 to configure the remote document storage areas correctly.

4 Allow time for the configuration information to replicate from ConsoleOne to the post office database (wphost.db) so that the POA has the correct configuration settings.

5 Start the POA again.

It should start successfully this time.

The POA starts with SSL errors

Problem: The POA starts, but messages indicate that SSL is not available.

Possible Cause: The POA SSL certificate and key file paths have not yet been reconfigured, as described in Section 4.6, "Handling SSL Certificate and Key Files," on page 22 and Section 7.3, "Setting Up SSL," on page 38.

Action: Properly configure the SSL certificate and key files for the POA

1 In ConsoleOne, browse to and right-click the POA object, then click *Properties*.

2 Click *GroupWise > SSL Settings*.

3 Remove the path information from the *Certificate File* and *Key File* fields.

It pertains to the source NetWare or Windows server, not the Linux server, and is therefore not needed.

The Server Migration Utility places certificate files and key files in their default location on Linux (/opt/novell/groupwise/agents/bin).

4 Click *OK* to save the settings.

5 Allow time for the configuration information to replicate from ConsoleOne to the post office database (wphost.db).

When the POA has the correct configuration settings, SSL becomes enabled as usual.

The POA starts with TCP/IP errors

Problem: The POA starts with the error:

```
TCP/IP services on your system may not be configured or installed
```

Possible Cause: The /ip startup switch in the POA startup file (/opt/novell/agents/share/*post_office*.poa) still has the IP address of the source NetWare or Windows server.

This would only happen if you manually copied the startup file to the Linux server, because the Server Migration Utility comments out the /ip switch in order to avoid this problem.

Action: Edit the POA startup file and update the IP address to match the Linux server.