Novell ZENworks® Desktop Management

6.5

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INSTALLATION GUIDE

May 19, 2006

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Novell ZENworks 6.5 Desktop Management Installation Guide
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About This Guide

This *ZENworks 6.5 Desktop Management Installation Guide* includes information about the planning, installing, setting up, and testing processes that Novell® ZENworks® 6.5 Desktop Management customers will typically encounter while implementing this product.

The information in this guide is organized in several parts:

- "Overview" on page 17
- "Preparation" on page 29
- "Installation" on page 53
- "Upgrade" on page 181
- "Interoperability" on page 315
- "Uninstall/Reinstall" on page 339
- "Appendixes" on page 357

NOTE: For information about upgrading to ZENworks 6.5 Desktop Management Support Pack 1, see Chapter 22, "Upgrading to ZENworks 6.5 Desktop Management Support Pack 1," on page 275.

For information about upgrading to ZENworks 6.5 Desktop Management Support Pack 2, see Chapter 23, "Upgrading to ZENworks 6.5 Desktop Management Support Pack 2," on page 295.

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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 UNIX, should use forward slashes as required by your software.

User Comments

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, updated version of the *ZENworks 6.5 Desktop Management Installation Guide*, visit the Novell ZENworks 6.5 Web site (http://www.novell.com/documentation/zenworks65).

Additional Documentation

ZENworks 6.5 Desktop Management is supported with other documentation (in both PDF and HTML formats) that you can use to learn about and implement the product:

- *Novell ZENworks 6.5 Desktop Management Administration Guide*
- *Novell ZENworks 6.5 Desktop Management Troubleshooting Guide*
- *Novell ZENworks 6.5 Glossary*

In addition, the other capabilities included in the ZENworks 6.5 suite have extensive documentation for your use. For a full list of this documentation, see the Table of Contents for ZENworks 6.5 at the Novell ZENworks 6.5 Web site (http://www.novell.com/documentation/zenworks65).

Overview

The information in this section includes the following:

- Chapter 1, “What Is ZENworks Desktop Management?,” on page 19
- Chapter 2, “Platform Support for the Desktop Management Infrastructure,” on page 25

1 What Is ZENworks Desktop Management?

Novell® ZENworks® 6.5 Desktop Management is one of the core components of the ZENworks 6.5 Suite. It uses Policy-Driven Automation to reduce and in some cases eliminate desktop management tasks such as software distribution, software repair, desktop configuration, workstation imaging, remote management, and workstation inventory throughout the lifecycle of the device.

- "Automatic Workstation Import and Removal" on page 19
- "Workstation Management" on page 19
- "Application Management" on page 20
- "Workstation Imaging" on page 21
- "Remote Management" on page 21
- "Workstation Inventory" on page 22
- "Sybase" on page 23

Automatic Workstation Import and Removal

The Automatic Workstation Import service and the Automatic Workstation Removal service provide simplified, hands-off management of users' workstations.

Automatic Workstation Import imports workstations into eDirectory and integrates them automatically. The Workstation objects created by Automatic Workstation Import provide you with a way to push software and computer settings down to the workstations by using the Novell Application Launcher™ (NAL) and ZENworks Desktop Management policies.

Automatic Workstation Removal removes obsolete workstation data from the directory and from the Inventory database.

Workstation Management

Workstation Management helps you reduce the overall cost and complexity of configuring and maintaining workstation desktops in your network. ZENworks policies provide you with automatic management of server, user, and workstation configurations, processes, and behaviors, which means that you do not need to visit each workstation in your site to configure user settings and workstations. Using Workstation Management, you can:

- Enable roaming profiles and set default desktop preferences for users
- Use extensible policies to control any application function that is configured in the Windows* registry
- Set group policies for Windows 2000/XP workstations and users

- Set parameters for remotely managing users' workstations, including remote control, remote view, diagnostics, file transfer, remote execute, and Wake-on-LAN
- Set parameters for imaging workstations
- Set parameters to specify what inventory information to collect
- Set parameters to automatically import new workstations into the eDirectory tree
- Set user parameters for using Novell iPrint, which lets users use a Web browser to install printers on their workstations
- Configure users' terminal server connections

Application Management

Application Management helps you manage the distribution of applications to users on Windows workstations. Using Application Management, you can:

- Distribute traditional Windows applications and Microsoft* Windows Installer applications. Traditional Windows applications include their own installation programs. Windows Installer applications utilize the Windows Installer and an .msi file for installation.
- Distribute Web applications. Web applications run on a Web server, so the distribution typically involves making the URL available to the user.
- Distribute applications from the network (while connected to eDirectory) or from removable media, such as a CD, Jaz* drive, or Zip* drive (even while disconnected from eDirectory).
- Determine which users an application is distributed to. You must associate an application with a user through eDirectory before the application will be available for distribution to the user. You can also associate applications with workstations so that they are available on the workstation regardless of which user is logged in.
- Create application dependencies. Through application dependencies, you can require that Application B is installed and running before Application A can be launched.
- Determine how distributed applications will be presented to users on their workstations.

  For a user to receive applications you've configured in eDirectory and associated with him or her, Novell Application Launcher must be running on the user's workstation. Application Launcher accesses eDirectory to know which applications are associated with the user and performs all distribution processes (including installing and uninstalling) for the applications.

  Application Launcher provides three views through which applications can be presented: 1) the Application Window, a standalone window that displays icons for the distributed applications, 2) Application Explorer, a component that includes a standalone window like the Application Window and also includes Windows Explorer integration so distributed application icons can be displayed on the Windows desktop, the Start menu, the System Tray, and the Quick Launch bar, and 3) the Application Browser, a Web browser view that displays icons for the distributed applications. All three views are made available to users when Application Launcher is installed.
- Distribute applications to newly imaged workstations as part of the imaging process.
- Control which non-distributed applications can be run on a workstation. For example, if you don't want users to be able to launch the Microsoft Calculator because you want them to use a calculator application you've distributed to them, you can disable their ability to launch Calculator even though it was not distributed through Application Launcher.
- Uninstall any distributed applications. The uninstall includes the deletion of all non-shared files, .ini entries, and registry entries associated with the distribution of the application.

Workstation Imaging

Using Workstation Imaging, you can perform the following imaging operations:

- Take an image of a workstation and store it on the same workstation (locally) or on an imaging (proxy) server.
- Create an “add-on” image of selected files.
- Customize an image.
- Compress an image to minimize storage space.
- Retrieve an image that has been saved to a workstation (locally) or an imaging (proxy) server, and restore it to a workstation. You can do this manually at each workstation or automatically from ConsoleOne®.
- Use a workstation or server policy to define imaging operations.
- Create a script to customize and automate how you perform imaging operations.
- Restore an image to many workstations simultaneously in a multicast session.
- View information about the partitions and storage devices on a workstation.
- Create, delete, and activate partitions.

Remote Management

Remote Management lets you remotely manage workstations (called managed workstations) from the remote management console. Remote Management lets you do the following:

- Remotely wake up a powered-off managed workstation
- Remote control the managed workstation
- Remotely view the managed workstation
- Remotely run executables found on the managed workstation with system rights, even if the logged-in user is not a member of the local Administrators Group
- Transfer files between the remote management console and the managed workstation
- Display information to diagnose problems on the managed workstation
- Log audit record information about the Remote Management sessions that are performed on the managed workstation
- Blank the managed workstation screen during a Remote Control session
- Lock the keyboard and mouse controls at the managed workstation during a Remote Control session

IMPORTANT: You cannot use ZENworks 6.5 Desktop Management to obtain Remote Management functionality on the servers. The Remote Management functionality of ZENworks Server Management can be used to remotely manage Windows 2000/2003 servers. For more information, see the ZENworks Server Management documentation (http://www.novell.com/documentation).

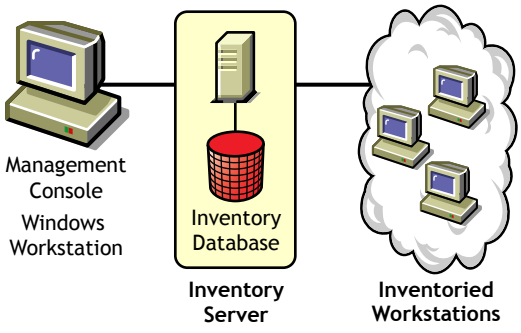
Workstation Inventory

ZENworks Desktop Management lets you gather and administer complete hardware and software information for all workstations connected to your network. From ConsoleOne, you can view the complete hardware and software inventory of the workstations. You can also query the centralized database of the workstations and generate reports. Desktop Management also provides roll-up of inventory information across servers, firewall, and eDirectory trees for large networks.

The following brief glossary provides basic definitions of Workstation Inventory terms:

- **Inventoried workstation:** A Windows workstation whose hardware and software data you want to scan and maintain in a central repository. To gather complete hardware and software inventory for a workstation, you must install the Inventory Agent (part of the ZENworks Desktop Management Agent) on that workstation.
- **Inventory server:** A NetWare® or Windows server where you run the Inventory service. This server can also run any other Desktop Management services. The Inventory server collects the inventory data from associated inventoried workstations and stores it into the Inventory.
- **Inventory database:** A repository of inventory information of all the inventoried workstations.
- **Database server:** A NetWare or Windows server running Sybase, Oracle, or MS SQL where your Inventory database is mounted.
- **Management console:** A Windows workstation or server running Novell ConsoleOne with Desktop Management Workstation Inventory ConsoleOne snap-ins installed. The management console provides the interface to administer the inventory system.

The focus of the *Installation Guide* is to set up a pilot system so that you can better understand Workstation Inventory. The pilot system consists of a management console, an Inventory server, an Inventory database running Sybase*, and one or more inventoried workstations, as shown below.



This setup has the following features:

- The Inventory server and the inventoried workstations reside on the same Novell eDirectory™ tree.
- The Inventory server has inventoried workstations attached to it.
- The Inventory server has an Inventory database attached to it.

The Inventory scanning cycle is as follows:

1. The Inventory scanner sends hardware and software information from the inventoried workstations to the Inventory server as per the scan schedule.

2. The Inventory server stores the inventory information in the Inventory database.
3. At the management console, you can view and retrieve the inventory information from the Inventory database using Inventory tools such as Reporting, Summary, etc.

To install Workstation Inventory in your production environment, you must plan and decide the Inventory server tree hierarchy for your company. Also, you should organize your inventory deployment based on your network and information requirements. For detailed information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Sybase

Sybase Adaptive Server* Anywhere (ASA) is a network database server bundled with ZENworks Desktop Management. Desktop Management lets you install Sybase ASA as the database platform for mounting Workstation Inventory and Novell Application Launcher databases on NetWare and Windows.

2 Platform Support for the Desktop Management Infrastructure

Novell® ZENworks® 6.5 Desktop Management has been tested in NetWare® 6, NetWare 6.5, Windows 2000 server, and Windows Server 2003 environments. This section includes information regarding both the back-end and desktop platform support for ZENworks 6.5 Desktop Management.

- "Supported Desktop Management Configurations" on page 25
- "Supported Workstation Platforms" on page 28

Supported Desktop Management Configurations

The following table shows the Desktop Management configurations (that is, the ZENworks Middle Tier Server platform connecting to the Desktop Management Server platform) that have been fully tested and are fully supported by Novell ZENworks 6.5 Desktop Management:

Middle Tier Server Platform	Desktop Management Server Platform	Notes for this Scenario
Windows 2000 SP4	Windows 2000 SP4	Both of these servers must be members of the same Microsoft domain. If you want to install the Middle Tier Server software on the same machine with the Novell Client™, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows 2000 server). The Desktop Management Server on Windows 2000 must have the following: ◆ Novell ConsoleOne® 1.3.6 and Novell eDirectory™ 8.7.1 (minimum) or 8.7.3 (recommended) installed ◆ Novell Client 4.9 SP1a installed and configured to use the IP protocol, not IPX™ ◆ The current location of eDirectory (usually c:\novell) shared using the name SYS This configuration is supported only when both the Middle Tier Server and the Desktop Management Server are installed on the same machine.

Middle Tier Server Platform	Desktop Management Server Platform	Notes for this Scenario
Windows Server 2003 Standard Edition or Enterprise Edition	Windows 2000 SP4	Both of these servers must be members of the same Microsoft domain. If you want to install the Middle Tier Server software on the same machine with the Novell Client, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows Server 2003). The Desktop Management Server on Windows 2000 must have the following: ◆ Novell ConsoleOne 1.3.6 and Novell eDirectory 8.7.1 (minimum) or 8.7.3 (recommended) installed ◆ Novell Client 4.9 SP1a installed and configured to use the IP protocol, not IPX ◆ The current location of eDirectory (usually c:\novell) shared using the name SYS
Windows Server 2003 Standard Edition	Windows Server 2003 Standard Edition	Both of these servers must be members of the same Microsoft domain. If you want to install the Middle Tier Server software on the same machine with the Novell Client, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows Server 2003). The Desktop Management Server on Windows Server 2003 must have the following: ◆ Novell ConsoleOne 1.3.6 and Novell eDirectory 8.7.3 installed ◆ Novell Client 4.9 SP1a installed and configured to use the IP protocol, not IPX ◆ The current location of eDirectory (usually c:\novell) shared using the name SYS This configuration is also supported when both the Middle Tier Server and the Desktop Management Server are installed on the same machine.

Middle Tier Server Platform	Desktop Management Server Platform	Notes for this Scenario
Windows Server 2003 Enterprise Edition	Windows Server 2003 Enterprise Edition	Both of these servers must be members of the same Microsoft domain. If you want to install the Middle Tier Server software on the same machine with the Novell Client, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows Server 2003). The Desktop Management Server on Windows Server 2003 must have the following: ◆ Novell ConsoleOne 1.3.6 and Novell eDirectory 8.7.3 installed ◆ Novell Client 4.9 SP1a installed and configured to use the IP protocol, not IPX ◆ The current location of eDirectory (usually c:\novell) shared using the name SYS This configuration is also supported when both the Middle Tier Server and the Desktop Management Server are installed on the same machine.
Windows Server 2003 Standard Edition or Enterprise Edition	NetWare 6 SP4	If you want to install the Middle Tier Server software on the same machine with the Novell Client, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows Server 2003). The Desktop Management Server must have the latest versions of the JVM, ConsoleOne, and eDirectory installed.
Windows Server 2003 Enterprise Edition or Standard Edition	NetWare 6.5 SP1.1	If you want to install the Middle Tier Server software on the same machine with the Novell Client, the client must be installed first. The ZENworks Middle Tier Server must have Microsoft Internet Information Server (IIS) installed (the version shipping with Windows Server 2003). The Desktop Management Server must have the latest versions of the JVM, ConsoleOne, and eDirectory installed.
NetWare 6 SP4	NetWare 6 SP4	The Desktop Management Server must have the latest versions of the JVM, ConsoleOne, and eDirectory installed. This configuration is also supported when both the Middle Tier Server and the Desktop Management Server are installed on the same machine.
NetWare 6.5 SP1.1	NetWare 6 SP4	The Desktop Management Server must have the latest versions of the JVM, ConsoleOne, and eDirectory installed.
NetWare 6.5 SP1.1	NetWare 6.5 SP1.1	The Desktop Management Server must have the latest versions of the JVM, ConsoleOne, and eDirectory installed. This configuration is also supported when both the Middle Tier Server and the Desktop Management Server are installed on the same machine.

Novell ConsoleOne 1.3.6 and Novell eDirectory 8.7.3 are included on the *Novell ZENworks 6.5 Companion 1* CD. You can obtain the files necessary to create an eDirectory 8.7*.x* evaluation

license diskette from the Novell eDirectory 8.7.*x* Evaluation License Download (http://www.novell.com/products/edirectory/licenses/eval_87.html) Web site.

The most current Novell Client (version 4.9 SP1a or later) is available for download from the Novell Product Downloads (http://download.novell.com/pages/PublicSearch.jsp) Web site.

Support Pack files for NetWare are available from the Minimum Patch List (http://support.novell.com/produpdate/patchlist.html) at the Novell Support Connection Web site.

The ZENworks Middle Tier Server and the ZENworks Desktop Management Server can be installed on the same machine.

ZENworks Desktop Management is not supported for use in a VMWare* environment.

IMPORTANT: If NetWare 6.5 SP2 is installed on the server where you authenticate workstations for ZENworks functionality, you cannot administer the eDirectory tree or a server with ConsoleOne 1.3.6 until you upgrade the version of the Novell Client installed on the machine to 4.9 SP2.

IMPORTANT: If you plan to install ZENworks Patch Management (PatchLink), you should plan the use of your network resources. Patch Management requires the following Windows server configuration for installation:

- New and unmodified Windows XP, 2000, or 2003 Server with IIS and asp.net installed
- Windows 2000 updated with Service Pack 2 (other upgrades applied after PatchLink application)
- No other application software installed on the system

ZENworks Patch Management must be installed on a dedicated machine.

Supported Workstation Platforms

ZENworks Desktop Management has been extensively tested on the following desktop platforms:

- Windows 2000 Professional, with Service Pack 4 applied
- Windows XP Professional, with Service Pack 1 (minimum) applied
- Windows 98 SE

II Preparation

This section includes important information you will need before installation and while you are using the installation programs for the major components of Novell® ZENworks® 6.5 Desktop Management, including:

- Chapter 3, “Preparing the Workstation or Server Where You Will Install or Administer ZENworks,” on page 31
- Chapter 4, “Prerequisites for Installing the ZENworks Desktop Management Server,” on page 37
- Chapter 5, “Prerequisites for Installing the ZENworks Middle Tier Server,” on page 45
- Chapter 6, “User Workstation Requirements,” on page 51

3 Preparing the Workstation or Server Where You Will Install or Administer ZENworks

This section includes information you will need to prepare the Windows* workstation or Windows server that you will use as you install Desktop Management Services and Middle Tier Server software on network servers. It also includes information that you will need as you consider how to prepare a workstation to view, manage, or create a Novell® ZENworks® Desktop Management objects in Novell eDirectory.

- "Software Requirements" on page 31
- "Preparing the Workstation or Server for Administering ZENworks" on page 32

Software Requirements

The following table lists the software requirements for the Windows workstation or Windows server you will use as you install Desktop Management Services and Middle Tier Server software on network servers.

These requirements are also applicable to the workstation or server that you will use to administer ZENworks Desktop Management.

ZENworks Component to Install	Software Requirement for the Installing Workstation
Desktop Management Services	◆ Windows 2000 Professional SP4 workstation, Windows XP SP1 workstation, Windows 2000 Server SP4, or Windows Server 2003 (Standard & Enterprise) ◆ Novell Client 4.9 SP1a or later installed ◆ Internet Explorer 5.5 SP2 or later installed ◆ If you intend to install ZENworks snap-ins to the local workstation, ConsoleOne 1.3.6 must already be installed on this workstation. For more information, see Step 8 in the section entitled "Performing the Full Installation (Including Schema Extension)" on page 58. **Not Supported:** The following software configurations are not supported for Desktop Management Server software installation: ◆ Installing from a Windows 95/98/ME/NT 4 workstation. ◆ Installing the product from one side of a firewall, such as a Network Address Translation (NAT) configuration, to the other side of a firewall.

ZENworks Component to Install	Software Requirement for the Installing Workstation
Middle Tier Server	◆ Windows 2000/XP workstation or Windows 2000/2003 server ◆ Novell Client 4.9 SP1a or later installed **Not Supported:** The following software configurations are not supported for ZENworks Middle Tier Server software installation: ◆ Installing from a Windows 95/98/ME/NT 4 workstation. ◆ Installing from a network where Network Address Translation (NAT) has been configured.

The login session at the installing workstation must meet these requirements:

- You must be logged in as Admin or an Admin equivalent if the server you are installing to is a NetWare server. This enables the installation program to extend the eDirectory schema and to browse for eDirectory trees and NetWare servers.
- If you are installing to a Windows 2000 server or Windows Server 2003, you must be logged in as Administrator (or equivalent) in order to authenticate to the server you are installing to.

For more information about installing the Desktop Management Server, see "Installing the ZENworks Desktop Management Server" on page 55.

Preparing the Workstation or Server for Administering ZENworks

To view, manage, or create a Novell ZENworks Desktop Management object in Novell eDirectory, you need to use ConsoleOne®, a Java*-based, graphical-interface management tool that can be installed and run either on a Windows or NetWare® server you are authenticated to or to a local Windows workstation that can be mapped to the server that is running eDirectory.

NOTE: ZENworks snap-ins do not load properly on the NetWare server console. We recommend that you do not use the server console to run ConsoleOne for administering Desktop Management snap-ins. Instead, install and run ConsoleOne at a local Windows workstation or use a shortcut on the administration workstation (a Windows workstation) to launch it from the network server where you installed it.

ConsoleOne can view eDirectory objects of ZENworks (for example, workstation objects, application objects, policies, and database objects) and network resources (for example, schema, partitions, replicas) in trees to which you are authenticated.

When you install the Desktop Management Server, you can extend the eDirectory schema to later include several directory objects unique to Desktop Management, including workstations, applications, databases, and policy packages. These objects can be created with ZENworks snap-ins to ConsoleOne, which are installed as .jar files to the \consoleone directory of the server or servers you select.

If you want to configure any component of ZENworks 6.5 Desktop Management, you need to use ConsoleOne to identify the object with which that component is associated and use the ConsoleOne "snap-ins," (displayed as tabs or configuration pages in the object properties) to make the adjustments you want.

The information in this section describes the programs you need to install on the machine (Windows server or workstation) where you will administer ZENworks 6.5 Desktop Management.

- "Installing the Novell Client" on page 33
- "Installing ConsoleOne" on page 33
- "Installing the ConsoleOne Snap-ins" on page 34

Installing the Novell Client

The Novell Client must be installed on the Windows workstation or server where you will be running ConsoleOne to administer ZENworks. This is because ConsoleOne is dependent on the client's NetWare libraries. For more information, see the ConsoleOne 1.3x User Guide (http://www.novell.com/documentation/lg/consol13/index.html?page=/documentation/lg/consol13/c1_enu/data/hk42s9ot.html) at the Novell Product Documentation Web site.

You can find the Novell Client 4.9 SP1 (or later) installation program on the Novell Downloads Web site (http://download.novell.com/index.jsp). For more information about the installation procedure and capabilities of the Novell Client, see the Novell Product Documentation Web site (http://www.novell.com/documentation/a-z.html).

Installing ConsoleOne

ConsoleOne 1.3.6 is required for administering ZENworks 6.5 components. The ConsoleOne installation program on the *ZENworks 6.5 Companion 1* CD lets you install ConsoleOne files to the local hard drive of a Windows workstation or to the Windows or NetWare server of your choice (provided these servers meet the minimum requirements).

This section includes the following information:

- "Things to Know When Installing ConsoleOne on a NetWare Server" on page 33
- "Things to Know When Installing ConsoleOne to a Local Workstation Hard Drive" on page 34

Things to Know When Installing ConsoleOne on a NetWare Server

If you intend to install ConsoleOne 1.3.6 on a NetWare Server, you should be aware of the following facts:

- Make sure that you specify the install path with a mapped drive letter rather than with a UNC path.
- If you install or update ConsoleOne on a NetWare server volume, the installation program automatically installs the ConsoleOne files to the public\mgmt\consoleone\1.2 directory on that volume because it assumes the drive is mapped to the root of the volume.
- Although the installation directory for ConsoleOne is named 1.2, this is misleading. There is no relationship between the installation directory name and the ConsoleOne version, which for ZENworks 6.5 Desktop Management is 1.3.6.
- If you map-root the drive to a subfolder under the volume, the installation program creates the default path and appends it to the map-rooted path. This causes subsequently installed snap-ins (such as those for Desktop Management) to be ignored by ConsoleOne because they will not be installed to the path from which ConsoleOne is running.
- ZENworks snap-ins do not load properly on the NetWare server console. We recommend that you do not use the server console to run ConsoleOne for administering Desktop Management snap-ins. Instead, install and run ConsoleOne at a local Windows workstation or use a shortcut on the administration workstation (a Windows workstation) to launch it from the network server where you installed it.

Things to Know When Installing ConsoleOne to a Local Workstation Hard Drive

Although the ConsoleOne installation program lets you install ConsoleOne files to the hard drive of a local Windows workstation, this installation will not include the ZENworks 6.5 Desktop Management snap-ins. To administer ZENworks on a local administration workstation, you need to install the snap-ins after you install ConsoleOne. For more information, see "Installing the ConsoleOne Snap-ins" on page 34.

Installing the ConsoleOne Snap-ins

If you install the ZENworks Desktop Management Server to a NetWare or Windows server, the ZENworks Desktop Management snap-ins are installed to the appropriate location by default. If you installed the Desktop Management Server to a Linux server (that is, an OES or SLES 9 server), neither ConsoleOne nor the ZENworks snap-ins are installed to the server. You need to install ConsoleOne to the hard drive of the local Windows workstation where you will be administering ZENworks Desktop Management. Again, ZENworks Desktop Management snap-ins are installed to the appropriate location on the workstation by default.

NOTE: Installing ZENworks Desktop Management on a workstation where ConsoleOne has been copied from a server (that is, not installed by the ConsoleOne installation program) will fail because of some default registry settings that are saved as part of the installation. For more information, see TID 10096725 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).

After you install ConsoleOne, you can install the ZENworks 6.5 Desktop Management snap-ins using either of two methods:

- "Installing Snap-ins During the Desktop Management Server Installation" on page 34
- "Downloading and Installing Snap-ins After the Initial Installation" on page 34

Installing Snap-ins During the Desktop Management Server Installation

Even though the ConsoleOne 1.3.6 installation program lets you install ConsoleOne files to a local hard drive (minor performance enhancements can be achieved by doing so) such an installation does not include the ZENworks Desktop Management Services snap-ins.

You have the option of installing Desktop Management Services snap-ins to your local workstation by selecting Desktop Management Service Snap-ins under the Local Workstation option of the Server Selection page of the Desktop Management Server Installation Wizard.

For more information, see "Performing the Full Installation (Including Schema Extension)" on page 58.

Downloading and Installing Snap-ins After the Initial Installation

Use the following instructions to download the ZENworks 6.5 Desktop Management snap-ins as you prepare to install them to ConsoleOne on your local Windows workstation.

1. Download the ZENworks 6.5 Desktop Management snap-in .zip file from the Novell Download Web page (http://download.novell.com).
2. Create a temporary directory on the local workstation for downloading the .zip file.
3. On the Novell ZENworks 6.5 Desktop Management snap-ins download page, click the Proceed to Download button.
4. Follow the prompts to download the desired ZIP files and copy them into your temporary directory.

You are now ready to install the ZENworks 6.5 Desktop Management snap-ins to ConsoleOne. Use the following instructions to install the ZENworks 6.5 Desktop Management snap-ins from the temporary directory where you either downloaded or copied the snap-in .zip file.

1. Make sure the instance of ConsoleOne that you want to update is not running.
2. Open the snap-in .zip file in WinZip and browse for the directory where ConsoleOne is installed on the workstation and unzip the file into that directory.

   By default, ConsoleOne is installed in the ...\consoleone\1.2 directory. Do not leave off the \1.2 part of the path when you specify where to extract the .zip file.

   IMPORTANT: You must extract the snap-in .zip file to the *ConsoleOne_installation* directory, or the snap-ins will be copied to the wrong directory structure and will not work. For example, you may have installed ConsoleOne to a different directory path than ...\consoleone\1.2.
3. If you are prompted to overwrite existing files of the same name in the destination directories, choose "Yes to All," regardless of differences in file dates.
4. Repeat Steps 2 through 4 for each instance of ConsoleOne that you want to update.

4 Prerequisites for Installing the ZENworks Desktop Management Server

This section includes the following information:

- "Desktop Management Server Hardware Requirements" on page 37
- "Desktop Management Server Software Requirements" on page 39
- "Desktop Management Server Installation Prerequisites" on page 42

Desktop Management Server Hardware Requirements

Although Novell® ZENworks® 6.5 Desktop Management Services can all be installed on one machine, your network resources or design might require you to install some components on different servers. This section lists the hardware requirements for those servers.

- "Consolidated Component Installation Hardware Requirements" on page 37
- "Preboot Services Hardware Requirements" on page 38
- "Workstation Inventory Subinstallation Hardware Requirements" on page 38
- "Database Subinstallation Hardware Requirements" on page 38

Consolidated Component Installation Hardware Requirements

For full functionality and performance, the Desktop Management Services require the following minimum amounts of processing power, disk space, and RAM on servers where they will be installed:

Resource	Minimum Disk Space	Minimum Hardware Requirement
NetWare 6 server	290 MB	Pentium* III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
NetWare 6.5 server	290 MB	Pentium III (minimum) processor, 512 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
Windows 2000 server	290 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
Windows Server 2003	290 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.

IMPORTANT: Windows servers reserve disk space for operating system use. To install ZENworks Desktop Management, make sure you have sufficient space over and above the amount reserved for the server.

Preboot Services Hardware Requirements

To function correctly, Desktop Management Preboot Services requires a local area network (LAN) with IP layer support. The following are also required:

Specification	Minimum Requirement
Processor	Pentium II, 350 MHz or faster
Available Disk Space	10 MB
RAM	128 MB
LAN Connection	Ethernet

For Preboot Services hardware requirements for workstations, see "User Workstation Hardware Requirements" on page 51.

Workstation Inventory Subinstallation Hardware Requirements

If you choose to install Workstation Inventory component of Desktop Management Services, you can install it on a separate NetWare 6, NetWare 6.5, Windows 2000, or Windows Server 2003 machine that has one of the following hardware configurations:

Resource	Minimum Disk Space	Minimum Hardware Requirement
NetWare 6 server	50 MB free space for inventory with database; 35 MB for inventory alone	Pentium II (minimum) processor, 512 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
NetWare 6.5 server	50 MB free space for inventory with database; 35 MB for inventory alone	Pentium II (minimum) processor, 512 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
Windows 2000 server	50 MB free space for inventory with database; 25 MB for inventory alone	See "Consolidated Component Installation Hardware Requirements" on page 37.
Windows Server 2003	50 MB free space for inventory with database; 25 MB for inventory alone	See "Consolidated Component Installation Hardware Requirements" on page 37.

Database Subinstallation Hardware Requirements

If you choose to install the Inventory Database component of Desktop Management Services, you can install it on a separate NetWare 6, NetWare 6.5, Windows 2000, or Windows Server 2003 machine that has the following hardware:

Component	Minimum Hardware and Software Requirements
RAM	• Recommended minimum memory for the database is 512 MB with a minimum cache size of 128 MB. 768 MB is minimum and 1 GB or higher is recommended at the Root Server level with a cache size of 256 MB.

Component	Minimum Hardware and Software Requirements
Hard Disk	◆ Recommended minimum hard disk space for the lowest level server with 10,000 workstations is 5 GB. ◆ The minimum hard disk space on the topmost level server (Root Server) is 20 GB. ◆ Depending on the number of workstations attached, the hard disk size might vary from 1 GB to 25 GB.

Desktop Management Server Software Requirements

Although each of the Desktop Management services can all be installed on one machine, your network resources or design might require you to install some components on different servers. This section lists the software requirements for those servers.

- "Software Requirements for Installing All Components" on page 39
- "Software Requirements for Installing Workstation Inventory Only" on page 41
- "Software Requirements for Installing the ZENworks Database Only" on page 42

Software Requirements for Installing All Components

The following table lists the software configurations that are required on the machine where you install the Desktop Management Server software.

Platform	Minimum Software Requirement
NetWare 6	◆ Support Pack 4 (minimum) ◆ Novell eDirectory® 8.6.2 (minimum), 8.7.1, or 8.7.3 (recommended[1]) ◆ JVM 1.4.1 for NetWare (minimum) ◆ LDAP configured and running ◆ IP protocol stack bound and available on the server **IMPORTANT:** We strongly recommend that you download and install the version of the NetWare 6 Support Pack that ships in the current Consolidated Support Pack, along with the version of the JVM shipping in the current Consolidated Support Pack. They are designed to work together. [1]If this NetWare 6 server will also be running the ZENworks 6.5 Middle Tier Server, you must upgrade eDirectory on the server to version 8.7.3 (recommended).
NetWare 6.5	◆ Support Pack 1.1 (minimum) ◆ eDirectory 8.7.3 (minimum) ◆ LDAP configured and running ◆ IP protocol stack bound and available on the server **IMPORTANT:** If NetWare 6.5 SP2 is installed on the server where you authenticate workstations for ZENworks functionality, you cannot administer the eDirectory tree or a server with ConsoleOne 1.3.6 until you upgrade the version of the Novell Client installed on the machine to 4.9 SP2.

Platform	Minimum Software Requirement
Windows 2000	• Windows Service Pack 4 (minimum) • Novell Client 4.9 SP1a installed and configured to use IP only, not IPX • eDirectory 8.6.2 (minimum); 8.7.1, or 8.7.3 (recommended) • LDAP configured and running • The current location of eDirectory should be shared with the name of SYS Installing eDirectory to any drive other than C: in combination with the ZENworks 6.5 Imaging components is not supported. • IP Protocol Stack must be bound and available on the server • If connecting to a ZENworks Middle Tier Server on Windows 2000, both Windows 2000 servers must be members of the Microsoft domain that is running Active Directory* • If the Windows 2000 server is functioning as a Windows Terminal Server, it must be run in Remote Admin mode. Application mode is not supported.
Windows Server 2003	• Novell Client 4.9 SP1a installed and configured to use IP only, not IPX • eDirectory 8.7.3 (minimum) • LDAP configured and running • The current location of eDirectory should be shared with the name of SYS Installing eDirectory to any drive other than C: in combination with the ZENworks 6.5 Imaging components is not supported. • IP Protocol Stack must be bound and available on the server • If connecting to a ZENworks Middle Tier Server on Windows Server 2003, both Windows Server 2003 machines must be members of the Microsoft domain that is running Active Directory • If the Windows Server 2003 is functioning as a Windows Terminal Server, it must be run in Remote Admin mode. Application mode is not supported.

Novell ConsoleOne 1.3.6 and Novell eDirectory 8.7.3 are included on the *Novell ZENworks 6.5 Companion 1* CD. You can obtain the files necessary to create an eDirectory 8.7*.x* evaluation license diskette from the Novell eDirectory 8.7*.x* Evaluation License Download (http://www.novell.com/products/edirectory/licenses/eval_87.html) Web site.

The most current Novell Client (version 4.9 SP1a or later) is available for download from the Novell Product Downloads (http://download.novell.com/pages/PublicSearch.jsp) Web site.

Support Pack files for NetWare are available from the Minimum Patch List (http://support.novell.com/produpdate/patchlist.html) at the Novell Support Connection Web site.

The download for the JVM version 1.4.1 for NetWare 6 is available in the latest Consolidated Support Pack download (http://support.novell.com/tools/csp/csplist.html) at the Novell Support Connection Web site.

ConsoleOne 1.3.6 (or later), included on the *Novell ZENworks 6.5 Companion 1* CD, must be installed after any NetWare Support Packs are applied.

IMPORTANT: The Desktop Management Server does not function in an IP-to-IP gateway or in an IPX-to-IP gateway environment.

Software Requirements for Installing Workstation Inventory Only

If you choose to install Workstation Inventory component of Desktop Management Services, you can install it on a separate NetWare 6, NetWare 6.5, Windows 2000 server, or Windows Server 2003 machine.

Platform	Minimum Software Requirement
NetWare 6 server	◆ See "Software Requirements for Installing All Components" on page 39 ◆ Long name space installed **IMPORTANT:** If this NetWare 6 server will also be running the ZENworks 6.5 Middle Tier Server, you must upgrade eDirectory to version 8.7.3 (required minimum).
NetWare 6.5 server	◆ See "Software Requirements for Installing All Components" on page 39 ◆ Long name space installed
Windows 2000 server	◆ See "Software Requirements for Installing All Components" on page 39 ◆ Novell Client 4.9 SP1a installed with the patch available with TID 2967860 and configured to use IP only, not IPX. For more information on this TID, see the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp). ◆ If the Windows 2000 server is functioning as a Windows Terminal Server, it must be run in Remote Admin mode. Application mode is not supported.
Windows Server 2003	◆ See "Software Requirements for Installing All Components" on page 39 ◆ Novell Client 4.9 SP1a installed with the patch available with TID 2967860 and configured to use IP only, not IPX. For more information on this TID, see the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp). ◆ If the Windows Server 2003 is functioning as a Windows Terminal Server, it must be run in Remote Admin mode. Application mode is not supported.

IMPORTANT: For Windows servers, the server's DNS short name must be the same as the server's name. Either rename Windows servers where the server's name does not match its DNS short name before running the installation, or do not select these servers for installing Workstation Inventory.

Software Requirements for Installing the ZENworks Database Only

If you choose to install the database component of the Desktop Management Server software, you can install it on a separate NetWare 6, NetWare 6.5, Windows 2000 server, or Windows Server 2003 machine.

Component	Minimum Hardware and Software Requirements
Database	◆ Sybase ASA 8.0.2 is installed automatically when you choose to install the inventory database on: NetWare 6 SP3 NetWare 6.5 Windows 2000 Server SP4 Windows 2003 Standard Edition Windows 2003 Enterprise Edition ◆ Oracle* can be used as an alternative to Sybase. Oracle 8.1.7 on Windows 2000 Server SP4 Oracle9i release 2 on: Windows 2000 Server SP4 Windows 2003 Standard Edition Windows 2003 Enterprise Edition If you have ZENworks 6.5 Server Management SP2 installed, you can set up Inventory database on SLES 9 SP1 or Solaris versions supported by Oracle. If you want to achieve a better scalability of concurrent updates by Storer, you must apply Oracle 9i release 2 Patch 6 or later. ◆ MS SQL can be used as an alternative to Sybase: (Recommended) MS SQL version 2000 SP3a

Desktop Management Server Installation Prerequisites

Before you can install Desktop Management Services, there are several prerequisites that must be met. This section contains the prerequisite information you need.

- ❑ Make sure that you have made and archived a reliable backup of the server.
- ❑ Make sure that the recommended version of ConsoleOne is installed on the server where you will install the Desktop Management Server software.
- ❑ Make sure that you have Admin or equivalent rights to eDirectory on all servers where you will install the Desktop Management Server software.
- ❑ Make sure that you have Admin or equivalent rights to extend the directory schema.
- ❑ If you will be installing to a NetWare server, unload java.nlm (at the Server Console, type **`java -killall`**, then type **`java -exit`**). Make sure you do this when Java* is not being used by another process and the proper Java components have already been installed.
- ❑ Exit any program that uses files in the sys:public directory on any server where you will be installing Desktop Management Server software.

- ❑ The display on the workstation you use to install or administer the Desktop Management Server software must be set at a resolution of 1024 x 768. Installing with the display set at 800 x 600 will make the resolution of the installation and ConsoleOne screens too large for displaying important information.
- ❑ If you choose to install Desktop Management Server software on a Windows server, make sure that you close the Service Control Manager window.
- ❑ If you choose to install Desktop Management Server software from a Windows 2000/XP workstation to a Windows 2000/2003 server, the workstation should be authenticated to both eDirectory and as the local or domain administrator of the Windows server you will be installing to.
- ❑ If you will be installing the Inventory Server component, make sure that the name of the server where you will install the Inventory server and the tree where the server resides does not contain "#".

The Desktop Management Server installation program lets you install any of the Desktop Management components individually (or in a grouping of your choice) on the servers you select. For more information about these components, see Chapter 1, "What Is ZENworks Desktop Management?," on page 19.

If you know that you want to use only certain Desktop Management components, this can save time and server space. The following components can be individually selected:

Desktop Management Services

- Application Management
- Workstation Management Common Components
- Remote Management

Additional Options

- Desktop Management Database
- Inventory Database
- Inventory Server
- Inventory Proxy Server
- Imaging Server
- PXE Server
- Workstation Import/Removal Server
- Desktop Management Services Snap-ins

If you choose to install Remote Management:

- ❑ Make sure you have administrator rights to install the Remote Management Agent.

If you choose to install Workstation Inventory:

- ❑ Do not install the Workstation Inventory component of the Desktop Management Server software and the ZENworks Middle Tier Server software on the same Windows 2000 server.
- ❑ Stop Sybase Adaptive Server Anywhere.

  On NetWare: Enter `Q` at the Sybase console prompt.

  On Windows 2000: In the Control Panel, double-click Administrative Tools > Services, select Novell Database - Sybase, then click Stop.

- Use top-down deployment for Inventory installation. Always begin the installation at the topmost-level server and proceed with the next lower-level servers. For example, in an inventory setup with a Root Server and a Leaf Server, complete the inventory installation at the Root Server, and then run the installation for the Leaf Server.
- Make sure that the servers where you want to install the Desktop Management Inventory server and the Database components have a valid DNS name configured. Also, make sure that the workstation you will use for installing Desktop Management Server software is properly configured to perform DNS lookup.

  If the servers do not have a DNS name, you must select an IP address for the server during Desktop Management Inventory policy configuration. For more information about configuring a server IP address or DNS name, see "Configuring the Inventory Database Object on a NetWare Server" on page 67.

5 Prerequisites for Installing the ZENworks Middle Tier Server

You must be logged in as Admin or an Admin equivalent if the server you are installing to is a NetWare server. This will enable the installation program to browse for eDirectory trees and NetWare servers.

If you are installing to a Windows 2000 server, you must be logged in as Administrator (or equivalent).

This section includes the following information:

- "ZENworks Middle Tier Server Limitations" on page 45
- "ZENworks Middle Tier Server Hardware Requirements" on page 47
- "ZENworks Middle Tier Server Software Requirements" on page 47
- "Configuring Ports for the Middle Tier Web Server and the Desktop Management Agent" on page 48
- "Optimizing the Apache Web Server for the Middle Tier Server" on page 50

ZENworks Middle Tier Server Limitations

You should be aware of the following limitations before installing the ZENworks Middle Tier Server:

- ZENworks 6.5 Desktop Management does not support the installation of the ZENworks Middle Tier Server on Windows NT 4 servers.
- ZENworks 6.5 Desktop Management does not support the installation of the ZENworks Middle Tier Server on Windows Terminal Servers running in Application mode. For a Windows Terminal Server to function as a ZENworks Middle Tier Server, it must be run in Remote Admin mode.
- ZENworks 6.5 Desktop Management does not support the installation of the ZENworks Middle Tier Server in a Novell Clustering Services Environment. For more information, see Appendix B, "Installing in a Novell Cluster Services Environment," on page 367.
- By default, the Apache Web Server is configured to communicate on ports 80 (HTTP) and 443 (HTTPS), but if other NetWare 6 components, such as Novell iFolder® and iPrint, were also initially installed on NetWare 6, it is possible that the NetWare Port Resolver has assigned ports 80 and 443 to an HTTP stack other than Apache.

  Novell iFolder also uses Apache for its operations. If the Apache server in iFolder 1.3 is loaded into protected memory space, not kernel memory, it creates a different instance of the HTTP stack. The Desktop Management Agent communicates with the ZENworks Middle Tier Server using the ports configured for both Apache and the Desktop Management Agent.

For more information about configuring ports, see "Configuring Ports for the Middle Tier Web Server and the Desktop Management Agent" on page 48.

- The ZENworks 6.5 Middle Tier Server does not support the multiprocessor-enabled version of the Apache Web Server on NetWare 6. Installing the ZENworks Middle Tier Server on a NetWare 6 server with the multiprocessor enabled version of Apache will abend the server.
- Novell NetStorage is not supported on ZENworks 6.5 Middle Tier Servers installed on NetWare 6. If you intend to use NetStorage beyond its Desktop Management functions, we recommend that you install NetStorage on a separate server.
- Novell NetStorage is installed with the ZENworks 6.5 Middle Tier Server. If you intend to use the ZENworks Middle Tier heavily, and if you intend to use NetStorage beyond its Desktop Management functions, we recommend that you also install NetStorage on a separate server to avoid Middle Tier performance degradation.
- If you install the Novell Client on a Windows 2000/2003 server, then install the Middle Tier Server on the same machine, then uninstall the Novell Client from this server, the Middle Tier Server will fail. The client uninstall program removes important files needed by the ZENworks Middle Tier Server.

  In this same software combination scenario, if you subsequently upgrade the client to 4.9 SP2, a different version of nicm.sys will be installed. If you do not use the nicm.sys included in ZENworks 6.5 Middle Tier Server, the Middle Tier Server will fail.

  To work around this issue, you have two options:

  1) Save the nicm.sys file included in the ZENworks 6.5 Middle Tier Server installation prior to the client upgrade and then recopy after the client upgrade (this could also be accomplished by reinstalling the Middle Tier after the client upgrade).
  2) After the client upgrade, download nicm.sys from TID 10093371 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp) and copy it to overwrite the updated client version of nicm.sys.
- If you try to authenticate through the ZENworks Middle Tier Server to a Desktop Management Server installed on a Windows 2000/2003 machine that already has Active Directory (installed because the Desktop Management Server acts as the Primary Domain Controller) and eDirectory (installed to accommodate ZENworks Desktop Management) both installed, the authentication fails unless the user logs in with a full context.

  The reason for this failure is a contention for the default LDAP port between the Active Directory and eDirectory LDAP listeners. To work around this port conflict, during the installation of eDirectory, choose an LDAP port other than the default, then use the NSAdmin utility in ZENworks Middle Tier Server to configure the ZENworks Middle Tier Server to communicate over that port.

To configure the LDAP port using NSAdmin:

1. In the Address box of Internet Explorer, type the URL for the NSADMIN utility. For example:

   http://*Middle_Tier_IP_address*/oneNet/nsadmin
2. In the Value field of the LDAP Port configuration parameter, specify the LDAP Port number you already set in eDirectory and that the ZENworks Middle Tier Server should use to communicate with the Desktop Management Server, then click Submit.

ZENworks Middle Tier Server Hardware Requirements

The network server where you install ZENworks Middle Tier Server software requires the following hardware configuration:

Resource	Minimum Free Disk Space	Minimum Hardware Requirement
NetWare 6 server	160 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
NetWare 6.5 server	160 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
Windows 2000 server	160 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.
Windows Server 2003	160 MB	Pentium III (minimum) processor, 256 MB RAM; if scaled to 200 concurrent users, use Pentium III, 1 GB RAM. Scale thereafter as appropriate.

NOTE: ZENworks Middle Tier Server software is not supported on Windows NT 4 servers. It is also not supported on Windows 2000 Professional workstations that have IIS installed.

ZENworks Middle Tier Server Software Requirements

The network server where you install the ZENworks Middle Tier Server software requires the following software configuration:

Platform	Minimum Software Requirement
NetWare 6 server	◆ Support Pack 4 (minimum) ◆ Novell International Cryptographic Infrastructure (NICI) client 2.4.0 installed if SSL connections will be used. NICI is available from the Novell Product Download Web site (http://download.novell.com). ◆ eDirectory 8.7.3 (required minimum)
NetWare 6.5 server	◆ Support Pack 1 (minimum) ◆ Novell International Cryptographic Infrastructure (NICI) client 2.4.0 installed if SSL connections will be used. NICI is available from the Novell Product Download Web site (http://download.novell.com).

Platform	Minimum Software Requirement
Windows 2000 server	• IIS installed (version shipping with Windows 2000 server) • Windows 2000 Server Service Pack 4 (minimum) • IP Protocol Stack must be bound and available on the server • If connecting to a Windows 2000 Desktop Management Server, both Windows 2000 servers must be members of the same Active Directory domain or a trust relationship must exist between the domains they belong to. The workstation logging in does not need to be a member of that domain unless the Desktop Management Server is delivering MSI applications. A server designated as the Domain Controller must be present in the domain; either the ZENworks Middle Tier Server or the Desktop Management Server can be designated as a Domain Controller. • Novell International Cryptographic Infrastructure (NICI) client 2.4.0 installed if SSL connections will be used. NICI is available from the Novell Product Download Web site (http://download.novell.com).
Windows Server 2003	• IIS installed (version shipping with Windows Server 2003) • IP Protocol Stack must be bound and available on the server • If connecting to a Windows Server 2003 Desktop Management Server, both Windows Server 2003 machines must be members of the same Active Directory domain or a trust relationship must exist between the domains they belong to. The workstation logging in does not need to be a member of that domain unless the Desktop Management Server is delivering MSI applications. A server designated as the Domain Controller must be present in the domain; either the ZENworks Middle Tier Server or the Desktop Management Server can be designated as a Domain Controller. • Novell International Cryptographic Infrastructure (NICI) client 2.4.0 installed if SSL connections will be used. NICI is available from the Novell Product Download Web site (http://download.novell.com).

IMPORTANT: If the IIS Web Server is not configured correctly for logging, Web site logging files (C:\windows\system32\logfiles w3svc1*yymmdd*.log) used by IIS in conjunction with the Middle Tier Server may grow to a very large size and use an unacceptable amount of disk space on the Windows server.

For information about how to configure Web site logging for Windows Server 2003, see Microsoft Knowledgebase Article 324279 (http://support.microsoft.com/default.aspx?scid=kb;en-us;324279) at the Microsoft Knowledgebase Web site.

The Middle Tier Server is also used to host applications available through the Web browser view of Novell Application Explorer, called myapps.html. For more information about installing myapps.html, see Chapter 11, "Installing the Novell Application Launcher Plug-In," on page 113. For information about configuring and using myapps.html, see "Customizing the Application Browser View" in "Novell Application Launcher: Customizing Views" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Configuring Ports for the Middle Tier Web Server and the Desktop Management Agent

The Desktop Management Agent can communicate with the ZENworks Middle Tier Server when the workstation is located either inside or outside the corporate firewall, provided that the Desktop Management Agent and the Web server software installed on the ZENworks Middle Tier Server machine (Apache HTTP Server on NetWare and Internet Information Server (IIS) on Windows) are set up to communicate on the same port.

You need to know how to configure the communication ports if the installation of the Web server changes the default port assignment from 80 and 443, if you want to either change or assign an additional port other than the default, or if you want to change the Desktop Management Agent port to match the Web server port.

NOTE: For a list of configurable ports, see the *Port Number Assignments* Appendix in *Getting Results with Novell Web Servers and Tools* in *Managing Web Servers and Other Web Tools* at the NetWare 6 documentation Web site (http://www.novell.com/documentation/lg/nw6p/index.html).

This section includes the following information:

- "Configuring Ports for the Apache Web Server on NetWare" on page 49
- "Configuring Ports for IIS on Windows" on page 49
- "Changing the Dhost Port Assignment a Windows 2000 Server with eDirectory 8.7.3 Installed" on page 50
- "Configuring the Port for the Desktop Management Agent" on page 50

Configuring Ports for the Apache Web Server on NetWare

Apache on a NetWare 6 Server: To configure ports for the Apache Web Server on NetWare 6, open and edit adminserv.conf found in the sys:\apache\conf directory. Search for the line with the current port assignment. You can either change the port number or add additional port numbers. You can also designate whether the port is a secure port used for listening. Use the existing port configuration lines as templates if you create a new port assignment for a non-secure port. When you designate a secure (HTTPS) port, you must use port 443.

If you plan to use the Web browser view of the Novell Application Launcher, myapps.html, you also need to edit its port number to match the port on the Apache Web server. On a NetWare 6 server, myapps.html is located in the sys:\apache\nwdocs directory.

Configuring Ports for IIS on Windows

To configure the port number in IIS:

1. At the server's desktop, click Programs > Administrative Tools > Internet Services Manager > Internet Information Services to open to Internet Information Services window.
2. Click the "+" symbol on the ZENworks Middle Tier Server icon to expand its hierarchy.
3. Right-click Default Web Site > click Properties to open the Default Web Site Properties dialog box.
4. On the Web Site page (the page opened by default) of the dialog box, change the port number at the TCP Port field. If you are designation a secure (HTTPS) port, you must use port 443.

   or

   On the Web Site page, click Advanced and follow the dialog boxes to add multiple port numbers.

If you plan to use the Web browser view of the Novell Application Launcher, myapps.html, you also need to edit its port number to match the port on IIS. On a Windows server, myapps.html is located in the c:\inetpub\wwwroot directory.

Changing the Dhost Port Assignment a Windows 2000 Server with eDirectory 8.7.3 Installed

If you install eDirectory 8.7.3 on a Windows 2000 server, its Dhost service will be set to port 80 and start running there. If you subsequently install the ZENworks Middle Tier Server to the same Windows 2000 server, the IIS Web server will also try to use port 80. This will result in a port contention with the following message displayed:

```
Address already in use.
```

The ZENworks Middle Tier Server will not start until you change the Dhost port assignment to a port other than port 80. Use the following steps to change the Dhost port assignment:

1. Open ConsoleOne, then double-click the root container where you installed eDirectory.
2. Open the properties of Http Server-*server_name*, then click the Other tab.
3. On the Other page, double-click httpDefaultClearPort, double-click 80, then change the port number to a port other than 80.
4. Click OK, close ConsoleOne, then reboot the Windows server.

Configuring the Port for the Desktop Management Agent

Port 80 is assigned by default to the Desktop Management Agent during installation. You might want to change this assignment if the Web server port (either on Apache or IIS) has changed, or if you want to select an alternate port for the Desktop Management Agent that has already been configured for the Web server. For details about how to assign a port number for the Desktop Management Agent, see Step 8 on page 94.

Even when the port has been assigned to the Desktop Management Agent after installation, users can designate a different port to connect with. For more information, see “Customizing the Agent Login” on page 136.

Optimizing the Apache Web Server for the Middle Tier Server

For optimal performance of the ZENworks Middle Tier Server on NetWare, you must change the Apache Web Server ThreadsPerChild configuration parameter from the default of 50 to 512. To do this, see “Optimizing the Apache Web Server for NetWare 6 Middle Tier Server Installation” on page 50.

Optimizing the Apache Web Server for NetWare 6 Middle Tier Server Installation

To optimize the Apache Web Server on NetWare 6, you need to edit the ThreadsPerChild parameter in adminserv.conf. You can find the file in the sys:\apache\conf folder. The first few configuration parameters in the file look like this:

```
ServerType standalone
ServerRoot "sys:/apache"
PidFile logs/httpd.pid
ScoreBoardFile logs/apache_status
Timeout 300
KeepAlive On
MaxKeepAliveRequests 100
KeepAliveTimeout 15
ThreadsPerChild 50
```

Change the value in the ThreadsPerChild parameter from 50 to 512.

6 User Workstation Requirements

The ZENworks Desktop Management is designed to work in a “clientless” environment; that is, the end user’s workstation does not need to rely solely on the Novell Client to communicate with the Desktop Management Server software.

This does not mean that the Novell Client cannot be present. In fact, users can continue to use the Novell Client (versions 3.34/4.9 or later) even when the newer workstation functionality of ZENworks Desktop Management is installed with the Desktop Management Agent.

This section includes the following information:

- “Supported Workstation Platforms” on page 51
- “User Workstation Hardware Requirements” on page 51
- “User Workstation Software Requirements” on page 52

For more information about installing the Desktop Management Agent software on desktop machines, see “Installing and Configuring the Desktop Management Agent” on page 91.

Supported Workstation Platforms

ZENworks Desktop Management has been extensively tested on the following desktop platforms:

- Windows 2000 Professional, with Service Pack 4 applied
- Windows XP Professional, with Service Pack 1 (minimum) applied
- Windows 98 SE

Supported Workstation Platforms

ZENworks Desktop Management has been extensively tested on the following desktop platforms:

- Windows 2000 Professional, with Service Pack 4 applied
- Windows XP Professional, with Service Pack 1 (minimum) applied
- Windows 98 SE

User Workstation Hardware Requirements

For full functionality and performance, the workstations to be managed by ZENworks Desktop Management require the following minimum amounts of processing power, disk space, and RAM on the desktop machines where the Desktop Management Agent will be installed:

Resource	Minimum Free Disk Space	Minimum Hardware Requirement
User workstation; complete Desktop Management Agent installation	20 MB	Pentium-compatible processor (32-bit only), 200 MHz; 64 MB of RAM

IMPORTANT: ZENworks Desktop Management is not supported on the NEC* 9800 (also known as PC98) series of personal computers.

Workstations where Preboot Services will be installed require the following:

Specification	Minimum Requirement
Processor	Pentium, 75 MHz or faster
Network Card	PXE-enabled. (If the network card cannot be PXE-enabled, the workstation can be booted with a PXE-on-Disk boot diskette.)
Available Disk Space	None required
RAM	16 MB; 128 MB recommended if Workstation Imaging is to be used on the workstation
Graphics Display	VGA; 16-bit color

A standard DHCP server must already be installed, either on the same server where you are installing Preboot Services or on another server in the network, before you install Preboot Services.

If the standard DHCP server is on the same server where you are installing Preboot Services (specifically, the Proxy DHCP component), you must set option tag 60 in DHCP services. For more information, see "Setting Up Standard DHCP and Proxy DHCP Services on a NetWare 6.x DHCP Server" and "Setting up Standard DHCP and Proxy DHCP Services on a Windows 2000 Advanced Server" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

User Workstation Software Requirements

Some software must be installed on the user workstation so that the Desktop Management Agent works properly. The requirements for that software are listed in the table below.

Required Software	Configuration Details
Internet Explorer	Minimum required version is 5.5 SP2 with high security (128-bit or higher) encryption. The Desktop Management Agent utilizes security and Internet access controls that are included with Internet Explorer.
Microsoft Windows Installer (MSI)	Minimum required version is MSI 1.11, which ships with Windows 2000. The Desktop Management Agent installation program automatically installs MSI 1.2. MSI 2.0 is available in the \microsoft windows installer folder of the *Novell ZENworks 6.5 Companion 2* CD.

NOTE: If you choose to use the Novell Client on machines where the ZENworks Desktop Management Agent is installed, you should know that version 4.9 SP1a (or higher) of the client has been tested with ZENworks 7 Desktop Management.

III Installation

Novell® ZENworks® 6.5 Desktop Management includes the following installation programs:

- **Desktop Management Server:** This software lets you centrally create and manage policies and profiles for users and workstations on a network. These policies and profiles enable you to distribute, manage, and update applications, perform advanced inventory and remote management functions, and automatically install operating systems on the Windows workstations in your network.
- **ZENworks Middle Tier Server:** This software works with Web Server software installed on a network server to set up authentication and communication between the Desktop Management Server inside the corporate firewall and workstations outside the corporate firewall. This communication makes it possible for mobile users to get Desktop Management services when they are traveling. It also allows communication for workstations that do not have the Novell Client™.
- **Desktop Management Agent:** This software includes the functionality needed to remotely manage a workstation, to receive applications, or to push policies to the workstation. It also enables a workstation to authenticate to the Desktop Management Server through the ZENworks Middle Tier Server without using the traditional Novell Client.

  The workstation functionality afforded by ZENworks Desktop Management components is available only if you install the Desktop Management Agent. This is true even if you currently have the Novell Client installed on that workstation. The Desktop Management Agent installation removes the Desktop Management features that were previously installed by the Novell Client and replaces them with selected ZENworks workstation features.
- **(Optional) Novell Application Launcher Plug-In:** This software is a simplified version of Novell Application Launcher™ (which is installed with the Desktop Management Agent) that can be installed from the Middle Tier Server to enable distribution of applications to users.
- **(Optional) ZENworks Launch Gadget:** This software enables users to launch applications from a Novell exteNd Director™ 4.1 SE portal.

The information in the following sections will help you install these components in your network environment.

- Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55
- Chapter 8, “Installing the ZENworks Middle Tier Server,” on page 75
- Chapter 9, “Installing the Desktop Management Server and the Middle Tier Server on the Same Machine,” on page 87
- Chapter 10, “Installing and Configuring the Desktop Management Agent,” on page 91
- Chapter 11, “Installing the Novell Application Launcher Plug-In,” on page 113
- Chapter 12, “Installing the ZENworks Launch Gadget,” on page 119
- Chapter 13, “Setting Up Terminal Server Application Support,” on page 123

- Chapter 14, “Setting Up Authentication,” on page 133
- Chapter 15, “Setting Up Security Measures,” on page 141
- Chapter 16, “Installing in a Windows Network Environment,” on page 147

7 Installing the ZENworks Desktop Management Server

This section includes the following information:

- "Desktop Management Server Installation Procedure" on page 55
- "Configuring the Inventory Database Object on a NetWare Server" on page 67
- "Determining Whether the Directory Schema Has Been Extended" on page 67
- "Setting Up Required Desktop Policies" on page 67
- "Setting Up Automatic Workstation Import" on page 73
- "Installing the ODBC Drivers" on page 74

Desktop Management Server Installation Procedure

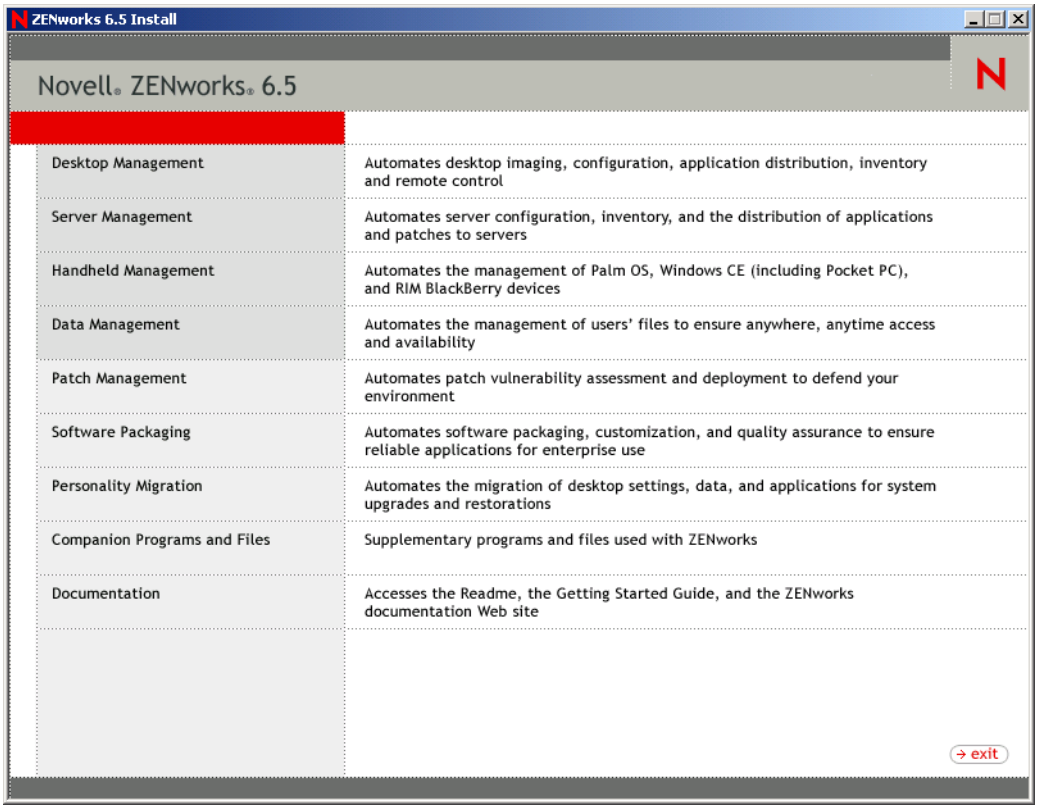
When you have met the hardware and software requirements and prerequisites for installation (see "Preparation" on page 29), use the following steps to get the Novell® ZENworks® Desktop Management Server up and running on a NetWare® or Windows server.

1. Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the Desktop Management Server installation program. The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.
2. At a Windows workstation, insert the *Novell ZENworks 6.5 Desktop Management* CD.

   The winsetup.exe program will autorun. If it does not autorun, launch the program from the root of the CD.

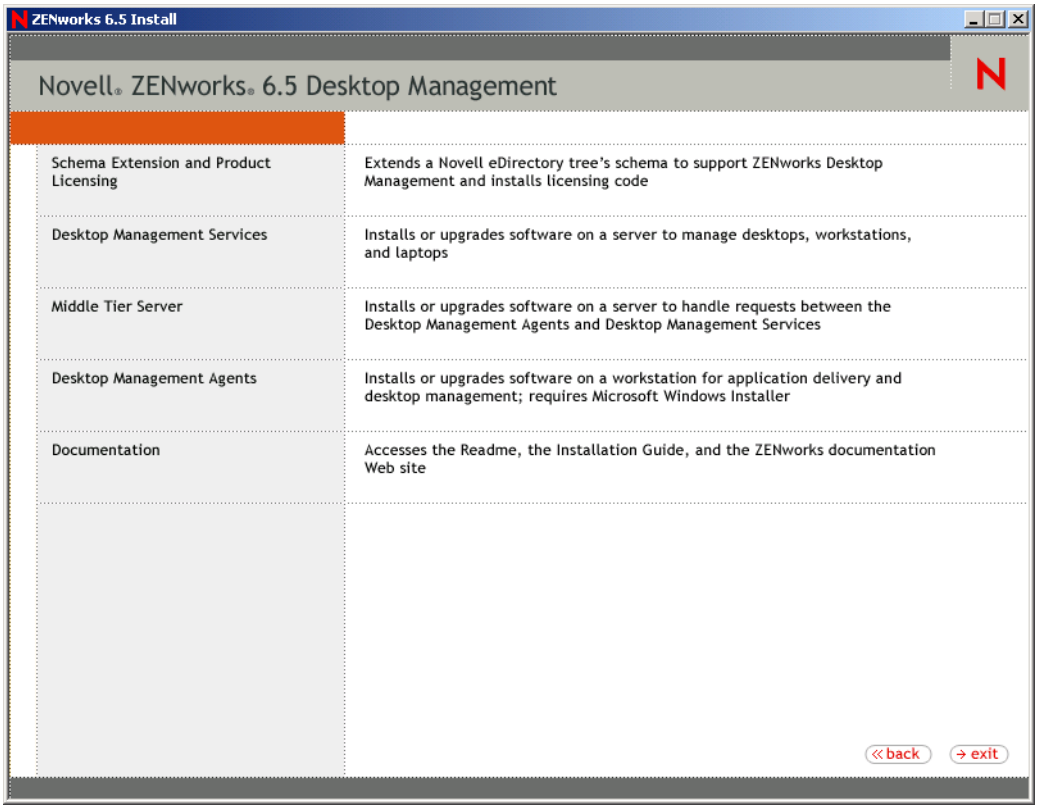
   NOTE: If you run the installation from a directory location where you have copied the ZENworks Desktop Management ISO files, make sure that all of these files are copied to the same location from which you are running winsetup.exe.

   IMPORTANT: If you remove the *Novell ZENworks 6.5 Desktop Management* CD from the CD drive during the installation, or if you lose your connection to the server you are installing to, the installation program will stop and will not proceed. To terminate the installation process, in the Windows Task Manager click Processes, select javaw.exe, then click End Process.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



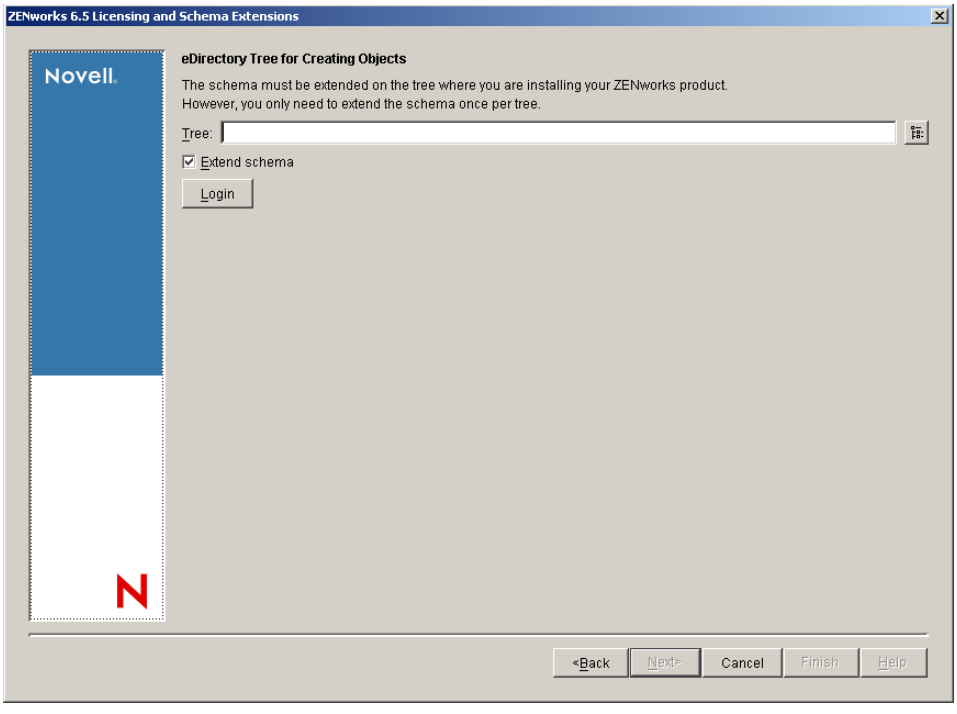
From this page, you can choose to either extend the schema before you actually install the new Desktop management product, or you can choose to extend the schema as part of the installation procedure.

- "Extending the Schema Before the Installation" on page 57
- "Performing the Full Installation (Including Schema Extension)" on page 58

Extending the Schema Before the Installation

If the network environment where you want to install the Desktop Management Server is a large tree, you might want to extend the schema and let the Novell eDirectory™ tree stabilize before you actually install the new Desktop Management product. To extend the schema first:

1. Select Schema Extension and Product Licensing to launch the ZENworks Desktop Management Schema Extension and Product Licensing wizard.
2. After you accept the terms of the license agreement and click Next, complete the eDirectory Tree for Creating Objects page of the wizard by browsing to or entering the name of an eDirectory tree where you want to add ZENworks Desktop Management schema extensions, select Extend Schema, then click Next.



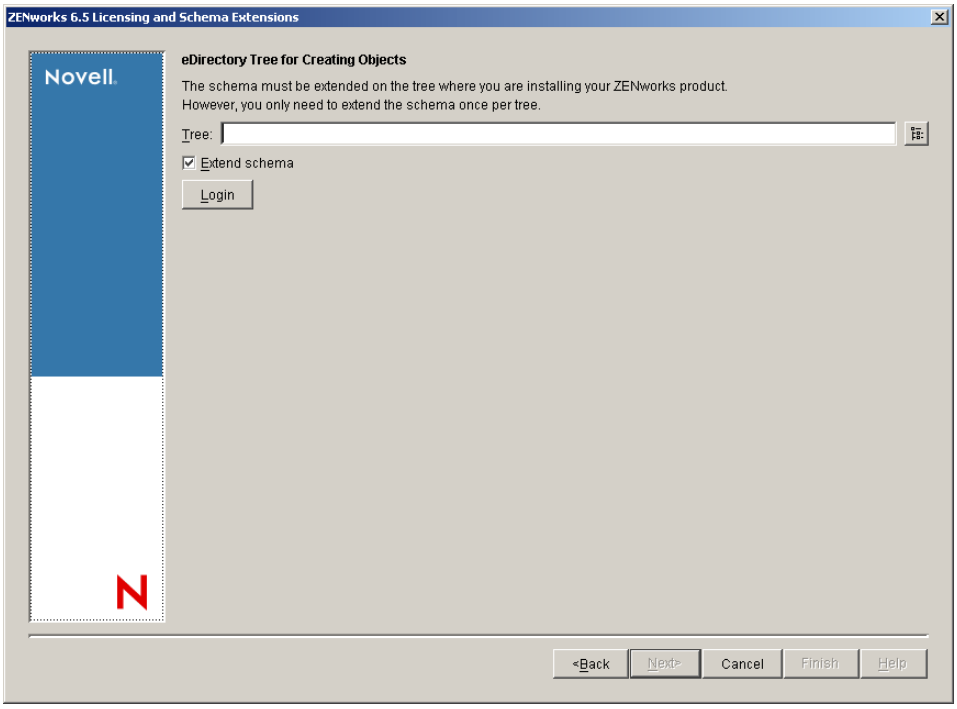
You need to extend the schema on a tree only once. You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

The duration of the schema extension operation depends on the size and complexity of your tree.

3. On the ZENworks License page, enter the license code that was e-mailed to you as part of the SmartCert product registration package, then click Next.

   If you do not enter a license code on this page, the wizard considers this installation of ZENworks Desktop Management to be an evaluation version. If you install for an evaluation,

you will be reminded to license the product at periodic intervals. After 90 days, the product evaluation will no longer function.



When the schema extension operation is complete, you can view a log file that is stored in c:\novell\zfdtemp\zwextsch.log.

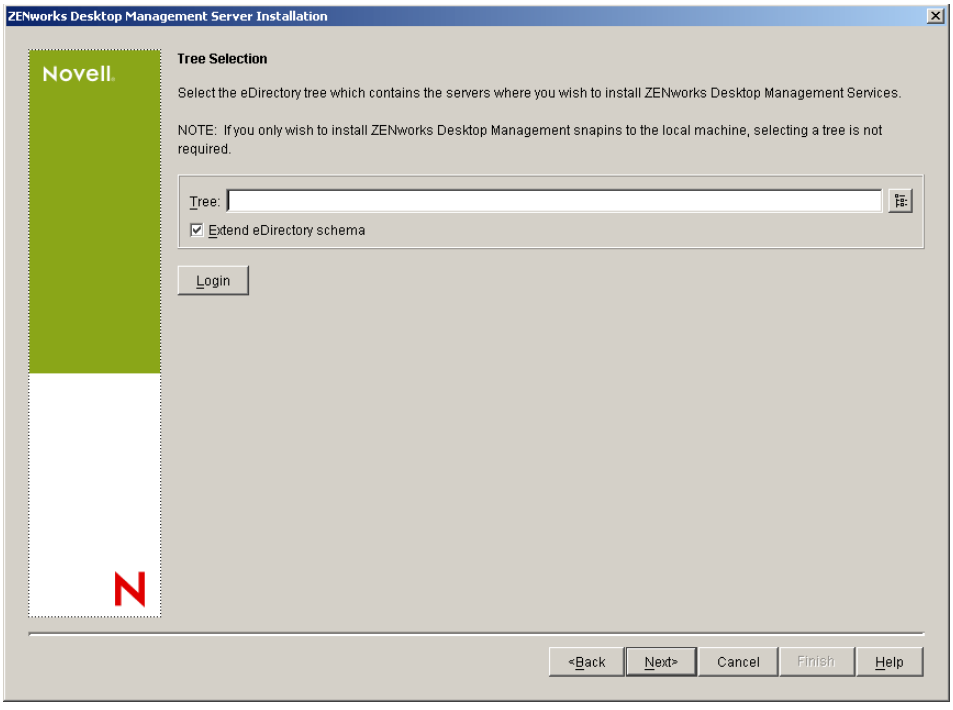
Performing the Full Installation (Including Schema Extension)

If you want to install the Desktop Management Server software after extending the schema, or if you want to extend the schema of the tree as part of the installation, use the following steps:

1. Click Desktop Management Services to launch the Desktop Management Server installation wizard.
2. On the first Installation page, read the details about running the installation program, then click Next.
3. Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

   If you do not agree with the terms of the license agreement, do not install the software.
4. On the Installation Requirements page, read the requirements for installing the Desktop Management Server software, make sure that the server where you plan to install meets the listed requirements, then click Next.
5. On the Tree Selection page, type or browse to the name of the Novell eDirectory tree where you want to install the Desktop Management Server. If you have not already extended the schema for this installation (see "Extending the Schema Before the Installation" on page 57), select Extend Schema to extend the schema on the tree where you will be installing Desktop Management Server software, then click Next.

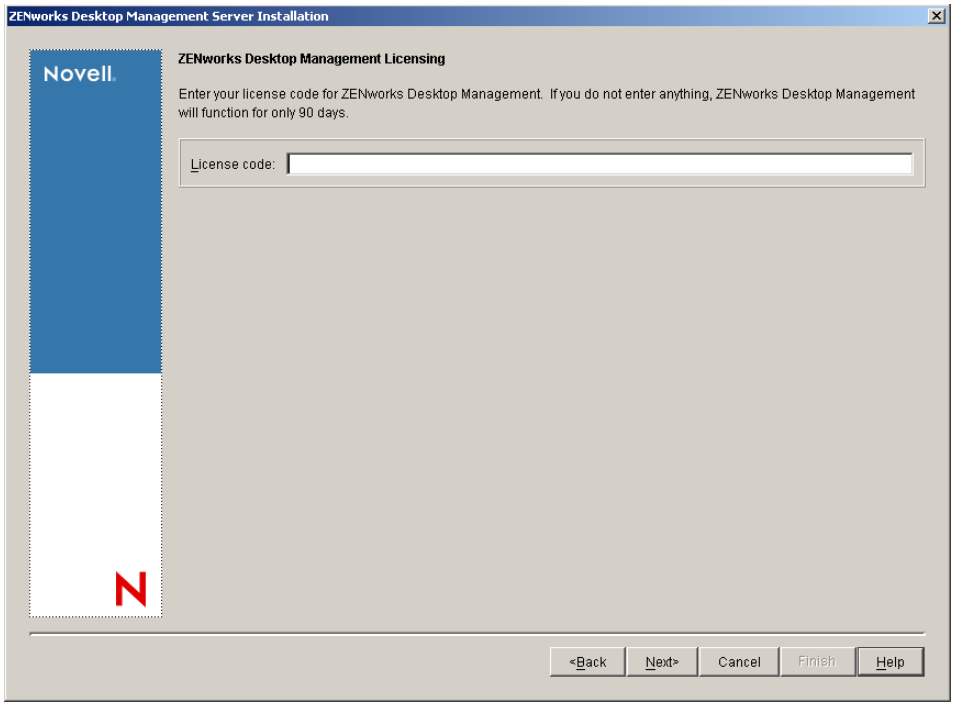
   NOTE: You cannot install Desktop Management Server software on multiple trees at the same time.



You need to extend the schema on a tree only once. You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

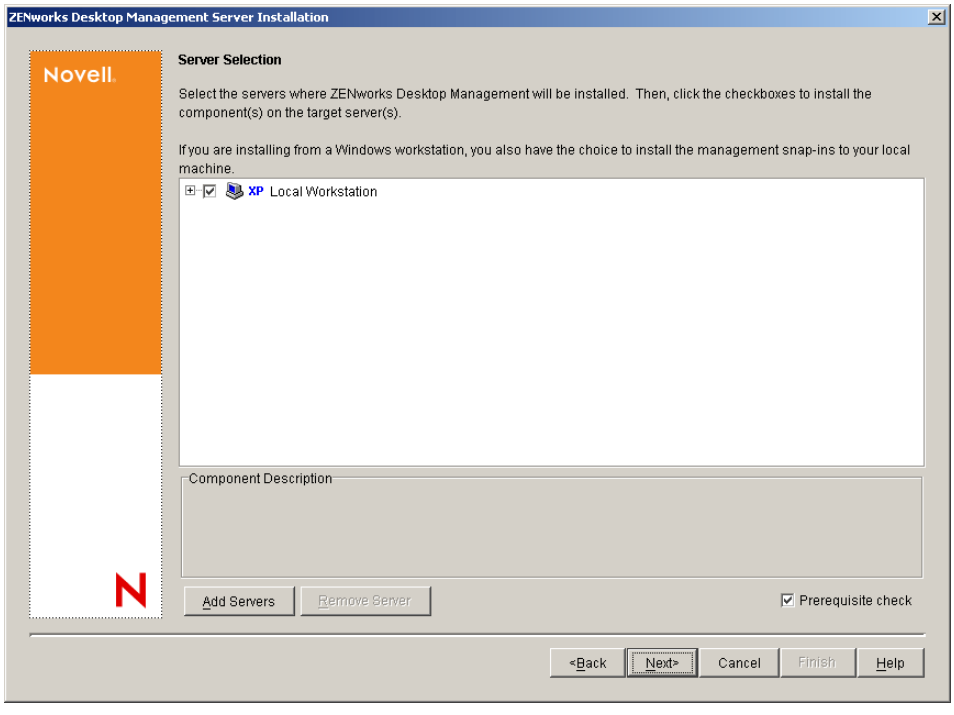
6 On the ZENworks Desktop Management Licensing page, specify the license code that was e-mailed to you as part of the SmartCert product registration package.

If you do not specify a license code on this page, the wizard considers this installation of ZENworks Desktop Management to be an evaluation version. If you install for an evaluation, you will be reminded to license the product at periodic intervals. After 90 days, the product evaluation version no longer functions.



7 On the Server Selection page, click Add Servers to browse to the names of the servers where you want to install Desktop Management Server software.

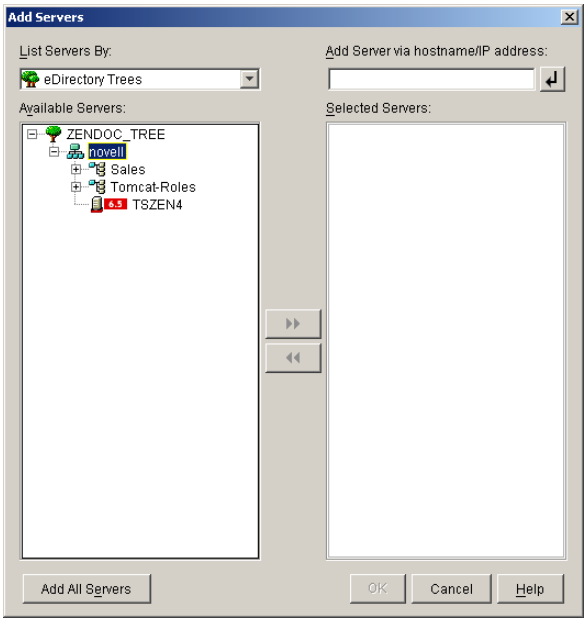
You can select servers only from the tree you selected in Step 5. You can install to up to 7 servers at a time.



7a (Optional) In the Add Servers dialog box, you can list servers by their eDirectory tree names. To install to a server, select eDirectory Trees, browse to and click the name of the server you want to install to or click Add All Servers to select all of the servers in a

container, click the right-arrow button to move your selected servers to the Selected Servers pane, then click OK.

NOTE: If you want to add a Windows server that you might not be authenticated to, you can double-click the server icon to display a dialog box where you can enter credentials to allow for Windows authentication.



7b (Optional) In the Add Servers dialog box, you can specify the hostname or IP Address of a server in the Add Server Via Hostname/IP Address field. The value that you provide must be resolvable to the name of a server.

Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

8 On the now-populated Server Selection page, you can further specify the services you want to install for the Desktop Management components you previously selected, then click Next to save your settings.

The list of settings includes the following:

Local Workstation: Even though the ConsoleOne 1.3.6 installation program lets you install ConsoleOne files to a local hard drive (minor performance enhancements can be achieved by doing so) such an installation will not include the Desktop Management Services snap-ins.

You have the option of installing Desktop Management Services snap-ins to your local workstation by selecting Desktop Management Service Snap-ins under the Local Workstation option. ConsoleOne must be installed on the workstation before the snap-ins can be added.

Desktop Management Services: Desktop Management Services (collectively referred to as the "Desktop Management Server") are commonly used files and programs that enable the configuration and distribution of workstation applications and policies. These services provide automatic management of Windows applications, user and workstation configurations, processes, and behaviors.

- **Application Management:** Select this option to install software that enables the automated distribution, healing, and tracking of applications, updates, and patches.

- **Workstation Management Common Components:** Select this option to install workstation-resident modules that are used to authenticate the user to the workstation and network, and used to transfer configuration information to and from eDirectory.
- **Remote Management:** Select this component to install files and programs that enable the remote management of workstations from a central console. Make sure that the selected servers do not have the ZENworks for Servers 3.0.2 (or earlier) Remote Management component already installed.

Additional Options: If you want to customize your deployment of Desktop Management Services, there are a number of services to choose from, each with a specialized purpose.

- **Desktop Management Database:** Select this option if you want to install a network database to be used by the Novell Application Launcher™ as a repository for data about application events (install, launch, cache, and so forth) that have occurred.
- **Inventory Database:** Select this option if you want to install a network database to be used by Workstation Inventory as a repository for hardware and software inventory information collected from inventoried workstations.

  IMPORTANT: If you want to use the Inventory database with an existing Oracle or MS SQL setup, do not select this option during the Server Inventory installation. Follow the steps in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- **Inventory Server:** Select this option if you want to install files and programs to enable the gathering and viewing of hardware and software inventory information for managed workstations.

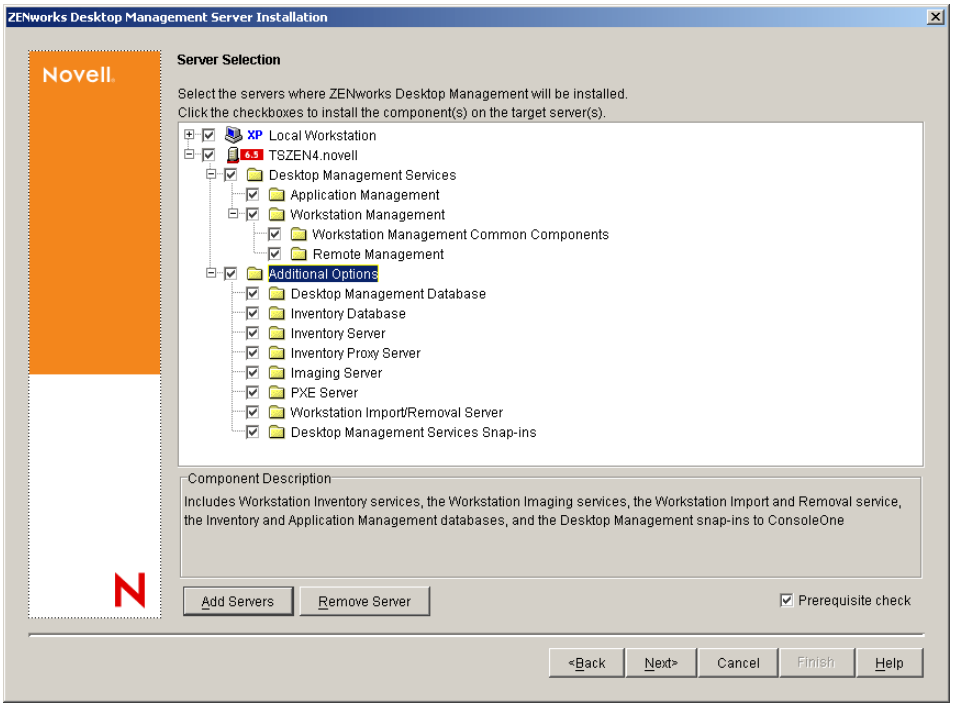
  If the selected servers have the Server Inventory component of ZENworks for Servers 3.0.2 or earlier installed, you must upgrade the component to ZENworks 6.5 Server Management.
- **Inventory Proxy Server:** Select this option if you want to install a proxy service that enables the roll-up of inventory scan data to an Inventory server located across a network firewall. Make sure that the selected servers do not have the ZENworks for Servers 3.0.2 (or earlier) Inventory component already installed.
- **Imaging Server:** Select this option if you want to install a Linux imaging environment to be used to create, store, send, or restore workstation image files to a workstation.

  NOTE: You should install the Imaging Server service and the PXE Server service on the same server; do not install the PXE Server service separately.
- **PXE Server:** Select this option if you want to install Preboot Execution Environment (PXE) protocols and programs to be used by the server to communicate with a PXE-enabled workstation and to enable sending imaging tasks to that workstation.

  When you install Preboot Services, one of the components that is installed is the Proxy DHCP server. If the standard DHCP server is on the same server where you are installing the Proxy DHCP server, you must set option tag 60 in DHCP services.

  NOTE: You should install the Imaging Server service and the PXE Server service on the same server; do not install the PXE Server service separately.
- **Workstation Import/Removal Server:** Select this option if you want to install files and programs that add workstation objects into eDirectory (or remove those already added), where they can be managed to receive applications or computer settings.
- **Desktop Management Services Snap-Ins:** Select this option if you want to install additions to ConsoleOne to enable you to launch Desktop Management tools and utilities, to view Desktop Management object property pages in eDirectory, and to browse and configure those objects.

NOTE: You can perform a “custom selection” by selecting one or more servers and right-clicking to display a pop-up menu with options to add Database Services, Inventory Services, or Imaging Services to all of the servers you have selected. The Default option returns the selections to their initial state. The Custom selection launches another dialog box that you can use to select specific components for all of the selected servers. This selection overrides any other selections you might have made.

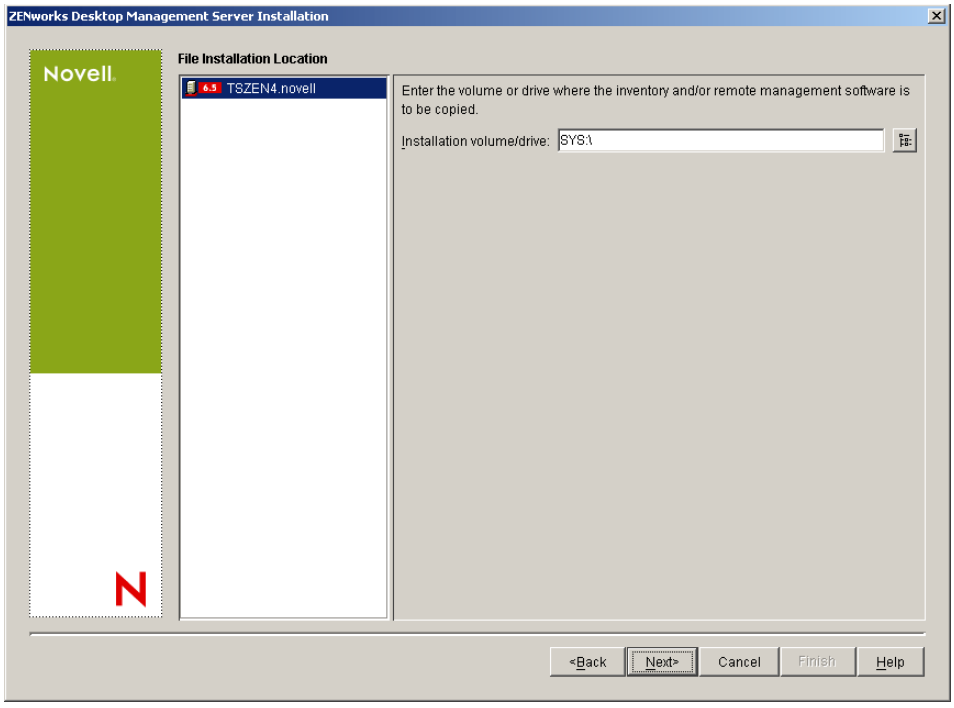


9 (Optional) The Prerequisite Check check box is selected by default. Retain the selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Desktop Management Services. The installation program checks the version of the server’s network operating system (including any required service or support packs), the presence and version of the Novell Client (4.9 SP1a) on Windows servers and on the installing workstation, and the presence and version of ConsoleOne (1.3.6).

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, and does not continue. The installation displays a warning and will not continue until the required software is installed and detected or until you deselect the check box.

10 (Optional if Workstation Inventory or Remote Management is selected.) On the File Installation Location page, select one or more target servers in the Selected Servers list, then browse for or enter the volume or drive where you want the Workstation Inventory or Remote Management files to be installed. The default is SYS: for Novell NetWare and C: for Windows servers.

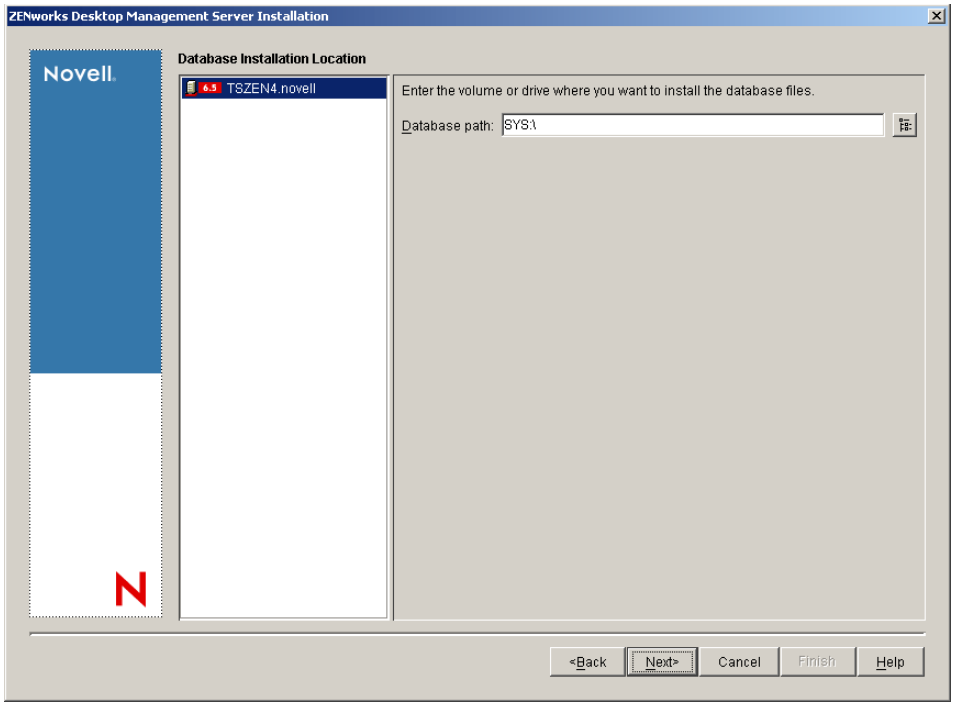
NOTE: If a previous installation of ZENworks 6.5 Workstation Inventory or Remote Management component is detected on the machine, the existing path is displayed and dimmed. The current installation will install all the files in the same path.



11 (Optional) The Database Location Installation page is displayed if you choose to install the Inventory database or the Desktop Management database. Select a previously designated server in the left pane, then in the Database Path field, browse for or type in the name of the volume or drive where the database file will be installed, then click Next.

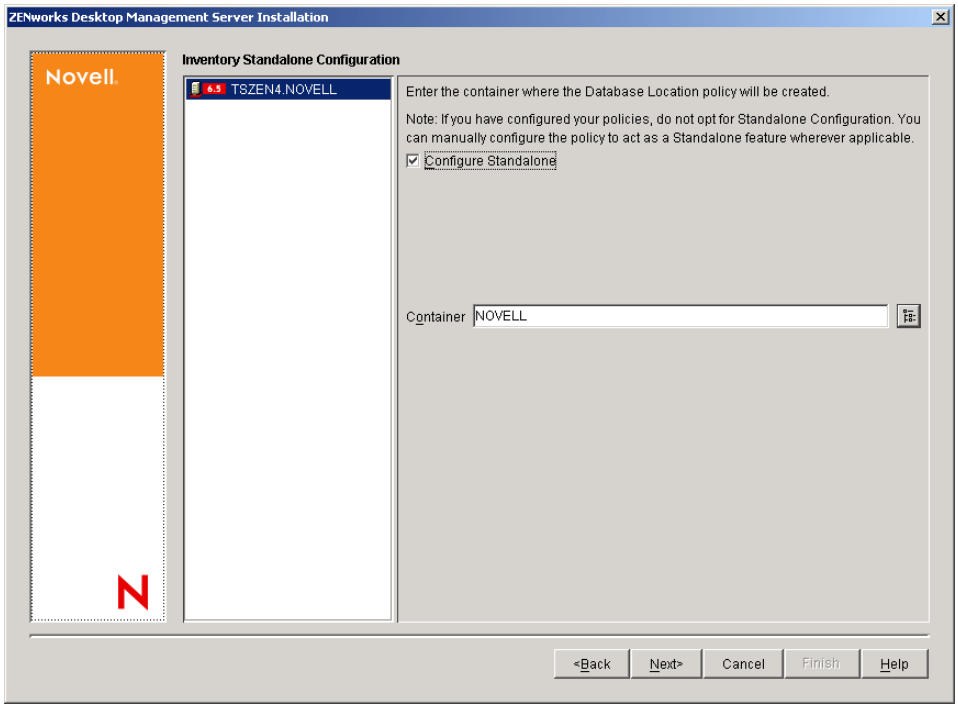
You can provide a different volume or drive for each database server. For example, the volume names might be different on your various NetWare servers. However, you cannot have multiple instances of the database files on the same server, because you can run only one instance of the database engine per server. For NetWare servers, this path cannot include extended or double-byte characters.

NOTE: SYS: is the default for NetWare servers. We recommend that you do not select SYS: on NetWare servers, because the database file can become large.



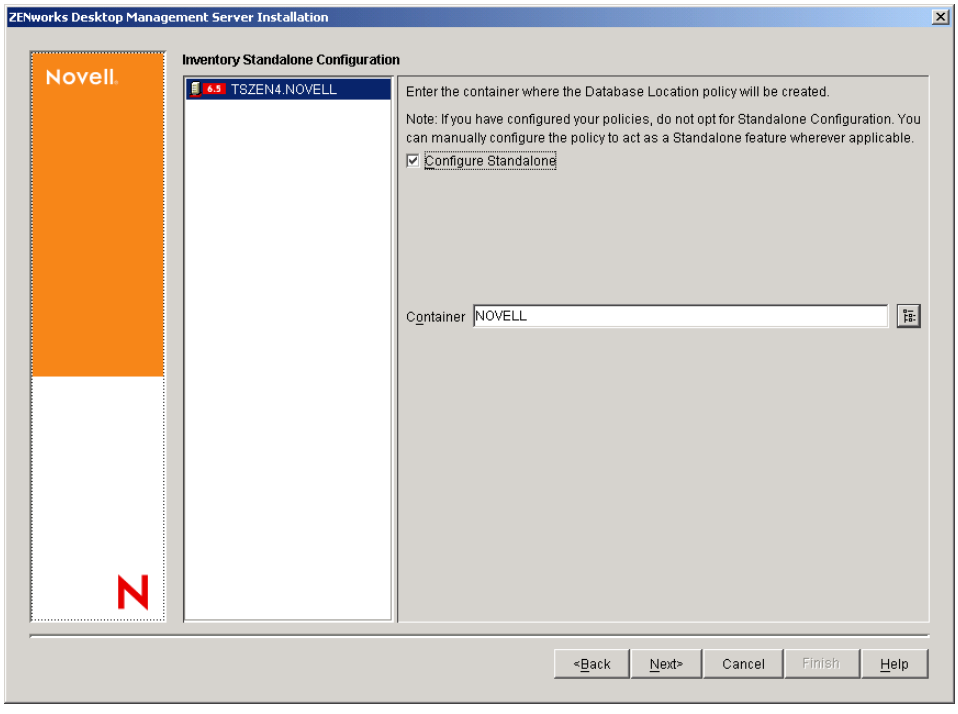
12 (Optional) The Inventory Standalone Configuration page is displayed if you choose to install the Inventory Server and the Inventory Database on the same server. If you want the installation program to automatically create the Server Package and the Database Location policy within the Server Package, and to start the Inventory Service on the server, configure the settings on the Inventory Standalone Configuration page.

Select Configure Standalone, select the server or servers that you want to point to a common Database Location Search Policy, type in the name or browse to the tree container where you want to create and configure the Server Package containing this policy, then click Next.



13 (Optional) On the Inventory Proxy Service Configuration page, select the server or servers with a port you want to designate as one to allow XMLRPC requests pass through to the Inventory Proxy service, then in the Proxy Port field, designate the port you want to use.

You can configure the same port number for all servers by selecting all of them, or you can define the values individually by selecting the servers one at a time. If you want to change the Port 65000 default, specify a value between 0 and 65535. Ensure that the port number is not used by other services on the server.



14 On the Summary page, review the list of components and their parts that are to be installed. If the summary is correct, click Finish to launch the installation program.

You can click Back as many times as necessary to make changes.

If you click Cancel, no installation information is saved.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmserver_install.log (for example: 20040304_024034_zdmserver_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmserver_installsummary.log (for example: 20040304_024034_zdmserver_installsummary.log). It is also located in c:\novell\zfdtemp.

15 In ConsoleOne, select the tree and container where you installed the Desktop Management Server software, then right-click the LDAP Group > click Properties > LDAP Group General.

Make sure that the Require TLS For Simple Binds With Password option has been deselected for each server acting as the Authentication Domain for a ZENworks Middle Tier Server. If you need to set this parameter after you have installed the Desktop Management Server, make sure you reboot the ZENworks Middle Tier Server after you change the setting.

If you are installing to Windows servers in an Active Directory domain, configure the LDAP group object for servers that are to be used as Authentication Domains to use an alternate port number, because Active Directory will use ports 389 and 636.

Configuring the Inventory Database Object on a NetWare Server

If you install Sybase on a NetWare server that has CIFS as a default component, the server IP address or DNS name of the Inventory database_*server_name* object might not be configured correctly after the Sybase installation. To configure the database object correctly:

1. Open ConsoleOne, then double-click the inventory database object.
2. At the ZENworks Database page of the database object, enter the server IP address or DNS name of the server where the inventory database is installed.

Determining Whether the Directory Schema Has Been Extended

After you install Desktop Management Services, you can use the ConsoleOne Schema Manager tool to determine whether your directory schema has been extended by the installation program. When the schema has been extended for Desktop Management Services, attributes are added to the list.

1. In ConsoleOne, click Tools > Schema Manager.
2. Click Attributes to open the list of schema attributes.

You should see the following attribute if the Desktop Management Server is installed:

```
zenlocZFD65Installed
```

Setting Up Required Desktop Policies

ZENworks Desktop Management requires policy packages in the eDirectory tree to hold the desktop policies that you can later configure and enable.

This section includes the information you need for setting up desktop policies, including:

- “Creating the Policy Packages” on page 68
- “Setting Up a Workstation Import Policy” on page 69

In a production environment after the ZENworks test installation, you can add the policies that the individual components need to function correctly.

If you have installed Workstation Inventory you need to configure some Desktop Management policies, as explained in the following sections:

- “Configuring the Database Location Policy” on page 69
- “Configuring the Workstation Inventory Policy” on page 71

IMPORTANT: If you choose to install Sybase during the Desktop Management Server installation, the Inventory Standalone Configuration dialog box is displayed. If you select Configure Standalone in this dialog box, the installation automatically creates the Server package, creates and configures the Database Location Policy, and starts the Inventory Service. When the Desktop Management Server installation is complete, you need to create and configure the Workstation Inventory Policy. For more information, see “Configuring the Workstation Inventory Policy” on page 71.

If you configured the options on the Inventory Standalone Configuration page in Step 11 on page 64, the installation program already created the Server package in the same OU as the server. If you try to create another Server package while completing the steps in this section, a message is displayed stating that the Server package conflicts with another Server package in the same OU.

If you install Workstation Inventory in a production environment, see the *Novell ZENworks 6.5 Desktop Management Administration Guide* for the policies to be configured.

After configuring the required policies, you must manually start the Inventory service.

To manually start the Inventory service on the NetWare Inventory server:

1. Type **`startinv`** at the server console prompt.

To manually start the Inventory service on the Windows 2000 Inventory server:

1. In the Control Panel, double-click Administrative Tools > Services.
2. Select Novell Inventory Service, then click Start.

After starting the Inventory service, make sure that the Inventory services are up and running. To list all services, enter **`ListSer *`** at the Inventory server console prompt. If the services are not up and running, check the Server Status log. For more information on the Server Status log, see the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Creating the Policy Packages

A policy package holds the individual Windows desktop policies that dictate the rules of use or configuration for users or their workstations. You should create an Organizational Unit (OU) for holding the policy packages. Consider the following when determining where to place this OU:

- Whether you have partitions in your tree
- The 256-character limit in eDirectory for the full distinguished name
- How the Search policy is used to locate the policy package

To minimize tree walking, it is best to create this policy package OU at the root of the partition that contains the objects with which the policy package will be associated. In doing so, the following benefits are realized:

- Tree walking is minimized when the root of the partition and the Search policy are being used
- Placing the OU at the partition's root maximizes the number of characters that will be available for naming plural policies

To create a policy package:

NOTE: You might want to create an Organizational Unit (OU) to hold your policies. To do so, in ConsoleOne, right-click the container where you want the OU placed > click New > click Object > click Organizational Unit > click OK, then give the container a short name, for example, Desktop Policies.

1. Right-click the container in which you want the policy package placed > click New > click Policy Packages.
2. Select one of the following policy packages:

   Container Package
   Server Package
   Service Location Package
   User Package
   Workstation Package

3 Click Next, give the package a short name, click Next, click Create Another Policy Package (unless this is the last one being created), then click Finish.

Short package name suggestions include:

Container
Server
Location
User
Workstation

4 Repeat Step 1 through Step 3 for each policy package to be created.

Setting Up a Workstation Import Policy

Desktop Management requires a Workstation Import Policy so that workstations can be imported to server where Desktop Management is installed.

To enable the Import Policy:

1 In ConsoleOne, right-click the Server Package > then click Properties.

2 Select the check box under the Enabled column for the Import policy. This both selects and enables the policy.

3 Click Properties to display the Containers page.

4 Click the down-arrow on the Platforms tab, then select the desired platform.

5 Select an option in the Create Workstation Objects In drop-down list, then specify the container in which you want to store Workstation objects.

6 Click OK.

7 Click the Associations tab, click Add, browse to the server where Desktop Management is installed, then click OK to list the server in the Associations list.

8 In the Associations list, select the server where you want to associate the Import policy, click Apply, then click Close.

Configuring the Database Location Policy

The Database Location policy contains the location of the Inventory database. You can associate the Database object with a container under which the Inventory Service object is located through using the Service Location Package or with an Inventory server through using the Server Package.

NOTE: If you configure both the Service Location Package and the Server Package, the Server Package settings will override the Service Location Package settings.

To associate the Database object with a container under which the Inventory Service object is located:

1 In ConsoleOne, right-click the Service Location Package, click Properties to display the Policies page.

2 Select the check box under the Enabled column for the ZENworks Database policy.

3 Click Properties to display the Inventory Management page.

4 Browse to the DN of the Inventory Database object (Inventory database_*server_name*), then click OK.

For a Sybase database, the database object is automatically created during the Workstation Inventory installation unless you are installing on a Windows 2000 server without eDirectory installed. To manually create the database object, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

For an Oracle database, you must create the database object and configure the object. For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

For an MS SQL database, you must configure the database object. For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

IMPORTANT: Ensure that the DNS name of the database server configured for the database object is valid. If the DNS name is invalid, you must select an appropriate database server IP address in the Database object property page.

To select the IP address of the database server:

4a In ConsoleOne, right-click the database object, then click Properties to display the ZENworks Database page.

4b In the Server IP Address or DNS Name field, select an appropriate IP address.

4c Click Apply, then click Close.

5 Click OK.

6 Click the Associations tab, then click Add.

7 Browse to select the container under which the Inventory Service object is located, then click OK.

8 Click Apply, then click Close.

To associate the Database object with an Inventory server:

1 In ConsoleOne, right-click the Server Package, click Properties to display the Policies page.

2 Select the check box under the Enabled column for the ZENworks Database policy.

3 Click Properties to display the Inventory Management page.

4 Browse to the DN of the Inventory Database object (Inventory database_*server_name*), then click OK.

For a Sybase database, the database object is automatically created during the Workstation Inventory installation unless you are installing on a Windows 2000 server without eDirectory installed. To manually create the database object, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

For an Oracle database, you must create the database object and configure the object. For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

For an MS SQL database, you must configure the database object. For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

IMPORTANT: Ensure that the DNS name of the database server configured for the database object is valid. If the DNS name is invalid, you must select an appropriate database server IP address in the Database object property page.

To select the IP address of the database server:

4a In ConsoleOne, right-click the database object, then click Properties to display the ZENworks Database page.

4b In the Server IP Address or DNS Name field, select an appropriate IP address.

4c Click Apply, then click Close.

5 Click OK.

6 Click the Associations tab, then click Add.

7 Browse to select an Inventory server object, then click OK.

8 Click Apply, then click Close.

NOTE: If you are modifying the Inventory policies or configuring the objects, always stop the Inventory services. Configure the policies and properties of the objects. Restart the Inventory services again. For more information, see the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Configuring the Workstation Inventory Policy

1 In ConsoleOne, right-click the Workstation package, then click Properties to display the Policies page.

2 Click the Policies tab, and then select a specific platform from the drop-down list to configure and enable the policy for that platform. The available platforms include: Windows 9x, WinNT-2000-XP, Windows NT, Windows 2000, or Windows XP.

3 Select the check box under the Enabled column for the Workstation Inventory Policy.

4 Click Properties to display the Workstation Inventory Policy page.

5 In the General page, configure the following settings:

5a Browse to and select the DN of the Inventory Service object.

5b Specify the number of delta scans after which a full scan is required.

6 (Optional) Customize the Inventory scan.

6a Click the Hardware Scan tab to specify the following settings:

Enable DMI Scan: Select this option to include scanning of hardware data from Desktop Management Interface (DMI) on the inventoried workstations.

Enable WMI Scan: Select this option to include WMI scanning of hardware data from Microsoft's Windows Management Instrumentation (WMI) on the inventoried workstations.

Enable Custom Scanning: Select this option to include Custom scanning of the inventoried workstations. You need to enter the name of the Custom Scan executable that should be run for custom scanning.

Custom Attribute Editor: Click this button to specify the list of custom attributes. Modify the list if necessary.

6b To customize the software scan settings for the Windows inventoried workstations where ZENworks for Desktops 3.2, ZENworks for Desktops 4, or ZENworks for Desktops 4.0.1 is installed, click the Software Scan tab and configure the following settings:

IMPORTANT: Do not configure the settings for the inventoried workstations that have ZENworks 6.5 Desktop Management installed.

Enable Software Scan: Enables software scanning for the inventoried workstations associated with the Inventory policy. The scan program collects software information for the inventoried workstations and stores it in the Inventory database.

Custom Scan Editor: Enables you to customize the list of application details to scan for at the inventoried workstations. The Inventory scanner scans for the details of the applications listed in the Custom Scan Editor.

For example, specify the following details in the Custom Scan Editor: Vendor Name=Microsoft; Product Name=Microsoft Office; Product Version=10.0; FileName=winword.exe; File Size=1 MB. The Inventory scanner scans for the winword.exe file having a size of 1 MB on the inventoried workstations. If the file is found, the scanner stores "Microsoft;Microsoft Office;10.0" for "winword.exe;1 MB" in the Inventory database.

Product Identification Number: Enables you to scan for the product identification number of the Microsoft applications installed on the inventoried workstations.

Product Location: Enables you to scan for the full path of the applications installed on the inventoried workstations.

Perform only Custom Scanning: Enables you to scan only the customized software applications that are selected in the Custom Scan Editor.

6c Click the Configuration Editor tab. If required, modify the settings of the following .ini files.

- **SWRules:** Configure the SWRules file for the Windows inventoried workstations on which ZENworks for Desktops 3.2, ZENworks for Desktops 4, or ZENworks for Desktops 4.0.1 is installed. Do not configure the file for the inventoried workstations that have ZENworks6.5 Desktop Management installed.

  Use the SWRules file to customize the software scanning information of vendors and products. For more information on how to configure this file, see "Customizing the Software Inventory Information To Be Scanned For ZENworks for Desktops 4.X and Earlier Versions of Inventoried Workstations" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **Asset Information:** Use this file to scan for vendor-specific information from the Desktop Management Interface (DMI). For more information how to configure this file, see "Scanning for Vendor-Specific Asset Information from DMI" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **Zipped Names:** Use this file to customize the hardware scanning of Jaz* and Zip* drives. For more information how to configure this file, see "Customizing the Hardware Scanning Information of Jaz, Zip, and Floppy Drive Vendors" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **IBM Names:** Use this file to scan for the IBM computer models. For more information how to configure this file, see "Scanning for IBM Computer Models" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **HWRules:** Use this file to customize the nominal size of monitors. For more information on how to configure the HWRules .ini file, see "Customizing the Hardware Information for Monitor's Size" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

7. Click Apply.
8. Click the Policy Schedule tab.
9. Modify the settings for scheduling the scan of the inventoried workstations, click Apply, then click Close.
10. Click the Associations tab, then click Add.
11. Browse to and select the container object where the inventoried workstations are registered, then click OK.
12. Click Apply, then click Close.
13. In ConsoleOne, right-click the Inventory Service object (Inventory Service_*server_name*), click Properties, then click the Inventory Service object tab.
14. Make sure Enable Scan of Machines is selected, then click OK.

Setting Up Automatic Workstation Import

The following steps assume that you selected the Import or Import/Removal option as part of Automatic Workstation Import installation.

1. Set up a DNS name for Automatic Workstation Import to use.

   This can be either a DNS entry or an entry in a local hosts file. An example of a DNS name is www.novell.com.

   The following is an example of the text you would add in a hosts file for Automatic Workstation Import:

   ```
   151.155.155.55 zenwsimport
   ```

   In this example, the TCP/IP address is for the server where you are running the Automatic Workstation Import service. “zenwsimport” is not the name of a server, but a DNS name that resolves to this TCP/IP address. In other words, zenwsimport is a label to identify the server as the one running the Automatic Workstation Import service.

   For Windows 98, the hosts file location should be:

   *Win98_drive:**Win98_directory*\hosts

   IMPORTANT: The default host file in Windows is named hosts.sam. Do not use the .sam extension with your host filename. Rename hosts.sam to hosts, or make a copy and rename the copy. Remember that by default, Windows 98 hides filename extensions that are of a known type. Therefore, make sure filename extensions are being displayed so that you can correctly rename the hosts.sam file to hosts.

   For Windows NT/2000, the hosts file’s location should be:

   WinNT-2K_drive:*WinNT-2K_directory*\system32\drivers\etc\hosts

   Note that hosts as shown above is a filename, not a folder name.

2. To verify the DNS name or TCP/IP address: at the workstation command prompt, enter

   ping zenwsimport

3. Update each workstation that you want to import with the latest Novell Client or Desktop Management Agent.

   This is required to place Workstation Manager on the workstations.

When the Workstation Manager is installed on the workstation, the scheduler portion of Workstation Manager should begin working and workstation registration occurs automatically at Scheduler service startup (98/NT/2000/XP) or User login (98/NT/2000/XP).

4. To verify that Automatic Workstation Import is running on a NetWare server, press Ctrl+Esc and look for a ZENworks Workstation Import screen.

   or

   To verify that Automatic Workstation Import is running on a Windows NT/2000 server, check services for:

   ```
   ZENworks Workstation Import
   ```

5. If Automatic Workstation Import is not running, restart the server.

Installing the ODBC Drivers

Before running the inventory reports, review the following:

- Make sure that the appropriate ODBC client for Sybase, Oracle, or MS SQL is installed on the machine running ConsoleOne. The ODBC driver will be automatically configured on the machine when you invoke the Inventory report.

  To install the ODBC driver for the Sybase database,

  1. In the *Novell ZENworks 6.5 Companion 2* CD, open the \database drivers directory
  2. Follow the instructions in the ODBCreadme.txt file in the \database drivers directory. The information helps you to set up the address of the Sybase database and verify that you can make a connection

  For Oracle, you must install the appropriate client for ODBC. For example, for Oracle 8i Inventory database, install the Oracle 8i client because Inventory reports are not compatible with either the older or the later version of the client.

  For MS SQL, the client is available on all Microsoft Windows operating system.

- Make sure that at least MDAC 2.6 SP1 (Microsoft Data Access Component) is installed particularly on a Windows NT machine for running Crystal Reports. Check the version of MDAC on your box: select Control panel > ODBC Data sources > the About tab pane. The minimum version required is 3.520.7326.0. If the version you have does not match the minimum requirement, you need to upgrade the ODBC core components by downloading from Microsoft site (http://microsoft.com/data/download.htm)

8 Installing the ZENworks Middle Tier Server

This section includes the following information:

- "ZENworks Middle Tier Server Installation Procedure" on page 75
- "Required Rights for the Middle Tier Proxy User Account" on page 84
- "Editing Autoexec.ncf on a NetWare 6 ZENworks Middle Tier Server" on page 85

ZENworks Middle Tier Server Installation Procedure

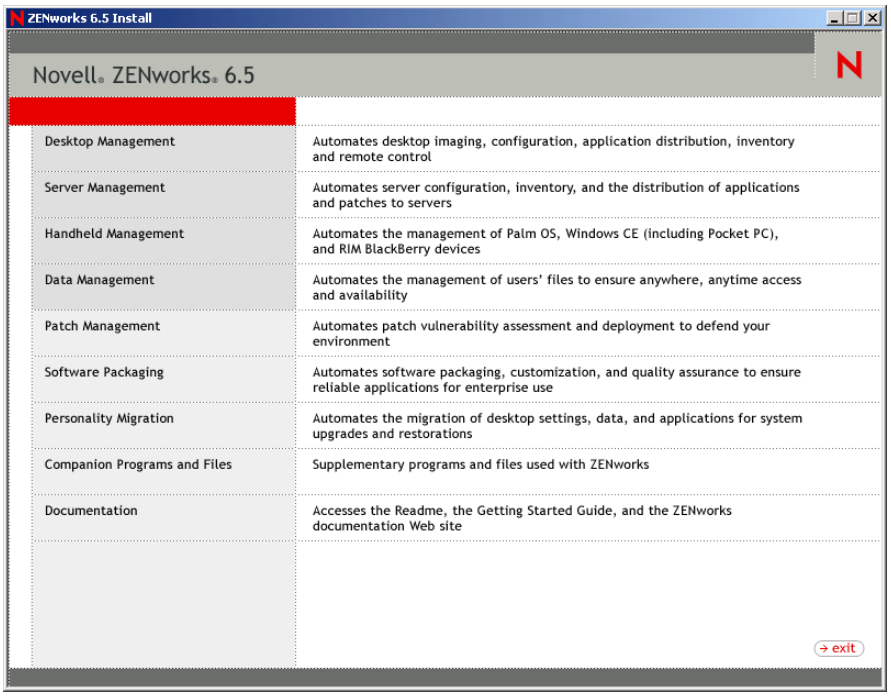
When you have met the hardware and software requirements and prerequisites for installation (see "Prerequisites for Installing the ZENworks Middle Tier Server" on page 45), use the following steps to get the ZENworks® Middle Tier Server up and running on a NetWare® or Windows server.

1. Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the Middle Tier Server installation program. The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.
2. At a Windows workstation, insert the *Novell ZENworks 6.5 Desktop Management* CD.

   If you run the installation from a directory location where you have copied the ZENworks Desktop Management ISO files, make sure that all of these files are copied to the same location from which you are running winsetup.exe.

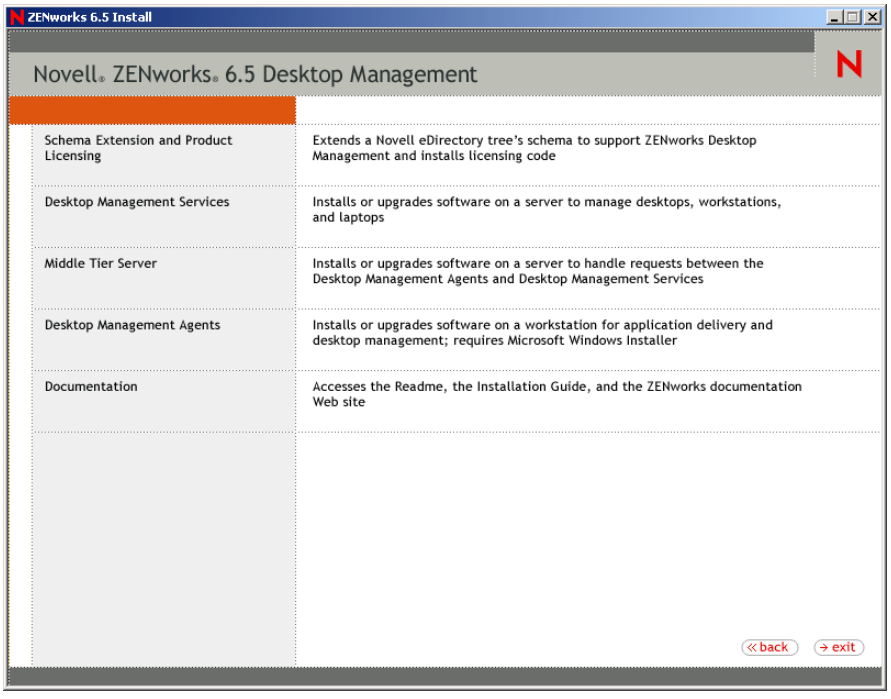
   IMPORTANT: If you remove the *Novell ZENworks 6.5 Desktop Management* CD from the CD drive during the installation, or if you lose your connection to the server you are installing to, the installation program stops and will not proceed. To terminate the installation process, in the Windows Task Manager click Processes, select javaw.exe, then click End Process.

   The winsetup.exe program will autorun. If it does not autorun, launch the program from the root of the CD.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Middle Tier Server to launch the Middle Tier Server installation program.

6 On the first Installation page, read the details about running the installation program, then click Next.

7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Middle Tier Server software, make sure that the server where you plan to install meets the listed requirements, and then click Next.

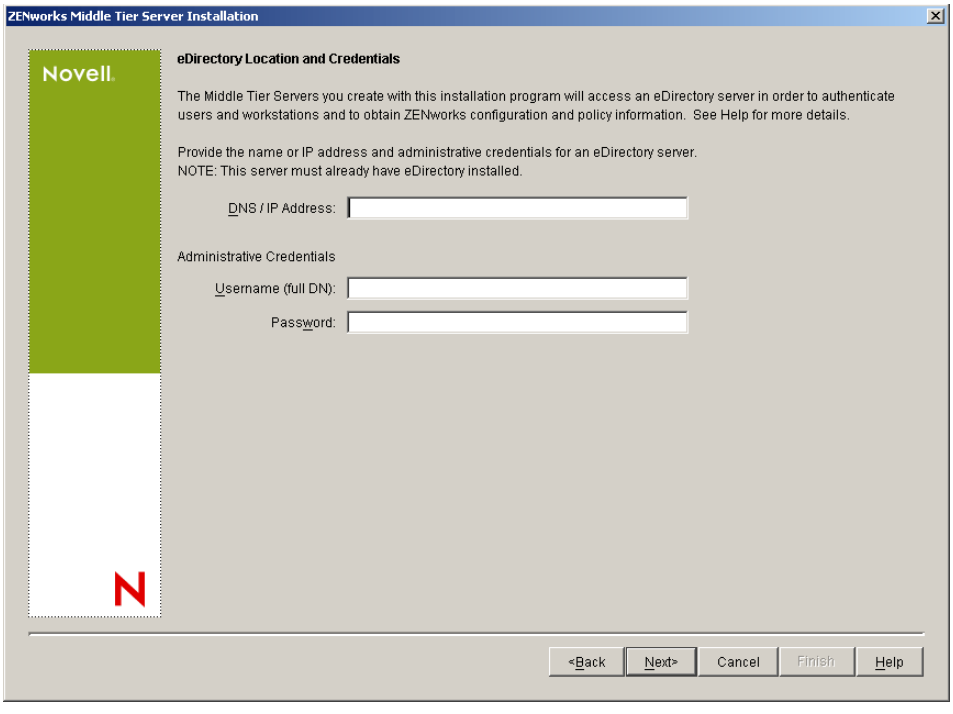
9 On the eDirectory Location and Credentials page, fill in the fields:

DNS/IP Address: Specify the DNS name or IP address of the server where eDirectory is installed.

Username (full DN): Specify the fully-qualified distinguished username of the Middle Tier proxy user account (for example, midtier-proxy.org-unit.org). To ensure that these credentials remain secure, you can set up an arbitrary user with specific administrative rights.

For a description of the required rights, see "Required Rights for the Middle Tier Proxy User Account" on page 84.

Password: Specify the eDirectory password for the Middle Tier proxy user.



10 On the ZENworks User Context page (User Context field), specify the eDirectory context where the Middle Tier Server can look for user objects that will be used by Desktop Management.

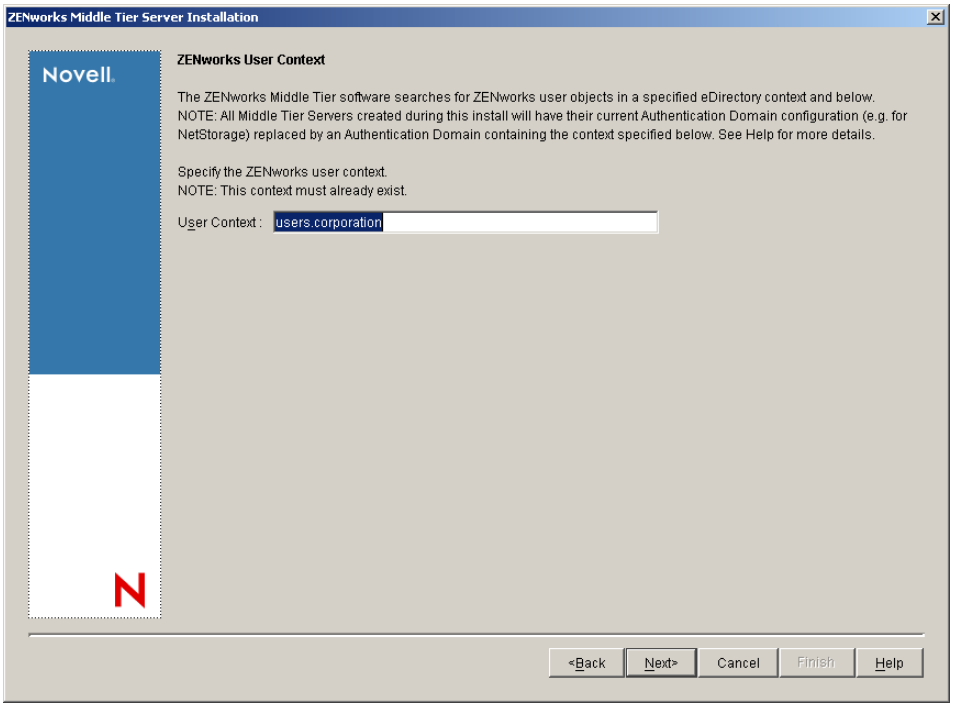
You should use the context of the highest-level container where user objects reside. This value is passed to the ZENworks Middle Tier Server, which will use it as a starting point in searching for a user.

For example, if users exist in many subcontainers, specify the context of the container that holds all of those subcontainers. When a user logs in through the ZENworks Middle Tier Server, the server begins searching for a user in the designated eDirectory container, then search subcontainers in that container until the correct user is found.

For any Middle Tier Server you designate during this installation, currently configured authentication domains (for example, the authentication domain configured for NetStorage) are replaced by a single authentication domain having the context that you specify here.

After the installation, you can reconfigure this authentication domain context using the NSAdmin utility. You can open the utility in a Web browser (http://*middle_tier_server_name*/oneNet/nsadmin).

NOTE: The installation program verifies the existence of the context (that is, the container) before continuing.



11 On the ZENworks Files Location page, select the network location where you will access application and policy files managed by ZENworks.

The ZENworks Middle Tier Server requires access to ZENworks files installed elsewhere on your network. As the ZENworks Administrator, you define the location of these files when you create policies or applications for distribution. The information you provide on this page is used to help the Middle Tier Server determine how to access different file systems. This decision is necessary for the installation now, even if you have not yet created any ZENworks files.

- Select the first option button if your ZENworks-managed application and policy files will be located on NetWare servers only.
- Select the second option button if some or all of your ZENworks-managed application and policy files will be located on Microsoft Windows servers.

If your ZENworks files will be located in a Windows file system, the Middle Tier Server might not be able to access them using a username and password for Novell eDirectory; instead, it requires Windows domain credentials to access the files.

If the files are located on a server not belonging to a domain, enter server-specific credentials.

Domain Username

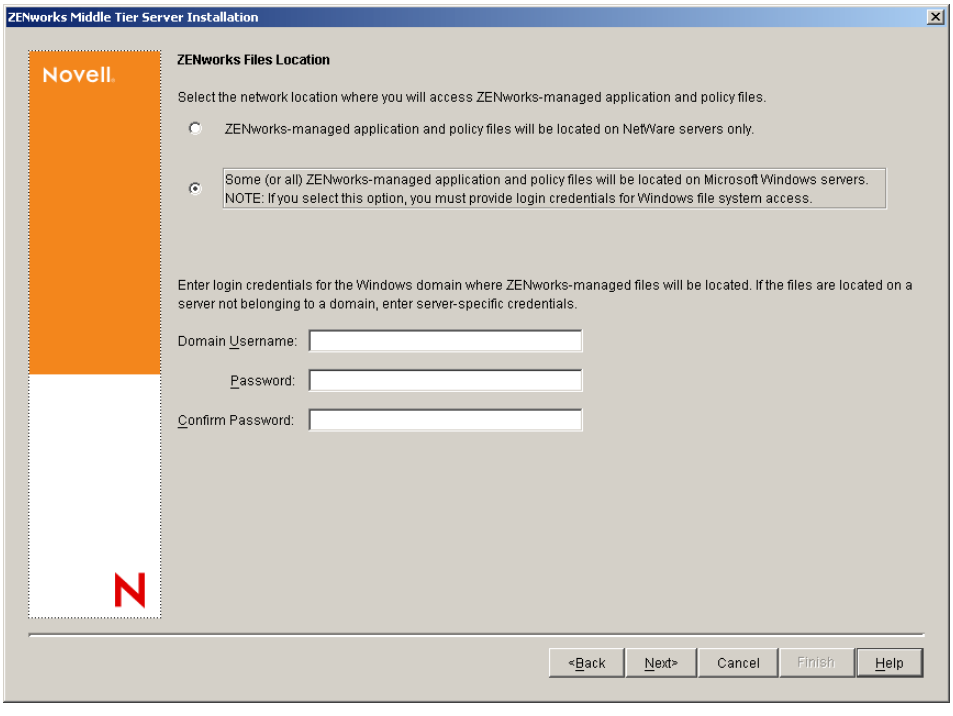
Specify the username of any user in the Microsoft domain who has Windows file system rights to the ZENworks file locations.

Password

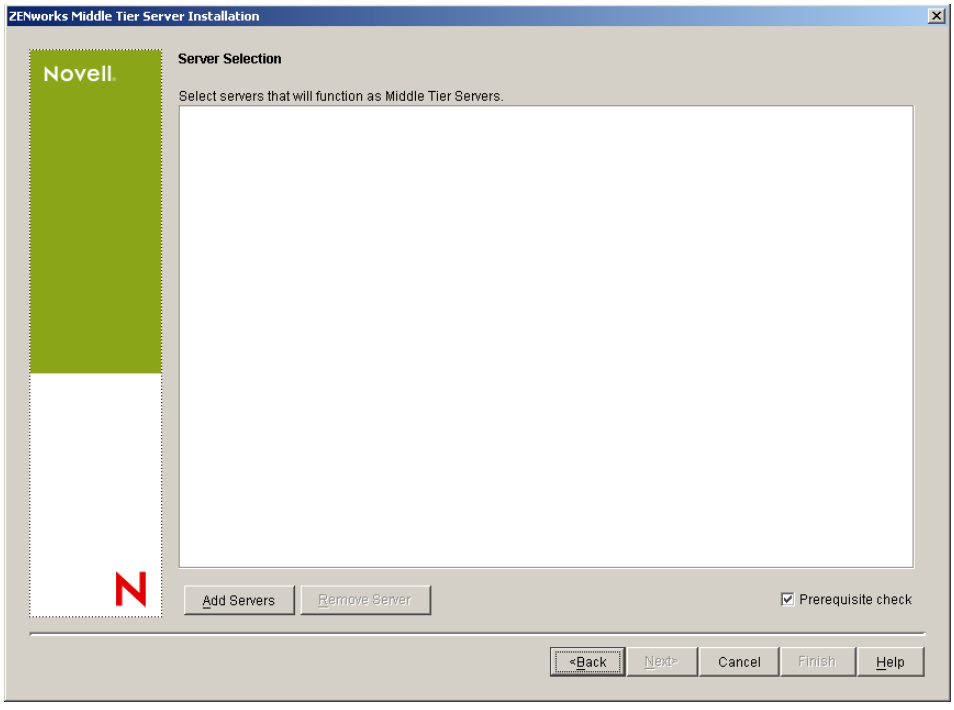
Specify the password for the user in the Microsoft domain who has file system rights to ZENworks files.

Confirm Password

Specify the same password to confirm that it was entered correctly.



12 On the Server Selection page, you need to build a list of target servers that you want to function as Middle Tier Servers. The Add Servers button calls a dialog box that is used to find and add servers to the list. The Remove Servers button lets you delete servers from the target list after they are added. Click Add Servers.



13 (Optional) Prerequisite Check is selected by default. You can retain this selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Middle Tier Servers.

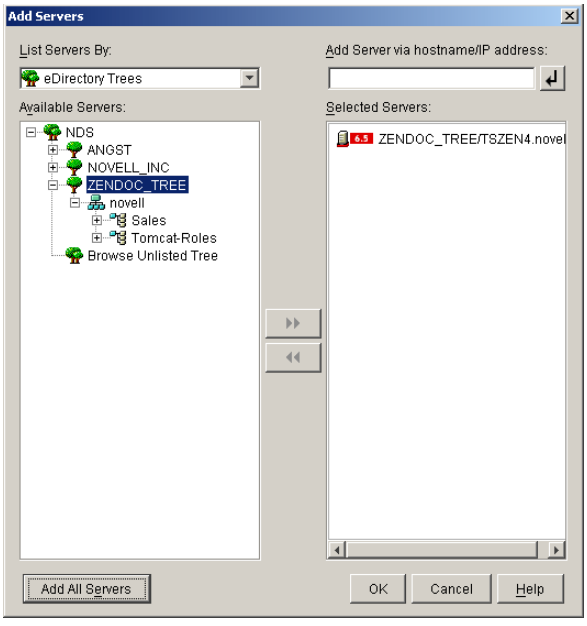
The installation program checks the version of any previously installed Middle Tier Server software, the server's network operating system (including any required service or support packs), the presence and version of the IIS Web server on Windows servers, the presence and version of the appropriate Web server on NetWare servers, and the presence and version of NetStorage (2.6.0) on target servers.

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, but can continue. If other requirements are not met, the installation displays a warning and does not continue until the required software is installed and detected.

14 On the Add Servers dialog box, open the List Servers By drop-down list to show the options of listing the servers according to their location in Novell eDirectory trees, in Microsoft Windows Network structures, or in Microsoft Active Directory trees.

You can install the ZENworks Middle Tier Server software to several servers during the installation. When you have finished adding servers to the list, click OK.

14a (Conditional if you want to list servers in eDirectory trees.) In the List Servers By drop-down box, select eDirectory Trees to list all of the eDirectory Trees to which you are currently authenticated, then browse the tree to the server of your choice, and then click the double right-arrow to move it to the Selected Servers list box.

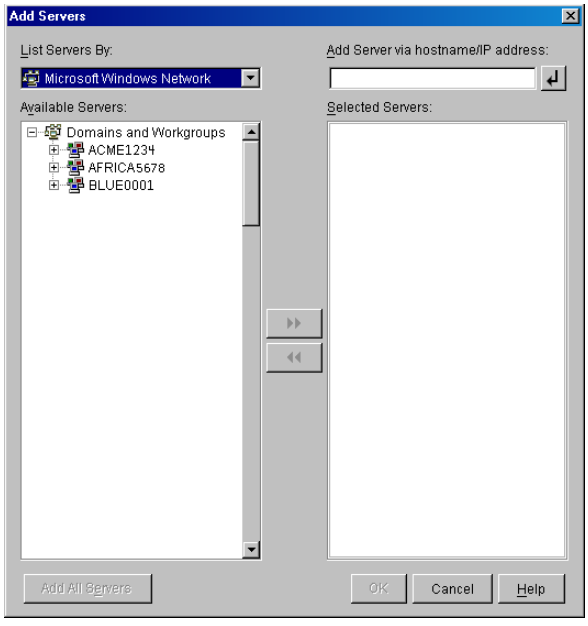


Other options in this dialog box include the following:

- You can click Browse Unlisted Tree to open a dialog box listing all of the trees in your network. Double-clicking any one of these trees moves it to the Available Servers list, even though you are not authenticated to that tree.
- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.
- If you select a server to which you are not authenticated, you are prompted to provide eDirectory credentials for that tree.
- Click Add All Servers to add all of the servers in a selected tree or container when authentication is complete. Selecting a high-level container selects all of the servers in that container and in all of its subordinate containers.
- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

14b (Conditional if you want to list servers in Microsoft Windows Network structure.) In the List Servers By drop-down list, select Microsoft Windows Network to list all of the Windows Workgroups and Microsoft Domains to which you are currently authenticated, browse the structure to the server of your choice, then click the double-right arrow to move it to the Selected Servers list.



Other options in this dialog box include the following:

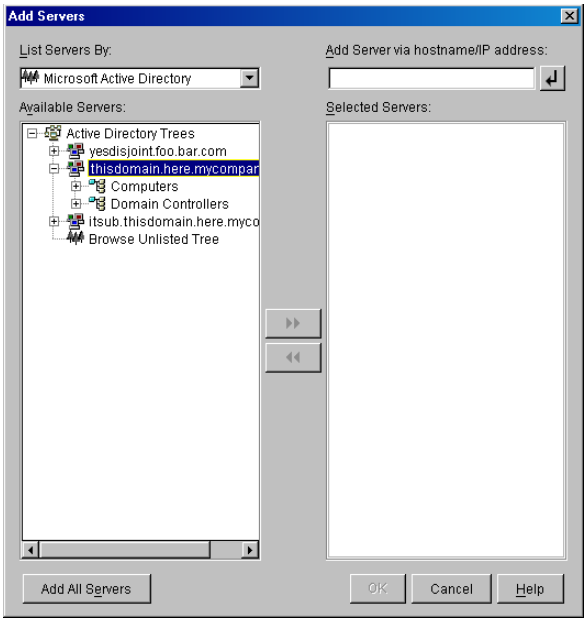
- You must be an administrative user for a server in order to add it to the Selected Servers list. If you are not authenticated to a server, the object is designated by a question mark. You can double-click the question mark to authenticate to the server, then click the double-right arrow to move the server to the Selected Servers list, provided it is a supported server platform for ZENworks 6.5 Desktop Management.
- When you list servers in Microsoft domains, NetWare servers are not listed for browsing because ZENworks files that are located on a Windows server cannot be obtained through a Middle Tier Server installed on NetWare.
- You can specify the hostname or IP Address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

  If you are using multiple hostname aliases for a Windows server, the first alias must be the physical name of your Windows server.
- If the credentials you provided for authentication to the server (see Step 11) are not administrative credentials, you can add it as a target server, but you will be re-prompted for Administrative credentials when you close the Add Servers dialog box.
- Click Add All Servers to add all of the servers in a selected domain or workgroup. Selecting a domain or workgroup selects all of the authenticated servers in that domain or workgroup.
- To remove a server from the Selected Servers list and return it to the Available Servers list, click the server name in the Selected Servers list, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

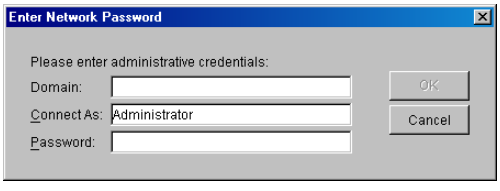
14c (Conditional if you want to list servers in a Microsoft Active Directory.) In the List Servers By drop-down list, select Microsoft Active Directory. If your workstation is a member of an Active Directory, the domains in the Active Directory trees are displayed.

You can browse to all of the servers listed in Active Directory (on a per domain basis), browse the structure to the server of your choice, then click the double right-arrow to move it to the Selected Servers list.



Other in this dialog box include the following:

- You can also click Browse Unlisted Tree to open a dialog box where you can specify the name of the domain you want to add, then authenticate to it with the proper credentials prior to displaying its servers in the List Servers By drop-down list.



- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

- Right-click a domain object to select one of three search methods:

  Search Standard Locations: Lists the computers and domain controllers at the root of the domain. This is the default search method.

  Search Entire Directory: Lists all directory containers where computers are located.

  Browse Directory Hierarchy: Lists all of the containers in the directory, which you can expand and browse one at a time to find the computer you want. This search method might be useful if you have computers in a non-standard location of a large directory.

- Click Add All Servers to add all of the servers in a selected domain or container. Selecting a domain or container selects all of the servers in that domain or container.
- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

15 On the Summary page, review the location where you have chosen to install the ZENworks Middle Tier Server software and the Desktop Management Server to which it is associated, then click Finish to begin the installation process if the summary is correct.

The Middle Tier Server Installation Wizard launches another installation program. Wait until this program is completed.

IMPORTANT: You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmmidtier_install.log (for example: 20040304_024034_zdmmidtier_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmmidtier_installsummary.log (for example: 20040304_024034_zdmmidtier_installsummary.log). It is also located in c:\novell\zfdtemp.

16 In ConsoleOne pointing to eDirectory on the Desktop Management Server, make sure you have set up the Desktop Management Server to allow clear text passwords. See Step 15 on page 66 for more information.

17 (NetWare 6 Installation Only.) Edit the autoexec.ncf file on the NetWare 6 ZENworks Middle Tier Server so that the Apache Web Server will load and bind properly. For more information, see “Editing Autoexec.ncf on a NetWare 6 ZENworks Middle Tier Server” on page 85.

18 Reboot the server where you installed the ZENworks Middle Tier Server software.

19 Verify that the ZENworks Middle Tier Server is installed and running by entering one of the following URLs at a browser on the workstation:

http://*Middle_Tier_Server_DNS_or_IP*/oneNet/xtier-stats
http://*Middle_Tier_Server_IP_address*/oneNet/zen

If the ZENworks Middle Tier Server is running, the first URL opens a Web page where server statistics are displayed. You should be able to see where the request count increases by clicking the Refresh button on your browser.

If you are not authenticated, the second URL launches a dialog box that prompts for user credentials. If you are authenticated, the URL launches a Web page where a message is displayed stating that XZEN (the Xtier module in the Middle Tier Server) is running.

Required Rights for the Middle Tier Proxy User Account

The ZENworks Middle Tier proxy user needs rights in the following categories:

- “Rights For Contextless Login” on page 85
- “Rights For Remote Management” on page 85
- “Rights for Administering the Middle Tier Server Using NSAdmin” on page 85
- “Required Rights If the Middle Tier Server Is Also the iFolder NetStorage Server” on page 85

Rights For Contextless Login

If your users exist in subcontainers of the defined Users Context, LDAP is used to find their context during the authentication process. To perform this LDAP query, the Middle Tier proxy user account needs the Read right to the CN attribute of the user objects that will log in through this Middle Tier Server.

Rights For Remote Management

Users in an environment without the Novell Client™ (that is, using the Desktop Management Agent only) log in to the eDirectory tree through the Middle Tier Server. The Middle Tier proxy user account needs Write rights to the zendmWSNetworkAddress attribute on the user objects that log in through this Middle Tier Server. The network address stored in this attribute is updated during each user login through this Middle Tier Server and is used by the Remote Management process to determine the network location of the user.

NOTE: The Middle Tier proxy user account also needs Create entry rights to these user objects because the zendmWSNetworkAddress attribute is not present by default on an eDirectory User object. The attribute is created when a user logs in for the first time from the Desktop Management Agent through the Middle Tier Server.

Rights for Administering the Middle Tier Server Using NSAdmin

Any additional users who need to administer the Middle Tier Server using the NSAdmin utility (http://midtier/oneNet/nsadmin) must be Security Equivalent to the Middle Tier proxy user account. The proxy account is stored in the registry of the Middle Tier server at HKLM (or myserver for NW) \Software\Novell\XTier\Configuration\Xsrv.

Required Rights If the Middle Tier Server Is Also the iFolder NetStorage Server

If a NetWare 6.5 Middle Tier Server is also the Novell iFolder® NetStorage server, grant the Middle Tier proxy user Add rights for adding an auxiliary class (xTier) and Write rights to the attribute (xTier-iFolderPassPhrase). These rights allow the proxy user to set a password when it is changed from within NetStorage.

Editing Autoexec.ncf on a NetWare 6 ZENworks Middle Tier Server

When you installed NetWare 6, you had the option to run Apache (and other NetWare services) on an IP address that differs from the NetWare server's primary IP address. For more information see Configuring IP-Based Services (Conditional) in the *NetWare 6 Overview and Installation Guide*.

If you chose to install the Apache Web Server using this option, one or more lines were added to your server's autoexec.ncf file to identify the Apache IP address as a secondary address. These IP address lines were placed above the load lines for the various NetWare components, including Apache. This configuration works because the Apache servers that load are properly bound to the secondary address.

However, if you subsequently install the ZENworks Middle Tier Server components (that is, istorage.zip and storage.zip), the Apache load commands are transferred to the bottom of the autoexec.ncf file. This sequence causes Apache to load but not bind properly because the secondary address lines haven't been executed yet.

We suggest that after you install ZENworks Middle Tier Server, you edit autoexec.ncf to place the “add secondary IP address” commands near the top of the file, then restart the server.

9 Installing the Desktop Management Server and the Middle Tier Server on the Same Machine

If you have a small to medium-sized enterprise, it is possible that you will want to install the Novell® ZENworks® Middle Tier Server and the Desktop Management Server on the same network server.

This section contains the following information:

- "Installing Desktop Management Services to a Single NetWare Server" on page 87
- "Installing Desktop Management Services to a Single Windows 2000 Server" on page 87

Installing Desktop Management Services to a Single NetWare Server

Use the following high-level procedure for installing the necessary components to run ZENworks Desktop Management on a single NetWare 6 or NetWare 6.5 server:

1. Install the ZENworks Middle Tier Server software. For information, see "ZENworks Middle Tier Server Installation Procedure" on page 75.
2. Install the Desktop Management Server software. For information, see "Desktop Management Server Installation Procedure" on page 55.
3. Restart the server.

IMPORTANT: If you install NetWare 6 SP4 after you install ZENworks Middle Tier Server software, you need to install ZENworks Middle Tier Server software again. Some NetWare 6 SP1 and SP2 files incorrectly overwrite some newer files of the same name on the ZENworks Middle Tier Server.

Installing Desktop Management Services to a Single Windows 2000 Server

Use the following high-level procedure for installing the necessary components to run ZENworks Desktop Management on a single Windows 2000/2003 server:

1. Install eDirectory. This also requires the following complementary software:
   - Novell eDirectory must be licensed. You can download the files you need for the eDirectory 8.7.x evaluation license from the Novell eDirectory 8.7.x Evaluation License Download Web site (http://www.novell.com/products/edirectory/licenses/eval_87.html). Novell eDirectory 8.7.3 on the *Novell ZENworks 6.5 Companion 1* CD includes a licensing wizard that prompts for these files during eDirectory installation.
   - Novell Client 4.9 Support Pack 1a (or later) installed
   - ConsoleOne® 1.3.6 installed

IMPORTANT: If you install the Novell Client™ on a Windows 2000/2003 server, then install the Middle Tier Server on the same machine, then uninstall the Novell Client from this server, the Middle Tier Server will fail. The client uninstall program removes important files needed by the ZENworks Middle Tier Server.

In this same software combination scenario, if you subsequently upgrade the client to 4.9 SP2, a different version of nicm.sys will be installed. If you do not use the nicm.sys included in ZENworks 6.5 Middle Tier Server, the Middle Tier Server will fail.

To work around this issue, you have two options:

1) Save the nicm.sys file included in the ZENworks 6.5 Middle Tier Server installation prior to the client upgrade and then recopy after the client upgrade (this could also be accomplished by reinstalling the Middle Tier after the client upgrade).
2) After the client upgrade, download nicm.sys from TID 10093371 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp) and copy it to overwrite the updated client version of nicm.sys.

2 If Active Directory is also installed on this server (that is, the server is a Primary Domain Controller), make sure that eDirectory LDAP is configured to listen on ports other than the defaults (389: nonsecure, and 636: secure).

2a From the Novell Client, log in to eDirectory as Admin (or equivalent) so that you will have sufficient rights to modify the LDAP Server object.

2b In ConsoleOne, right-click the LDAP Server object > select Properties > General.

2c In the TCP Port field, change the TCP port to some other port than the default (port 388 might be a good choice).

NOTE: This action varies slightly in older versions of eDirectory. You might need to open the Other page of the LDAP Server to find the TCP Port property and change the value.

2d Click the SSL Configuration tab to open the SSL Configuration page.

2e In the SSL Port field, change the port number value to something other than 636, then click Apply.

If an error is displayed after you apply the port changes, you can ignore it and close the error dialog box.

2f Click the Refresh NLDAP Server Now button.

If an error is displayed after you refresh the NLDAP server, you can ignore it and close the error dialog box.

2g At the Windows desktop, click Start > Settings > Control Panel > double-click NDS Services.

2h In the NDS Services window, select nldap.dlm, then click Start to accept the changes to the TCP port.

You can confirm the port that the LDAP Server is listening on by entering the following command at a command prompt:

```
netstat -a -n
```

3 If iMonitor is also installed on this server, configure it to run on a port other than 80. Use these steps to configure:

3a At the Windows desktop, click Start > Programs > Administrative Tools > Internet Services Manager.

3b In the Internet Information Services window, click the plus sign (+) to expand the server node in the console tree.

3c At the Default Web Site icon, check for the (Stopped) description.

If the Web site is running, proceed to Step 3d.

If the Web site is stopped, proceed to Step 3e.

3d (Conditional) Stop the IIS Web Server by entering the following command at the command prompt:

```
iisreset /stop
```

3e From the desktop, click Start > Settings > Control Panel > NDS Services > select NDS iMonitor > click Stop to stop the iMonitor service.

The screen might not refresh to show that the service has stopped. You might need to close NDS® services and open them again to verify that the service has stopped.

You can confirm that no service is listening on port 80 by entering the following command at a command prompt:

```
netstat -a -n
```

3f Change the conflicting port settings. From ConsoleOne, In the same container as the eDirectory server, right-click the Http Server-Servername object > click Properties.

3g Expand the httpDefaultClearPort and the httpDefaultTLSPort attributes.

3h Select the value under each attribute > click modify and enter an unassigned port to use for DHost Console and ndsimon.

For example, if the httpDefaultClearPort default value were set to 80, you could change it to 9000 and if the httpDefaultTLSPort value were set to 43, you should change it to 443, assuming that ports 9000 and 443 were not used by other applications.

3i Shut down and restart eDirectory so that the new port numbers will take effect.

3j Start iMonitor. From the desktop, click Start > Settings > Control Panel > NDS Services, select NDS iMonitor, then click Start.

Confirm that iMonitor is listening on the configured port by entering the following command at a command prompt:

```
netstat -a -n
```

3k From a command prompt, enter the following command to start IIS:

```
iisreset /start
```

4 Install the Desktop Management Server software. For information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

5 Install ZENworks Middle Tier Server software on the server. For information, see Chapter 8, “Installing the ZENworks Middle Tier Server,” on page 75.

6 If the server has Active Directory and is the Primary Domain Controller, grant IIS rights to modify Middle Tier registry entries:

6a From the Windows Desktop, click Start > Run > enter `regedt32`.

6b In the Windows Registry Editor, open HKEY_LOCAL_MACHINE\SOFTWARE\Novell\Xtier > click Security > Permissions.

6c In the Permissions for Xtier dialog box, click Advanced.

6d In the Access Control for Xtier dialog box, click Add.

6e In the Look In field of the Select Users, Computers, or Groups dialog box, make sure that the domain is selected where you installed the ZENworks Middle Tier Server software > select the IUSR_*server_name* user object from the list, then click OK.

6f In the Permission Entry for Xtier dialog box, select Allow for each of the following permissions:

- Query Value
- Set Value
- Create Subkey
- Enumerate Subkeys
- Notify
- Delete
- Read Control

6g Click OK.

6h In the Access Control for Xtier dialog box, select Reset Permissions on All Child Objects, then click Apply.

6i In the Security warning dialog box, click Yes.

6j In the Access Control for Xtier dialog box, click OK.

6k In the Permissions for Xtier dialog box, click OK.

6l Close the Windows Registry Editor.

7 Open a browser, enter the address of the NSAdmin utility (http://*server_IP_address*/oneNet/nsadmin), then modify the LDAP Port configuration for the ZENworks Middle Tier Server.

10 Installing and Configuring the Desktop Management Agent

The workstation functionality afforded by Novell® ZENworks® 6.5 Desktop Management components is available only if you install the Desktop Management Agent. This is true even if you currently have the Novell Client™ installed on that workstation. The Desktop Management Agent installation removes the ZENworks features that were previously installed by the Novell Client and replaces them with selected ZENworks workstation features.

The Desktop Management Agent installation lets you install various ZENworks features on a one-time basis; that is, if you want to add or delete any of the features installed by the Desktop Management Agent in an earlier installation, you can use the Modify option that is available in the maintenance dialog box of the Desktop Management Agent setup. For more information, see "Modifying the Desktop Management Agent Settings" on page 112.

The installation program utilizes Microsoft Windows Installer functionality. For detailed information about Microsoft Windows Installer, see the MSI Web site (http://www.microsoft.com/windows2000/techinfo/administration/management/wininstaller.asp).

This section includes the following:

- "Installation Prerequisites" on page 91
- "Manually Installing the Desktop Management Agent" on page 92
- "Using the Novell Application Launcher to Distribute and Install the Desktop Management Agent" on page 97
- "Distributing the Agent Using the Application Launcher Plug-In" on page 101
- "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain" on page 102
- "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup" on page 107
- "Modifying the Desktop Management Agent Settings" on page 112

Installation Prerequisites

The Desktop Management Agent installation program, zfdagent.msi, requires a minimum of Microsoft Windows Installer (MSI) version 1.11 on each workstation during the installation process.

If you are installing the Desktop Management Agent on a workstation that already has MSI 1.11 (or later) installed (such as a Windows 2000 or Windows XP system), the Agent MSI installation program runs normally.

Manually Installing the Desktop Management Agent

This section includes information about installing the Desktop Management Agent using the *Novell ZENworks 6.5 Desktop Management* CD or images you create yourself from a downloaded copy of zfdagent.msi. The following sections are included:

- "Manual Installation Procedure" on page 92
- "Adding Features in a Manual Installation" on page 97

Manual Installation Procedure

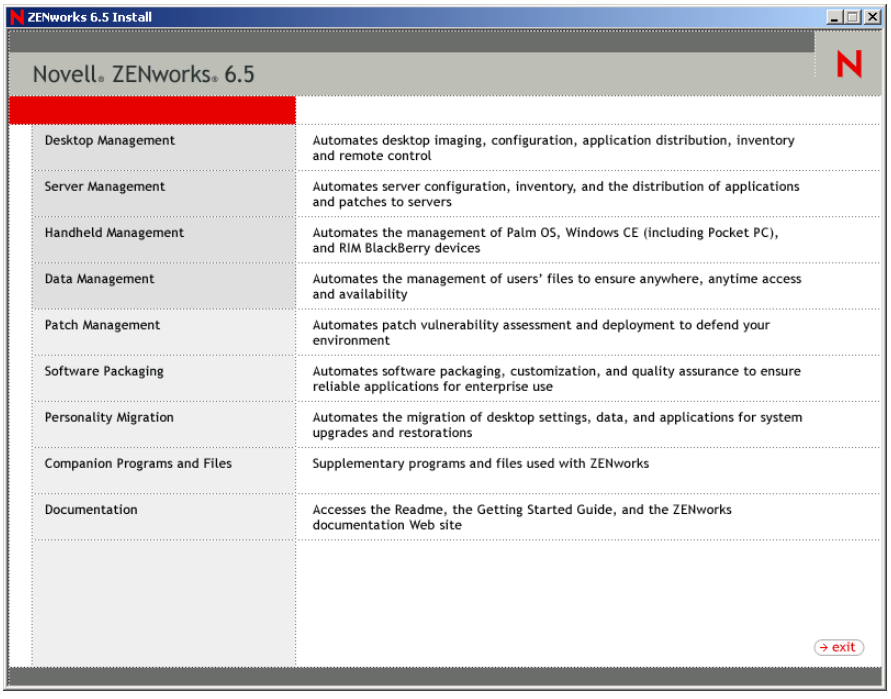
Use the following steps if you want to manually install the Desktop Management Agent to individual workstations from the *Novell ZENworks 6.5 Desktop Management* CD.

1. At a Windows workstation, insert the *Novell ZENworks 6.5 Desktop Management* CD.

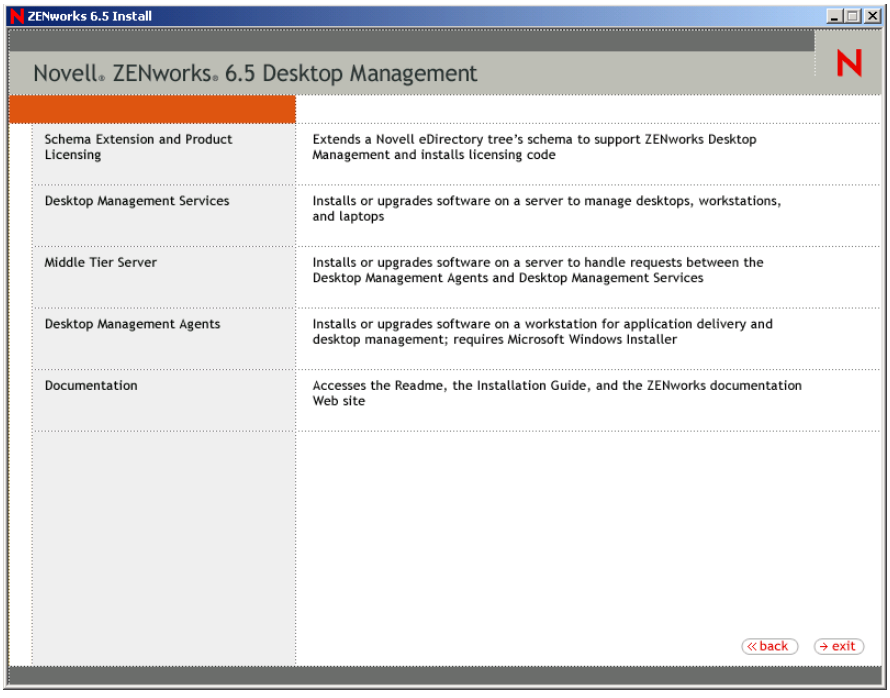
   If you run the installation from a directory location where you have copied the ZENworks Desktop Management ISO files, make sure that all of the ISO files are copied to the location from which you are running winsetup.exe.

   IMPORTANT: If you remove the *Novell ZENworks 6.5 Desktop Management* CD from the CD drive during the installation, or if you lose your connection to the server you are installing to, the installation program stops and will not proceed. To terminate the installation process, in the Windows Task Manager click Processes > select javaw.exe > click End Process.

   The winsetup.exe program will autorun. If it does not autorun, launch the program from the root of the CD.

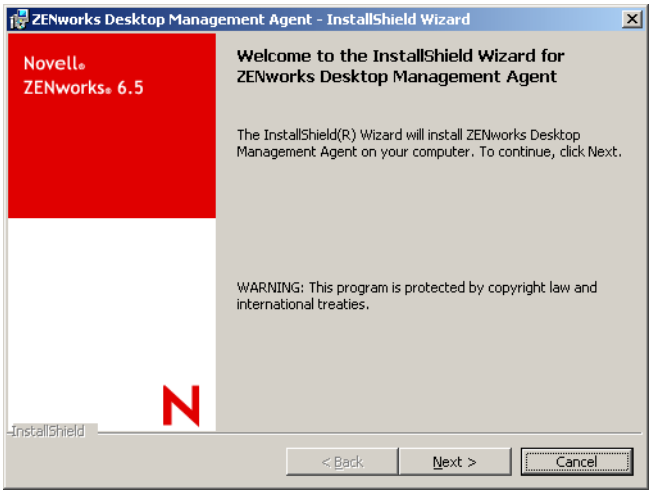


2. Click Desktop Management to display a page with options to install in various languages.
3. Click English to display a page with Desktop Management installation options.



4 Click Desktop Management Agents to launch the ZENworks Desktop Management Agent Installation Wizard.

5 On the first Installation page, read the details about running the installation program, then click Next.

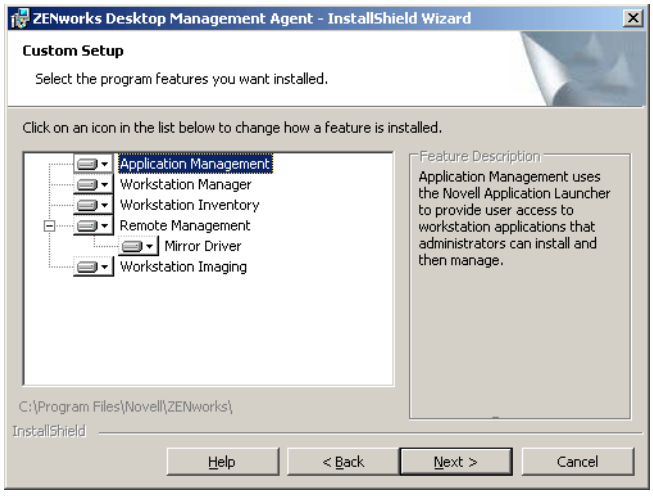


6 Read the License Agreement. If you agree to the terms of the license, click I Accept the Terms in the License Agreement.

or

Click I Do Not Accept the Terms in the License Agreement if you do not agree to the licensing terms. This closes the installation program.

7 On the Custom Setup page, select the features that you want to install to the workstation, then click Next.

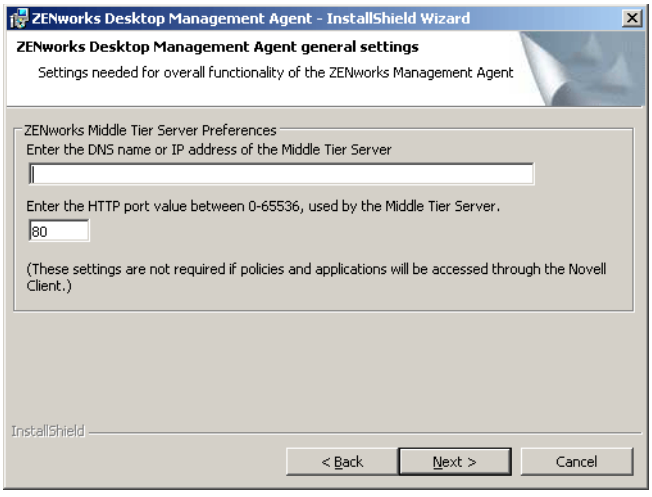


The features you can install include the following:

- **Application Management:** Uses the Novell Application Launcher™ to provide users access to workstation applications that the administrator can install and then manage. Application Management is installed by default, even if it is not selected, to accommodate future updates to the Desktop Management Agent.
- **Workstation Manager:** Lets administrators configure and manage workstations by using Novell eDirectory™.
- **Workstation Inventory:** Helps administrators collect hardware and software inventory information from scanned workstations.
- **Remote Management:** Lets an administrator manage remote workstations from a management console.
- **Mirror Driver:** This feature provides video adapter independence and co-existence with other remote control solutions. If this feature is selected, the MSI installation overrides video driver checks and suppresses any Windows messages. If you do not want this driver, you can deselect it (optimization will be disabled).

  NOTE: The Mirror Driver is not yet signed by Microsoft.
- **Workstation Imaging:** Lets an administrator take an image of a workstation's hard drive and put it on other workstations over the network.

8 On the General Settings page, fill in the fields, then click Next.



Enter the DNS Name or IP Address of the Middle Tier Server: Specify the DNS name or IP address of the ZENworks Middle Tier Server that the agent will be connecting to.

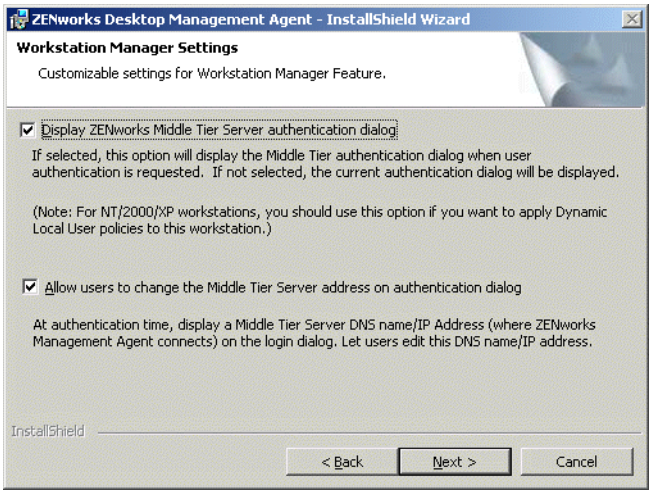
IMPORTANT: Entering a protocol (such as http: or https:) along with the IP address does not allow the Desktop Management Agent to connect to the ZENworks Middle Tier Server.

Enter the Port Value Used by the Middle Tier Server: Specify the HTTP or HTTPS port number that the Apache Web Server (NetWare) or the IIS Web Server (Windows) will use to listen for the Agent login.

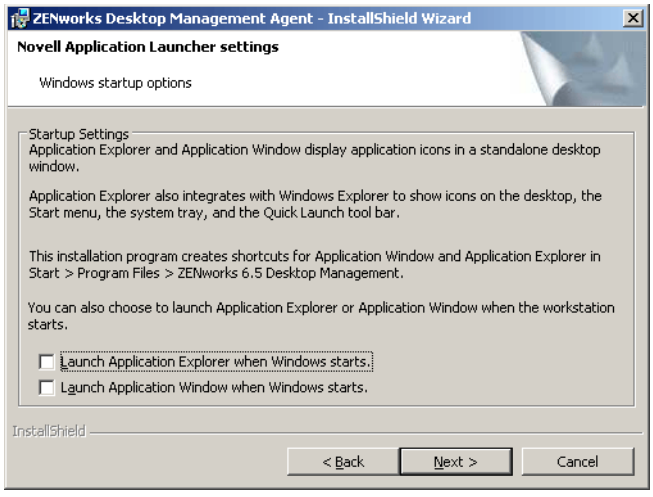
IMPORTANT: When designating a secure (HTTPS) port, you must use port 443.

The IP address or DNS name and the port number let the workstation access the Apache Web server running alongside the Middle Tier, which will pass on the authentication credentials to the Desktop Management Server. The IP address or DNS name is optional if the Novell Client is installed.

9 (Conditional. If you are installing to a workstation that does not have a Novell Client installed, the Workstation Manager Settings page is displayed).

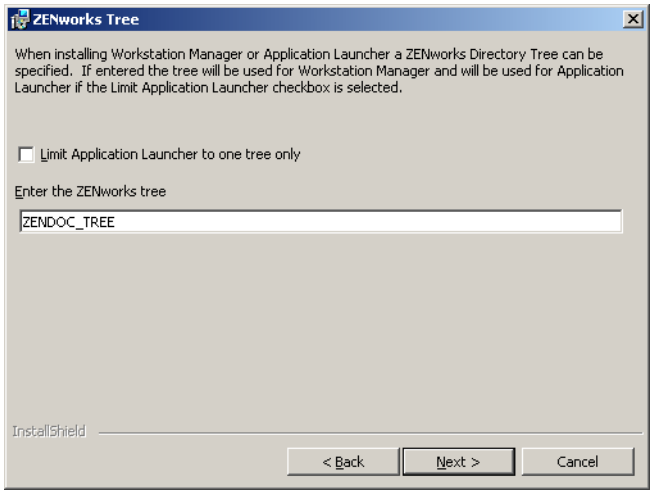


Customize the settings for the Workstation Manager feature by selecting either Display ZENworks Middle Tier Server Authentication Dialog or Allow Users to Change Middle Tier Server Address, or both, then click Next, then click Next again to display the Novell Application Launcher/Windows Startup Options page.



10 Choose to launch either the Application Explorer or Application Window (or neither) on startup, then click Next.

11 (Conditional. If you are installing the Workstation Manager or the Application Launcher, the ZENworks Tree page is displayed.)

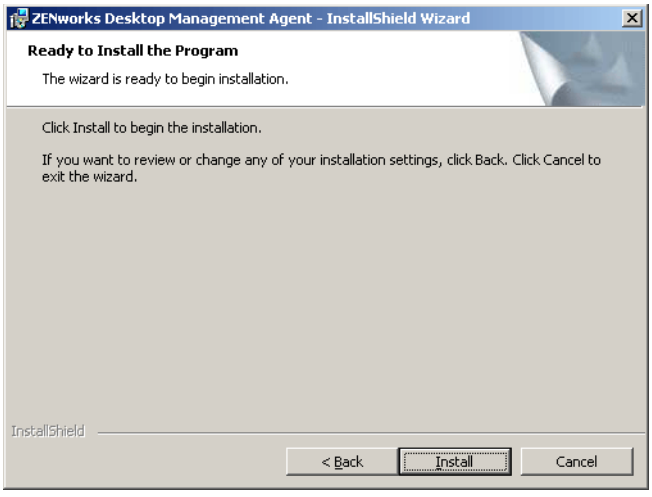


Select Limit Application Launcher to One Tree Only if you want to limit the user of that workstation to accessing applications available on the eDirectory tree you designate in the field.

If you want to limit the user to receiving applications on one tree, specify the name of that eDirectory tree in the ZENworks Directory Tree field, then click Next to display the Ready to Install the Program page.

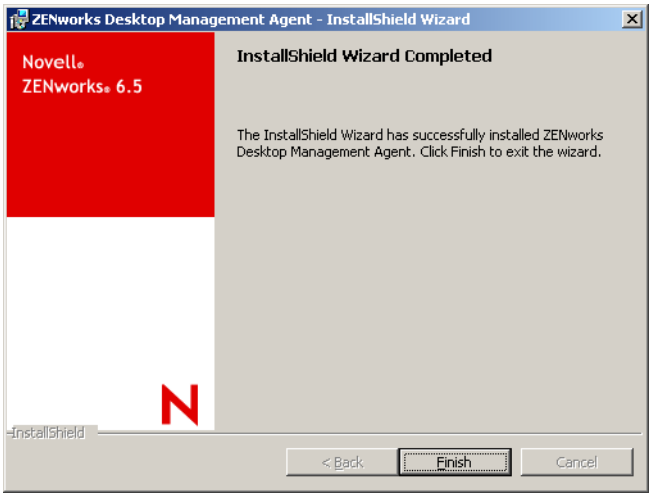
or

If you did not select Limit Application Launcher to One Tree Only, you can still specify the name of a tree in the ZENworks Tree field. This tree is recognized by the Workstation Manager as the tree where policies are accessed and applied to workstations. Click Next to display the Ready to Install the Program page.



12 Click Back if you want review the settings you have selected for the Desktop Management Agent installation. If the settings are correct, click Install to launch the installation program.

13 On the Installshield Wizard Completed page, click Finish.



Adding Features in a Manual Installation

You can add features to individual workstations by selecting the Modify option when you run the installation program after the initial installation. This procedure requires that the installation program has access to the full zfdagent.msi (that is, from a network drive, from the local workstation, or from the *Novell ZENworks 6.5 Desktop Management* CD).

Using the Novell Application Launcher to Distribute and Install the Desktop Management Agent

The zfdagent.msi package is a complex application that will install many files and make many configuration changes to the workstation.The most efficient method for installing the Desktop Management Agent is to distribute it to workstations as an MSI application using the Novell Application Launcher. The Novell Application Launcher not only distributes the Agent MSI package, it also calls the Windows Installer to perform the installation on the workstation.

This section provides the steps for configuring the MSI package for distribution with the Application Launcher, including:

- "Saving the Agent MSI Package" on page 98
- "Creating and Configuring the MSI Application Object" on page 98
- "Modifying Installed Features in the MSI Application Object" on page 99
- "Adding Properties to the MSI Application Object" on page 100

Saving the Agent MSI Package

When you browse the \agentinstall directory of the *Novell ZENworks 6.5 Desktop Management* CD, you will see the following language folders and files:

english\zfdagent.msi (English installation file)
portugue\zfdagent.msi (Portuguese installation)
francais\zfdagent.msi (French installation)
deutsch\zfdagent.msi (German installation)
espanol\zfdagent.msi (Spanish installation)
nihongo\zfdagent.msi (Japanese installation)

You should copy the zfdagent.msi file of your choice to a network server location that will be accessible later to the Novell Application Launcher.

Creating and Configuring the MSI Application Object

1. In ConsoleOne, right-click the container where you want to create the Application object > click New > click Object to display the New Object dialog box.
2. In the New Object dialog box, click Application, then click OK to display the New Application Object dialog box.
3. In the New Application Object dialog box, select the Application That Has an .MSI File option, then click Next.
4. Specify the path to the network location where you copied the .msi file.
5. Click Next, then modify the fields as necessary to customize the Application object.
6. Click Next, then define the system requirements that a workstation must meet before the Agent MSI will be distributed to it.
7. Click Next, then associate the Agent MSI Application object with the users to whom you want to distribute it.
8. Click Next, then review the Application object settings, then click Finish to create the Application object.

   IMPORTANT: Before you distribute the Agent MSI (or any MSI package) using the Novell Application Launcher, we recommend that you make sure the Agent MSI application object is set to Force Cache and that the user credentials on the local workstation, in eDirectory, and in Active Directory (if used) are synchronized.

Modifying Installed Features in the MSI Application Object

By default, all of the following features are installed by the Desktop Management Agents:

- **Application Management:** Uses the Novell Application Launcher to provide users access to workstation applications that the administrator can install and then manage.
- **Workstation Manager:** Lets administrators configure and manage workstations by using eDirectory.
- **Workstation Inventory:** Helps administrators collect hardware and software inventory information from scanned workstations.
- **Remote Management:** Lets an administrator manage remote workstations from a management console.
- **Mirror Driver:** Provides video adapter independence and co-existence with other remote control solutions. If this feature is selected, the MSI installation overrides video driver checks and suppresses any Windows messages. If you do not want this driver, you can deselect it (optimization will be disabled).

  NOTE: The Mirror Driver is not yet signed by Microsoft.
- **Workstation Imaging:** Lets an administrator take an image of a workstation's hard drive and put it on other workstations over the network.

If you want to modify this default install, you can add MSI features as public properties of the zfdagent.msi Application object. Use the following steps to modify the list of installed features:

1. Double-click the MSI tab of the Application Object, click Properties, then click Add to display the Select Property to Add dialog box.
2. In the Value Name field, enter ADDLOCAL as the property name, then specify the property's value in the Value Data field. Use one or more of the following feature names as a property value:
   - ApplicationLauncher
   - WorkstationManager
   - RemoteManagement
   - MirrorDriver (this property will not work unless you also add the RemoteManagement property)
   - Imaging
   - Inventory

   You can add more than one of these values to the list by separating them with a comma (no spaces). For example, if you wanted to add Application Launcher and Workstation Manager as features, you would type ADDLOCAL as the property and ApplicationLauncher,WorkstationManager as the values for that property.
3. Click OK to add the property to the Properties list.

Adding Properties to the MSI Application Object

The properties you can add to the MSI Application object and their values (including definitions for the values) are listed in the table below. If one of these properties is listed without a value, it will use the default value.

Property	Value	Meaning
ADDLOCAL	◆ WorkstationManager ◆ ApplicationLauncher ◆ RemoteManagement ◆ MirrorDriver ◆ Inventory ◆ Imaging	Comma-delimited list of features to install.
LOGIN_PASSIVE_MODE	0	Displays a Novell login at user login time.
	1	Default. Displays the standard Microsoft login at user login time.
	NOTE: If you want to use Dynamic Local User, you need to assign a value of zero (0) to this property.	
EDITABLE_MT_ADDRESS	1	Allows the user to change the ZENworks Middle Tier IP address where authentication will take place. This is available only if the Novell Client is not installed.
	0	Default. Do not allow the user to specify the Middle Tier address.
	The values for this property are effective only if the Novell Client is not installed on the workstation. If the Novell Client is already installed, the settings have no effect after the zfdagent.msi installation. If the Novell Client is removed after zfdagent.msi is installed, these settings take effect.	
STARTUP_APPEXPLORER	1	Launch Application Explorer on Windows startup.
	0	Default. Do not launch Application Explorer on Windows startup.
STARTUP_APPWINDOW	1	Launch Application Window on Windows startup.
	0	Default. Do not launch the Application Window on Windows startup.
MT_SERVER_ADDRESS	This property specifies the ZENworks Middle Tier Server IP address or DNS name. It is not necessary to specify this property if you are not using a Middle Tier Server.	
HTTP_PORT	0-65536	This property specifies the HTTP port to be used by the Desktop Management Agent when communicating with the Middle Tier Server. This property must be added and its value defined if you are using a Middle Tier Server.
	80	Default HTTP port.
NAL_SINGLE_TREE	1	Limit access of the Novell Application Launcher to applications in one tree only.
	0	Default. Do not limit the Application Launcher to one tree for access to applications.

Property	Value	Meaning
ZENWORKS_TREE	*any tree name*	Specify the eDirectory tree to be used as the ZENworks tree. ◆ If Workstation Manager is installed, this tree becomes the tree where Workstation Manager looks for policies. ◆ If the NAL_SINGLE_TREE property is configured and the Novell Application Launcher is installed, this tree becomes the only tree where the Application Launcher looks for applications. For more information, see "Using a ZENworks Tree" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
IGNORE_3RDPARTY_GINA	1	When installing in silent mode, ignore any detected third party GINA and continue installing the Desktop Management Agent.
	0	Default. When installing in silent mode, do not install if a third party GINA is detected.
	When the installation program is not executed in silent mode, an installation dialog box displays a caution explaining that the detected third party GINA will be replaced if the installation continues. Users can cancel or proceed with the installation. Proceeding with the installation (either when this property value is set to1 in silent mode, or when users click Continue in non-silent mode) might cause applications dependent on the third party GINA to quit working.	

Distributing the Agent Using the Application Launcher Plug-In

The Novell Application Launcher plug-in is a simplified version of Novell Application Launcher that is installed via the Web and enables launching of user-associated applications. Installation of the Application Launcher plug-in occurs when users access a Web page (myapps.html) from a workstation that does not have the Desktop Management Agent (or previous versions of the agent or the Novell Client) installed. After the Application Launcher plug-in is installed on a workstation, you can use it to distribute the Desktop Management Agent to the workstation.

For information about installing the Application Launcher plug-in, see Chapter 11, "Installing the Novell Application Launcher Plug-In," on page 113.

After installation of the Application Launcher plug-in to a user's workstation, the user has access to user-associated applications. You can configure an MSI Application object to distribute the Desktop Management Agent (zfdagent.msi). Make sure that the security level for the MSI Application object is configured to Run Normal. Users must also have Administrator rights to run zfdagent.msi. For information about creating an MSI Application object, see "Distribution: Simple Applications" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain

The Desktop Management Agent Distributor can facilitate the initial deployment and future upgrades of the ZENworks Desktop Management Agent through the use of Microsoft domains and Microsoft Active Directory. By default, the Agent Distributor uses Microsoft domains and Active Directory when selecting target workstations and during deployment of the Desktop Management Agent to those same target workstations.

This section includes the following information:

- "Prerequisites for Using the Agent Distributor" on page 102
- "Deploying the Desktop Management Agent" on page 102

Prerequisites for Using the Agent Distributor

Before you use the Agent Distributor to deploy the Desktop Management Agent in a Microsoft domain environment, make sure the following prerequisites are satisfied:

- The Agent Distributor is installed with ConsoleOne and can be run from any workstation that has access to ConsoleOne and is part of a Microsoft domain and Active Directory. The agentdistributor.exe is a standalone utility that can be copied from the \sys\public\mgmt\consoleone\1.2\bin directory to the local distributing workstation. The Agent Distributor is executed locally.
- The user who is logged in at the Windows workstation must be a member of the domain Administrator group.
- The ZENworks Desktop Management Agent MSI installation file (zfdagent.msi) is located on the Windows workstation or a network location available to the workstation. The zfdagent.msi file is located in the \agentinstall\english directory on the *Novell ZENworks 6.5 Desktop Management* CD.
- Each workstation where the Desktop Management Agent will be deployed must have the Microsoft Windows Installer installed. The installer is preconfigured on Windows 2000 and Windows XP workstations.
- A network workstation typically receives its clock time from a network server at login time. The clock time for all of the servers in your network environment should have their clock times synchronized. In order to distribute the Agent using the Agent Distributor utility, you should verify that server clock times are within a 10-minute range. If clock times do not fall within this range, the zfdagent.msi cannot be distributed and the following error is displayed:

  ```
  Failed - Unable to map Admin$ share drive.
  ```

Deploying the Desktop Management Agent

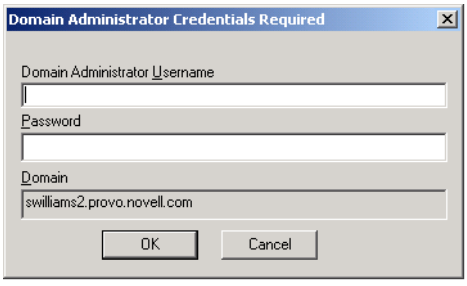
To deploy the Desktop Management Agent to workstations that are members of a Microsoft domain or Active Directory:

1. At the Windows workstation, log in to the domain as a user who is a member of the domain Administrator group.
2. Launch ConsoleOne on the Windows workstation, then click Tools > ZENworks Utilities > Install Agents.

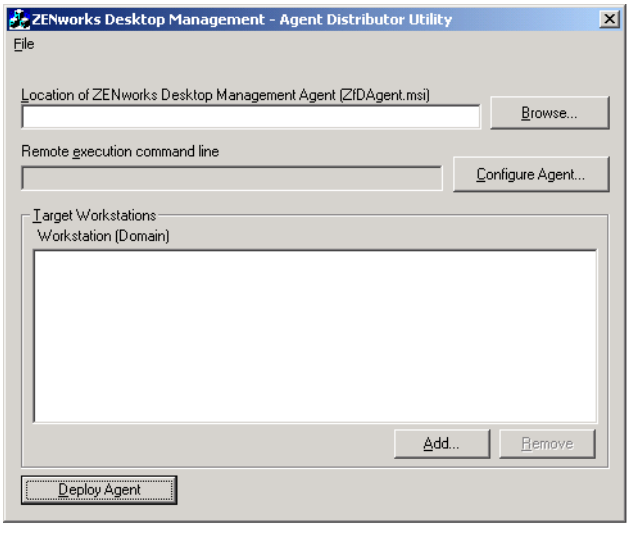
   or

Copy the agentdistributor.exe file to the distributing workstation from the sys\public\mgmt\ConsoleOne\1.2\bin directory and execute it on the local workstation.

If you are not a member of the domain Administrator group, or if the workstation is not a member of the domain, the main dialog box of the Agent Distributor waits for input (this allows for the possibility of distributing the agent to Windows workgroups; see "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup" on page 107). Otherwise, the following dialog box is displayed.



3 Enter your domain administrator username and password, then click OK to display the following dialog box.

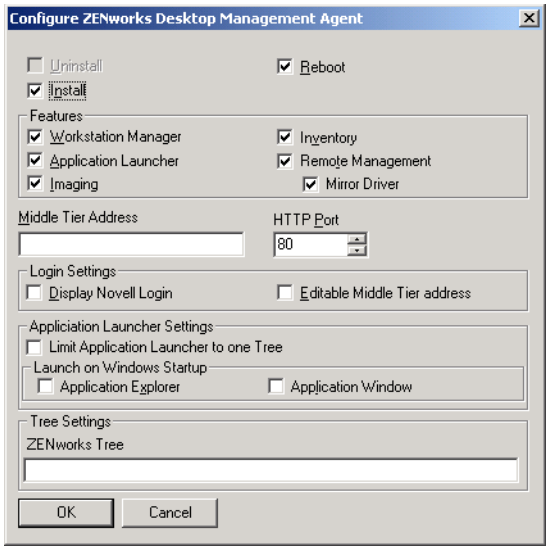


4 In the Location of ZENworks Desktop Management Agent (zfdagent.msi) field, browse to and select the zfdagent.msi file.

If the zfdagent.msi file is not already on the workstation's local drive or an available network drive, copy it from the \agentinstall\english directory located on the *Novell ZENworks 6.5 Desktop Management* CD.

5 Configure the Management Agent options. To do so:

5a Click Configure Agent to display the Configure ZENworks Desktop Management Agent dialog box.



Use this dialog box to configure the Desktop Management Agent options. The options you select (such as Install or Uninstall) determine the availability of other options. A description of each option is listed below.

Uninstall/Install/Reboot: Select whether you want the Desktop Management Agent installed or uninstalled. Select Reboot if you want the workstation to reboot after the operation is complete.

Features: Select the features you want installed or uninstalled. If you select Uninstall and all of the features, the ZENworks Desktop Management Agent will be uninstalled.

Middle Tier Address and HTTP Port: If you are using a ZENworks Middle Tier Server, specify the DNS name or IP address of the ZENworks Middle Tier Server that the Desktop Management Agent will be connecting to, then specify the HTTP or HTTPS port number that the Apache Web Server (NetWare) or the IIS Web Server (Windows) will use to listen for the Agent login.

If you are using the Novell Client, no Middle Tier address is required.

If no Middle Tier address is specified, the Agent Distributor verifies at installation time that a Novell Client is installed. The Agent Distributor does not install the Agent if the Middle Tier has not been specified.

Login Settings: These settings determine the ZENworks Middle Tier Server login options that are available in Workstation Manager.

- **Display Novell Login:** Select this option to enable Middle Tier Server login to be displayed by the Workstation Manager.
- **Editable Middle Tier Address:** Select this option to enable users to edit the Middle Tier Server address during login.

Application Launcher Settings: These settings apply to the Novell Application Launcher.

- **Limit Application Launcher to One Tree:** Select this option to limit the Novell Application Launcher access to applications in one tree only. Specify the tree in the ZENworks for Desktops Tree field.
- **Launch on Windows Startup:** Select the Novell Application Launcher view (Application Explorer or Application Window) that is added to the Windows Startup

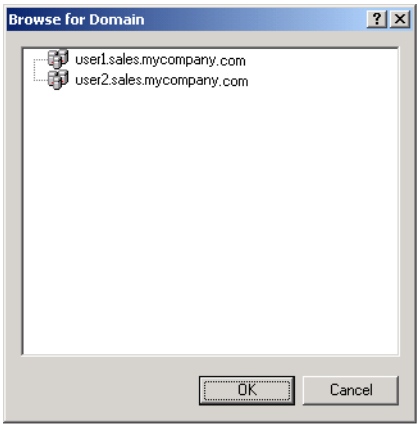
folder and launched when Windows starts. If you don't want to use the Windows Startup folder to start Novell Application Launcher, don't select either view.

Tree Settings: Use this field to specify the eDirectory tree to be used as the ZENworks tree. If Workstation Manager is installed, this tree becomes the tree where it looks for policies. If Limit Application Launcher to One Tree has been selected and Application Launcher is installed, this tree becomes the tree where it looks for applications.

5b When you are finished configuring the Desktop Management Agent options, click OK to save the settings and return to the ZENworks Desktop Management - Agent Distributor Utility dialog box.

6 Add the workstations where you want to deploy the Desktop Management Agent. To do so:

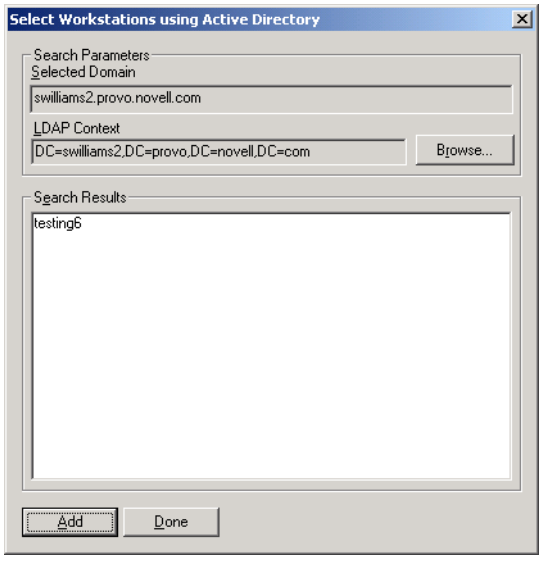
6a In the Target Workstations box, click Add to display the Browse for Domain dialog box.



This dialog box lists the domain that you are authenticated to as an administrator. If your workstation is attached to a domain that has trusts with other domains, those domains are also listed.

6b Select the domain that includes the workstations you want to add, then click OK to display the Select Workstation Using Active Directory dialog box.

NOTE: If you select a trusted domain, you are prompted to enter the domain administrator credentials.



The Search Results list displays all workstations that are located in the context displayed in the LDAP Context field. You can use the Browse button to change contexts. Changing contexts displays workstations contained in the selected context.

IMPORTANT: The data in Search Results list of the Agent Distributor is obtained from Active Directory. If you remove a workstation from the domain or directory but you do not remove the workstation from Active Directory using the Active Directory management tool, the Search Results list will be inaccurate.

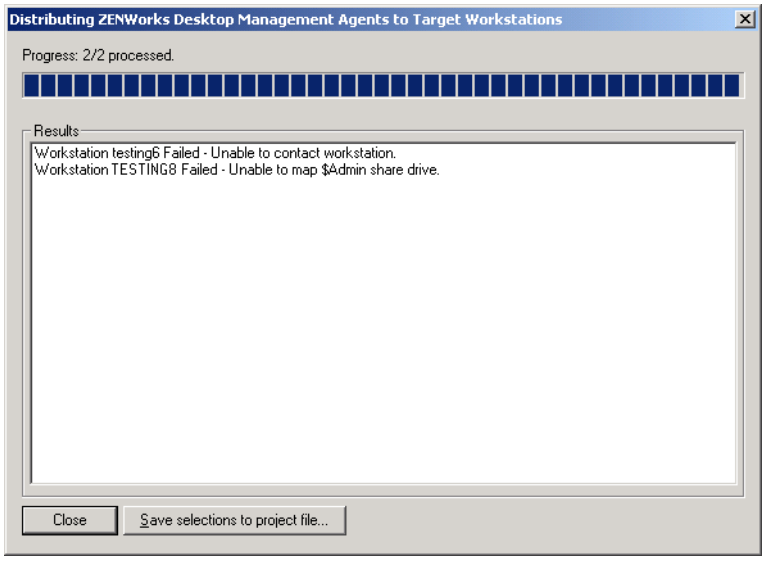
6c In the Search Results list, select the workstations you want to add, then click Add.

6d Repeat Step 6a through Step 6c to add all the workstations where you want to deploy the Desktop Management Agent.

7 If you want to save your settings to a project (.pad) file for reuse another time, select File > Save As, specify the filename, then click OK.

The project file is saved in readable .ini format.

8 Click Deploy Agent to deploy the Management Agent to the selected workstations and display the Distributing ZENworks Desktop Management Agents to Target Workstations dialog box.



The dialog box displays deployment successes and failures. You can save a failure event to a project file (.pad) and open it from the File menu after you have corrected the problems with the failed workstations.

The Agent Distributor also keeps a log file (lastrun.log) that includes the list of successes and failures of each distribution attempt. The log file includes the same output that the deployment window displays, but it also includes start and end times. The file is saved in the same directory as agentdistributor.exe. A sample lastrun.log file is shown below.

```
=============  Start time Thursday, April 01, 2004 11:32 AM ==============

Workstation SWILLIAMSDELL Successful

Workstation SWDESKPRO-W98 Successful

=============  End time Tuesday, April 06, 2004 11:34 PM ================

=============  Start time Friday, April 09, 2004 12:49 PM =================

Workstation testing6 Failed - Unable to contact workstation.

Workstation WILLIAMS2KSP3 Failed - Unable to map $Admin share drive.

=============  End time Friday, April 09, 2004 12:49 PM  =================
```

The Agent Distributor also copies an MSI debug file from each workstation and stores it at the root of the Windows drive under a \workstationlogs directory. This directory contains only the most recent log files; all files are deleted on the next attempt to distribute the ZENworks Desktop Management Agent. This debug file can help you to troubleshoot a deployment failure on a particular workstation. The name of the file is the workstation name with a .log extension (for example, c:\workstationlogs\williams2ksp3.log).

Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup

If the workstation where the Agent Distributor is executed is not a member of a Microsoft domain, the Agent Distributor can be used distribute the Desktop Management Agent to target workstations that are members of its Windows workgroup.

This section includes the following information:

- “Prerequisites for Using the Agent Distributor” on page 102
- “Deploying the Desktop Management Agent” on page 102

Prerequisites for Using the Agent Distributor

Before you use the Agent Distributor to distribute the Desktop Management Agent to target workstations in a Windows workgroup, make sure the following prerequisites are satisfied:

- The Agent Distributor is installed as part of ConsoleOne and can be run from any workstation that has access to ConsoleOne and is a member of a Windows workgroup. The agentdistributor.exe is a standalone utility that can be copied from the \sys\public\mgmt\consoleone\1.2\bin directory to the local distributing workstation. The Agent Distributor is executed locally.
- The ZENworks Desktop Management Agent MSI installation file (zfdagent.msi) is located on the Windows workstation or a network location available to the distributing workstation. The

zfdagent.msi file is located in the \agentinstall\english directory on the *Novell ZENworks 6.5 Desktop Management* CD.

- Each workstation where the Desktop Management Agent will be deployed must have the Microsoft Windows Installer installed. The installer is preconfigured on Windows 2000 and Windows XP workstations.
- A network workstation typically receives its clock time from a network server at login time. The clock time for all of the servers in your network environment should have their clock times synchronized. In order to distribute the Agent using the Agent Distributor utility, you should verify that server clock times are within a 10-minute range. If clock times do not fall within this range, the zfdagent.msi cannot be distributed and the following error is displayed:

  ```
  Failed - Unable to map Admin$ share drive.
  ```

Distributing the Desktop Management Agent to Windows Workgroup Members

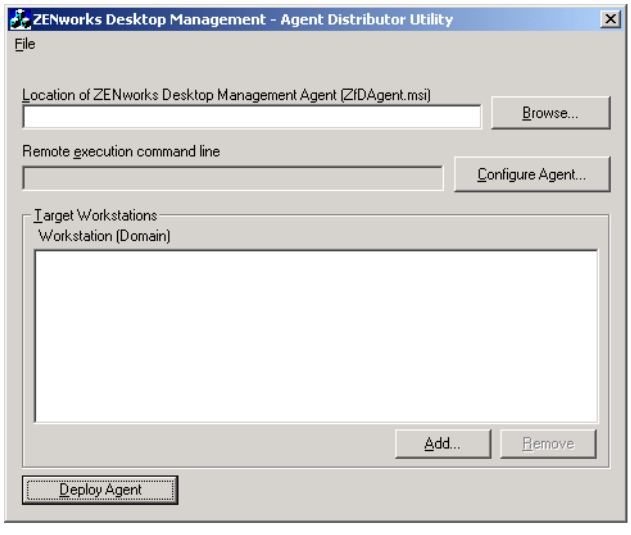
As part of ZENworks 6.5 Desktop Management SP1, you can deploy the Desktop Management Agent to workstations that are members of the same Windows workgroup:

1. At the Windows workstation, log in locally as a the administrator of the Windows workgroup.
2. Launch ConsoleOne on the Windows workstation, then click Tools > ZENworks Utilities > Install Agents.

   or

   Copy the agentdistributor.exe file to the distributing workstation from the sys\public\mgmt\ConsoleOne\1.2\bin directory and execute it on the local workstation.

   The Agent Distributor Utility dialog box is displayed.

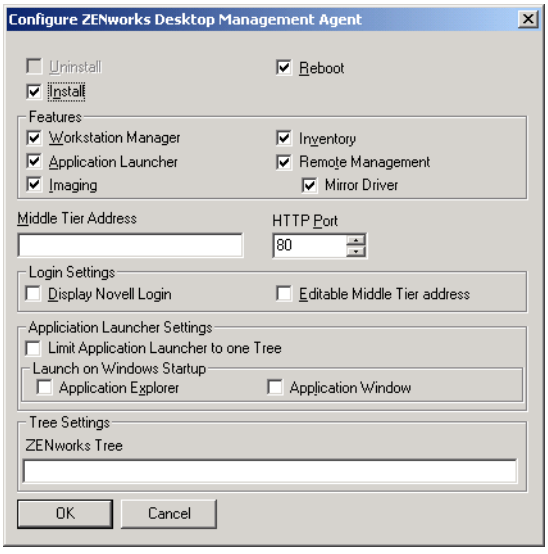


3. In the Location of ZENworks Desktop Management Agent (zfdagent.msi) field, browse to and select the zfdagent.msi file.

   If the zfdagent.msi file is not already located on the workstation's local drive or an available network drive, copy it from the \agentinstall\english directory located on the *Novell ZENworks 6.5 Desktop Management* CD.

4. Configure the Management Agent options. To do so:

4a Click Configure Agent to display the Configure ZENworks Desktop Management Agent dialog box.



Use this dialog box to configure the Desktop Management Agent options. The options you select (such as Install or Uninstall) determine the availability of other options. A description of each option is listed below.

Uninstall/Install/Reboot: Select whether you want the Desktop Management Agent installed or uninstalled. Select Reboot if you want the workstation to reboot after the operation is complete.

Features: Select the features you want installed or uninstalled. If you select Uninstall and all of the features, the ZENworks Desktop Management Agent will be uninstalled.

Middle Tier Address and HTTP Port: If you are using a ZENworks Middle Tier Server, specify the DNS name or IP address of the ZENworks Middle Tier Server that the Desktop Management Agent will be connecting to, then specify the HTTP or HTTPS port number that the Apache Web Server (NetWare) or the IIS Web Server (Windows) will use to listen for the Agent login.

If you are using the Novell Client, no Middle Tier address is required.

If no Middle Tier address is specified, the Agent Distributor verifies at installation time that a Novell Client is installed. The Agent Distributor does not install the Agent if the Middle Tier has not been specified.

Login Settings: These settings determine the ZENworks Middle Tier Server login options that are available in Workstation Manager.

- **Display Novell Login:** Select this option to enable Middle Tier Server login to be displayed by the Workstation Manager.
- **Editable Middle Tier Address:** Select this option to enable users to edit the Middle Tier Server address during login.

Application Launcher Settings: These settings apply to the Novell Application Launcher.

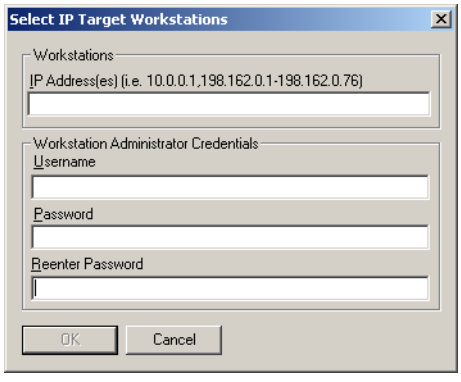
- **Limit Application Launcher to One Tree:** Select this option to limit the Novell Application Launcher access to applications in one tree only. Specify the tree in the ZENworks for Desktops Tree field.
- **Launch on Windows Startup:** Select the Novell Application Launcher view (Application Explorer or Application Window) that is added to the Windows Startup folder and launched when Windows starts. If you don't want to use the Windows Startup folder to start Novell Application Launcher, don't select either view.

Tree Settings: Use this field to specify the eDirectory tree to be used as the ZENworks tree. If Workstation Manager is installed, this tree becomes the tree where it looks for policies. If Limit Application Launcher to One Tree has been selected and Application Launcher is installed, this tree becomes the tree where it looks for applications.

4b When you are finished configuring the Desktop Management Agent options, click OK to save the settings and return to the ZENworks Desktop Management - Agent Distributor Utility dialog box.

5 Add the workstations where you want to deploy the Desktop Management Agent. To do so:

5a Click Add to display the Select IP Target Workstations dialog box.



5b Fill in the fields:

Workstations

IP Addresses: Specify the IP Address for each target workstation where you want to deploy the Desktop Management Agent. You can delimit this list with commas. You can also specify a range of IP addresses as a single item in the list.

Workstation Administrator Credentials

Username: Enter the username of the workgroup administrator.

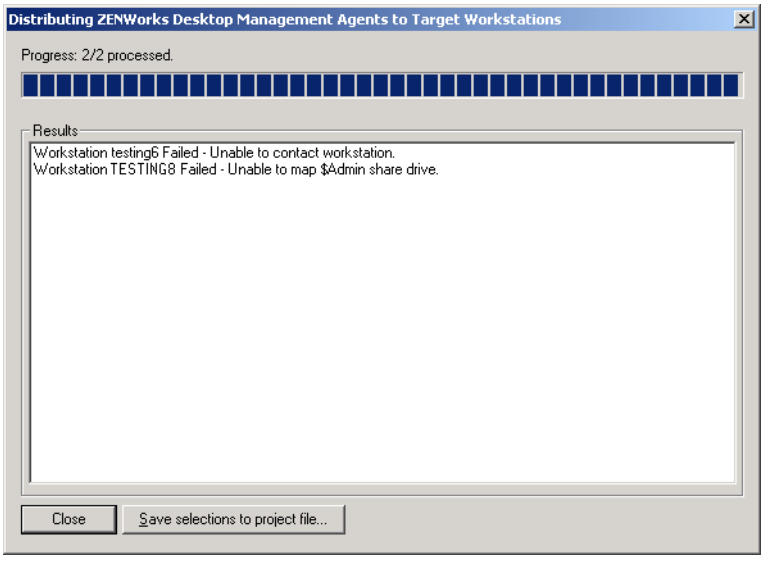
Password: Enter the password of the workgroup administrator.

Reenter Password: Re-enter the password to verify it as the workgroup administrator's password.

NOTE: Any target workstation you specify in the IP Addresses field must use the same credentials (that is, username and password).

5c Click OK to save the list of target workstations.

6 Click Deploy Agent to deploy the Management Agent to the selected workstations and display the Distributing ZENworks Desktop Management Agents to Target Workstations dialog box.



The dialog box displays deployment successes and failures. You can save a failure event to a project file (.pad) and open it from the File menu after you have corrected the problems with the failed workstations.

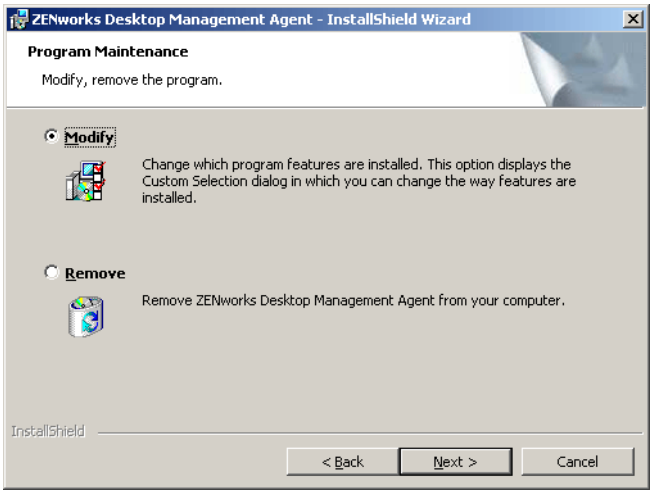
The Agent Distributor also keeps a log file (lastrun.log) that includes the list of successes and failures of each distribution attempt. The log file includes the same output that the deployment window displays, but it also includes start and end times. The file is saved in the same directory as agentdistributor.exe. A sample lastrun.log file is shown below.

```
=============  Start time Thursday, April 01, 2004 11:32 AM ==============

Workstation USER2DELL Successful

Workstation USER3DESKPRO-W98 Successful

=============  End time Tuesday, April 06, 2004 11:34 PM ================

=============  Start time Friday, April 09, 2004 12:49 PM =================

Workstation testing6 Failed - Unable to contact workstation.

Workstation TESTING8 Failed - Unable to map $Admin share drive.

=============  End time Friday, April 09, 2004 12:49 PM  =================
```

The Agent Distributor also copies an MSI debug file from each workstation and stores it at the root of the Windows drive under a \workstationlogs directory. This directory contains only the most recent log files; all files are deleted on the next attempt to distribute the ZENworks Desktop Management Agent. This debug file can help you to troubleshoot a deployment failure on a particular workstation. The name of the file is the workstation name with a .log extension (for example, c:\workstationlogs\testing8.log).

Modifying the Desktop Management Agent Settings

If you need to make a change to the Desktop Management Agent on a user workstation, you can do so locally by running the Desktop Management Agent installation program again. When you start another installation, the Desktop Management Agent maintenance dialog box is displayed.



Modify: Select this option to open the Select Features page. On this page, you can add or delete the features you want to include with the Desktop Management Agent installation.

Remove: Select this option to remove (uninstall) the Desktop Management Agent files from the workstation.

Using the Novell Application Launcher to Add Features

If you want to add features to the Desktop Management Agent after its initial distribution, you need to increment its MSI Application object so that the Novell Application Launcher recognizes it as a new application. You can then modify the ADDLOCAL property in the MSI application object and redistribute the object. For more information about the available ADDLOCAL properties, see Step 2 on page 99.

11 Installing the Novell Application Launcher Plug-In

The Novell® Application Launcher™ plug-in is a simplified version of Novell Application Launcher that can be used in place of the ZENworks® Desktop Management Agent on workstations that only require distribution of user-associated applications. Or, it can be used to provide a Web-based roll-out of the Management Agent to workstations.

The Novell Application Launcher plug-in includes only the Application Explorer and Application Browser views. It does not include the Application Window view, Novell Application Launcher Service for Windows (nalntsrv.exe), or Application Launcher Workstation Helper (zenappws.dll).

The Novell Application Launcher plug-in also does not include any other ZENworks Desktop Management Agent components, such as Workstation Manager, Workstation Inventory, Remote Management, or Workstation Imaging.

The following sections explain why you might want to use the Novell Application Launcher plug-in and how you install it:

- "Why Use the Novell Application Launcher Plug-In?" on page 113
- "How the Novell Application Launcher Plug-In Installation Works" on page 114
- "Installing the Novell Application Launcher Plug-In" on page 114
- "Reinstalling the Novell Application Launcher Plug-In" on page 117

Why Use the Novell Application Launcher Plug-In?

The primary purpose of the Novell Application Launcher plug-in is to provide the basic Application Launcher files required for launching user-associated applications, and to do so through a Web-based installation program. You should be aware of the following restrictions associated with the Novell Application Launcher plug-in:

- Windows 2000/XP users must have sufficient file access rights to install and launch applications. Without these rights, the plug-in's installation manager cannot install the plug-in files and the plug-in (once installed) cannot launch applications. The Novell Application Launcher plug-in is not designed for locked-down workstations.
- The Novell Application Launcher plug-in displays only user-associated applications. Workstation-associated applications are not displayed because Workstation Manager and the Application Launcher Workstation Helper are not installed.
- Workstation Manager is not installed, which means that policies are not applied.
- Database reporting is not supported. The Novell Application Launcher plug-in cannot write events to a database because the ODBC drivers required to do so are not included with the plug-in.
- The Novell Application Launcher plug-in does not support launching of terminal server applications. For this support, users must install the ZENworks Desktop Management Agent.

If users do not require any Desktop Management Agent functionality other than the launching of user-associated applications, you can have them install the Novell Application Launcher plug-in to the workstation and continue to use it. If users requires full Desktop Management Agent functionality, after the Novell Application Launcher plug-in is installed, you can distribute the Desktop Management Agent to workstations via an Application object.

How the Novell Application Launcher Plug-In Installation Works

The Novell Application Launcher plug-in is installed by the Novell Application Launcher plug-in installation manager. The Novell Application Launcher plug-in installation manager, the Novell Application Launcher plug-in, and the Novell Application Launcher plug-in support files are copied to a Web server during installation of the ZENworks Middle Tier Server. On a NetWare® Middle Tier Server, the *web_server_root*\nwdocs directory is the target installation directory. On a Windows Middle Tier Server, it is the inetpub\wwwroot directory. The files are packaged in the following CAB files:

- **zfdinstallmgr.cab:** Contains the Novell Application Launcher plug-in installation manager DLL used to manage installation and update of the Novell Application Launcher plug-in files.
- **zfdplugin.cab:** Contains the Novell Application Launcher plug-in files.
- **netidentity.cab:** Contains the files required to manage identities and securely authenticate Novell Application Launcher plug-in users to the ZENworks Middle Tier Server.
- **instmsi.cab, instmsi9x.cab, instmsint.cab:** Contain the Microsoft Windows Installer, version 2, required to install the NetIdentity files. These CAB files are installed only if the user does not have version 2 or higher of the Windows Installer.

The myapps.html page, which is installed to the same directory, references the Novell Application Launcher plug-in installation manager CAB file (zfdinstallmgr.cab). When a user hits the myapps.html page, if Application Launcher or the Novell Application Launcher plug-in is not already installed on his or her workstation, the Novell Application Launcher plug-in installation manager DLL file (zfdwebinstallmgr.dll) is extracted from the installation manager CAB file to the Windows system directory and then registered. After the myapps.html file is completely loaded, the installation manager begins installing the Novell Application Launcher plug-in and its support files.

Installing the Novell Application Launcher Plug-In

To install the Novell Application Launcher plug-in on a workstation:

1. Make sure you've run the ZENworks Middle Tier Server installation program so that the Novell Application Launcher plug-in installation manager, Novell Application Launcher plug-in files, and myapps.html file have been copied to a Web server. If necessary, see Chapter 8, "Installing the ZENworks Middle Tier Server," on page 75.
2. (Optional) Modify the myapps.html page

   In addition to launching the Novell Application Launcher plug-in installation manager, the myapps.html page contains parameters that determine the functionality and look of the Application Browser view used with the Novell Application Launcher plug-in and Application Launcher. You might want to use these parameters to customize the Application Browser view before it is distributed to users.

   IMPORTANT: When you install the Middle Tier Server, the Middle Tier Server's private (internal) address is added to the myapps.html file. If users will run the Application Browser outside your firewall, you need to ensure that the myapps.html file lists the Middle Tier Server's public (external) IP address, if the two addresses are different. The myapps.html file's MiddleTierAddress parameter is used to specify the IP address.

The myapps.html file loads an ActiveX* control (axnalserver.dll) that is used to generate the Application Browser view. You customize the Application Browser view by modifying the parameters that are passed to the ActiveX control. There are nine parameters, shown below.

```
<!--param name=\"SingleTree\" value=\"ZENWORKS_TREE\"-->
<!--param name=\"PortalView\" value=\"false\"-->
<!--param name=\"BannerURL\" value=\"http://www.company.com/
banner.html\"-->
<!--param name=\"BannerHeight\" value=\"80\"-->
<!--param name=\"ShowTree\" value=\"true\"-->
<!--param name=\"ShowTasks\" value=\"false\"-->
<!--param name=\"AppDisplayType\" value=\"0\"-->
<!--param name=\"ShowAppFrameNavigation\" value=\"true\"-->
<!--param name=\"ShowIEToolbarButton\" value=\"true\"-->
```

In addition, when you use the Novell Application Launcher plug-in installation manager to download the myapps.html file from a Middle Tier Server, you can customize two additional parameters that are used by the installation manager:

```
<!--param name=\"MiddleTierAddress\" value=\"$$IPADDR$$\"-->
<!--param name=\"Nt4PluginVersion\" value=\"4,0,1,0\"-->
```

By default, the parameters are commented out, which results in the ActiveX control using its preset internal values. To modify a parameter:

2a Remove the !-- (beginning comment) and the -- (ending comment) to activate the parameter. For example:

```
<param name=\"SingleTree\" value=\"novell_tree\"
```

2b Modify the parameter's value. Each parameter is described below.

SingleTree: This parameter lets you specify a single Novell eDirectory™ tree from which to read application information. If this parameter is used, Application Launcher ignores any other trees to which the user authenticates.

This parameter applies only at installation time. After installation, changes to this parameter have no affect.

PortalView: This parameter lets you better support portals by removing the banner section of the Application Browser view. The value settings are True or False. True removes the banner section.

BannerURL: This parameter applies only if the PortalView parameter is set to False.

You can use this parameter to specify an alternate banner. For example, you could use a banner that contains your company's logo instead of the Novell logo. The value setting must be a URL to an HTML page or graphics file (GIF, JPEG, etc.). If you specify an HTML page, the page is cropped to the height specified by the BannerHeight parameter. If you specify a graphics file, the banner section scrolls to fit the entire graphics file. Unless you want the banner section to be scrollable, you should ensure that the graphic's height is not greater than the height specified in the BannerHeight parameter.

BannerHeight: This parameter applies only if PortalView parameter is set to False and the default Novell banner is being overridden by the BannerView parameter.

You can use this parameter to determine the height of the banner section. The value setting must be from 5 to 200. Any number less than 5 is rounded up to 5. Any number greater than 200 is rounded down to 200.

ShowTree: This parameter determines whether or not the Application Browser view includes the left pane (referred to as the folder view). The value settings are True and False. True causes the folder view to display, and False causes it to be removed.

ShowTasks: This parameter determines whether or not the folder view (left pane) includes the Work Online/Work Offline, MiddleTier Log In/Middle Tier Log Out, Refresh Applications, and Help options. The VALUE settings are True and False. True causes the options to display, and False causes them to be removed.

AppDisplayType: This parameter determines how the applications are displayed in the right pane of the Application Browser view. The value settings are 0 and 1. The default setting, 0, causes the application icons to display as large icons, similar to the Large Icons view in Windows Explorer. The 1 setting causes the applications to be listed in table format, similar to the List view in Windows Explorer.

ShowAppFrameNavigation: This parameter determines whether or not the right pane of the Application Browser view includes navigation. The VALUE settings are True and False. True causes the right pane to include navigation. The type of navigation depends on the setting for the AppDisplayType parameter:

- When the AppDisplayType parameter is set to 0 (large icons), navigation is displayed as a breadcrumb trail (for example, ZENworks Tree > Application Folder > Application A).
- When the AppDisplayType parameter is set to 1 (small icons), navigation is displayed as an Up arrow at the top of the applications list.

Setting this parameter's value to False causes the Application Browser view to start with the All folder open, meaning that all application icons are displayed in the right pane. If the All folder is disabled in the user's Launcher Configuration settings in ConsoleOne, this parameter is ignored (in other words, the default value of True is used).

ShowIEToolbarButton: This parameter determines whether or not the Application Browser button is added to the Internet Explorer toolbar. The Application Browser button launches the local version of the myapps.html file. The VALUE settings are True and False. The True setting is the default setting and causes the Application Browser button to be added to the toolbar. The False setting causes the Application Browser button to be removed from the toolbar. Whenever this setting is changed, the user must close Internet Explorer and then reopen it for the change to take affect.

MiddleTierAddress: This parameter applies only if you've configured a ZENworks Middle Tier Server for access to eDirectory.

The MiddleTierAddress parameter lets you specify the IP address of the Middle Tier Server that the user authenticates to. It is used only if a Middle Tier Server address is not included in the Windows registry; the registry includes the address if the user entered it when running the ZENworks Desktop Management Agent installation program.

Nt4PluginVersion: This parameter applies only when upgrading from ZENworks for Desktops 4.0.1. It applies only to Windows NT 4 workstations and specifies the minimum version of the ZENworks for Desktops 4.0.1 Novell Application Launcher plug-in that must be running on the workstation. For example, if the workstation has version 4,0,1,0 and this parameter specifies 4,0,1,3, the Application Browser view runs only if the Novell Application Launcher plug-in installation manager can download version 4,0,1,3 or higher of the Novell Application Launcher plug-in cab file (zfd40.cab) from the ZENworks Middle Tier Server. On the other hand, if the workstation has 4,0,1,3 and this parameter specifies 4,0,1,0, the installation manager does download the Novell Application Launcher plug-in from the Middle Tier Server even if the plug-in is a newer version (such as 4,0,1,4).

2c Save the file.

3 Test the setup by accessing the myapps.html page.

- If you access the myapps.html page from a workstation where Novell Application Launcher or the Novell Application Launcher plug-in is already installed, the Application Browser view is displayed in the Web browser. No files are downloaded.
- If you access the myapps.html page from a workstation where Novell Application Launcher and the Novell Application Launcher plug-in are not installed, the Novell Application Launcher plug-in installation manager is installed and registered. It then begins installing the Novell Application Launcher plug-in files.

  Each CAB file used during the installation process includes a Novell signed certificate. You will be prompted to accept the certificate before the installation can proceed. You can accept each certificate individually, or you can select the Always Trust Content From Novell, Inc. option displayed with the first certificate to accept all subsequent Novell signed certificates.

  When installation is complete, you can access your user-associated applications through both the Application Browser view (by accessing the myapps.html page again) and the Application Explorer view (by launching it from the Start menu).
- If you access the myapps.html page from a workstation where a previous version of Application Launcher is already installed (or was previously installed), the following error message might be displayed by the installation program:

  ```
  Error: Install Error
  An installation error has prevented you from obtaining the ZENworks
  for Desktops plugin. Please contact your system administrator for
  help. You must first uninstall any previous versions of ZENworks for
  Desktops.
  ```

  To resolve this problem, delete naldesk.exe from the workstation's Windows system32 directory (typically c:\winnt\system32 or c:\windows\system32), make sure that the workstation does not have a search drive mapped to a server or directory where naldesk.exe resides, and then access the myapps.html page again.

4 Provide users with the URL for the myapps.html page.

Reinstalling the Novell Application Launcher Plug-In

If you need to reinstall the Novell Application Launcher plug-in on a workstation:

1 At a command prompt, unregister the zfdwebinstallmgr.dll and axnalserver.dll by entering the following commands:

```
regsvr32 -u zfdwebinstallmgr.dll
regsvr32 -u axnalserver.dll
```

2 Delete the zfdwebinstallmgr.dll, located in the Windows system directory (for example, c:\winnt\system32).

3 (Conditional) If you are reinstalling the plug-in to a Windows NT workstation, delete the following value from the workstation's registry:

```
HKey_Local_Machine\software\novell\zenworks\installpath
```

4 In the Web browser, access the myapps.html page.

12 Installing the ZENworks Launch Gadget

Novell® ZENworks® Desktop Management includes the ZENworks Launch gadget that can be used to launch user-associated applications from within a Novell exteNd Director™ 4.1 SE portal. The Desktop Management Agent is not required on the user's workstation. The following sections provide instructions:

- "Installing the ZENworks Launch Gadget to Your Portal" on page 119
- "Copying Citrix Files to Your Portal" on page 120
- "Installing the Citrix ICA and Microsoft RDP Clients to Workstations" on page 120

Installing the ZENworks Launch Gadget to Your Portal

1. Make sure you have Novell exteNd Director 4.1 Standard Edition installed and running on a NetWare® 6.x or Windows 2000/2003 Server.

   For installation information, see the Novell exteNd Director 4.1 Standard Edition *Installation Guide* (http://www.novell.com/documentation/lg/nedse41).

2. At a Windows workstation from which you can administer your exteNd Director 4.1 portal, insert the *Novell ZENworks 6.5 Companion 2* CD into the CD drive.

   The *Novell ZENworks 6.5 Companion 2* CD contains the portal module file, ZENworks.npm, that includes the ZENworks Launch gadget that you will install to the portal. The file is located in the \ZENworks Launch Gadget directory.

3. Log in to your portal as an administrator.

4. Click Portal Administration > Administer the Portal to display the Portal Administration page.

5. Click Modules to display the Modules page.

6. Click Install to display the Install a New Module page.

7. In the Path to Module File Package field, click Browse, then browse to and select the ZENworks.npm file.

   The .npm file is in the \ZENworks Launch Gadget directory on the *Novell ZENworks 6.5 Companion 2* CD.

8. Click Install to display the Thin Client Support options, select ICA & RDP if you want support for both ICA and RDP clients or select RDP if you want support for RDP clients only, then click Next.

9. (Conditional) If you selected ICA & RDP for thin client support, fill in the following fields, then click Next.

   Citrix XML Service Address: Specify the DNS name or IP address of the server where the Citrix IMA database resides. If you have multiple Citrix farms, enter the addresses of each server where an IMA database resides, separated by a comma.

Citrix XML Service Port: Specify the port number being used by the Citrix XML Service. Typically, this is port 80. To check the port number in MMC, click Servers > Server Properties > MetaFrame XP Settings, then check the TCP/IP Port field.

10 When installation is complete, exit the portal.

11 If the portal is on a NetWare 6.x server, restart the server.

or

If the portal is on a Windows 2000 server, either restart the server or restart Tomcat.

For information about changing ZENworks Launch gadget settings such as the terminal servers accessed by the gadget, see "ZENworks Launch Gadget: Configuring Settings" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Copying Citrix Files to Your Portal

If you are using Citrix servers for your terminal server environment, you must copy several Citrix files to the exteNd Director portal. These files are used by the Launch gadget when launching an ICA client session.

1 Using the *Citrix MetaFrame XP Presentation Server* CD, copy the entire \metaframe\w2k\program files\citrix\application\nfuse directory to the following portal directory:

tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZenLaunchGadget

The resulting directory is:

tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZenLaunchGadget\nfuse

2 Move the *.properties files from the com.novell.ondemand.gadgets.ZENLaunchGadget\nfuse directory to the following portal directory:

tomcat\webapps\nps\portal\WEB-INF\classes

If any of the files already exist in the directory, keep the files with the newest dates.

3 Move the *.jar files from the com.novell.ondemand.gadgets.ZENLaunchGadget\nfuse directory to the following portal directory:

tomcat\webapps\nps\portal\WEB-INF\lib

If any of the files already exist in the directory, keep the files with the newest dates.

Installing the Citrix ICA and Microsoft RDP Clients to Workstations

In order for the ZENworks Launch gadget to launch terminal server applications, the workstation must have the Citrix ICA client and Microsoft RDP client installed.

ICA Client

The ZENworks Launch gadget requires the workstation to have either the ICA Program Neighborhood (PN) client or the ICA Web client installed. If the PN client or Web client is not already installed on your users' workstations:

1 Download the PN client or the Web client files from the Citrix Download Clients site (http://www.citrix.com/site/SS/downloads/downloads.asp?dID=2755).

2 Distribute the client files to each workstation. To do so:

2a For the Web client, copy the wficat.cab file to the following location on your portal server:

tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

When a user launches a terminal server application that you've configured to run in an ICA client session, the Launch gadget uses the CAB file to install the Web client.

2b For the PN client, follow the installation instructions in the *Citrix Administrator's Guide*, or use Novell Application Launcher to distribute the client files.

or

Rename the PN client file to wficat.cab and copy it to the following location on your portal server:

tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

RDP Client

The Microsoft RDP 5.1 client (msrdp.ocx) is included with the ZENworks Launch gadget. When a user launches a terminal server application that you've configured to run in an RDP client session, the Launch gadget installs the msrdp.ocx file to the c:\program files\novell\zenworks directory on the user's workstation and registers the OCX file.

13 Setting Up Terminal Server Application Support

The Application Management functionality in Novell® ZENworks® Desktop Management provides the ability to launch applications from a Citrix MetaFrame Server or Microsoft Windows terminal server through an ICA or RDP client session. To support terminal server applications, you need to review the requirements and complete the tasks in the following sections:

- "Terminal Server Requirements" on page 123
- "Using ZENworks Workstation Manager to Manage Local User Accounts" on page 124
- "Using Non-ZENworks Methods to Manage Local User Accounts" on page 131
- "Installing the Citrix ICA and Microsoft RDP Client to Workstations" on page 131

After you've completed the above tasks, you can configure terminal server applications for distribution to users through Novell Application Launcher™. For information, see "Distribution: Simple Applications" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Terminal Server Requirements

The following table lists the minimum requirements for a Windows terminal server or Citrix MetaFrame Server.

Item	Minimum Requirement
Operating System	Windows 2000 Server with Service Pack 4 (latest service pack recommended). Windows Server 2003 (latest service pack recommended)
Windows Terminal Services	Version supported by the Windows 2000/2003 Server operating system.
Citrix Presentation Server (Optional)	Citrix Presentation Server 3.0 (formerly MetaFrame XP Feature Release 3). The latest service pack and hotfixes are recommended. You can download them at the Citrix Web site (http://www.citrix.com).
Citrix Secure Access Manager (Optional)	Citrix Secure Access Manager 2.2.

Item	Minimum Requirement
Desktop Management Agent	ZENworks 6.5 version. The Desktop Management Agent is required only if you want to dynamically create local user accounts on the terminal server. You can install all Desktop Management Agent components, but terminal server support requires only the Application Management and Workstation Management components.
Novell Client	Novell Client™ 4.9 SP1 (or later) for Windows 2000/XP. The Novell Client is required only if you install the Desktop Management Agent. The Management Agent uses the Novell Client to authenticate to Novell eDirectory and access the Dynamic Local User policy.
Internet Explorer	Internet Explorer 5.5 with Service Pack 2 with high security (128-bit or higher) encryption. Internet Explorer is required only if you install the Desktop Management Agent. If you install Internet Explorer 6.0, make sure that the privacy settings are configured to accept cookies. By default, Internet Explorer 6.0 does not accept cookies.

Using ZENworks Workstation Manager to Manage Local User Accounts

To run applications on a terminal server, users need to have local user accounts on the terminal server. You can use Workstation Manager (installed with the Desktop Management Agent) and user policies to dynamically manage terminal server user accounts. If you plan to use Workstation Manager, complete the tasks in the following sections. If you don't plan to use Workstation Manager, see "Using Non-ZENworks Methods to Manage Local User Accounts" on page 131 for other user management possibilities.

- "Installing the Novell Client and Desktop Management Agent" on page 124
- "Setting Up Workstation Manager" on page 125
- "Configuring Passthrough Authentication" on page 125
- "Setting Up Dynamic Local User Accounts" on page 126

Installing the Novell Client and Desktop Management Agent

You must install the Novell Client and the Desktop Management Agent on each terminal server where you want ZENworks to dynamically manager terminal server accounts.

The Desktop Management Agent includes the Workstation Manager component that dynamically creates local user accounts on the terminal server. The Management Agent uses the Novell Client to authenticate to Novell eDirectory and access the Dynamic Local User policy.

1. Download the Novell Client 4.9 SP1 (or later) from the Novell Download Web site (http://download.novell.com) and install the client on the terminal server.

2 Install the Desktop Management Agent, making sure to install the Workstation Manager and Application Management components; the other components are optional.

For information about installing the Desktop Management Agent, see Chapter 10, "Installing and Configuring the Desktop Management Agent," on page 91.

Setting Up Workstation Manager

ZENworks Desktop Management includes eDirectory user policies that enable you to easily manage local user accounts and profiles on terminal servers. Workstation Manager, running on the terminal server, applies the policies when a user logs into the terminal server. This section helps you ensure that Workstation Manager is installed and configured correctly. Information about creating and using user policies is provided in "Setting Up Dynamic Local User Accounts" on page 126.

Workstation Manager is installed as part of the Desktop Management Agent installation. You can verify that Workstation Manager is installed and running on the terminal server by checking for the Workstation Manager service in the Services window.

If you have multiple eDirectory trees, you should also make sure Workstation Manager is configured to read the eDirectory tree where your User objects reside. To do so:

1 Click the Start menu > Settings > Control Panel > Network Identity.

2 In the Novell Network Identity dialog box, click Settings.

3 Verify that Enable Workstation Manager is selected and that the tree is set correctly.

4 (Optional) Verify the Tree value in the Windows registry, underneath the HKEY_LOCAL_MACHINE/SOFTWARE/NOVELL/Workstation Manager/Identification key.

Configuring Passthrough Authentication

To simplify the process of launching terminal server applications, ZENworks Desktop Management provides passthrough authentication. With passthrough authentication, a user is not prompted for a username and password when he or she launches a terminal server application as long as the user's eDirectory account and Windows user account have the same username and password.

By default, passthrough authentication is configured automatically during installation of the Desktop Management Agent to the terminal server. However, to verify that configuration occurred correctly, we recommend you do the following:

1 Turn on the terminal server's Use Client Provided Logon Information setting and turn off the Always Prompt for Password setting:

1a At the terminal server, click Start > Programs > Administrative Tools > Terminal Services Configuration.

1b Double-click a connection type (the default is RDP-Tcp) to enter the properties.

1c In the Logon Settings tab, select the Use Client Provided Logon Information setting and deselect the Always Prompt for Password setting.

1d Repeat Step 1b and Step 1c for each connection type.

2 Verify the default profile configuration for the terminal server's Novell Client:

2a At the terminal server, right-click the Novell icon (N icon) in the status area of the taskbar, then click Novell Client Properties.

2b Click the Location Profiles tab.

2c In the Location Profiles list, select Default, then click Properties to display the Location Profiles Properties dialog box.

2d Select Login Service in the Service list, select Default in the Service Instance List, then click Properties to display the Novell Login dialog box.

2e Deselect (turn off) the Save Profile After Successful Login option.

2f Click the NDS tab.

2g In the Tree field, select the eDirectory tree where the terminal server applications are configured as Application objects.

2h Delete any information from the Context and Server fields.

2i To save the configuration settings, click OK until you've closed all dialog boxes.

Setting Up Dynamic Local User Accounts

After you installed and configured Workstation Manager on your terminal servers, you need to enable and configure the policies that control local user accounts. The following sections provide instructions:

- "Creating a User Policy Package" on page 126
- "Configuring Dynamic Local User Accounts" on page 129
- "Associating the User Package with Users" on page 130

Creating a User Policy Package

You use the Windows 2000-2003 Terminal Server policies, available in a User Policy package, to manage dynamic local user accounts. You can use an existing User Policy package, or you can create a new User Policy packages specifically for Windows 2000-2003 Terminal Server policies. If you already have a User Policy package that you want to use, skip to "Configuring Dynamic Local User Accounts" on page 129. Otherwise, complete the following steps to create a User Policy package:

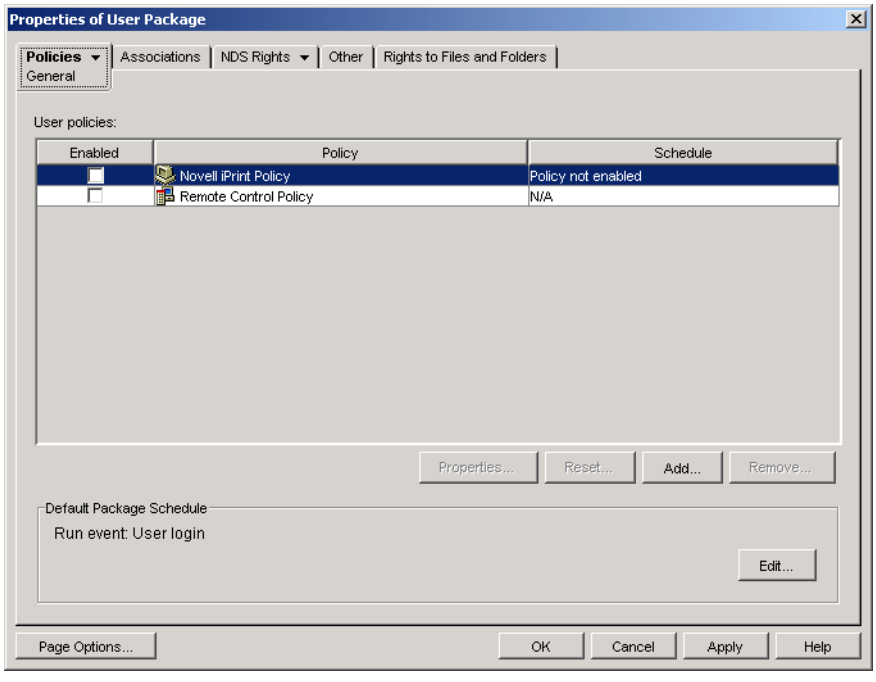
1 In ConsoleOne, right-click the container where you want to create the User Policy Package object, click New, then click Policy Package to display the Policy Package Wizard.

2 In the Policy Packages list, select User Package, then click Next.

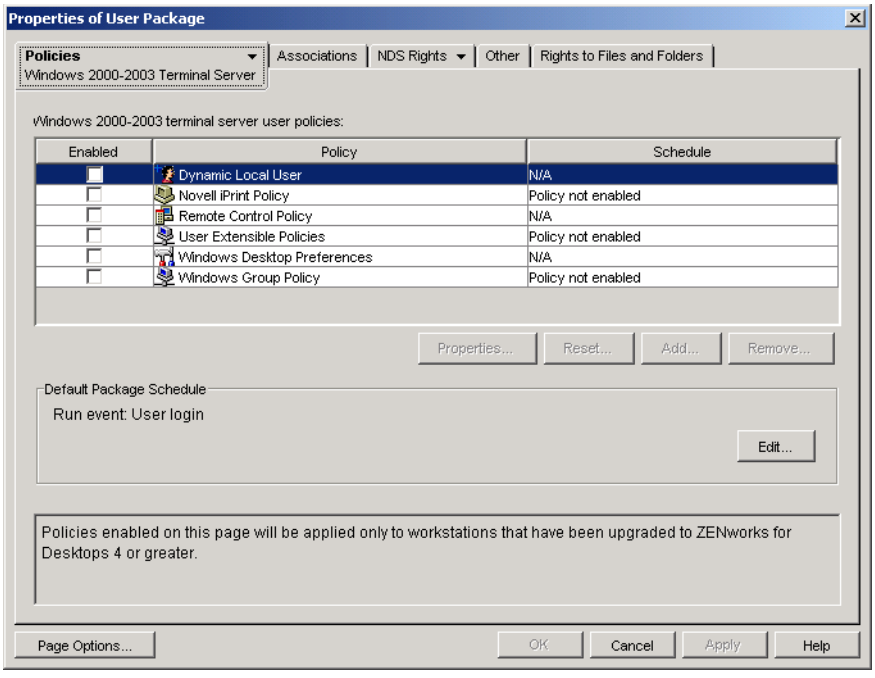
The package object's name must be unique within the container where it will be created. If you plan to create multiple User Policy packages, you might want to use a more descriptive name, such as Win2000-2003 TS User Package. Or, you might want to create the policy in the same container where the policy's users reside.

3 If necessary, change the package's object name and the container where it will be created, then click Next.

4 In the Summary page, select Define Additional Properties, then click Finish to create the User Package object and display the object's property pages.



5 Click the Policies tab, then click Windows 2000-2003 Terminal Server to display the Windows 2000-2003 Terminal Server policies page.

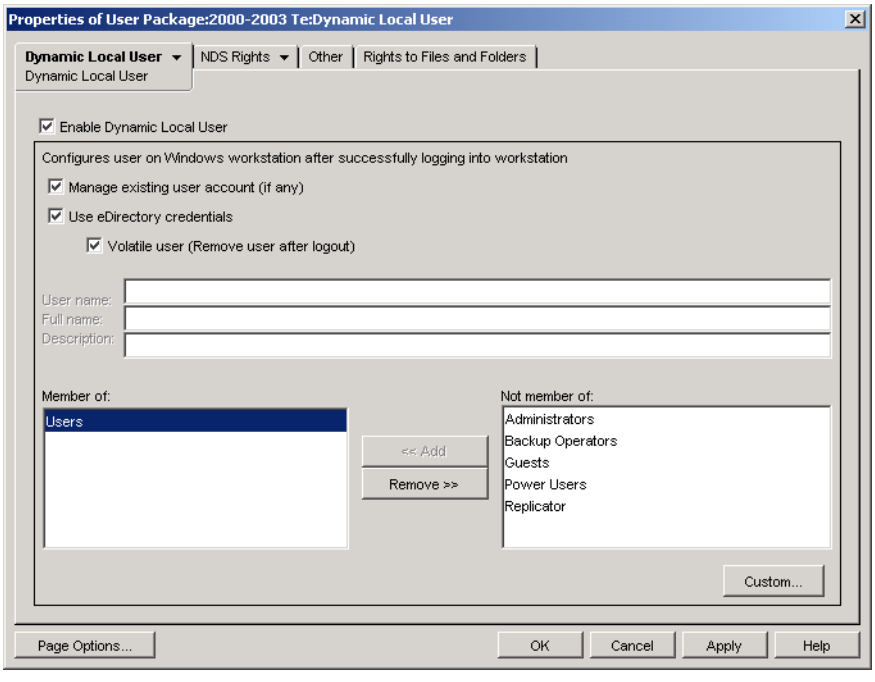


6 Continue with the next section, Configuring Dynamic Local User Accounts.

Configuring Dynamic Local User Accounts

You use the Dynamic Local User (DLU) policy to configure how Workstation Manager creates user accounts on the terminal server.

1 In the Windows 2000-2003 Terminal Server platform page, select the check box to the left of the Dynamic Local User Policy to enable the policy, then click Properties to display the Dynamic Local Users property page.



2 Configure the following fields:

Enable Dynamic Local User: Select this option to enable Workstation Manager to dynamically create user accounts.

Manage Existing User Account (if any): If you want Workstation Manager to apply the DLU policy to existing user accounts, select this option. Otherwise, the DLU policy applies only to new user accounts.

Use eDirectory Credentials: Select this option to use eDirectory user names and passwords for the local user accounts. With the user's eDirectory and Windows credentials synchronized and passthrough authentication configured (see "Configuring Passthrough Authentication" on page 125), the user is not prompted for any credentials when launching an application from a terminal server.

Volatile User (Remove User after Logout): Select this option if you want a user's account removed after the user exits the application and the session is closed. All user account information is removed. If you want to retain user profiles, you can configure roaming profiles. Instructions are provided in "Windows Desktop Preferences Policy (User Package)" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Member Of/Not Member Of: In the Not Member Of list, select the group (or groups) that you want users made members of, then click Add. Group membership determines a user's access rights on the terminal server. If none of the groups listed provides the exact file system rights you want assigned to user accounts, you can use the File Rights page (Dynamic Local User tab > File Rights page).

3 Click OK to save your changes and close the Dynamic Local Users property page.

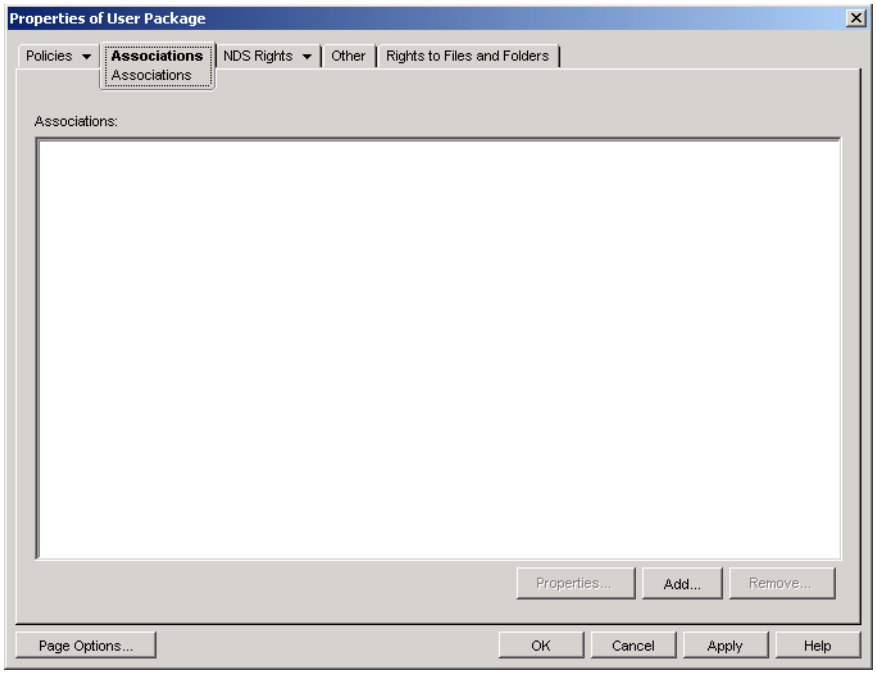
4 Continue with the next section, Associating the User Package with Users.

Associating the User Package with Users

You must associate the User Policy package with users before it will take effect.

1 If the User Package object's property page is not open, right-click the User Package, then click Properties.

2 Click the Associations tab to display the Associations page.



3 Click Add, then browse to and select the users you want the policy package applied to. You can add users, user groups, or containers.

4 When you've finished adding users, click OK to save your information.

Using Non-ZENworks Methods to Manage Local User Accounts

If you do not use Workstation Manager and user policies to dynamically create user accounts on terminal servers, you need to create the accounts some other way (for example, manually create static accounts on each terminal server or use Microsoft Active Directory to create them). For information about creating user accounts, see your Windows documentation. As you create user accounts, keep in mind the following:

- For passthrough authentication to work for RDP applications, a user's Windows account must have the same username and password as his or her eDirectory account.
- Passthrough authentication does not work for ICA applications; users are always prompted for their login credentials when launching an ICA application. If you want passthrough authentication for ICA applications to work, you must use Workstation Manager and user policies.
- The user account must be given adequate file system access to run applications from the terminal server, either through group memberships or individual user permissions.

Installing the Citrix ICA and Microsoft RDP Client to Workstations

Whenever Novell Application Launcher™, the Novell Application Launcher plug-in, or the ZENworks Launch gadget launches a terminal server application, it uses the Citrix ICA or Microsoft RDP client to create the client session with the terminal server. This requires that the ICA and RDP client be installed on each user's workstation.

ICA Client

The workstation must have either the ICA Program Neighborhood (PN) client or the ICA Web client installed. If the PN client or Web client is not already installed on your users' workstations:

1. Download the PN client or the Web client files from the Citrix Download Clients site (http://www.citrix.com/site/SS/downloads/downloads.asp?dID=2755).
2. Distribute the client files to each workstation. To do so:
   - **2a** Follow the installation instructions in the *Citrix Administrator's Guide*, or use Novell Application Launcher to distribute the client files.
   - **2b** (Conditional) If you are using the ZENworks Launch gadget, copy the Web client (wficat.cab) file to the following location on your portal server:

     tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

     or

     For the PN client, rename the file to wficat.cab and copy it to the location listed above.

     When a user launches a terminal server application that you've configured to run in an ICA client session, the Launch gadget uses the CAB file to install the Web client. After that occurs, users can launch ICA applications from Novell Application Launcher, the Novell Application Launcher plug-in, and the ZENworks Launch gadget.

     For information about using the ZENworks Launch gadget, see Chapter 12, "Installing the ZENworks Launch Gadget," on page 119

RDP Client

The Microsoft RDP 5.1 client (msrdp.ocx) is included with the ZENworks Desktop Management Agent and the ZENworks Launch gadget. During installation of the Desktop Management Agent, msrdp.ocx is installed to the c:\program files\novell\zenworks directory. With the ZENworks Launch gadget, when a user launches a terminal server application that you've configured to run in an RDP client session, the Launch gadget installs the msrdp.ocx file to the c:\program files\novell\zenworks directory.

14 Setting Up Authentication

When a user provides an authorized user ID and password (also called “credentials”) at a workstation login dialog box, a secure network connection can be established between that workstation and Novell® ZENworks® Desktop Management components that are located on the network and managed by Novell eDirectory™. This connection (also called “authentication”), can occur in various configuration circumstances.

This section contains information about how authentication takes place in the following circumstances:

- “Using the Novell Client for Authentication” on page 133
- “Using the Desktop Management Agent and the ZENworks Middle Tier Server for Authentication” on page 134

Using the Novell Client for Authentication

If the Novell Client™ was previously installed on the workstation where the Desktop Management Agent is installed, the Novell Client continues to launch at login time. By leaving the Client in place, it is assumed that the workstation is located inside the firewall and that it has no need to authenticate through the ZENworks Middle Tier Server. When you install the Desktop Management Agent, however, the workstation is upgraded with new ZENworks 6.5 Desktop Management functionality, which includes the updated features.

For more information about how the Novell Client is used by ZENworks Desktop Management, see the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

This section lists the credentials (that is, the user ID and password) that are required in order for ZENworks User and Workstation Policies to authenticate to eDirectory when the user’s workstation has the traditional Novell Client installed, whether or not the Desktop Management Agent is also installed.

This information should help you understand why you supply these credential sets during the installation. The sections include:

- “Credentials Required for User Policies” on page 133
- “Credentials Required for Workstation Policies” on page 134

Credentials Required for User Policies

The following table shows the credentials needed by ZENworks Desktop Management User policies that use the Novell Client to authenticate to eDirectory.

Workstation Platform	Server's File System to Access	Required Credentials	Comments
Windows 98 SE	NetWare	eDirectory Workstation ID and password	
Windows 98 SE	Windows 2000/ 2003	Domain Workstation ID and password	The Microsoft SMB client is used to access the Windows file system
Windows 2000/XP	NetWare	eDirectory User ID and password	
Windows 2000/XP	Windows 2000/ 2003	Domain User ID and password	The Microsoft SMB client is used to access the Windows file system

Credentials Required for Workstation Policies

The following table shows the credentials needed by ZENworks Desktop Management Workstation policies that use the Novell Client to authenticate to eDirectory.

Workstation Platform	Server's File System to Access	Required Credentials	Comments
Windows 98 SE	NetWare	eDirectory Workstation ID and password	
Windows 98 SE	Windows 2000/ 2003	Domain Workstation ID and password	The Microsoft SMB client is used to access the Windows file system
Windows 2000/XP	NetWare	eDirectory Workstation ID and password	
Windows 2000/XP	Windows 2000/ 2003	Domain Workstation ID and password	The Microsoft SMB client is used to access the Windows file system

Using the Desktop Management Agent and the ZENworks Middle Tier Server for Authentication

If you want your users to log in to the network through the Desktop Management Agent login dialog box, you need to understand how the Desktop Management Agent can be customized, and understand the other preparations that you must make to customize the login experience you want the users to have.

This section contains the following information:

- "Credentials Required by Desktop Management Policies" on page 135
- "Customizing the Agent Login" on page 136
- "Synchronized Pass through Login" on page 137
- "Logging in to a Windows Network Environment" on page 138

Credentials Required by Desktop Management Policies

This section lists the credentials that are required in order for Desktop Management User and Workstation policies to authenticate to eDirectory when the user's workstation has the Desktop Management Agent installed and is communicating through the ZENworks Middle Tier Server.

This information should help you understand why you supply these credential sets during the installation. The sections include:

- "Credentials Required for User Policies" on page 135
- "Credentials Required for Workstation Policies" on page 135

Credentials Required for User Policies

The following table shows the credentials needed by Desktop Management User policies that use the Desktop Management Agent and the ZENworks Middle Tier Server to authenticate to eDirectory. It is assumed that the user's workstation has the Desktop Management Agent installed.

Workstation Platform	eDirectory Server's File System	Required Credentials	Comments
Windows 98 SE	NetWare	eDirectory Workstation ID and password	
Windows 98 SE	Windows 2000/2003	eDirectory User and Domain User ID and password	Proxy credentials are entered during the ZENworks Middle Tier Server installation and are stored in the registry of the ZENworks Middle Tier Server.
Windows 2000/XP	NetWare	eDirectory User ID and password	
Windows 2000/XP	Windows 2000/2003	eDirectory User and Domain User ID and password	If users do not log in to a domain, (but do log in to the local workstation and eDirectory) the Middle Tier Server uses the eDirectory credentials to authenticate to the domain. This means that the eDirectory credentials must match the domain credentials. If users are logging in to a domain, their domain credentials are used.

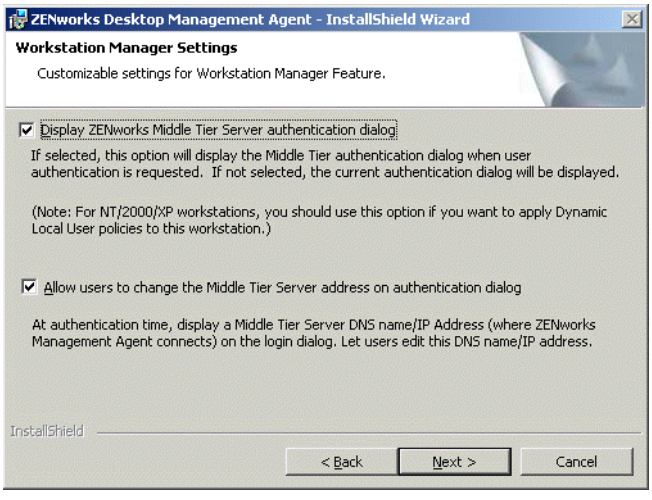
Credentials Required for Workstation Policies

The following table shows the credentials needed by Desktop Management Workstation policies that use the Desktop Management Agent and the ZENworks Middle Tier Server to authenticate to eDirectory. It is assumed that the user's workstation has the Desktop Management Agent installed.

Workstation Platform	eDirectory Server's File System	Required Credentials	Comments
Windows 98 SE	NetWare	eDirectory Workstation ID and password	
Windows 98 SE	Windows 2000/2003	eDirectory User and Domain User ID and password	Proxy credentials are entered during the ZENworks Middle Tier Server installation and are stored in the registry of the ZENworks Middle Tier Server.
Windows 2000/XP	NetWare	eDirectory Workstation ID and password	
Windows 2000/XP	Windows 2000/2003	Proxy ID and password	Proxy credentials are entered during the ZENworks Middle Tier Server installation and are stored in the registry of the ZENworks Middle Tier Server.

Customizing the Agent Login

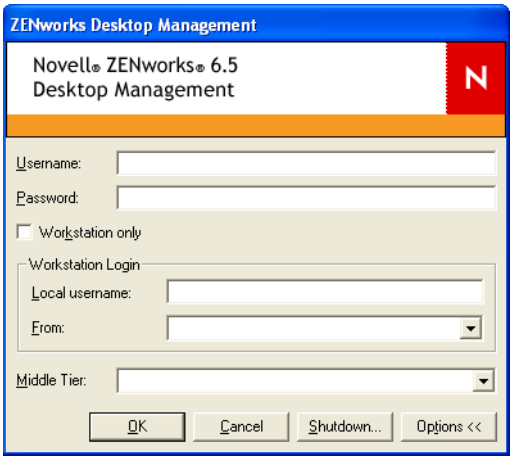
If the Novell Client is not present on the workstation when the Desktop Management Agent is installed, the installation program displays the Workstation Manager Settings page. This page lets you customize what the user will see at login time.



If you select Display ZENworks Middle Tier Server Authentication Dialog, a customized Novell login dialog box is always displayed to the user.

You might want to select this option if you plan to have more than one Middle Tier Server available in the network that the users can use for authentication to the Desktop Management Server.

NOTE: If the user workstation is a Windows 2000/XP platform, you should use this option if you want to apply Dynamic Local User policies to the workstation.



This login dialog box requires the user to enter a User ID and password (that is, the "authentication credentials") for the Desktop Management Server. These are the same credentials that the user is accustomed to using for connecting to the network (that is, connecting to eDirectory).

During the installation program, if you selected Allow Users to Change the ZENworks Middle Tier Server Address on Authentication Dialog, the users on this workstation can edit the DNS name/IP address of the ZENworks Middle Tier Server that is used for authenticating to eDirectory. They can also specify an alternate port for authenticating to the Apache Web server (NetWare®) or the IIS Web server (Windows). Users can do this by clicking the Options button on the Desktop Management Agent login dialog box.

Users specify an alternate port by entering a colon and the port number at the end of the IP Address or DNS name. For example:

```
151.155.155.000:5080
```

IMPORTANT: Entering a protocol (such as http: or https:) along with the IP address does not allow the Desktop Management Agent to connect to the ZENworks Middle Tier Server.

Synchronized Pass through Login

If you want the user to never see a Novell login dialog box, or in other words, to "pass through" the Desktop Management Agent and authenticate to the location of ZENworks files, you should first make sure that the user's local workstation credentials are the same as the eDirectory credentials. This is also called "passive mode" login.

If this synchronization is ready, then the authentication happens like this:

1. The user enters his or her local Windows logon credentials at the Windows login dialog.
2. The Desktop Management Agent, although not visible, passes the Windows workstation credentials to the Middle Tier Server,
3. The Middle Tier Server checks the credentials against eDirectory users, and authenticates to eDirectory if there is a match.
4. The user is authenticated to eDirectory, which points to policy files that can be passed to the workstation where the user is logged in.

To configure the Desktop Management Agent for pass through authentication, simply do not deselect the options in the Workstation Manager Settings dialog box that are selected by default in the Desktop Management Agent installation. For more information, see "Customizing the Agent Login" on page 136.

If the user logs in to Windows with credentials that are not valid in eDirectory, a Novell Desktop Management Agent login dialog is displayed.

Logging in to a Windows Network Environment

If the server where you want to install ZENworks Desktop Management is part of a Windows network environment (that is, a network with no Novell NetWare servers), that network probably has Microsoft Active Directory installed and the users are members of Microsoft domains. As mentioned in "Desktop Management Server Software Requirements" on page 39, the installation of Novell eDirectory 8.7.3 (recommended) is also a prerequisite in the network (in this case the Microsoft domain) where you will install ZENworks Desktop Management.

The following scenarios provide information about the way ZENworks Desktop Management authenticates after logging in to a Windows network environment:

- "Synchronized Login to eDirectory" on page 138
- "Microsoft Domain Login" on page 138
- "Lights-Out Workstation Authentication" on page 139

Synchronized Login to eDirectory

If you want users to log in using the Desktop Management Agent login dialog box and local machine credentials, you must synchronize the local workstation credentials with the eDirectory credentials. If this synchronization is ready, then the authentication happens like this:

1. At workstation startup time, the Windows 2000/XP operating system opens the Desktop Management Agent login dialog box.
2. In the dialog box, the user clicks the Options button to display optional login fields.
3. The user enters his or her eDirectory username and password in the Username and Password fields.
4. In the From drop-down list, the user chooses the Windows workstation name to log in to the Windows network.
5. The Desktop Management Agent passes the eDirectory credential set to the ZENworks Middle Tier Server.
6. The ZENworks Middle Tier Server checks the credentials against eDirectory users and authenticates to eDirectory if there is a match.
7. The user is authenticated to eDirectory, which points to policy files that can be passed to the workstation where the user is logged in.

Microsoft Domain Login

If you want users to log in using the Desktop Management Agent login dialog box and Microsoft domain credentials, the Windows 2000/2003 server where ZENworks Middle Tier Server software is installed and the Windows 2000/2003 server where Desktop Management Server software is installed must be part of the same Microsoft domain or trust relationship. The user's workstation doesn't log on to the domain unless the Desktop Management Server will be delivering MSI applications to it.

The authentication happens like this:

1. At workstation startup time, the Windows 2000 operating system opens the Desktop Management Agent login dialog box.
2. In the dialog box, the user clicks the Options button to display optional login fields.
3. In the From drop-down list, the user chooses the option to log in from the Microsoft Domain.

4. The user enters his or her domain credentials in the Username and Password fields. These credentials don't need to be synchronized with eDirectory credentials.
5. The Desktop Management Agent passes the credential set to the ZENworks Middle Tier Server.
6. The ZENworks Middle Tier Server checks the credentials against Domain users and authenticates to the domain.
7. The user is authenticated to the domain and has access to the policy files, which are stored and are accessible through the domain and can be passed to the workstation where the user is logged in.

Lights-Out Workstation Authentication

If you have already installed The Desktop Management Agent on a workstation, and if the Workstation Manager on that workstation has been scheduled to receive a workstation group policy, the workstation can still be authenticated to a Windows network and receive the policy files when the time for the group policy execution arrives, even if the user is not logged in. This is sometimes called "lights-out" authentication. The authentication happens like this:

1. When the policy execution time arrives, the Desktop Management Agent connects to the ZENworks Middle Tier Server by using the DNS name or IP address supplied during the Desktop Management Agent installation. This information is stored in the Windows registry at the workstation.
2. The ZENworks Middle Tier Server uses the domain user credentials stored in its registry program (supplied by the ZENworks Middle Tier Installation program) to authenticate as a domain user with file rights to the appropriate files.
3. The policy files are copied to the user's workstation through the ZENworks Middle Tier Server.

15 Setting Up Security Measures

The information in this section details the steps involved in obtaining certificates and configuring SSL for a Web server on a Microsoft Windows or Novell® NetWare® server where the Novell ZENworks® Middle Tier Server is installed.

The following sections are included:

- "Setting Up SSL and Certificates on a Windows Middle Tier Server" on page 141
- "Setting Up SSL and Certificates on a NetWare Middle Tier Server" on page 144
- "Setting Up Windows Workstations to Use SSL and Certificates" on page 145
- "Setting Up NetIdentity Authentication" on page 145

Setting Up SSL and Certificates on a Windows Middle Tier Server

When you set up SSL for a Middle Tier Server on a Windows 2000 machine, all of the administration will be done with the Internet Services Manager and ConsoleOne®. The major procedures in the setup include the following:

- "Generating a Certificate Signing Request" on page 141
- "Using eDirectory Root CA to Issue a Certificate" on page 142
- "Installing the Root CA on the Middle Tier Server" on page 143

Generating a Certificate Signing Request

To generate a certificate request on a Middle Tier Server installed on a Windows 2000 server:

1. At the server's desktop, Click Programs > Administrative Tools > Internet Services Manager > Internet Information Services to open the Internet Information Services window.
2. Click the "+" symbol on the Middle Tier Server icon to expand its hierarchy.
3. Right-click Default Web Site > click Properties to open the Default Web Site Properties dialog box.

   If an SSL certificate has not been configured yet, the SSL Port field will be dimmed.
4. Click Directory Security to open the Directory Security page.
5. Click Server Certificate to start the Web Services Certificate Wizard.
   - **5a** On the wizard's Welcome page, click Next to open the Server Certificate page.
   - **5b** On the Server Certificate page, select Create a New Certificate, then click Next.
   - **5c** On the wizard's Delayed or Immediate page, select Prepare the Request Now, But Send it Later, then click Next.

5d On the Name and Security Setting page, specify a certificate name such as `DaveMiddleTier Web Site`, change the bit length to 1024, then click Next.

5e On the wizard's Organization Information page, specify the names of your organization and organizational unit in the Organization and Organizational Unit fields, then click Next.

5f On the wizard's Your Site's Common Name page, specify your full DNS name, such as `zztop1.zenworks.provo.novell.com` if you are in the DNS tables, then click Next.

You can also enter your IP address if it is static and if all access is through IP addresses.

If your servers are behind a firewall, enter the DNS name by which the server is known to the outside world.

5g On the wizard's Geographical Information page, enter the correct information in the Country, State, and City fields, then click Next.

5h On the wizard's Certificate Request File Name page, save the certificate request in an accessible location, then click Next.

This request is a file that will be submitted to a trusted Certificate Authority (CA) for signing.

5i On the wizard's Request File Summary page, review all of the information. If necessary, you can use the Back button to make changes on appropriate pages. Click Next.

5j On the wizard's Completing the Web Services Certificate Wizard page, click Finish.

6 Submit the certificate request to an appropriate trusted Certificate Authority. When the trusted CA issues the certificate, proceed with the steps outlined in "Processing a Pending Certificate Request on IIS" on page 143.

Using eDirectory Root CA to Issue a Certificate

The eDirectory Root CA can be used to issue a certificate for a valid Certificate Signing Request (CSR). If you use this method, the root is not a trusted root. For more information, see Step 4 on page 142.

This machine should have Novell Client™ 4.83 or later, ConsoleOne 1.3.3 or later, and the Novell International Cryptographic Infrastructure (NICI) client 2.4.0 or later installed.

1 On the server's desktop, start ConsoleOne.

2 Select the container in the tree where the server objects reside.

3 Select Tools > Issue Certificate to start the Issue Certificate Wizard.

3a In the Filename field, specify the name of the file that contains the certificate request, then click Next.

3b On the Organizational Certificate Authority page, click Next.

3c On the SSL or TLS page, click Next.

3d On the next page of the wizard, accept the defaults by clicking Next.

3e On the Save Certificate page, save the file as the default (that is, in .der format).

4 Export the self-signed certificate from the Certificate Authority.

Because the root is not a trusted root, you need to import the self-signed certificate from the Root CA into all workstations that will connect to the Middle Tier Server. If this self-signed certificate is not imported, certificate verification fails for all certificates issued by this CA.

4a In ConsoleOne, browse to the Security container in the tree. The Security container is identified with a padlock icon.

4b Right-click Server Name Organizational CA > select Properties.

4c Click Certificates > select Self Signed Certificate.

4d Click Export.

4e Accept the defaults on succeeding pages until you need to save to a location.

Installing the Root CA on the Middle Tier Server

If a non-trusted CA (for example, the eDirectory Root CA) signed the certificate request, you also need to install the self-signed certificate from the CA on the Middle Tier Server:

1 Locate and double-click the file containing the self-signed certificate from the CA.

2 On the Certificate page, click Install Certificate to start the wizard.

2a On the first page of the wizard, click Next.

2b On the second page of the wizard, when you see a message reading "Automatically select the certificate store," click Next.

2c On the third page of the wizard, click Finish.

2d In the Root Certificate Store message box, select Yes.

2e In the Successful Import dialog box, click OK.

A message reading "The import was successful" is displayed.

Processing a Pending Certificate Request on IIS

When a trusted CA has issued a certificate, you can use the Internet Services Manager to process that request.

1 At the server's desktop, Click Programs > Administrative Tools > Internet Services Manager > Internet Information Services to open the Internet Information Services window.

2 Click the "+" symbol on the Middle Tier Server icon to expand its hierarchy.

3 Right-click Default Web Site, then click Properties to open the Default Web Site Properties dialog box.

4 Click Directory Security to open the Directory Security page.

5 Click Server Certificate to start the Web Services Certificate Wizard.

6 Use the Web Services Certificate Wizard to process the Certificate Request:

6a On the Welcome page, click Next.

6b On the Server Certificate page, select Process the Pending Request and Install the Certificate, then click Next.

6c On the next page, enter the full path of the signed certificate as received from the Certificate Authority.

This can be a .der or a .cer file, or a file with some other extension, depending on the naming convention used by the Certificate Authority.

6d On the next wizard page, click Next.

6e On the last wizard page, click Finish.

7 Close the Properties page.

8 Right-click the server icon in the tree, then select Restart IIS.

9 When IIS restarts, open the properties of the Default Web Site to verify that the SSL Port is available.

Setting Up SSL and Certificates on a NetWare Middle Tier Server

When you set up SSL for a Middle Tier Server on a NetWare machine, all of the administration is done with ConsoleOne. Remember that the NetWare server must have the NICI client 2.4.0 (or later) installed.

Use the following steps to set up SSL on the NetWare server:

1 In ConsoleOne, browse to the tree where you installed the Middle Tier Server software > right-click the highest container (usually the Organization) > click New > Object to open the New Object dialog box.

2 Click the object named NDSPKI:Key Material to start the creation wizard.

2a Specify a Certification Name (this is the key-pair name for the certificate and the associated public and private keys), select Custom install, then click Next.

2b Select External Certificate Authority, then click Next.

2c Change the Key Size to 1024, keep the defaults on all the other fields, then click Next.

The default Key Size is 2048, but 1024 is sufficient

2d In the Subject Name field, change CN= to your fully distinguished name, keep the defaults on all of the other fields, then click Next.

2e Click Finish to create the Certificate Signing Request (CSR).

2f Save as Base64, then specify a path and file name that can be accessed later.

3 Have a trusted CA create a server certificate from the CSR you generated in Step 2.

If you want, you can use the eDirectory Root CA to issue the certificate. For more information, see "Using eDirectory Root CA to Issue a Certificate" on page 142.

4 When the certificate is issued, open ConsoleOne, then open the tree where Middle Tier Server software is installed.

5 Open the NDSPKI:Key Material object (KMO) you created, click Certificates, click Trusted Root Cert, then click Import to start the Import Wizard and import the certificate.

5a On the Trusted Root Certificate page, click Read from File, select the Trusted Root Cert, then click Next.

5b On the Server Certificate page, click Read from File, select the certificate you created in Step 3, click Next, then click Finish.

6 (Conditional) Modify the Apache configuration files in NetWare 6 to reflect the name of the certificate created in ConsoleOne:

6a Open and edit adminserv.conf found in the sys:\apache\conf directory.

6b Search for the line with the current port assignment. The line might look similar to this:

```
SecureListen 10.0.1.1:443 "SSL CertificateDNS"
```

6c Replace “SSL CertificateDNS” with the name of the certificate you just created in ConsoleOne. For example:

```
SecureListen 10.0.1.1:443 "Dave Cert"
```

When the wizard creates a server certificate, it adds - *server_name* to the end of the name (for example, Dave Cert - DaveServer). Do not add this section to the .conf file.

You can also edit the Web Manager section of the .conf file with the name of the new certificate.

7 Restart the NetWare server.

Setting Up Windows Workstations to Use SSL and Certificates

This section includes information about setting up a Windows 98/NT/2000/XP workstation to use SSL and security certificates. The following sections are included:

- “Importing a Certificate on the Windows Workstation” on page 145
- “Configuring the Desktop Management Agent to Query for the Certificate” on page 145

Importing a Certificate on the Windows Workstation

If the SSL certificate you want to use was issued by a CA that is not in the trusted root list, you need to install the self-signed certificate from the CA on the workstation. This will enable the workstation to trust any certificate issued by the CA. You can do this either before or after you install the Desktop Management Agent.

It is possible to import a certificate on the Windows workstation in a “User Account,” in a “Computer Account” and in a “Service Account.” For additional information about importing a certificate, see “To Import a Certificate” at theWindows XP Professional Product Documentation Web site (http://www.microsoft.com/resources/documentation/windows/xp/all/proddocs/en-us/sag_cmprocsimport.mspx).

Configuring the Desktop Management Agent to Query for the Certificate

When the Desktop Management Agent installation program requires an entry for the IP Address or DNS Name of the Middle Tier Server, you need to enter the common name you used when you created the Certificate Request. For more information, see Step 5f on page 142.

Setting Up NetIdentity Authentication

Authentication to a Middle Tier Server from a Desktop Management Agent is based on a challenge-response mechanism. When a Middle Tier Server challenges an agent for authentication, it sends an X.509 certificate. The agent verifies the integrity and trust of the certificate, and secrets are exchanged using public-key/private-key and session-key encryption techniques.

During installation, a NetIdentity certificate is installed on the Middle Tier Server. On NetWare, this certificate is signed by the Certificate Authority (CA) of the tree where the server belongs. On Windows 2000, this is a self-signed dummy certificate. These certificates, though cryptographically valid, are not signed by trusted root authorities, and should not be trusted outside of a controlled environment. By default, the Desktop Management Agent installation accepts such self-signed certificates, but this is a configurable installation parameter. When deployed outside a controlled network, Middle Tier Servers must be configured with a certificate that is signed by a trusted Root Certificate authority. They must also be configured to enforce strict trust checking.

Configuring Middle Tier Servers with a Valid NetIdentity Certificate

If a valid SSL certificate (that is, one signed by a trusted root authority) already exists for the server, the NetIdentity authentication process can use the same certificate.

1. If the server is a NetWare server, make a note of the key-pair name for the SSL certificate (this is the name of the certificate object as visible in ConsoleOne). For a Windows 2000 server, make a note of the friendly name of the certificate.
2. Using a browser, bring up the NSAdmin page for the Middle Tier Server (http://ip-address/oneNet/nsadmin).
3. In the General configuration page, set the value for the Certificate Name to the name from Step 1.
4. Submit the change.
5. Restart the Middle Tier Server.

If a valid SSL certificate is not present for the server, a valid X.509 certificate (that is, a certificate signed by a trusted root CA) needs to be configured for the server.

1. Obtain a certificate signed by a trusted root CA. Follow the steps outlined in "Generating a Certificate Signing Request" on page 141 and "Installing the Root CA on the Middle Tier Server" on page 143 for the appropriate platform.
2. If the key-pair name, or friendly name (depending on the platform) is different from "NetIdentity," configure the Middle Tier Server with the appropriate name. See Step 1 through Step 4 in the procedure above.
3. Restart the Middle Tier Server.

NOTE: In either case, if the certificate was signed by a CA that is not in the list of trusted root CAs, the self-signed certificate of the CA must be imported on each workstation. For more information, see "Importing a Certificate on the Windows Workstation" on page 145.

Configuring the Desktop Management Agents to Enforce Strict Trust Verification

After the Middle Tier Server has been configured with a certificate that is signed by a trusted root CA, Desktop Management Agents can be configured to enforce strict trust verification for NetIdentity certificates. Modify the following registry key setting:

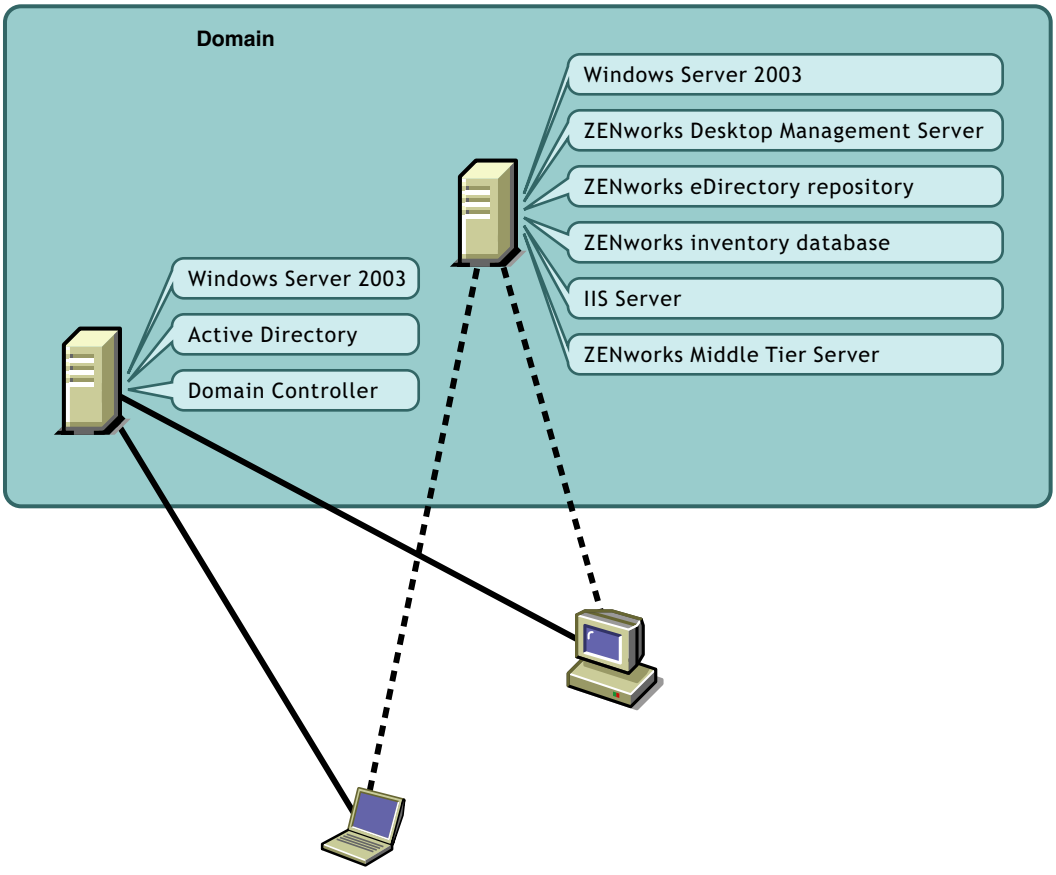
```
HKEY_LOCAL_MACHINE\Software\Novell\Client\Policies\NetIdentity
"Strict Trust"= dword:0x00000001
```

By default, the Strict Trust value is 0 (zero). Absence of the value, or setting it to 0x0 (zero) allows all certificates to be accepted. Setting it to 0x1 configures the Desktop Management Agents to reject certificates whose trust cannot be fully verified.

16 Installing in a Windows Network Environment

Novell® ZENworks® operates on Windows workstations regardless of the server environment in your network. Desktop Management functions in any IP network running Novell eDirectory™, including networks with Windows 2000/2003 servers, or with NetWare® 6.*x* servers, or a combination of both of these.

Traditionally, ZENworks has been deployed in a NetWare or in a mixed NetWare and Windows environment. Early versions of ZENworks were dependent on many of the features and capabilities that existed only in a LAN based on NetWare. As the product has matured, however, features have evolved that allow ZENworks 6.5 to provide significant functionality in a non-mixed Windows network environment.



As shown in the illustration above, ZENworks can be deployed into an Active Directory* domain, providing ZENworks services through Windows 2003 servers and IIS Web server. You can continue to administer user accounts through the domain, while you administer applications, desktops, and policies using eDirectory as a repository independent of Active Directory.

ZENworks 6.5 ships with other Novell products that let you synchronize your users and passwords between Active Directory (or NT Domains) and the eDirectory ZENworks repository. ZENworks is agent-based and does not require the Novell Client™ to be installed on user workstations or laptops. ZENworks authenticates to eDirectory and retrieves applications and policies, delivering them to user desktops using a browser, the Windows Start Menu, an application window, or desktop icons.

This section provides an example of how ZENworks 6.5 can be deployed in a sample Windows network environment. It also discusses the installation and significant ZENworks features that can benefit Windows network users. The following information is included:

- "Preparing ZENworks for the Windows Environment" on page 148
- "Installing ZENworks in a Windows Network Environment" on page 150

Preparing ZENworks for the Windows Environment

- "Minimum Network Requirements" on page 148
- "Expected Network Setup" on page 148
- "ZENworks Desktop Management User Workstation Configuration Options" on page 149
- "DirXML Engine and Drivers" on page 149

Minimum Network Requirements

ZENworks requires the following in this sample Windows network:

- eDirectory (version 8.7.3 or higher for use on Windows Server 2003 (this installation places a Novell Client™ on the server that you will need for installing ZENworks). Note that the *Novell ZENworks 6.5 Companion 1* CD includes eDirectory 8.7.3.
- Microsoft IIS Web Server
- Windows Server 2003, including IIS, installed in the domain.

Expected Network Setup

The following Windows network setup is assumed for this sample Windows environment:

- An Active Directory domain.
- The ZENworks 6.5 Server installed on a Windows Server 2003 with Novell eDirectory, DirXML® 1.1a, and Password Synchronization installed. This server must be in the same domain as the Active Directory Domain Controller, but it is not the domain controller.

  NOTE: DirXML 1.1.a, which ships on the *Novell ZENworks 6.5 Companion 1* CD, is compatible only with eDirectory 8.7.3. If you want to use DirXML functionality with eDirectory 8.8, you must upgrade your DirXML 1.1a environment to Novell Identity Manager 2.*x*.
- The ZENworks 6.5 Middle Tier Server installed on a Windows Server 2003 server where Microsoft IIS is installed. This server must be in the same domain as the Active Directory Domain Controller. It can be the same server that has ZENworks software installed, but you should consider keeping the IIS server independent to minimize performance issues. You must also keep it on a separate server from the Password Synchronization Module in DirXML.

ZENworks Desktop Management User Workstation Configuration Options

ZENworks Desktop Management can run on user workstations using either the Novell Client or by using two other non-client modes:

- Application Browser View Mode
- Full Desktop Management Agent Mode

It is assumed that in a Windows network environment, the Novell Client is not used; therefore, you need to decide on the features you need in your network and configure ZENworks Desktop Management for your users in one of the non-client modes.

Application Browser View Mode

In this mode, a single Application Browser View is delivered when a user connects to IIS and opens the application page (myapps.html) provided by ZENworks Desktop Management. The Web view is automatically installed on the workstation if the user has rights to install applications locally.

The Application Browser mode can deliver applications to the workstation only when the user connects to a personalized application Web page. Dynamic local user account creation, hardware and software inventory, automated imaging services, and remote management capabilities are not included in this mode.

Full Desktop Management Agent Mode

In Full Desktop Management Agent mode, all of the Desktop Management components are installed on the workstation by an administrator, as part of an image, or by the user. By including all of the Desktop Management components in the Desktop Management Agent installation, you provide your users all of the capabilities that ZENworks Desktop Management has to offer.

If you want to create a Dynamic Local User account on the workstation, you can configure the Desktop Management Agent to prompt the user to log in to eDirectory prior to the local login to Windows. When the agent has this configuration, the user is prompted for an eDirectory user name and password (which should be the same as the Active Directory account, because the two accounts are being synchronized by DirXML), then ZENworks Desktop Management creates a local account on the workstation if one is not present and logs the user into Windows with the provided username and password.

If you do not require Dynamic Local User account creation, ZENworks silently passes Novell user credentials to Windows when the user logs into the workstation (the user must already have an account on the workstation; the user will not need an account on the workstation if logging in to Active Directory—the workstation must be part of the Active Directory domain). The Desktop Management Agent then connects to eDirectory using the provided username and password in order to distribute applications to the user.

NOTE: With the Desktop Management Agent installed on the workstation, you might still choose to deliver applications through the browser view only.

DirXML Engine and Drivers

The DirXML engine provides the ability to synchronize eDirectory data with any outside data service. The DirXML engine has several drivers running that describe how output and input should be sent between data sources.

The DirXML Driver for Active Directory (included on the *Novell ZENworks 6.5 Companion 2* CD in the Novell DirXML Starter Pack folder) is specifically designed to synchronize data between Novell eDirectory and Microsoft Active Directory. The synchronization is bidirectional; you determine whether information should flow to and from both directories, or whether information should flow only from one directory to the other.

Many DirXML Drivers are available for installation on Windows 2000 Servers for synchronization with other data sources such as PeopleSoft, JDBC, any LDAP directory, Lotus Notes, SAP HR, and WebSphere MQ. For information about other drivers, see the Novell DirXML Web site (http://www.novell.com/dirxml).

DirXML architecture uses a publisher/subscriber model. In this model, the publisher's responsibility is to place information into eDirectory while the subscriber places changes from eDirectory into the external, synchronized data source. The behavior of the publisher and subscriber and the attribute mapping are determined by a set of rules that are part of the DirXML driver. DirXML drivers can be customized through XML rules to deliver nearly any data configuration you want.

For more details about how DirXML can be configured, see the DirXML documentation Web site (http://www.novell.com/documentation).

For more information about Novell solutions for customizing your DirXML installation, see the Novell DirXML Web site (http://www.novell.com/dirxml).

Installing ZENworks in a Windows Network Environment

When you install ZENworks in a Windows network environment/Active Directory test environment, you need perform the following tasks in order:

1. "Configuring a Test Lab" on page 151
2. "Accessing Software on the ZENworks 6.5 Companion CDs" on page 151
3. "Running the eDirectory Installation Program" on page 152
4. "Verifying the Viability of the Directory Tree" on page 155
5. "Creating an Administrator Active Directory Account for DirXML" on page 157
6. "Installing DirXML" on page 158
7. "Configuring DirXML Drivers" on page 159
8. "Installing Password Synchronization" on page 162
9. "Finalizing DirXML Driver Configuration" on page 163
10. "Verifying that eDirectory, DirXML, and Password Sync Are Working Properly" on page 164
11. "Installing the Desktop Management Server" on page 164
12. "Installing the ZENworks Middle Tier Server" on page 171
13. "Installing ODBC Drivers for Sybase" on page 179
14. "Deploying the Desktop Management Agent to User Workstations" on page 179

Configuring a Test Lab

An actual enterprise environment might include many servers used for a variety of things, such as application execution, terminal services, and so on. This section uses the following small-scale Windows network configuration as a sample test lab environment:

- A Windows Server 2003, which will serve as the Active Directory Domain Controller of the ZENDEMO domain. This server is designated as SRV-01.
- A Windows Server 2003, which will have Novell eDirectory, the ZENworks Desktop Management Server, and Password Synchronization installed. This server has IIS installed and is a member of the ZENDEMO domain. It is designated as SRV-02.
- A Windows Server 2003, which will have the ZENworks Middle Tier Server installed. It is designated as SRV-03.

  NOTE: Password Synchronization and the ZENworks Middle Tier Server cannot be installed on the same server. Doing so will cause a conflict that prevents the launch of password synchronization.
- A Windows XP Professional SP1a workstation, which will operate in the Desktop Management Agent mode (that is, where all components of the Desktop Management Agent are installed). This workstation is designated as WKS-01.
- A Windows XP Professional SP1a workstation where the Application Browser View of the Novell Application Launcher™ is installed. This workstation is designated as WKS-02.

NOTE: In a standard Windows setup, you might want to install the ZENworks Middle Tier Server on a separate server to provide maximum performance. We use this configuration as an example only to minimize hardware requirements.

Accessing Software on the ZENworks 6.5 Companion CDs

As you set up ZENworks 6.5 in a Windows network environment, you will need to access one of the two *Novell ZENworks 6.5 Companion* CDs.

You can access the contents of the Companion CDs through the installation program. To do so, insert any *Novell ZENworks 6.5* CD into the CD drive of a Windows workstation. The installation program should run automatically. If it does not, run winsetup.exe from the root of the CD. Click Companion Programs and Files, insert the CD you are prompted for (if needed), then browse for the component you need on one of the two menu pages.

You need the following components from the *Companion* CDs:

- DirXML 1.1a for Windows Server 2003, available on the *Novell ZENworks 6.5 Companion 2* CD in the \novell dirxml starter pack folder.
- DirXML Password Synchronization for Windows (pwdsync.exe), available on the *Novell ZENworks 6.5 Companion 2* CD in the \novell dirxml starter pack\nt\dirxml\passwordsync folder.
- Novell eDirectory 8.7.3 for Windows Server 2003. eDirectory 8.7.3 is available from the *Novell ZENworks 6.5 Companion 1* CD in the \novell edirectory for windows 2k folder.
- The updated DirXML Active Directory driver and utilities, available on the *Novell ZENworks 6.5 Companion 2* CD in the \novell dirxml starter pack\nt\dirxml\drivers\ad\rules folder.

  The following files are included in this folder:

  ad-driver.xml
  ad-driver_en.xlf

Creating an eDirectory Evaluation License Diskette

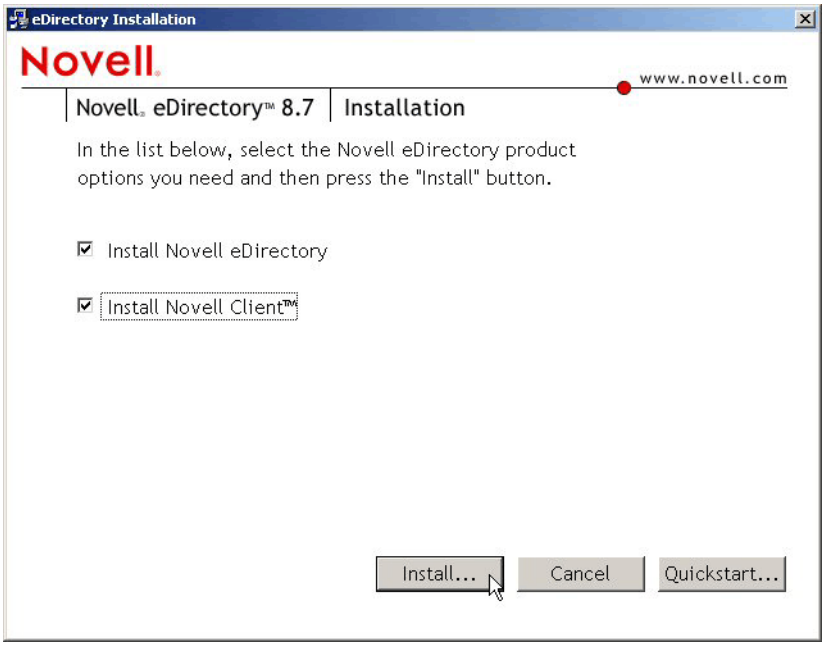
ZENworks provides a one-for-one license of eDirectory for Windows. You can obtain an eDirectory 8.7.x evaluation license from the Novell eDirectory 8.7.x Evaluation License Download Web site (http://www.novell.com/products/edirectory/licenses/eval_87.html). You are required to complete some contact information to enable Novell to send you an e-mail with two files attached: an .nfk file and an .nlf file.

Although not required, we recommend that you format a diskette, create a \license directory off the root of this diskette, and save the two files in this directory. You are prompted for this diskette/file during the product installation.

Running the eDirectory Installation Program

To start the eDirectory installation program for the SVR-02 server in your Windows network environment test system:

1. Log onto the SVR-02 Windows Server 2003 as administrator and launch the eDirectory installation program from the *Novell ZENworks 6.5 Companion 1* CD (see "Accessing Software on the ZENworks 6.5 Companion CDs" on page 151). The CD should autorun. If not, run winsetup.exe located at the root of the CD.
2. Select Companion Programs and Files, select Novell eDirectory to launch a program that unpacks the eDirectory installation files into a specified directory, specify the c:\edir873 directory to unzip the files, then click Close when the files are extracted.
3. Browse to the c:\edir873\nt directory and launch setup.exe. Select Install Novell eDirectory and Install Novell Client, then click Install.



After the main installation program is launched, several subinstallations are executed:

- "The Novell Client Subinstallation" on page 153
- "The eDirectory License Subinstallation" on page 153
- "The NICI Subinstallation" on page 153

- “The eDirectory Subinstallation” on page 154
- “The ConsoleOne Subinstallation” on page 155

The Novell Client Subinstallation

The first subinstallation of the eDirectory product is for the Novell Client, which is executed by the Novell Client Installation Wizard.

1. In the Novell Client license agreement dialog box, click Yes.

   If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.
2. Select Custom Installation, then click Next.
3. Verify that only the client is selected on the modules list, then click Next.
4. Verify that NMAS and NICI are selected and that NetIdentity is deselected, then click Next.
5. Select IP Only and Remove IPX (if present), then click Next.
6. Select NDS to instruct the client to default to using NDS® connections, click Next, then click Finish.

The eDirectory License Subinstallation

When the Novell Client has been installed, the Novell eDirectory License Installation Wizard helps you install the server license for eDirectory.

1. On the Welcome Page of the License Installation wizard, click Next to view the license agreement.
2. Read the License agreement, then click I Accept if you agree with the terms of the license agreement.

   If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.
3. In drive A:, insert the license diskette you created in “Creating an eDirectory Evaluation License Diskette” on page 152.
4. Select Specify path to License File, browse to and select the .nfk license file in the directory you created on the diskette, then click Next.
5. In the Licensing Success dialog box, click Close.

The NICI Subinstallation

When the Novell Client and the eDirectory license are installed, the Novell International Cryptographic Infrastructure (NICI) Installation Wizard autoruns. When the NICI installation is complete, the Windows server prompts for a reboot.

1. Remove the licensing diskette from drive A:, then click OK in the reboot request dialog box.

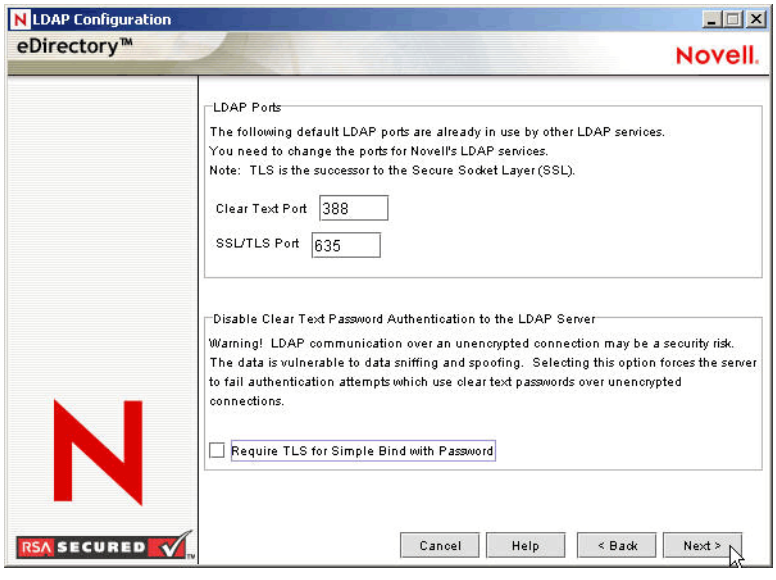
   The server reboots and the eDirectory installation sequence continues.
2. At the Novell Client login dialog box, press Ctrl+Alt+Delete.
3. In the login dialog box, select Workstation Only, log on to the server as the administrator, then click OK.

When the Novell Client, the eDirectory License, and NICI are installed, the eDirectory installation continues.

1. At the eDirectory Installation Welcome dialog box, click Next.
2. Read the license agreement, then click I Accept if you agree with the terms of the license agreement.

   If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.
3. Select a language for the installation, then click Next.
4. Click Next to accept the default installation path.
5. Click Yes to create a new directory that does not exist.
6. Select Create a New eDirectory Tree, then click Next.
7. Set up the access to the new tree and server.
   - **7a** Specify a name for the new tree, such as ZENTREE.
   - **7b** Specify a Server object context, such as SVR-02.SERVICES.ZEN.

     NOTE: This document assumes that you are creating an Organization container in eDirectory named ZEN, an Organizational Unit container named SERVICES where SVR-02 will reside, and an Organizational Unit container named USERS where the Admin user object will reside.
   - **7c** Specify the name of the Admin user object, such as Admin.
   - **7d** Specify the password of the Admin user object, such as Novell, then click Next.
8. On the HTTP Server Port Configuration page, accept the HTTP Stack Ports as default, because there will be no conflicting ports on this server, then click NEXT.
9. On the LDAP Configuration page, specify which LDAP ports to use.



When Active Directory and eDirectory are installed on the same Windows server, you need to choose other LDAP ports, because eDirectory must not interfere with default Active Directory ports 389 and 636.

9a Change the Clear Text Port number to 388, then change the SSL Port to 635.

9b Deselect Require TLS for Simple Bind with Password to allow password synchronization to function, then click Next.

10 Click Next to accept the default NMAS™ login method.

11 Click Finish to complete the eDirectory installation.

The eDirectory installation program performs the installation on the SRV-02 server. When the program completes successfully, click Close in the Success dialog box.

The ConsoleOne Subinstallation

When the eDirectory installation is complete, you need to manually install ConsoleOne on SRV-02. Use the following steps to install ConsoleOne:

1 Insert the Novell ZENworks 6.5 Companion 1 CD into the CD drive of SRV-02. If the CD does not autorun, run winsetup.exe from the root of the CD.

2 Select Companion Programs and Files, then select Novell ConsoleOne.

3 On the Winzip self-extractor dialog box, click setup to launch the extraction and to start the ConsoleOne installation program.

4 On the ConsoleOne Installation Wizard welcome page, click Next.

5 Read the License agreement, then click I Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.

6 Accept the default installation path, then click Next.

7 Accept the default components for installation, then click Next.

8 On the Additional Languages page, select any additional languages you want to install, then click Next.

9 Read the JInfoNet Licensing Agreement page, then click I Accept if you agree with the terms of the license agreement.

If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.

10 On the ConsoleOne Installation Summary page, click Finish to install ConsoleOne on the SRV-02 server.

11 On the ConsoleOne Installation Success page, click Close.

Verifying the Viability of the Directory Tree

When the installation of eDirectory and ConsoleOne is complete, verify that the tree is viable by performing the following steps:

1 Log in to eDirectory.

1a From the Windows server desktop, right-click the red N in the taskbar and select NetWare Login.

1b Type **`Admin`** in the Username field.

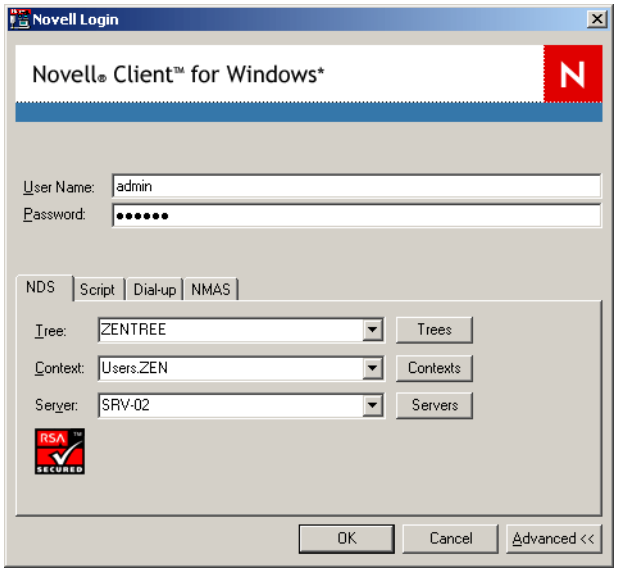
1c Type **`novell`** in the Password field.

1d Click Advanced to open the NDS page of the login dialog box.

1e Type **ZENTREE** in the Tree field.

1f Type **USERS.ZEN** in the Context field.

1g Type **SRV-02** in the Server field, then click OK to log in to eDirectory.

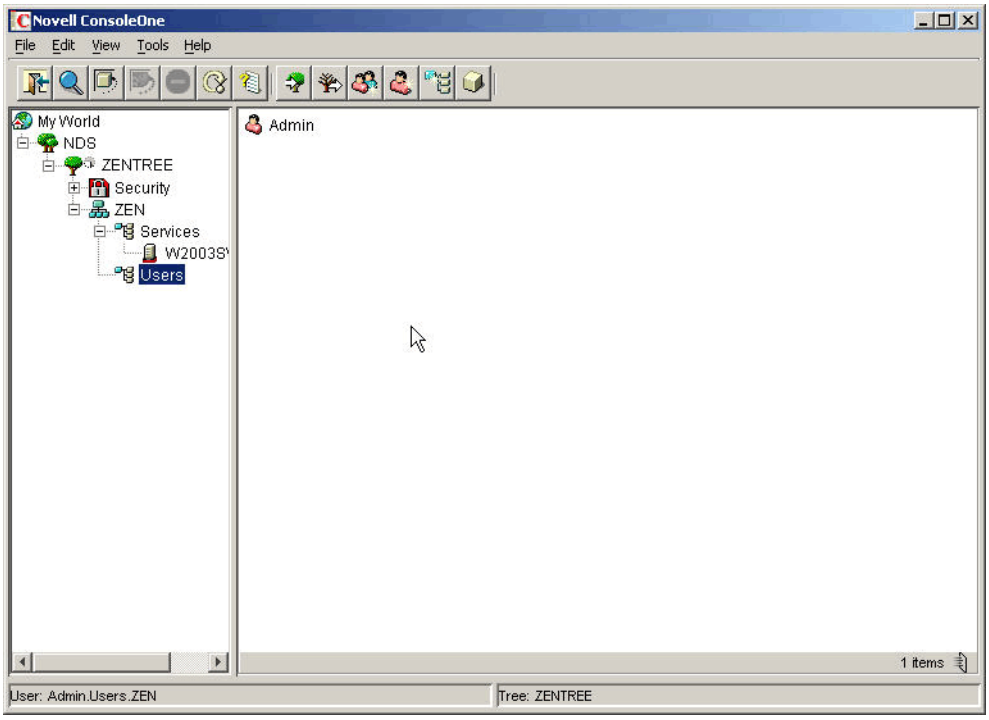


2 To verify that you are logged into the tree as Admin, right-click the red N in the taskbar, select NetWare Connections, verify that a resource is listed for ZENTREE and for the username (CN=Admin).

The authentication state for this connection should be listed as Directory Services.

3 Click Close to close the NetWare Connections dialog box.

4 In ConsoleOne, verify that the tree object is visible, that the Admin user is visible in the Users container, and that the SRV-02 server is visible in the Services container.



5 Create a shortcut on your server for c:\novell\nds\ndscons.exe.

NOTE: NDSConsole is a utility that lets you view the state of the eDirectory tree and the services that are running.

6 Click the NDSConsole shortcut, then verify that at least ds.dlm and nldap.dlm are running.

You now have an eDirectory tree running on your Windows Server 2003.

Creating an Administrator Active Directory Account for DirXML

In order to isolate changes that might occur with other administrator accounts, we recommend that you create a separate account for DirXML with Administrator privileges in Active Directory.

1 Log on to the SRV-01 server as administrator of the domain.

2 From the SRV-01 server desktop, click Start > Programs > Administrative Tools > Active Directory Users and Computers to launch the monitoring console.

3 On the Active Directory Users and Computers page, select the container where you want to add the DirXML administrator user, then click Create a New User.

4 Type the names for the user.

For example, type **`Novell`** as the First name, then type **`DirXML`** as the last name, then type **`Novell DirXML`** as the full name. The User login name in this example is dirxml@zendemo.com.

5 Enter a password for the new user, then select Password Never Expires so that an expired password won't disable the driver unexpectedly.

6 Click Next, review the summary, then click Finish.

7 In the Tree view of the domain, select Builtin > right-click the Administrators object > click Properties to open the Administrators Properties dialog box.

8. In the Administrators Properties dialog box, click the Members tab, click Add, click Advance, then click Find Now.
9. Select the full name of the user you created (Novell DirXML), then click OK in three succeeding dialog boxes.
10. Close the Active Directory Users and Computers page.
11. From the Windows desktop, click Start > Programs > Administrative Tools, then select Domain Controller Security Policy.
12. In the Tree view, click Security Settings > Local Policies > User Rights Assignment.
13. Double-click Log On As a Service > click Security > Add User or Group > Browse > Advance > Find Now.
14. Select the user you created (Novell DirXML), click OK, then click OK again in the three succeeding dialog boxes.
15. Close the Domain Controller Security Policy, then reboot the server.

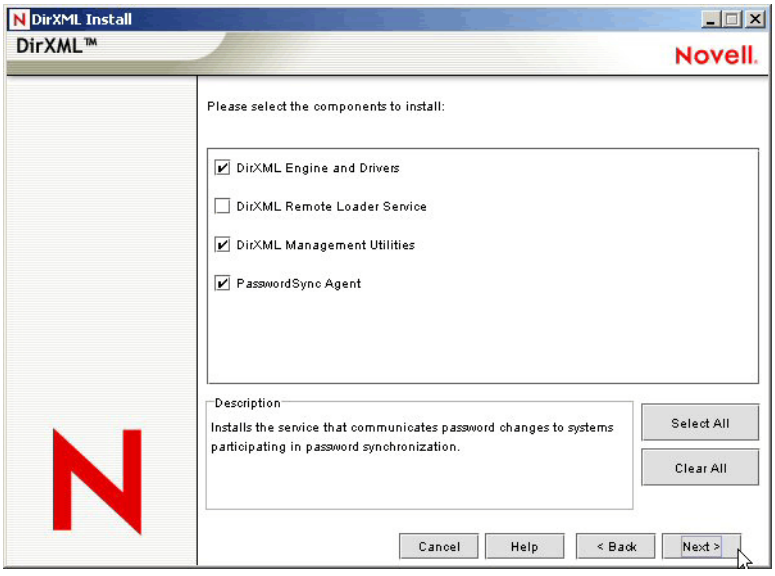
Installing DirXML

When eDirectory is running and stable, you need to install DirXML so that users can be synchronized between your Active Directory Domain and eDirectory.

IMPORTANT: Make sure that no ZENworks services are running on the Windows server when you install DirXML.

1. Log on to the SRV-02 Windows Server 2003 as administrator and into eDirectory as admin.
2. Insert the *Novell ZENworks 6.5 Companion 2* CD into the CD drive of SRV-02, then use Windows Explorer to browse to the Novell DirXML Starter Pack folder.
3. Double-click setup.bat to launch the DirXML 1.1a installation program.
4. On the DirXML Welcome page, click Next.
5. Read the License agreement, then click I Accept if you agree with the terms of the license agreement.

   If you do not agree with the terms of the license agreement, do not install the software. Click Cancel.
6. On the component selection page, select DirXML Engine and Drivers, select DirXML Management Utilities, select PasswordSync Agent, then click Next.



7 On the next component page, select DirXML Engine and the appropriate Core Driver (DirXML Driver 2.0.2 for Active Directory), then click Next.

8 On the Schema Extension page, verify that the tree is appropriate (ZENTREE), type or browse to and select the fully distinguished name (DN) of the admin user and the user's password (admin user name is CN=admin.OU=Users.O=ZEN), then click Next.

9 Select ConsoleOne Snap-Ins for DirXML and DirXML Preconfigured Drivers as additional components you want to install, then click Next.

10 Deselect all of the preconfigured drivers except the appropriate Active Directory driver, then click Next.

11 Read the Summary screen, then click Finish.

The DirXML installation program shuts down eDirectory and then proceeds.

12 Click OK in the dialog box that warns about a possible eDirectory and LDAP conflict (this condition was avoided when you installed eDirectory).

When the file copy is complete, eDirectory is launched again.

13 In the final installation dialog box, click Close to end the installation program.

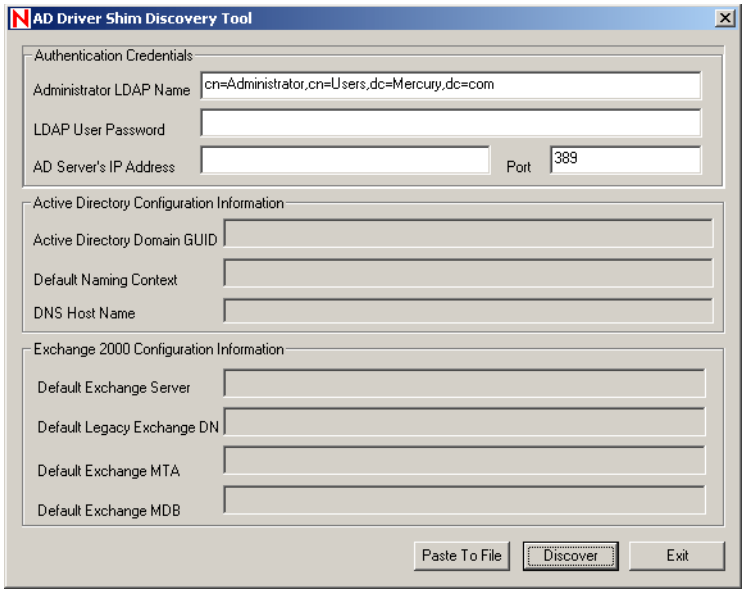
When you have finished installing DirXML, you must configure the DirXML drivers before synchronization can occur. For more information, see "Configuring DirXML Drivers" on page 159.

Configuring DirXML Drivers

When you have finished installing eDirectory and DirXML on the SRV-02 server, you need to configure the DirXML drivers to begin synchronization between Active Directory Domain and eDirectory.

1 Log on to the SRV-02 server as administrator, then log in to eDirectory as admin.

2 Insert the Novell ZENworks Companion 2 CD into the server's CD drive, browse to novell dirxml starter pack\utilities\ad_disc\adshimdiscoverytool.exe, then double-click adshimdiscovertool.exe to run the executable.



2a At tool's interface, fill in the fields:

Administrator LDAP Name: Type the Active Directory administrator's LDAP Name.

LDAP User Password: Type the Active Directory administrator's password.

AD Server's IP Address: Type the IP address for the Active Directory Server for which you want the GUID.

2b Click Discover.

The tool runs and discovers data that is filled in for the other fields, including the Active Directory Domain GUID.

2c Cut and paste the Active Directory Domain GUID into a text file so that you can have access to the data later (see Step 11 on page 161).

3 Launch ConsoleOne.

4 Extend the eDirectory schema to accommodate the new Active Directory driver.

4a Launch c:\novell\nds\ndscons.exe

4b Select install.dlm, then click Start.

4c Click Install Additional Schema Files, then click Next.

4d Type the eDirectory admin login name (admin), type the context (ZEN\Users), type the password (novell), then click OK.

4e Browse to and select c:\novell\nds\drv_ext.sch, then click Open.

4f Click Finish to apply the schema.

4g Click the close (X) button in the NDSCons window.

5 In ConsoleOne under the ZEN organizational container, create a new organizational unit (OU) container, then name this OU container DirXML.

You will create all of the objects related to DirXML under this container.

6 Select the parent container (named ZEN) of the new DirXML container, then, from the menu, select Wizards > Create a New Application Driver.

7 In the Application Driver Creation Wizard, select In a New Driver Set, then click Next.

8 On the New Driver Set Properties page, fill in the fields:

Name: Type a driver set name, for example ADDriverSet.

Context: Browse to and select the DirXML container.

Server: Browse to and select the SRV-02 server.

9 Click Next.

The wizard creates the objects for the driver set.

10 Select Import Preconfigured Driver, browse to and select ad-driver.xml from the \novell dirxml starter pack\nt\dirxml\drivers\ad\rules folder of the *Novell ZENworks 6.5 Companion 2* CD, then click Next.

IMPORTANT: The DirXML installation program places the addriver.xml file in the system. This will also be available on the list. Be sure that you choose the new ad-driver.xml file (note the spelling difference) that you obtained from the *Novell ZENworks 6.5 Companion 2* CD.

11 Configure the driver parameters that are listed on the Application Driver Creation Wizard (visible by scrolling) by filling in the fields:

Driver Name: Leave the name of the driver as the default.

Authoritative ID: Type the domain administrator account you created (dirxml@zendemo.com).

Authoritative Password: Type the password for the dirxml domain administrator account.

Retype the Password: Retype the dirxml domain administrator account password.

Authentication Server: Type `LDAP://svr-01.zendemo.com` in the Address of Active Domain Controller field. Do not enter an IP address. This LDAP value is the DNS name of SVR-01.

Domain GUID: Copy and paste the GUID (the GUID that you saved in a text file from running adshimdiscoverytool.exe in Step 2 on page 159) into this field.

Configure Data Flow: Leave Bi-Directional as the default.

Base Container in Active Directory Type the name of the base container in Active Directory. This is the container where you want users to be synchronized with eDirectory (for example, CN=Users,DC=zendemo,DC=com).

Base Container in eDirectory: Specify the container where you want your users to be created and synchronized with Active Directory (for example, users.zen). You can browse for this container by clicking Browse. If you are going to mirror the Active Directory containers, this would be the top container in eDirectory.

Publisher Placement: Select Flat or Mirror. If you choose Flat, all user objects coming from Active Directory are placed in the same container. If you choose Mirror, all user objects and containers are re-created in eDirectory.

Subscriber Placement: See the Publisher Placement field to choose your placement.

Driver Polling Interval: Specify the polling interval you want. In a lab environment, the interval should be set at approximately one minute. In a production environment, you should set the interval at approximately 15 minutes.

Use Secure Authentication: Leave the default (Yes).

Enable PasswordSync: Leave the default (Yes).

Install Driver as Remote/Local: Set the field at Local.

Remote Host Name and Port: Leave the default setting.

Driver Password: Leave the field blank.

Retype the Password: Leave the field blank.

Remote Password: Leave the field blank.

Retype the Password: Leave the field blank.

Support Exchange 2000: Change the default (Yes) to No.

Default Exchange Server: Leave the field blank.

Default Exchange DN: Leave the field blank.

Default Exchange MTA: Leave the field blank.

Default Exchange MDB: Leave the field blank.

12 Click OK.

13 Click Yes to set the security equivalences of the driver.

14 Click Add, browse to and select the admin.da user, add this user to the list, then click OK.

15 Click Yes in the Novell Recommends You Identify All Objects that Represent Administrative Roles dialog box.

16 Click Add, and then browse to and select all users that are administrators of eDirectory, then click OK.

This will prevent the users from being created in the Active Directory domain and synchronized later.

17 Click Finish on the Summary page.

Before the DirXML driver can run, you need to install the Password Synchronization software. For more information, see "Installing Password Synchronization" on page 162.

Installing Password Synchronization

Password Synchronization allows each user object automatically created in DirXML to have the same password as the corresponding user you created in Active Directory. This is necessary to allow for single-login to both Active Directory and eDirectory when users log into their workstations.

Password Synchronization requires that platform-specific password policies are not in conflict with each other. Password policies that are in conflict will prevent successful password synchronization. For example, if eDirectory passwords are required to be at least eight characters in length and Windows passwords have no length requirements, users could create shorter Windows passwords that would not be accepted by eDirectory. Password Synchronization does not override platform policies.

DirXML lets you generate an initial password for an account based on the account's attributes or other information available through Java services. For instance, you can generate a password based on a user's surname plus a four-digit number. Generating an initial password requires driver customization, but it is a good way for you to manage passwords when you provision an account through an existing personnel management toolset.

ConsoleOne lets you set an initial password when you create a user account if you select Assign NDS Password, then select Prompt During Creation. In this case, ConsoleOne sets the password before an account is associated in NT or Active Directory accounts. This prevents the initial password from being synchronized. Passwords are synchronized only after the first password change. To avoid this delay, you can do one of the following things:

- Deselect Assign NDS Password During User Creation and assign the password later. A brief delay allows account associations to be completed.
- Select Prompt User on First Login so that password setting is delayed until the account is actually used.

The Microsoft Management Console (MMC) lets you set an initial password on a user account by typing the password when you create the account. The password is set before Password Synchronization is able to associate an eDirectory account with the Active Directory account, so the Password Synchronization service is not able to update the eDirectory account immediately. However, the service will retry the password update and the account will be properly updated within several minutes.

To install Password Synchronization on your servers, make sure that ConsoleOne is not running, then follow these steps:

1. Log in to the SRV-02 server as administrator, then log in to eDirectory as Admin.
2. Make sure that ConsoleOne is closed.
3. Click Start > Settings > Control Panel, then double-click Password Synchronization.
4. Click Yes on the Password Synchronization Installation Wizard Welcome page.
5. On the Setup page, select the ZENDEMO domain, browse to the ADDriver (AD-Driver.ADDriverSet.DirXML.ZEN) object in edirectory, then click OK.
6. In the Object Name field, leave the default value, in the Context field, verify that the value is the DirXML container that you created, then click OK.
7. When prompted for the password sync object rights, select the container where your user objects (those synchronized from Active Directory) are expected to reside, make sure you give these rights for every container of users that you are synchronizing (usually, it is best to set this at the organization of the tree; for example, O=ZEN), then click OK.
8. When prompted to put filters on each Domain Controller, click Yes.

   The Password Filters page is displayed with a list of Domain Controllers.
9. Select SRV-01, then click Add.

   Adding a server will cause it to be rebooted.
10. Wait until the server reboots and the dialog box shows that it is running.
11. Click Close, then click Finish.
12. Make sure that you reboot the SRV-01 and SRV-02 servers.

Finalizing DirXML Driver Configuration

When you have installed and configured both the DirXML drivers and the PasswordSync driver, you need finalize the configuration so that these drivers will start automatically and function properly.

1. Log on to the SRV-02 server as administrator, then log in to eDirectory as Admin.

2. From ConsoleOne, open the DirXML container, right-click the ADDriverSet object, then click Properties.
3. Click the DirXML tab, click Drivers, then click Properties.
4. Click Driver Module, make sure that Native is selected and that addriver.dll is entered in the field.
5. Click Startup Option, change the Startup value to Auto-Start, click Apply, then click Close.
6. Select the ADDriver in the list, click Start, then watch the status field change to Running to verify that the driver has started.
7. Open ndscons.exe, then verify that dirxml.dlm is running.

Verifying that eDirectory, DirXML, and Password Sync Are Working Properly

To verify that eDirectory, DirXML, and Password Synchronization are working properly in your environment, you need to create a few users in Active Directory to verify that they are automatically created in eDirectory with the proper passwords.

1. Log on to server SRV-01 as the administrator of the Active Directory Domain.
2. Launch the Active Directory administration tool and create a test user in Active Directory

   Example: TestUser1@zendemo.com
3. Log in to SRV-02 as the administrator of the domain and as admin in eDirectory.
4. Open ConsoleOne, then verify that TestUser1 has been created in the administered container.

   You might have to wait for a synchronization cycle to complete before the user is listed in eDirectory.
5. Log in to eDirectory as TestUser1, verify that the password is the same as the one given in Active Directory, then verify that you successfully authenticated to eDirectory.

   Another synchronization cycle might be necessary before the password is updated.
6. For completeness, create a user in eDirectory (using ConsoleOne while logged in as Admin), then verify that the user is now in the domain and that you can log in to the domain as that user using the password you specified in eDirectory.

   The default synchronization rules do not create an Active Directory user until the full name attribute field is populated in eDirectory. Check this in ConsoleOne > *User_object* > Properties > General.

Installing the Desktop Management Server

Although you might not choose to install all of these components, this section explains the installation procedure for each of them.

Use the following steps to install the Desktop Management Server onto SRV-02 server, where you previously installed eDirectory.

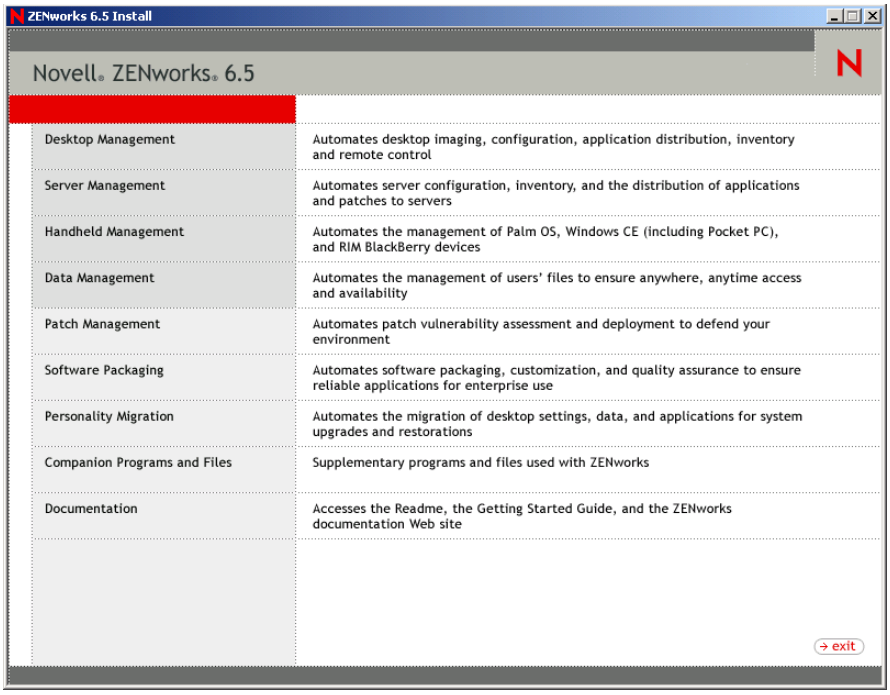
1. Log on to the SRV-02 server as administrator, then log in to eDirectory as Admin.
2. At a Windows workstation, insert the *Novell ZENworks 6.5 Desktop Management* CD.

   The winsetup.exe program will autorun. If it does not autorun, launch it from the root of the CD.

If you run the installation from a directory location where you have copied the ZENworks Desktop Management ISO files, make sure that all of these files are copied to the same location from which you are running winsetup.exe.

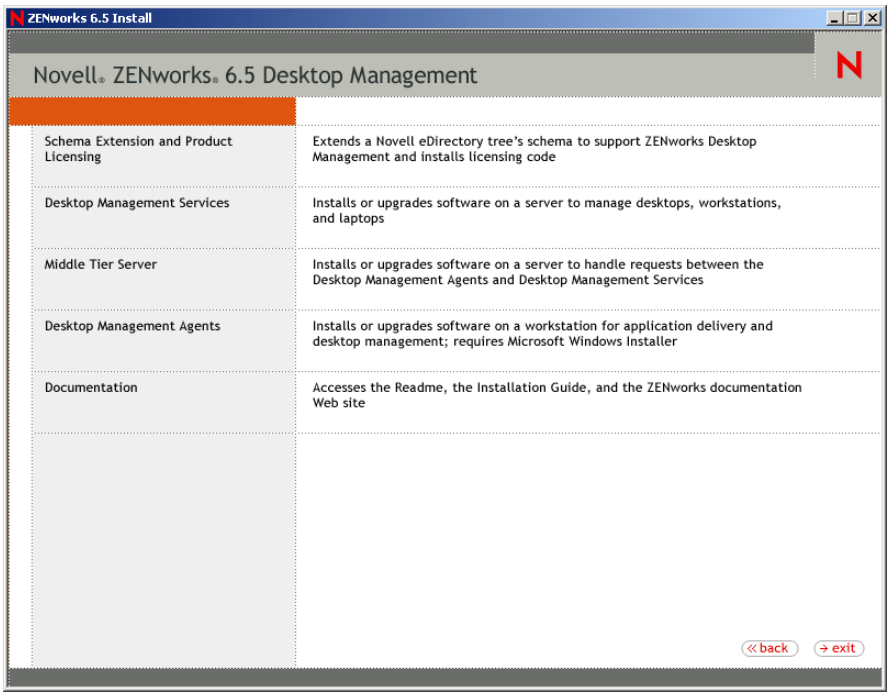
In this situation, the installation program will notify you that it might not run properly. This is because the options you choose during the installation might require a CD swap.

IMPORTANT: If you remove the *Novell ZENworks 6.5 Desktop Management* CD from the CD drive during the installation, or if you lose your connection to the server you are installing to, the installation program stops and will not proceed. To terminate the installation process, in the Windows Task Manager click Processes, select javaw.exe, then click End Process.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Desktop Management Services to launch the Desktop Management Server installation wizard.

6 On the first Installation page, read the details about running the installation program, then click Next.

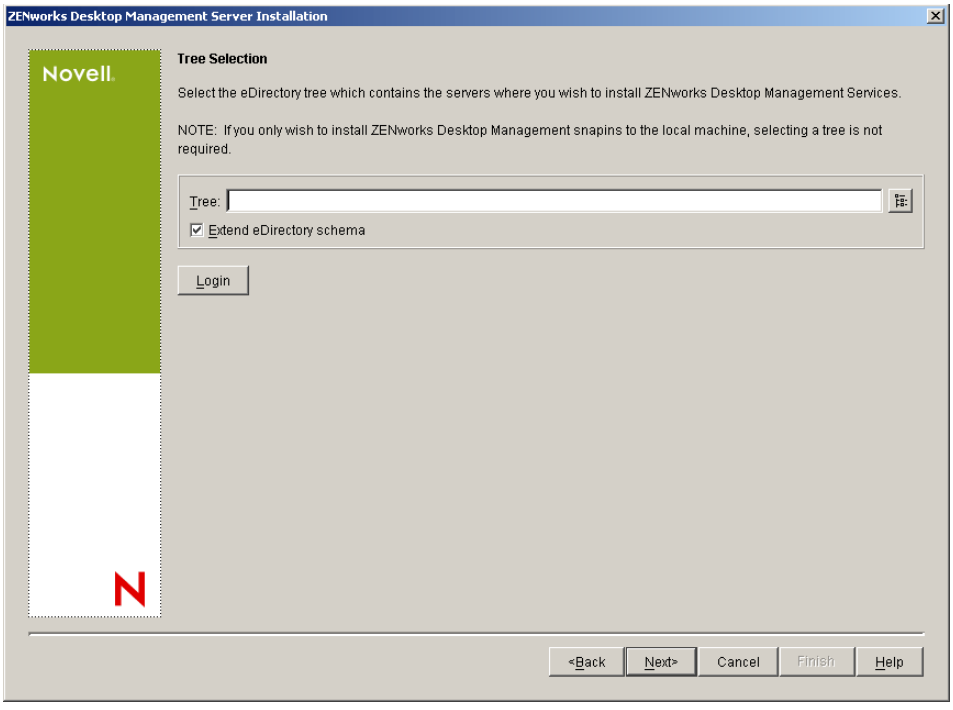
7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Desktop Management Server software, make sure that the server where you plan to install meets the listed requirements, then click Next.

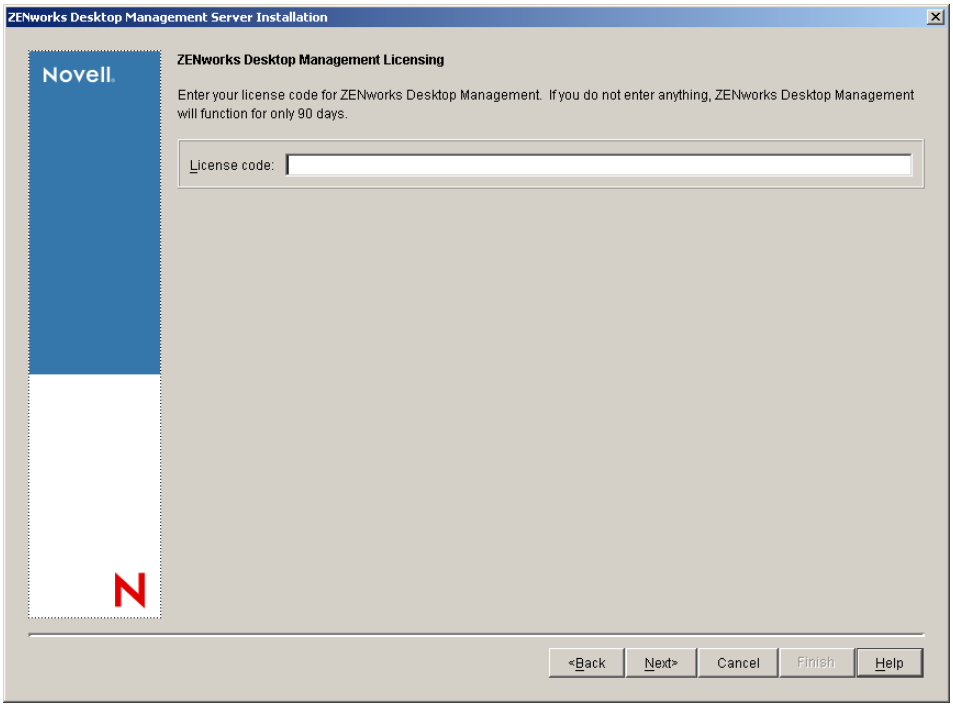
9 On the Tree Selection page, type or browse to the name of the Novell eDirectory tree on the SRV-02 server (ZENTREE). If you have not already extended the schema for this installation (see "Extending the Schema Before the Installation" on page 57), select Extend Schema to extend the schema on the tree where you will be installing Desktop Management Server software, then click Next.

NOTE: You cannot install Desktop Management Server software on multiple trees at the same time.



You need to extend the schema on a tree only once. You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

10 On the ZENworks Desktop Management Licensing page, specify the license code that was e-mailed to you as part of the SmartCert product registration package.



If you do not specify a license code on this page, the wizard considers this installation of ZENworks Desktop Management to be an evaluation version. If you install for an evaluation,

you will be reminded to license the product at periodic intervals. After 90 days, the product evaluation version no longer functions.

11 On the Server Selection page, click Add Servers to browse to the SRV-02 server.

You can select servers only from the ZENTREE tree. You can install to up to 7 servers at a time.

11a (Optional) In the Add Servers dialog box, you can list servers by their eDirectory tree names. To install to a server, select eDirectory Trees, browse to and click the name of the SRV-02 server, click the right-arrow button to move your selected servers to the Selected Servers pane, then click OK.

NOTE: If you want to add a Windows server that you might not be authenticated to, you can double-click the server icon to display a dialog box where you can enter credentials to allow for Windows authentication.

11b (Optional) In the Add Servers dialog box, you can specify the hostname or IP Address of a server in the Add Server Via Hostname/IP Address field. The value that you provide must be resolvable to the name of a server.

Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

12 On the now-populated Server Selection page, you can further specify the services you want to install for the Desktop Management components you previously selected, then click Next to save your settings.

The list of settings includes the following:

Local Workstation: Even though the ConsoleOne 1.3.6 installation program lets you install ConsoleOne files to a local hard drive (minor performance enhancements can be achieved by doing so) such an installation will not include the Desktop Management Services snap-ins.

You have the option of installing Desktop Management Services snap-ins to your local workstation by selecting Desktop Management Service Snap-ins under the Local Workstation option. ConsoleOne must be installed on the workstation before the snap-ins can be added.

Desktop Management Services: Desktop Management Services (collectively referred to as the "Desktop Management Server") are commonly used files and programs that enable the configuration and distribution of workstation applications and policies. These services provide automatic management of Windows applications, user and workstation configurations, processes, and behaviors.

- **Application Management:** Select this option to install software that enables the automated distribution, healing, and tracking of applications, updates, and patches.
- **Workstation Management Common Components:** Select this option to install workstation-resident modules that are used to authenticate the user to the workstation and network, and used to transfer configuration information to and from eDirectory.
- **Remote Management:** Select this component to install files and programs that enable the remote management of workstations from a central console. Make sure that the selected servers do not have the ZENworks for Servers 3.0.2 (or earlier) Remote Management component already installed.

Additional Options: If you want to customize your deployment of Desktop Management Services, there are a number of services to choose from, each with a specialized purpose.

- **Desktop Management Database:** Select this option if you want to install a network database to be used by the Novell Application Launcher™ as a repository for data about application events (install, launch, cache, and so forth) that have occurred.

- **Inventory Database:** Select this option if you want to install a network database to be used by Workstation Inventory as a repository for hardware and software inventory information collected from inventoried workstations.

  IMPORTANT: If you want to use the Inventory database with an existing Oracle or MS SQL setup, do not select this option during the Server Inventory installation. Follow the steps in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **Inventory Server:** Select this option if you want to install files and programs to enable the gathering and viewing of hardware and software inventory information for managed workstations.

  If the selected servers have the Server Inventory component of ZENworks for Servers 3.0.2 or earlier installed, you must upgrade the component to ZENworks 6.5 Server Management.

- **Inventory Proxy Server:** Select this option if you want to install a proxy service that enables the roll-up of inventory scan data to an Inventory server located across a network firewall. Make sure that the selected servers do not have the ZENworks for Servers 3.0.2 (or earlier) Inventory component already installed.

- **Imaging Server:** Select this option if you want to install a Linux imaging environment to be used to create, store, send, or restore workstation image files to a workstation.

  NOTE: You should install the Imaging Server service and the PXE Server service on the same server; do not install the PXE Server service separately.

- **PXE Server:** Select this option if you want to install Preboot Execution Environment (PXE) protocols and programs to be used by the server to communicate with a PXE-enabled workstation and to enable sending imaging tasks to that workstation.

  When you install Preboot Services, one of the components that is installed is the Proxy DHCP server. If the standard DHCP server is on the same server where you are installing the Proxy DHCP server, you must set option tag 60 in DHCP services.

  NOTE: You should install the Imaging Server service and the PXE Server service on the same server; do not install the PXE Server service separately.

- **Workstation Import/Removal Server:** Select this option if you want to install files and programs that add workstation objects into eDirectory (or remove those already added), where they can be managed to receive applications or computer settings.

- **Desktop Management Services Snap-Ins:** Select this option if you want to install additions to ConsoleOne to enable you to launch Desktop Management tools and utilities, to view Desktop Management object property pages in eDirectory, and to browse and configure those objects.

NOTE: You can perform a “custom selection” by selecting one or more servers and right-clicking to display a pop-up menu with options to add Database Services, Inventory Services, or Imaging Services to all of the servers you have selected. The Default option returns the selections to their initial state. The Custom selection launches another dialog box that you can use to select specific components for all of the selected servers. This selection overrides any other selections you might have made.

13 (Optional) Prerequisite Check is selected by default. Retain the selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Desktop Management Services. The installation program checks the version of the server’s network operating system (including any required service or support packs), the presence and version of the Novell Client (4.9 SP1a) on Windows servers and on the installing workstation, and the presence and version of ConsoleOne (1.3.6).

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, and does not continue. The installation displays a

warning and will not continue until the required software is installed and detected or until you deselect the check box.

14 (Optional if Workstation Inventory or Remote Management is selected.) On the File Installation Location page, select one or more target servers in the Selected Servers list, then browse for or enter the volume or drive where you want the Workstation Inventory or Remote Management files to be installed. The default is C: for Windows servers.

NOTE: If a previous installation of ZENworks 6.5 Workstation Inventory or Remote Management component is detected on the machine, the existing path is displayed and dimmed. The current installation will install all the files in the same path.

15 (Optional) The Database Location Installation page is displayed if you choose to install the Inventory database or the Desktop Management database. Select a previously designated server in the left pane, then in the Database Path field, browse for or type in the name of the volume or drive where the database file will be installed, then click Next.

You can provide a different drive for each database server. However, you cannot have multiple instances of the database files on the same server because you can run only one instance of the database engine per server.

16 (Optional) The Inventory Standalone Configuration page is displayed if you choose to install the Inventory Server and the Inventory Database on the same server. If you want the installation program to automatically create the Server Package and to start the Inventory Service on the server, configure the settings on the Inventory Standalone Configuration page.

Select Configure Standalone, select the server or servers that you want to point to a common Database Location Search Policy, type in the name or browse to the tree container where you want to create and configure the Server Package containing this policy, then click Next.

17 (Optional) On the Inventory Proxy Service Configuration page, select the server or servers with a port you want to designate as one to allow XMLRPC requests pass through to the Inventory Proxy service, then in the Proxy Port field, designate the port you want to use.

You can configure the same port number for all servers by selecting all of them, or you can define the values individually by selecting the servers one at a time. If you want to change the Port 65000 default, specify a value between 0 and 65535. Ensure that the port number is not used by other services on the server.

18 On the Summary page, review the list of components and their parts that are to be installed. If the summary is correct, click Finish to launch the installation program.

You can click Back as many times as necessary to make changes.

If you click Cancel, no installation information is saved.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmserver_install.log (for example: 20040304_024034_zdmserver_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmserver_installsummary.log (for example: 20040304_024034_zdmserver_installsummary.log). It is also located in c:\novell\zfdtemp.

19 In ConsoleOne, select the tree where you installed the Desktop Management Server software, then right-click the LDAP Group > click Properties > General > select Allow Clear Text Passwords.

If you use ConsoleOne 1.3.6, Require TLS For Simple Binds With Password must be deselected in the LDAP Group Object for each server acting as the Authentication Domain for a ZENworks Middle Tier Server. If you need to set this parameter after you have installed the Desktop Management Server, make sure you reboot the ZENworks Middle Tier Server after you change the setting.

If you are installing to Windows servers in an Active Directory domain, configure the LDAP group object for servers that are to be used as Authentication Domains to use an alternate port number, because Active Directory will use ports 389 and 636.

If you have already installed the ZENworks Middle Tier Server, you need to reboot the ZENworks Middle Tier Server so that it will recognize the change to LDAP clear text passwords at the Desktop Management Server.

Installing the ZENworks Middle Tier Server

To deliver Desktop Management features through an Internet browser, you must install the ZENworks Middle Tier Server. In this deployment scenario, you install the software on SRV-02, where the Microsoft IIS Web server has already been installed. The Middle Tier Server installation program requires the presence of the Novell Client on the installing workstation or server, so you must first install the Novell Client on the SRV-03 server and then install the ZENworks 6.5 Middle Tier Server on the same server. You can download the Novell Client (version 4.90 SP1a or later) from the Novell downloads Web site (http://download.novell.com).

When the client has been installed, you can use the following procedure to install the Middle Tier Server:

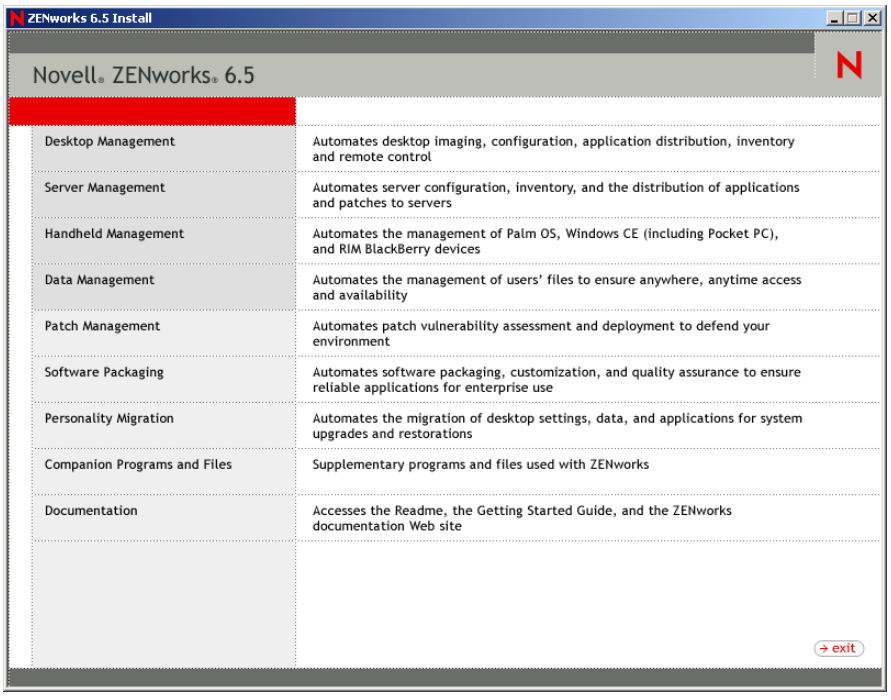
1. Log on to SRV-03 as local workstation administrator of the server.
2. Insert the *Novell ZENworks 6.5 Desktop Management* CD.

   The winsetup.exe program will autorun. If it does not autorun, launch the program from the root of the CD.

   If you run the installation from a directory location where you have copied the ZENworks Desktop Management ISO files, make sure that all of these files are copied to the same location from which you are running winsetup.exe.

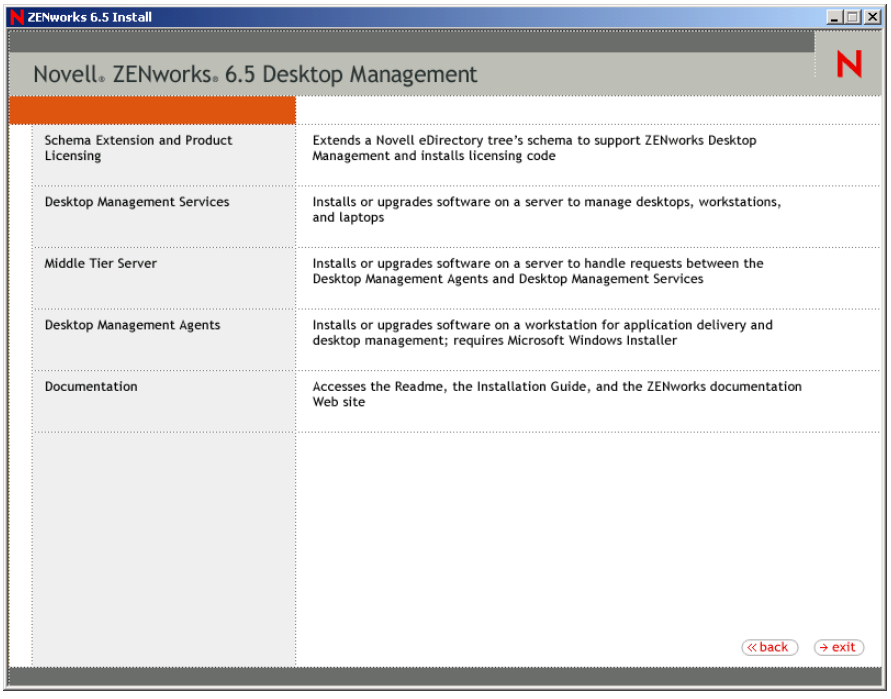
   In this situation, the installation program will notify you that it might not run properly. This is because the options you choose during the installation might require a CD swap.

   IMPORTANT: If you remove the *Novell ZENworks 6.5 Desktop Management* CD from the CD drive during the installation, or if you lose your connection to the server you are installing to, the installation program stops and will not proceed. To terminate the installation process, in the Windows Task Manager click Processes, select javaw.exe, then click End Process.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Middle Tier Server to launch the Middle Tier Server installation program.

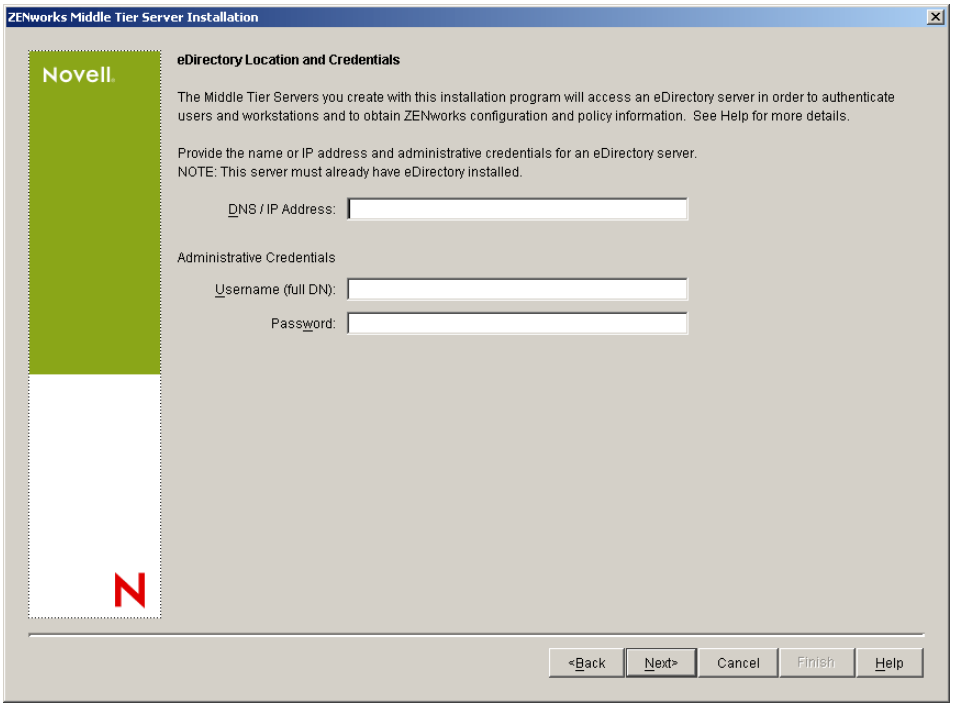
6 On the first Installation page, read the details about running the installation program, then click Next.

7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Middle Tier Server software, make sure that the server where you plan to install meets the listed requirements, and then click Next.

9 On the eDirectory Location and Credentials page, fill in the fields:



DNS/IP Address: Specify the DNS name or IP address of the SRV-02 server, where eDirectory is installed.

Username (full DN): Specify the fully-qualified distinguished username of the Middle Tier proxy user account (for example,admin.users.zen). To ensure that these credentials remain secure, you can set up an arbitrary user with specific administrative rights.

For a description of the required rights, see “Required Rights for the Middle Tier Proxy User Account” on page 84.

Password: Specify the eDirectory password for the Middle Tier proxy user.

10 On the ZENworks User Context page (Users Context field), specify the eDirectory context where the Middle Tier Server can look for user objects that will be used by Desktop Management. For this example, the context is Users.

You should use the context of the highest-level container where user objects reside. This value is passed to the ZENworks Middle Tier Server, which will use it as a starting point in searching for a user.

For any Middle Tier Server you designate during this installation, currently configured authentication domains (for example, the authentication domain configured for NetStorage) are replaced by a single authentication domain having the context that you specify here.

After the installation, you can reconfigure this authentication domain context using the NSAdmin utility. You can open the utility in a Web browser (http://srv-02/oneNet/nsadmin).

NOTE: The installation program verifies the existence of the context (that is, the container) before continuing.

11 On the ZENworks Files Location page, select the network location where you will access application and policy files managed by ZENworks.

The ZENworks Middle Tier Server requires access to ZENworks files installed elsewhere on your network. As the ZENworks Administrator, you define the location of these files when you create policies or applications for distribution. The information you provide on this page is used to help the Middle Tier Server determine how to access different file systems. This decision is necessary for the installation now, even if you have not yet created any ZENworks files.

- Select the first option button if your ZENworks-managed application and policy files will be located on NetWare servers only.
- Select the second option button if some or all of your ZENworks-managed application and policy files will be located on Microsoft Windows servers.

If your ZENworks files will be located in a Windows file system, the Middle Tier Server might not be able to access them using a username and password for Novell eDirectory; instead, it requires Windows domain credentials to access the files.

If the files are located on a server not belonging to a domain, enter server-specific credentials.

Domain Username

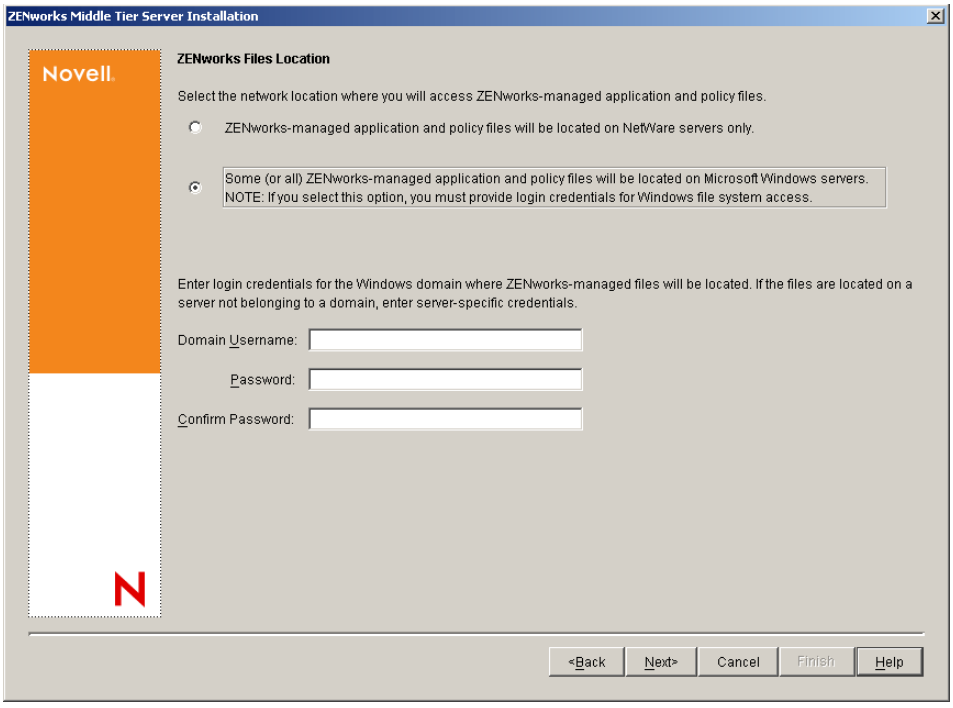
Specify the username of any user in the Microsoft domain who has Windows file system rights to the ZENworks file locations.

Password

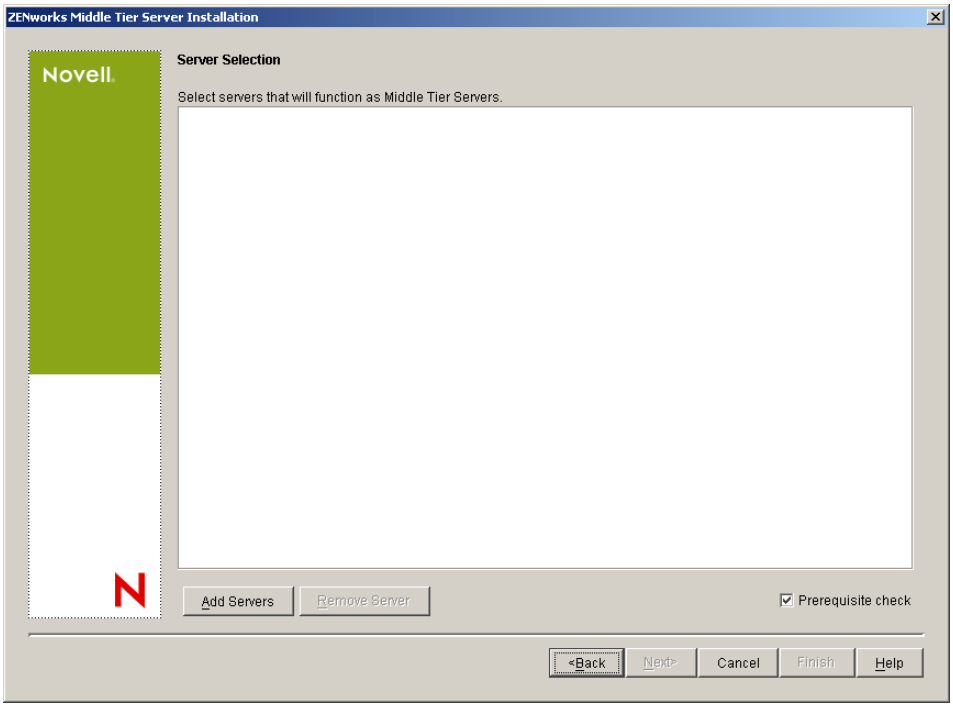
Specify the password for the user in the Microsoft domain who has file system rights to ZENworks files.

Confirm Password

Specify the same password to confirm that it was entered correctly.



12 On the Server Selection page, you need to build a list of target servers that you want to function as Middle Tier Servers. The Add Servers button calls a dialog box that is used to find and add servers to the list. The Remove Servers button lets you delete servers from the target list after they are added. Click Add Servers.



13 (Optional) Prerequisite Check is selected by default. You can retain this selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Middle Tier Servers.

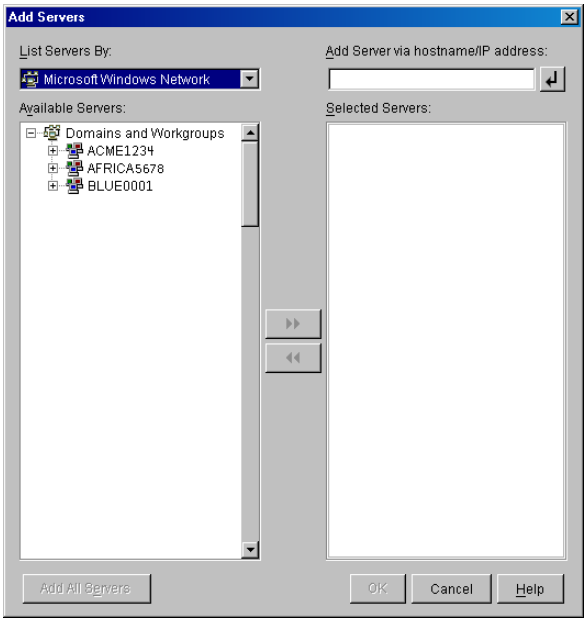
The installation program checks the version of any previously installed Middle Tier Server software, the server's network operating system (including any required service or support packs), the presence and version of the IIS Web server on Windows servers, the presence and version of the appropriate Web server on NetWare servers, and the presence and version of NetStorage (2.6.0) on target servers.

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, but can continue. If other requirements are not met, the installation displays a warning and does not continue until the required software is installed and detected.

14 On the Add Servers dialog box, open the List Servers By drop-down list to show the options of listing the servers according to their location in Novell eDirectory trees, in Microsoft Windows Network structures, or in Microsoft Active Directory trees.

You can install the ZENworks Middle Tier Server software to several servers during the installation. When you have finished adding servers to the list, click OK.

14a (Conditional if you want to list servers in Microsoft Windows Network structure.) In the List Servers By drop-down list, select Microsoft Windows Network to list all of the Windows Workgroups and Microsoft Domains to which you are currently authenticated, browse the structure to the server of your choice, then click the double-right arrow to move it to the Selected Servers list box.



Other options in this dialog box include the following:

- You must be an administrative user for a server in order to add it to the Selected Servers list. If you are not authenticated to a server, the object is designated by a question mark. You can double-click the question mark to authenticate to the server, then click the double-right arrow to move the server to the Selected Servers list, provided it is a supported server platform for ZENworks 6.5 Desktop Management.
- When you list servers in Microsoft domains, NetWare servers are not listed for browsing because ZENworks files that are located on a Windows server cannot be obtained through a Middle Tier Server installed on NetWare.

- You can specify the hostname or IP Address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

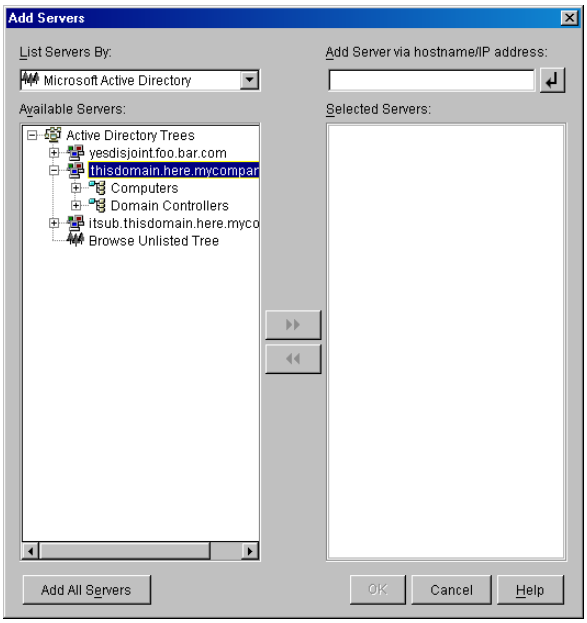
  If you are using multiple hostname aliases for a Windows server, the first alias must be the physical name of your Windows server.

- If the credentials you provided for authentication to the server (see Step 11) are not administrative credentials, you can add it as a target server, but you will be re-prompted for Administrative credentials when you close the Add Servers dialog box.

- Click Add All Servers to add all of the servers in a selected domain or workgroup. Selecting a domain or workgroup selects all of the authenticated servers in that domain or workgroup.

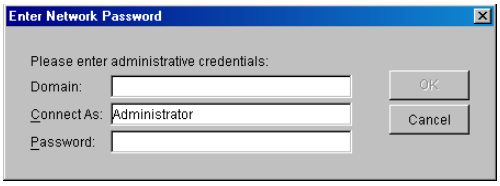
- To remove a server from the Selected Servers list and return it to the Available Servers list, click the server name in the Selected Servers list, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

14b (Conditional if you want to list servers in a Microsoft Active Directory.) In the List Servers By drop-down list, select Microsoft Active Directory. If your workstation is a member of an Active Directory, the domains in the Active Directory trees are displayed. You can browse to all of the servers listed in Active Directory (on a per domain basis), browse the structure to the server of your choice, then click the double right-arrow to move it to the Selected Servers list box.



Other in this dialog box include the following:

- You can also click Browse Unlisted Tree to open a dialog box where you can specify the name of the domain you want to add, then authenticate to it with the proper credentials prior to displaying its servers in the List Servers By drop-down list.



- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

- Right-click a domain object to select one of three search methods:

  Search Standard Locations: Lists the computers and domain controllers at the root of the domain. This is the default search method.

  Search Entire Directory: Lists all directory containers where computers are located.

  Browse Directory Hierarchy: Lists all of the containers in the directory, which you can expand and browse one at a time to find the computer you want. This search method might be useful if you have computers in a non-standard location of a large directory.

- Click Add All Servers to add all of the servers in a selected domain or container. Selecting a domain or container selects all of the servers in that domain or container.

- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

15 On the Summary page, review the location where you have chosen to install the ZENworks Middle Tier Server software and the Desktop Management Server to which it is associated, then click Finish to begin the installation process if the summary is correct.

The Middle Tier Server Installation Wizard launches another installation program. Wait until this program is completed.

IMPORTANT: You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmmidtier_install.log (for example: 20040304_024034_zdmmidtier_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmmidtier_installsummary.log (for example: 20040304_024034_zdmmidtier_installsummary.log). It is also located in c:\novell\zfdtemp.

16 In ConsoleOne pointing to eDirectory on the Desktop Management Server, make sure you have set up the Desktop Management Server to allow clear text passwords.

17 Reboot the server where you installed the ZENworks Middle Tier Server software.

18 Verify that the ZENworks Middle Tier Server is installed and running by entering one of the following URLs at a browser on the workstation:

http://srv-02/oneNet/xtier-stats

http://srv-02/oneNet/zen

If the ZENworks Middle Tier Server is running, the first URL opens a Web page where server statistics are displayed. You should be able to see where the request count increases by clicking the Refresh button on your browser.

The second URL launches a dialog box that prompts for user credentials.

19 At a network browser, enter http://srv-02/oneNet/nsadmin and log in as the Admin user to eDirectory to change the LDAP ports to match those you changed in Step 9a of the "The eDirectory Subinstallation" on page 154.

NOTE: Because eDirectory and Active Directory are installed on the same network server, you might not be able to log in to eDirectory. If this is the case, go to the registry of the server where the ZENworks Middle Tier is installed, then change the LDAP Port DWord value of the HKLM\Software\Novell\Xtier\Configuration\Xsrv registry key to the port you specified in Step 9a of the "The eDirectory Subinstallation" on page 154.

Installing ODBC Drivers for Sybase

Before running the inventory reports, review the following:

- Make sure that the appropriate ODBC client for Sybase, Oracle, or MS SQL is installed on the machine running ConsoleOne. The ODBC driver will be automatically configured on the machine when you invoke the Inventory report.

  To install the ODBC driver for the Sybase database,

  1. In the *Novell ZENworks 6.5 Companion 2* CD, open the \database drivers directory
  2. Follow the instructions in the ODBCreadme.txt file in the \database drivers directory. The information helps you to set up the address of the Sybase database and verify that you can make a connection

  For Oracle, you must install the appropriate client for ODBC. For example, for Oracle 8i Inventory database, install the Oracle 8i client because Inventory reports are not compatible with either the older or the later version of the client.

  For MS SQL, the client is available on all Microsoft Windows operating system.

- Make sure that at least MDAC 2.6 SP1 (Microsoft Data Access Component) is installed particularly on a Windows NT machine for running Crystal Reports. Check the version of MDAC on your box: select Control panel > ODBC Data sources > the About tab pane. The minimum version required is 3.520.7326.0. If the version you have does not match the minimum requirement, you need to upgrade the ODBC core components by downloading from Microsoft site (http://microsoft.com/data/download.htm)

Deploying the Desktop Management Agent to User Workstations

When ZENworks Desktop Management is running in a Windows server environment., you need to install the Desktop Management Agent onto user workstations and begin to use the Desktop Management features to manage those workstations.

The Desktop Management Agent Distributor facilitates the initial deployment and future upgrades of the ZENworks Desktop Management Agent through the use of Microsoft domains and Microsoft Active Directory. The Agent Distributor uses Microsoft domains and Active Directory when selecting target workstations and during deployment of the Desktop Management Agent to those same target workstations.

For more information about using the Desktop Management Agent Distributor to deploy the Desktop Management Agent to workstations in your Windows network, see "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain" on page 102.

IV Upgrade

This section provides information that can help you deploy Novell® ZENworks® 6.5 Desktop Management in a network environment where ZENworks for Desktops 4.*x* (that is, ZENworks for Desktops 4 SP1b or ZENworks for Desktops 4.0.1) is already installed and functioning. The section describes the Desktop Management functionality that might be affected by the coexistence of these ZENworks versions and suggests ways to configure your systems to provide maximum functionality to your users.

Further, the section also includes information about ZENworks 6.5 Desktop Management Support Pack 1 (SP1), which includes some new enhancements.

The following information is included in this section:

- Chapter 17, "What's New In ZENworks 6.5 Desktop Management," on page 183

  NOTE: Specific sections of this chapter include information about ZENworks 6.5 Desktop Management Support Pack 1 and Support Pack 2.
- Chapter 18, "Upgrading from ZENworks for Desktops 3.2 SP3," on page 201
- Chapter 19, "Upgrading from ZENworks for Desktops 4.x," on page 231
- Chapter 20, "Upgrading to the ZENworks 6.5 Launch Gadget," on page 257
- Chapter 21, "Upgrading from ZENworks 6 DeFrame," on page 261
- Chapter 22, "Upgrading to ZENworks 6.5 Desktop Management Support Pack 1," on page 275
- Chapter 23, "Upgrading to ZENworks 6.5 Desktop Management Support Pack 2," on page 295

If you need assistance while upgrading ZENworks for Desktops 4.*x* to ZENworks 6.5 Desktop Management, you can consult the following resources:

- The ZENworks for Desktops Cool Solutions community at http://www.novell.com/coolsolutions/zenworks (http://www.novell.com/coolsolutions/zenworks).
- The Novell Support Knowledgebase at http://support.novell.com (http://support.novell.com)
- Novell Ngage℠ Consulting at http://www.novell.com/solutions/ngage/consulting.html (http://www.novell.com/solutions/ngage/consulting.html).

Upgrading Caution

During the life cycle of your ZENworks 7 Desktop Management installation, you might choose to download and apply maintenance patches, interim releases, or support packs. As a general rule, these ZENworks product maintenance installation programs overwrite every file previously installed, including configuration files (for example, .conf or .ini files). This might have

consequences if you manually modified a file during a debugging process and you want to preserve its settings.

In a few cases, if the installation detects that a configuration file has already been upgraded (for example, a reinstall) and is the same version, the file is not overwritten and its settings are preserved.

Some files, such as some of those used for ZENworks Imaging or for the ZENworks Inventory Database are always overwritten. In cases where these files should be preserved manually, the documentation provides the necessary precautionary steps you need to follow in order to avoid overwriting the files or to preserve a backup copy.

17 What's New In ZENworks 6.5 Desktop Management

The following sections describe changes in Novell® ZENworks® 6.5 Desktop Management:

- "General Changes" on page 183
- "Workstation Management" on page 184
- "Application Management" on page 186
- "Workstation Imaging" on page 189
- "Remote Management" on page 190
- "Workstation Inventory" on page 191

Additional sections includes information about the changes included in various product support packs:

- "What's New in ZENworks 6.5 Desktop Management Support Pack 1" on page 193
- "What's New in ZENworks 6.5 Desktop Management Support Pack 2" on page 198

General Changes

The following sections describe the general changes to ZENworks Desktop Management functionality in ZENworks 6.5.

- "ZENworks Multiple UNC Provider" on page 183
- "Windows Naming Conventions" on page 184
- "ZENworks Tree" on page 184
- "Desktop Management Agent Distributor" on page 184

ZENworks Multiple UNC Provider

Prior to Novell ZENworks 6.5, all environments without the Novell Client™ were forced to access data through the ZENworks Middle Tier Server, even if a Microsoft Client was available. The ZENworks Multiple UNC Provider uses the Microsoft Client (through the CIFS/SMB protocol) to increase the speed of customer access to network policies and applications.

For more information, see "Understanding the ZENworks Multiple UNC Provider" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Windows Naming Conventions

ZENworks 6.5 Desktop Management supports Windows naming conventions with regard to the format that users enter when they log in.

The e-mail naming format and the dotted name naming format (for example, joe.black.users.mycompany) are both acceptable for authentication with the Desktop Management Agent.

For more information, see "E-Mail and Dotted Name Login Support" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

ZENworks Tree

Large organizations might use multiple repositories for storing and managing user identification and user-specific information. Although the network directory is often the authoritative source for authentication, other sources, such as applications or databases owned by Human Resources, also play a significant role in managing users.

If your organization uses Novell eDirectory™ and DirXML® to aggregate the user information and identification data from multiple areas, you can deploy a dedicated eDirectory tree for exclusive ZENworks use. This "workforce tree" is a way that you can control or limit the source from which desktop applications or workstation policies are available so that users receive them from a single source.

You can deploy a ZENworks tree without requiring changes to the corporate directory where your users authenticate. This makes it possible to deploy ZENworks Desktop Management without affecting the current tools, identity management processes, or authentication processes you currently have in place. It also allows you to create and manage ZENworks objects in a single tree.

You designate a ZENworks tree during the ZENworks Desktop Management Agent installation program. For more information, see "Manual Installation Procedure" in the Novell ZENworks 6.5 Desktop Management Installation Guide and "Using a ZENworks Tree" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Desktop Management Agent Distributor

The Desktop Management Agent Distributor facilitates the initial deployment and future upgrades of the ZENworks Desktop Management Agent through the use of Microsoft Domains and Active Directory. The distributor uses Microsoft Domains and Active Directory when selecting target workstations and during deployment of the ZENworks Agent to those same target workstations.

For more information about the distributor, see "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain" on page 102.

Workstation Management

The following sections describe the changes to Workstation Management functionality in ZENworks 6.5:

- "Novell iPrint Policy" on page 185
- "Windows Desktop Preferences Policy" on page 185
- "Windows Group Policy" on page 186

- "Workstation Import Policy" on page 186
- "Workstation Object Properties" on page 186

Novell iPrint Policy

The following sections provide updated information about the Novell iPrint policy:

- "New Novell iPrint Client Install Utility" on page 185
- "Address For Printing Outside the Firewall" on page 185
- "Re-Install Client if Higher Version" on page 185
- "Terminal Server Support" on page 185

For more information on any of these topics, see "Novell iPrint Policy (User and Workstation Packages)" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New Novell iPrint Client Install Utility

Unless you are running NetWare 6.5 SP2, you must download the latest Novell iPrint utility file (nipp.exe).

Address For Printing Outside the Firewall

If you have workstations that are physically located outside the firewall, you can use the Address For Printing Outside the Firewall field, to specify the proxy, firewall, or Network Address Translation (NAT) address followed by a colon (:) and the port number.

Re-Install Client if Higher Version

Enable this option to reinstall the iPrint client if the iPrint client listed in the Path to the Novell iPrint Client Install is newer than the one installed on the workstation.

Terminal Server Support

Novell iPrint support for Windows 2000/2003 Terminal Servers has been added.

Windows Desktop Preferences Policy

In ZENworks for Desktops 4, if a slow link was detected that would require significant time to download a roaming profile, you could set some Novell registry keys to automatically download the roaming profile, use the locally stored profile, or display an instructional dialog box to let the user choose to either continue the download or to use the locally stored profile. This functionality has changed in ZENworks 6.5 Desktop Management. All roaming profile processing is now handled by Microsoft. This lets the administrator use Group Policies to control the behavior of roaming profiles. Slow link detection is also now handled by Microsoft processes and is defined within the Group Policies configuration (gpedit.msc or ZEN-delivered Group Policies).

You can continue to configure roaming profiles in the Desktop Preferences policy in ConsoleOne®. All functionality that Microsoft supports should work in ZENworks Desktop Management-delivered roaming profiles.

For more information, see "Windows Desktop Preferences Policy (User Package)" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Windows Group Policy

Imported security settings let administrators set only certain security settings without affecting all remaining security settings. Security settings can be imported from an Active Directory Group policy or can be generated with the Security Configuration and Analysis snap-in in the Microsoft Management Console (MMC).

For more information, see "ZENworks Windows Group Policy (User and Workstation Packages)" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Workstation Import Policy

The Disable User History option has been added on the Workstation Import policy's Limits page.

Each time a user logs in to a workstation, the Workstation object's User History page is updated so that an administrator can view a complete list of all users who have logged on to that workstation. If you do not want user history to be collected for workstations, you should enable this option.

For more information, see "Workstation Import Policy" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Workstation Object Properties

A Do Not Add to History option has been added on the Workstation object's User History page. This option lets you disable the collection of user history for this workstation.

For more information, see "Workstation Import Policy" in "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Application Management

The following sections describe the changes to Application Management functionality in ZENworks 6.5:

- "Distribution of MSI Application in Workstation Space" on page 187
- "Pre-Installation of MSI Applications" on page 187
- "Distribution Rules" on page 187
- "Process Termination" on page 188
- "Append/Prepend Registry Values" on page 188
- "Uninstall Scripts" on page 188
- "Global Unique ID (GUID) Management" on page 188
- "Language Variable Macros" on page 188
- "Novell Application Launcher Configuration Settings" on page 189

Distribution of MSI Application in Workstation Space

By default, workstation-associated MSI applications are distributed in the user security space, meaning that Novell Application Launcher™ uses the logged-in user's credentials and file system access to perform the distribution. You can override this default behavior to have a workstation-associated MSI application distributed in the workstation security space rather than in the user space. This enables you to do the following:

- Secure the source location by giving the workstation, not the user, access to the source MSI files.
- Schedule lights-out distributions of workstation-associated MSI applications (see "Pre-Installation of MSI Applications" on page 187).

For more information, see "Options Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Pre-Installation of MSI Applications

Previous ZENworks versions enabled you to pre-install AOT/AXT applications. You can now pre-install MSI applications. With a pre-install, all workstation-related distribution processes (file copying, modifying text files, .ini files, and workstation registry settings) are performed prior to launching of the application. When the user launches the application, the user-specific distribution processes (modifying user registry keys and so forth) are completed.

For more information, see "Pre-Install Schedule Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Distribution Rules

Several changes have been made to the system requirements you can use to determine whether or not an application is distributed to a workstation:

- The feature has been changed from System Requirements to Distribution Rules to better reflect the enhanced functionality and to differentiate it from the old system requirements.
- Support for AND/OR Boolean operators has been added. In previous ZENworks versions, AND was used for all system requirements.
- The requirement for an operating system to be defined before an application is available has been removed.

  In previous ZENworks versions, an OS platform had to be defined in the System Requirements before an application would be available for distribution and launching. This requirement has been removed.

  The new behavior uses the following logic: If an application runs only on a specific operating system, define an operating system distribution rule. If an application does not require a specific operating system, there is no need to define a distribution rule. By default, applications without a defined operating system distribution rule are available on all supported platforms (Windows 98, Windows 2000, and Windows XP).
- Support for grouping of rules has been added. This is particularly useful when used with the OR operator. For example, you can have two groups of rules joined by an OR operator. If either group of rules is met, the application is distributed.
- Two new rules, Authentication and Connection Speed, have been added.

For more information, see "Distribution Rules Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Process Termination

You can define processes (either Windows executables or services) that you want terminated before an application is distributed. This can eliminate possible reboots by ensuring that existing files that are replaced during the application distribution are not open and locked.

For more information, see "Pre-Distribution Process Termination Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Append/Prepend Registry Values

You can append or prepend data to registry string values (String, Expand String, Multi-Value String, and Default). Appended data is added as the registry value's last entry. Prepended data is added as the value's first entry.

For more information, see "Registry Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Uninstall Scripts

As part of the process of uninstalling an application, Novell Application Launcher can launch a script engine to execute a "before uninstall" script and an "after uninstall" script. The uninstall scripts are similar to the distribution and launch scripts except that they are executed either before or after the application is uninstalled.

For more information, see "Uninstall Scripts Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Global Unique ID (GUID) Management

A new GUID Manager utility has been added to ConsoleOne. Using the GUID Manager, you can:

- Change an application's GUID by randomly generating a new GUID.
- Change an application's GUID by manually specifying a new GUID.
- Match an application's GUID to another application's GUID.

The GUID Manager utility replaces the Sync Distribution GUIDs option and Generate New GUIDs options (ConsoleOne > Tools menu > Application Launcher Tools) available in previous ZENworks versions.

For more information, see "Manage Distribution GUIDs" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Language Variable Macros

To minimize the number of Application objects required to distribute the same application in different languages, you can now use language variables to represent language-sensitive information in Application objects.

For example, assume that a Help file needs to be copied to a c:\program files\program\help\%LOCALE_SYS_ABBR_LANG% directory, where %LOCALE_SYS_ABBR_LANG% is the three character language and sublanguage (i.e., ENU for English-US). By using %LOCALE_SYS_ABBR_LANG%, Novell Application Launcher copies the files to the appropriate language directory as determined by the workstation's system language setting.

For more information, see "Language Variable Macros" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Novell Application Launcher Configuration Settings

The following changes have been made to the Application Launcher configuration settings:

- **Unassociated Days to Uninstall (User and Workstation tabs):** The default for this setting has been changed from 0 (uninstall as soon as Novell Application Launcher is refreshed after the application has been disassociated from the user or workstation) to -1 (do not uninstall).
- **Auto-Start Application Launcher (User tab):** This setting applies only to pre-ZENworks 6.5 versions of Application Launcher. Beginning with ZENworks 6.5, this setting is replaced by the ability to designate a startup option in the ZENworks Desktop Management Agent installation program.
- **Enable Reading from Removable Cache (User tab):** This setting was previously labeled as "Disable Reading from the Cache" in ZENworks for Desktops 3.*x*. Administrators upgrading from ZENworks for Desktops 3.*x* to ZENworks 6.5 Desktop Management will notice the renaming, and that and when their ZENworks system is upgraded, a version 3.2 setting of "Yes" retains the "Yes" setting in version 6.5. After the upgrade, this retained setting actually inverts the setting's original behavior. That is, a Yes setting to disable reading the cache becomes a Yes setting to enable reading the cache.

  In an upgrade from ZENworks 3.*x* to ZENworks 6.5*x*, we recommend that you return the value to the default (unset) to ensure consistent behavior between the old and new ZENworks code.

  NOTE: The option label was first changed with ZENworks for Desktops 4.
- **Close Application Launcher on Exit (Browser tab):** This setting applies only to pre-ZENworks 6.5 versions of Application Launcher. Beginning with ZENworks 6.5, Application Launcher does not use this setting. Instead, it keeps track of the number of times it has been called and shuts down only after the last view (Application Explorer, Application Window, or Application Browser) is exited.
- **Enable Writing to Cache (Workstation tab):** This setting has been added to the Workstation tab. Previously, it was only available for users.

For more information, see "Novell Application Launcher: Configuring Settings" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Workstation Imaging

The following sections describe the changes to Workstation Imaging functionality in ZENworks 6.5:

- "Splitting a Workstation Image" on page 190
- "New Graphical User Interface for Image Explorer (Imgexp.exe)" on page 190

- "New Graphical User Interface for the ZENworks Imaging Windows Agent (Ziswin.exe)" on page 190

Splitting a Workstation Image

You can split an image file into separate files so that you can span the entire image across several CDs or DVDs.

For more information, see "Splitting a Workstation Image" in "Workstation Imaging" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New Graphical User Interface for Image Explorer (Imgexp.exe)

You can use the Image Explorer utility at a Windows workstation to view or customize workstation images or to create add-on images. A new graphical user interface has been developed for Desktop Management 6.5.

For more information, see "Image Explorer (imgexp.exe)" in "Workstation Imaging" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New Graphical User Interface for the ZENworks Imaging Windows Agent (Ziswin.exe)

When you install the ZENworks Imaging Windows Agent (ziswin) on an existing Windows workstation, it saves certain workstation-unique data (IP address, computer name, etc.) to an area on the hard disk that is safe from reimaging. A new graphical user interface has been developed for Desktop Management 6.5.

For more information, see "ZENworks Imaging Windows Agent (Ziswin.exe)" in "Workstation Imaging" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Remote Management

Remote Management in ZENworks 6.5 provides the following new features:

- "Agent-Initiated Connection" on page 190
- "Scale To Fit" on page 191
- "Block Mouse Movements To Agent" on page 191
- "Force 256 Color Palette" on page 191
- "Session Encryption" on page 191

Agent-Initiated Connection

The Agent-Initiated Connection feature provides an option to the user at the managed workstation to send a request to the Remote Operator for Remote Control or Remote View. This feature is particularly useful if the managed machine is behind a private network and cannot be directly accessed from the management console.

For more information, see "Initiating Remote Management Session from the Remote Management Agent" in "Remote Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Scale To Fit

The Scale To Fit feature enables you to hide the scroll bars and scale the Remote Management window to fit your screen. Click the on the toolbar.You can also use the Ctrl+Alt+G keys. For more information, see "Managing Remote Workstations" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*

Block Mouse Movements To Agent

This is a new option provided in the Control Parameters dialog box. You can select this option to block all the mouse movements to the Agent. For more information, see "Managing Remote Workstations" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Force 256 Color Palette

The Remote Management Agent now forces the use of 256-color palette on the managed workstation during a Remote Management session. This enhances the Remote Management performance over a slow link. For more information, see "Managing Remote Workstations" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Session Encryption

The Session Encryption feature provides a secure remote session between the management console and the Remote Management Agent. For more information, see "Managing Remote Workstations" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Workstation Inventory

Workstation Inventory in Novell ZENworks 6.5 Desktop Management provides the following new features:

- "Enhancements in the Inventory Scan of Software Data" on page 191
- "New Inventory Reports" on page 192
- "Support for the Inventory Database on Oracle 9i" on page 192
- "New Enhancements in the Inventory Scan of Hardware Data" on page 192
- "Exporting the Inventory Data to an XML File" on page 192
- "New User-Friendly Nomenclature for eDirectory Objects" on page 193

Enhancements in the Inventory Scan of Software Data

The Inventory scanner has been enhanced with the following features, which enables you to control the scanning process more effectively and efficiently:

- It supports scanning for the following software inventory information:
  - Windows* operating system and its patches
  - Internet Explorer and its patches
  - Windows Media Player and its patches
  - Outlook Express and its patches

- Novell Client32™ and its installed components
- ZENworks suite and its installed components
- Microsoft* Office and its installed applications
- Antivirus products such as Symantec* AntiVirus* Corporate Edition and Network Associates* McAfee* VirusScan*
- Virus definition date and version for the antivirus products such as Symantec AntiVirus Corporate Edition and McAfee VirusScan

- It supports scanning for the products listed in the Windows Add/Remove Programs and the MSI database.
- Includes dictionary of software titles to provide more accurate report of Installed software.
- Provides rules to control the scope of software scan.
- Reports total disk usage against configured file extensions.

For more information, see "Customizing the Software Inventory Information To Be Scanned For ZENworks 6.5 or ZENworks 6.5 Support Packs Inventoried Workstations" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New Inventory Reports

Workstation Inventory provides new software Inventory reports.

The Inventory reports that shipped with ZENworks for Desktops 4.0.1 and the new reports in the ZENworks 6.5 Desktop Management have been regrouped.

For more information, see "Types of Inventory Reports" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Support for the Inventory Database on Oracle 9i

ZENworks 6.5 allows the Inventory database to be configured for Oracle 9i on Windows servers in your network.

For more information, see "Creating the Oracle9i Inventory Database on a Windows Server" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New Enhancements in the Inventory Scan of Hardware Data

Workstation Inventory now supports scanning for monitors.

For more information, see "Customizing the Hardware Information for Monitor's Size" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Exporting the Inventory Data to an XML File

Workstation Inventory allows you to export the inventory data from the Inventory database into an Extensible Markup Language (.xml) file by using the Data Export tool.

For more information, see "Exporting the Inventory Information" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

New User-Friendly Nomenclature for eDirectory Objects

The nomenclature of the following eDirectory objects has been changed:

- In ConsoleOne, the Inventory Service object name is displayed as Inventory Service_*server_name* instead of *server_name*_InvService.
- In ConsoleOne, the Inventory Database object name is displayed as Inventory database_*server_name* instead of *server_name*_Invdatabase.

What's New in ZENworks 6.5 Desktop Management Support Pack 1

In addition to the code fixes that are part of any ZENworks Support Pack, ZENworks 6.5 Desktop Management SP1 includes the following new or enhanced items:

- "Modified Installation" on page 193
- "Desktop Management Agent Distributor Enhancements" on page 193
- "Support for Windows XP Service Pack 2" on page 194
- "Workstation Management Enhancements" on page 194
- "Application Management Enhancements" on page 194
- "Workstation Imaging Enhancements" on page 195
- "Remote Management Enhancements" on page 195
- "Workstation Inventory Enhancements" on page 195

Modified Installation

The Support Pack 1 installation program is modeled after the original ZENworks 6.5 installation program, but some of the original options are not available. The program scans for an existing ZENworks 6.5 Desktop Management installation on servers you designate for the upgrade. Only previously installed 6.5 Desktop Management components are eligible for the upgrade. For more information, see Chapter 22, "Upgrading to ZENworks 6.5 Desktop Management Support Pack 1," on page 275.

Desktop Management Agent Distributor Enhancements

The Desktop Management Agent Distributor in Support Pack 1 has been enhanced to allow distribution of the Desktop Management Agent from a Windows workstation that is a member of a Windows workgroup to other workstations that are members of the same workgroup. The administrator can specify the IP addresses of the target Windows workstations where he or she wants to push the Desktop Management Agent.

For more information about this functionality of the distributor, see "Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup" on page 107.

Support for Windows XP Service Pack 2

ZENworks 6.5 Desktop Management Support Pack 1 supports workstations using Windows XP Service Pack 2. ZENworks components have been tested on workstations running this operating system.

Workstation Management Enhancements

Workstation Management in ZENworks 6.5 Desktop Management SP1 provides the following new features or enhancements:

- "Windows XP SP2 and ZENworks 6.5 Windows Group Policies" on page 194

Windows XP SP2 and ZENworks 6.5 Windows Group Policies

New functionality has been added to ZENworks 6.5 SP1 to check the operating system version and support pack level while editing group policies. For more information, see "Windows XP SP2 and ZENworks 6.5 Windows Group Policies" under "ZENworks Windows Group Policy (User and Workstation Packages)" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Application Management Enhancements

Application Management in ZENworks 6.5 Desktop Management SP1 provides the following new features or enhancements:

- "Support Added for Recognition of the Fourth Component of an OS Version" on page 194
- "Including Subdirectories When Copying a Directory to a Workstation" on page 194
- "Understanding File System Rights to the NAL Cache in ZENworks 6.5 and in ZENworks 6.5 Support Pack 1 (SP1)" on page 195
- "Terminal Server Requirements" on page 195

Support Added for Recognition of the Fourth Component of an OS Version

Windows XP SP2 adds a fourth component to a Windows Operating System version (for example 5.1.1287.*1120*). ZENworks 6.5 SP1 Application Management now supports this fourth component.

For older applications with only three components in an Operating System version, ZENworks Desktop Management adds a zero (0) in the fourth component position. When the legacy requirement setting is imported into the distribution rules, ZENworks changes the fourth number from a 0 (zero) to a wildcard value, or "x." This functionality creates a potential issue if you want to perform an Equal to: = compare operation in an Operating System version distribution rule — when the wildcard value does not exactly match the specified value in the fourth component.

Including Subdirectories When Copying a Directory to a Workstation

New functionality has been added so that you can specify whether to include subdirectories when you copy a directory to a workstation. For more information, see the Add > Directory section in "Application Files" under "Distribution Options Tab" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Understanding File System Rights to the NAL Cache in ZENworks 6.5 and in ZENworks 6.5 Support Pack 1 (SP1)

Because of changes in ZENworks 6.5 Support Pack 1 (SP1) to provide improved security, the way that ZENworks assigns file system rights to the NAL cache directory has changed. For more information, see "Understanding File System Rights to the NAL Cache in ZENworks 6.5 and in ZENworks 6.5 Support Pack 1 (SP1)" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Terminal Server Requirements

ZENworks 6.5 SP1 supports Citrix* Secure Access Manager 2.2.

Workstation Imaging Enhancements

ZENworks 6.5 Desktop Management Workstation Imaging did not support Workstation Imaging in a Novell Cluster Services, but Support Pack 1 now supports Workstation Imaging using Preboot Services.

For more information, see "Configuring ZENworks 6.5 Workstation Imaging in a ZENworks Support Pack for a Novell Cluster Services Environment" on page 385 of this guide.

Remote Management Enhancements

Remote Management in ZENworks 6.5 Desktop Management SP1 provides the following new features or enhancements:

- "Installing Remote Management in a Cluster" on page 195

Installing Remote Management in a Cluster

You can now install Remote Management in a Novell Clustering Services environment. For more information, see "Installing in a Novell Cluster Services Environment" on page 367.

Workstation Inventory Enhancements

Workstation Inventory in ZENworks 6.5 Desktop Management SP1 provides the following new features or enhancements:

- "Installing Workstation Inventory in a Cluster" on page 195
- "Enhancements to the Software Dictionary" on page 195
- "Scanning New AntiVirus Products" on page 196
- "Retrieving Inventory Information from the Inventory Database Without Using the CIM Schema" on page 197

Installing Workstation Inventory in a Cluster

You can now install Workstation Inventory in a Novell Clustering Services environment. For more information, see "Installing in a Novell Cluster Services Environment" on page 367.

Enhancements to the Software Dictionary

Following enhancements have been made to the ZENworks software dictionary:

- The software dictionary snap-ins are more intuitive and user-friendly.
- If you do not want the Inventory scanner to use the File-Software mapping rules that are configured by default in the ZENworks software dictionary for scanning software inventory information, you can disable them by using the "Ignore Default File-Software Mapping Rules" option.
- The Dictionary Consumer now merges the software dictionary rules that are configured at the top-level inventory server on the basis of the Dictionary Update policy settings. These rules are called inherited rules. The rules cannot be edited or deleted.

For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Scanning New AntiVirus Products

The inventory scanner now collects information about the latest virus definition date and version that are installed on the inventoried servers for the following product versions:

Symantec AntiVirus Corporate Edition 8.0
Norton* AntiVirus* Corporate Edition for Windows 7.0
Norton AntiVirus Corporate Edition 7.6.1.0000
Symantec Norton AntiVirus 2000
Symantec Norton Internet Security 2002
Symantec Norton AntiVirus 2003 (9.00)
Symantec Norton AntiVirus 2003 Professional Edition (9.00)
Symantec Norton AntiVirus 2004 (10.00)
Symantec Norton Internet Security 2004 (10.00)
Symantec Norton AntiVirus 2004 Professional (10.00)
Symantec Norton Internet Security 2004 Professional (10.00)
Symantec Norton AntiVirus 2005 Professional (11.00)
Symantec Norton Internet Security 2005 Professional (11.00)
Network Associates* McAfee VirusScan 4.0.3 (Windows 9*x*)
Network Associates McAfee VirusScan NT 4.0.3a (Windows NT)
Network Associates McAfee NetShield 4.5.0
Network Associates McAfee VirusScan 4.5.0
Network Associates McAfee VirusScan 4.5.1
Network Associates McAfee VirusScan (McAfee Security Center) 8.0
Network Associates McAfee VirusScan ASaP
Network Associates McAfee VirusScan Enterprise 7.1
Network Associates McAfee VirusScan Enterprise 8.0
Central Command* Vexira* AntiVirus Guard for Windows XP (2000 + NT) 2.10
Central Command Vexira AntiVirus Windows 95/98
Central Command Vexira AntiVirus NT/2000 Servers
Central Command Vexira AntiVirus Server Edition (6.26.*xx*.*xx*)
Sophos Anti-Virus - Windows NT/2000/XP/2003
Sophos Anti-Virus - Windows 95/98
Trend Micro* PC-cillin 2002* (9.*x*)
Trend Micro PC-cillin 2003 (10.*x*)
Trend Micro Internet Security 11.*x* (PC-cillin)

Trend Micro Internet Security 2005 12.*x* (PC-cillin)
Trend Micro Server Protect 5.*xx*
Trend Micro OfficeScan* 5.*xx* - Client for Windows NT/2000/XP
Trend Micro OfficeScan 5.*xx* - Client for Windows 9*x*

Retrieving Inventory Information from the Inventory Database Without Using the CIM Schema

ZENworks 6.5 Desktop Management SP1 provides easy-to-use views that allow you to retrieve inventory information from the Inventory database without using the CIM schema. These views are predefined device-specific views that are automatically created in the Inventory database after you install the Workstation Inventory component of ZENworks 6.5 Desktop Management SP1.

For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Installing Workstation Inventory in a Cluster

You can now install Workstation Inventory in a Novell Clustering Services environment. For more information, see "Installing in a Novell Cluster Services Environment" on page 367.

Enhancements to the Software Dictionary

Following enhancements have been made to the ZENworks software dictionary:

- The software dictionary snap-ins are more intuitive and user-friendly.
- If you do not want the Inventory scanner to use the File-Software mapping rules that are configured by default in the ZENworks software dictionary for scanning software inventory information, you can disable them by using the "Ignore Default File-Software Mapping Rules" option.
- The Dictionary Consumer now merges the software dictionary rules that are configured at the top-level inventory server on the basis of the Dictionary Update policy settings. These rules are called inherited rules. The rules cannot be edited or deleted.

For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Scanning New AntiVirus Products

The inventory scanner now collects information about the latest virus definition date and version that are installed on the inventoried servers for the following product versions:

Symantec AntiVirus Corporate Edition 8.0
Norton* AntiVirus* Corporate Edition for Windows 7.0
Norton AntiVirus Corporate Edition 7.6.1.0000
Symantec Norton AntiVirus 2000
Symantec Norton Internet Security 2002
Symantec Norton AntiVirus 2003 (9.00)
Symantec Norton AntiVirus 2003 Professional Edition (9.00)
Symantec Norton AntiVirus 2004 (10.00)
Symantec Norton Internet Security 2004 (10.00)
Symantec Norton AntiVirus 2004 Professional (10.00)
Symantec Norton Internet Security 2004 Professional (10.00)

Symantec Norton AntiVirus 2005 Professional (11.00)
Symantec Norton Internet Security 2005 Professional (11.00)
Network Associates* McAfee VirusScan 4.0.3 (Windows 9*x*)
Network Associates McAfee VirusScan NT 4.0.3a (Windows NT)
Network Associates McAfee NetShield 4.5.0
Network Associates McAfee VirusScan 4.5.0
Network Associates McAfee VirusScan 4.5.1
Network Associates McAfee VirusScan (McAfee Security Center) 8.0
Network Associates McAfee VirusScan ASaP
Network Associates McAfee VirusScan Enterprise 7.1
Network Associates McAfee VirusScan Enterprise 8.0
Central Command* Vexira* AntiVirus Guard for Windows XP (2000 + NT) 2.10
Central Command Vexira AntiVirus Windows 95/98
Central Command Vexira AntiVirus NT/2000 Servers
Central Command Vexira AntiVirus Server Edition (6.26.*xx*.*xx*)
Sophos Anti-Virus - Windows NT/2000/XP/2003
Sophos Anti-Virus - Windows 95/98
Trend Micro* PC-cillin 2002* (9.*x*)
Trend Micro PC-cillin 2003 (10.*x*)
Trend Micro Internet Security 11.*x* (PC-cillin)
Trend Micro Internet Security 2005 12.*x* (PC-cillin)
Trend Micro Server Protect 5.*xx*
Trend Micro OfficeScan* 5.*xx* - Client for Windows NT/2000/XP
Trend Micro OfficeScan 5.*xx* - Client for Windows 9*x*

Retrieving Inventory Information from the Inventory Database Without Using the CIM Schema

ZENworks 6.5 Desktop Management SP1 provides easy-to-use views that allow you to retrieve inventory information from the Inventory database without using the CIM schema. These views are predefined device-specific views that are automatically created in the Inventory database after you install the Workstation Inventory component of ZENworks 6.5 Desktop Management SP1.

For more information, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

What's New in ZENworks 6.5 Desktop Management Support Pack 2

In addition to the issues that are fixed in ZENworks 6.5 Desktop Management Support Pack 2 (SP2), some software enhancements have been made. Information about those enhancements is included in the following sections:

- "Support for Tablet PC As a Managed Device" on page 199
- "Support Added for New Server Platforms" on page 199
- "Updated SUSE LINUX Kernel for Workstation Imaging" on page 199
- "Workstation Inventory Enhancements" on page 199

Support for Tablet PC As a Managed Device

Support Pack 2 includes support for the Windows XP Tablet Edition operating system, making it possible for ZENworks to manage tablet PC devices.

Support Added for New Server Platforms

ZENworks 6.5 Desktop Management SP2 includes support for ZENworks installation and administration on the following server platforms:

- OES NetWare
- OES NetWare Support Pack 1
- NetWare 6.5 SP4
- Windows 2003 Service Pack 1

Updated SUSE LINUX Kernel for Workstation Imaging

The SUSE® Linux* kernel (2.6.5) has been added to enhance Workstation Imaging. This new kernel provides a wider array of hardware and network card support than previous releases of ZENworks.

The addition of this new kernel has necessitated revising the ZENworks Imaging Floppy Boot Disk Creator utility (zimgboot.exe) for use in Workstation Imaging. The following functions are removed from the utility with ZENworks 6.5 SP2:

- Creating the five imaging boot diskettes
- Creating a language diskette
- Adding Linux drivers

For more information, see "Using the ZENworks Imaging Floppy Boot Disk Creator Utility" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Workstation Inventory Enhancements

Workstation Inventory in ZENworks 6.5 Desktop Management SP2 provides the following new feature:

- "Setting Up the Oracle9i Inventory Database on a UNIX Server" on page 199

Setting Up the Oracle9i Inventory Database on a UNIX Server

You can now set up the Oracle9i Inventory database on a UNIX server. For detailed information, see "Creating the Oracle9i Inventory Database on a UNIX Server""Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

18 Upgrading from ZENworks for Desktops 3.2 SP3

The following sections outline the procedures that you should follow to ensure a successful upgrade from Novell® ZENworks® for Desktops (ZfD) 3.2 SP3 to ZENworks 6.5 Desktop Management. You should perform them in the following order:

1. “Meeting the ZENworks 6.5 Installation Prerequisites” on page 201
2. “Checking eDirectory” on page 201
3. “Extending the eDirectory Schema” on page 202
4. “Upgrading ConsoleOne” on page 203
5. “Upgrading ZENworks for Desktops 3.2 SP3 Servers” on page 204
6. “Installing the ZENworks 6.5 Middle Tier Server” on page 223
7. “Upgrading Managed Workstations” on page 223

Meeting the ZENworks 6.5 Installation Prerequisites

Ensure that the workstations and servers on your network meet the necessary prerequisites. For more information, see “Preparation” on page 29.

Checking eDirectory

You need to check the health of your Novell eDirectory® tree both before and after you install ZENworks 6.5 Desktop Management and extend the directory schema with Desktop Management attributes. The following resources provide the information required to perform the health check:

- Directory Health Check Procedures - Cross Platform, TID 10060600, available in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).
- Checking the OS and DS Health for Inconsistent ZENworks behavior, TID 10062741 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).
- eDirectory Cool Solutions (http://www.novell.com/coolsolutions/nds)

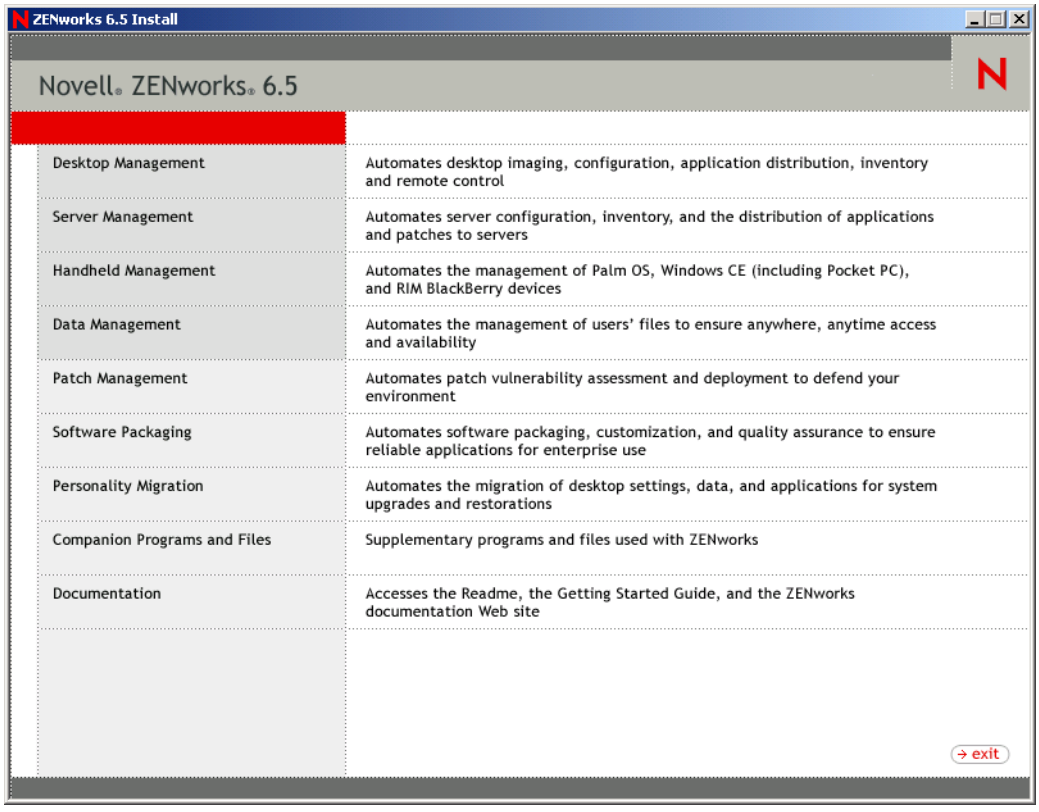
Extending the eDirectory Schema

The ZENworks 6.5 Desktop Management installation program extends the eDirectory schema to allow the creation of new types of directory objects. Schema extension is not a reversible process.

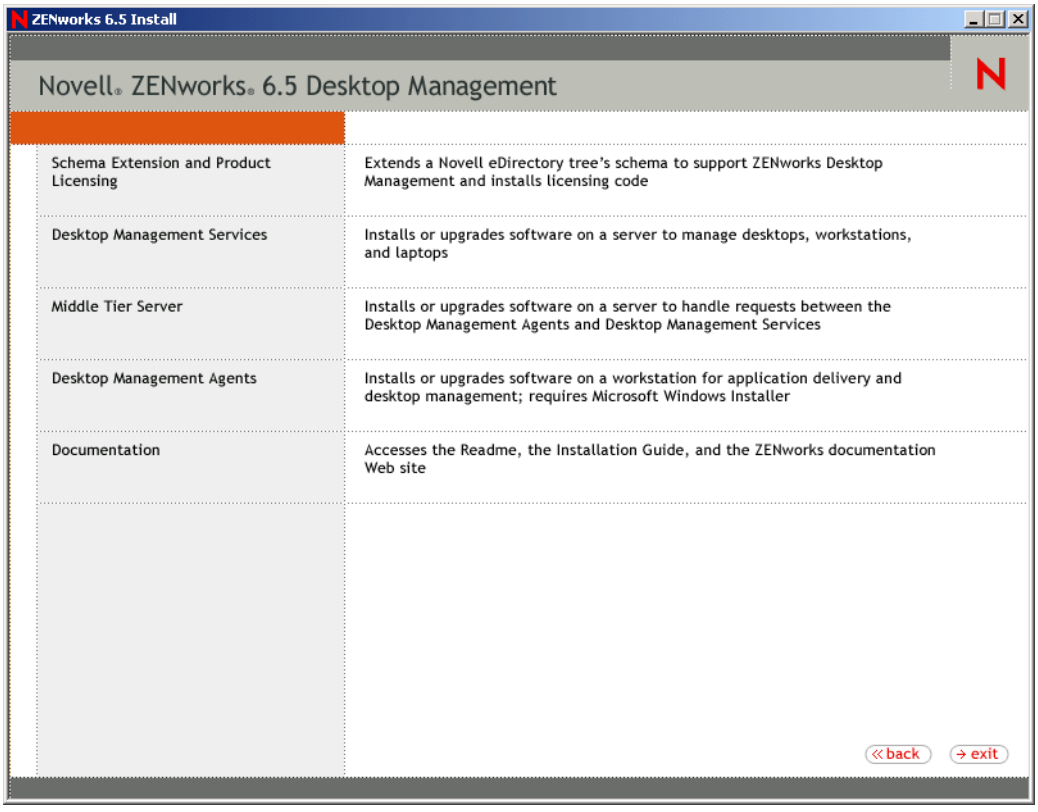
You must run the ZENworks 6.5 Desktop Management installation on a workstation that has a supported version of Windows and the Novell Client (see Chapter 3, "Preparing the Workstation or Server Where You Will Install or Administer ZENworks," on page 31).

1. From the installing workstation, authenticate to eDirectory as a user with administrative rights to the eDirectory tree whose schema will be extended.
2. Insert the *Novell ZENworks 6.5 Desktop Management* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, you can launch winsetup.exe from the root of the CD.



3. Select Desktop Management, then select English to display the ZENworks 6.5 Desktop Management page.



4. Select Schema Extensions and Product Licensing to launch the schema extension program.
5. In the Software License Agreement dialog box, select Accept, then click Next.
6. In the eDirectory Tree for Creating Objects dialog box, select the tree whose schema you want to extend, then click Next.
7. In the ZENworks License dialog box, enter the license code provided with your ZENworks software, then click Next.

   If you do not have a license code, you can still install the ZENworks software. The full software is installed and you can use it for a 90-day evaluation period. At any time during or after the evaluation period, you can run the installation program again and use the Schema Extensions and Product Licensing option to enter a license code.
8. In the Installation Summary dialog box, click Finish to extend the schema.
9. (Optional) When the ZENworks Schema Extension completion dialog box appears, click View Log File to see the extensions that were applied.
10. In the ZENworks Schema Extension completion dialog box, click OK.
11. Perform an eDirectory health check (see "Checking eDirectory" on page 231).

Upgrading ConsoleOne

ZENworks 6.5 Desktop Management requires ConsoleOne® version 1.3.6 or later.

ZfD 3.2 SP3 required that ConsoleOne be installed on the ZfD 3.2 SP3 Server in order to install the ZfD 3.2 SP3 snap-ins to the server. If desired, you could then copy the ConsoleOne directory from the server to a workstation in order to run ConsoleOne from the workstation.

ZENworks 6.5 lets you install the Desktop Management snap-ins to both a ConsoleOne directory on the Desktop Management Server and a ConsoleOne directory on a local workstation. By default, the snap-ins are installed to the server when you upgrade it from 3.2 SP3 to 6.5.

As you upgrade ConsoleOne to version 1.3.6, you need to ensure that:

- You install it to all locations from which you want to administer ZENworks 6.5 Desktop Management.
- You keep at least one copy of a ConsoleOne installation that includes the ZfD 3.2 SP3 snap-ins. This enables you to continue to manage ZfD 3.2 SP3 during the upgrade process.

To perform a ConsoleOne upgrade:

1. (Optional) Make a copy of at least one ConsoleOne installation that includes the ZfD 3.2 SP3 snap-in.

   ConsoleOne 1.3.6 supports the ZfD 3.2 SP3 snap-ins. You have the option of making a copy of your current ConsoleOne with the snap-ins, waiting to make a copy of the ConsoleOne 1.3.6 installation with the snap-ins (see Step 3), or doing both.

   For example, if you have a ZfD 3.2 SP3 Server with ConsoleOne 1.3.2 and the ZfD 3.2 SP3 snap-ins located in the sys:\public\mgmt\consoleone\1.2 directory and you want to ensure that you retain a copy of that installation, create a sys:\public\mgmt\consoleone\zfd32 directory and copy all files and subdirectories from the 1.2 directory to the zfd32 directory.

2. Install ConsoleOne 1.3.6 to a local workstation or to a ZfD 3.2 SP3 Server. To do so:

   2a. Insert the *Novell ZENworks 6.5 Companion 1* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, launch winsetup.exe from the root of the CD.

   2b. Select Companion Programs and Files.

   2c. Select Novell ConsoleOne to launch the ConsoleOne 1.3.6 installation program.

   2d. Follow the prompts to install ConsoleOne to the ...\consoleone\1.2 directory.

   When installation is complete, the ...\consoleone\1.2 directory contains ConsoleOne 1.3.6. If you installed ConsoleOne to a location that contains the ZfD 3.2 SP3 snap-ins, the 3.2 SP3 snap-ins still function.

3. (Optional) If you want to retain a copy of ConsoleOne 1.3.6 with the ZfD 3.2 SP3 snap-ins, copy the installation you created in Step 2 to another location.

Upgrading ZENworks for Desktops 3.2 SP3 Servers

You upgrade your ZfD 3.2 SP3 Servers by using the ZENworks 6.5 Desktop Management Server installation program.

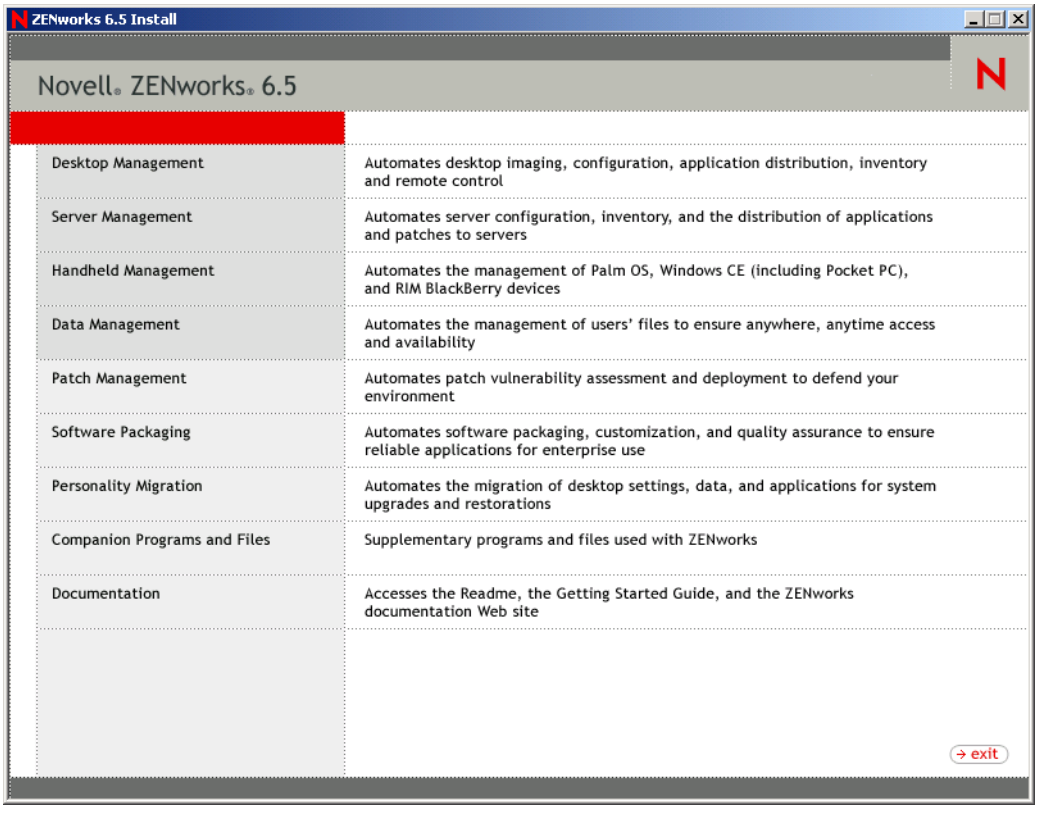
The upgrade process for the Application Management, Workstation Management, Remote Management, and Workstation Imaging components is fairly simple and includes few issues you need to plan for as you upgrade.

An upgrade installation is identical to a new installation. The following steps provide only the information you need to launch the installation program and make choices specific to upgrading. For more detailed installation information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

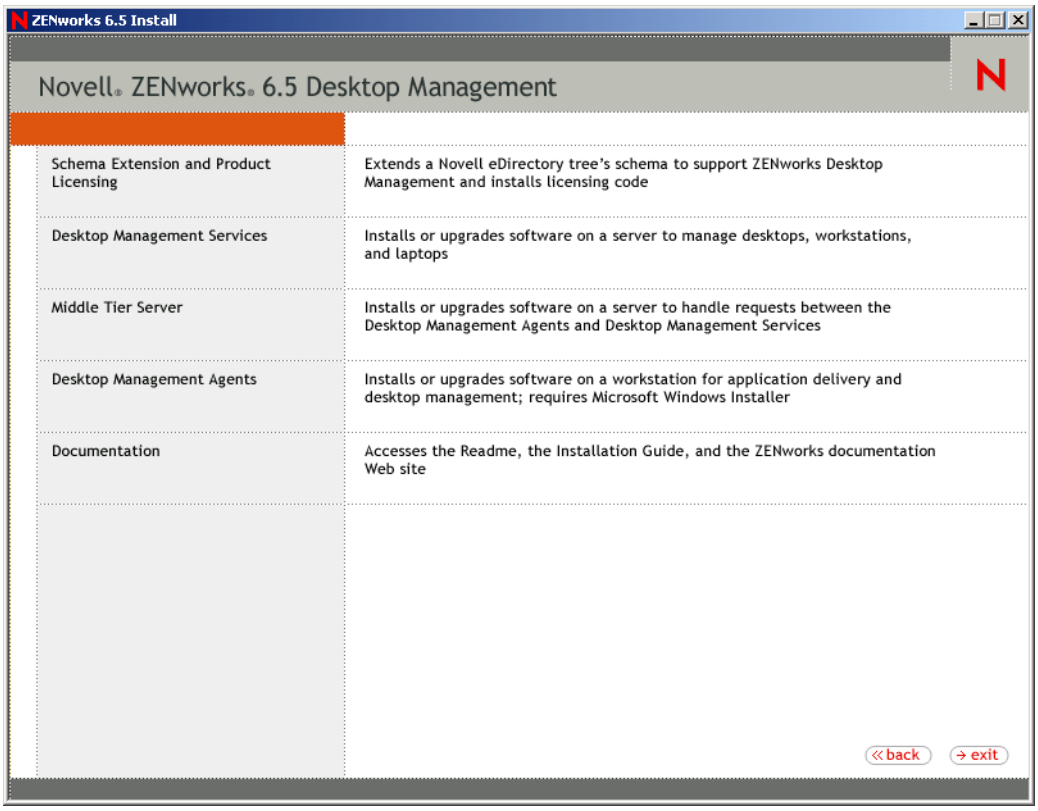
1 From the installing workstation, authenticate to eDirectory as a user with administrative rights to the eDirectory tree whose schema you extended for ZENworks 6.5 (see "Extending the eDirectory Schema" on page 202).

2 Insert the *Novell ZENworks 6.5 Desktop Management* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

If the installation program does not autorun, launch winsetup.exe from the root of the CD.

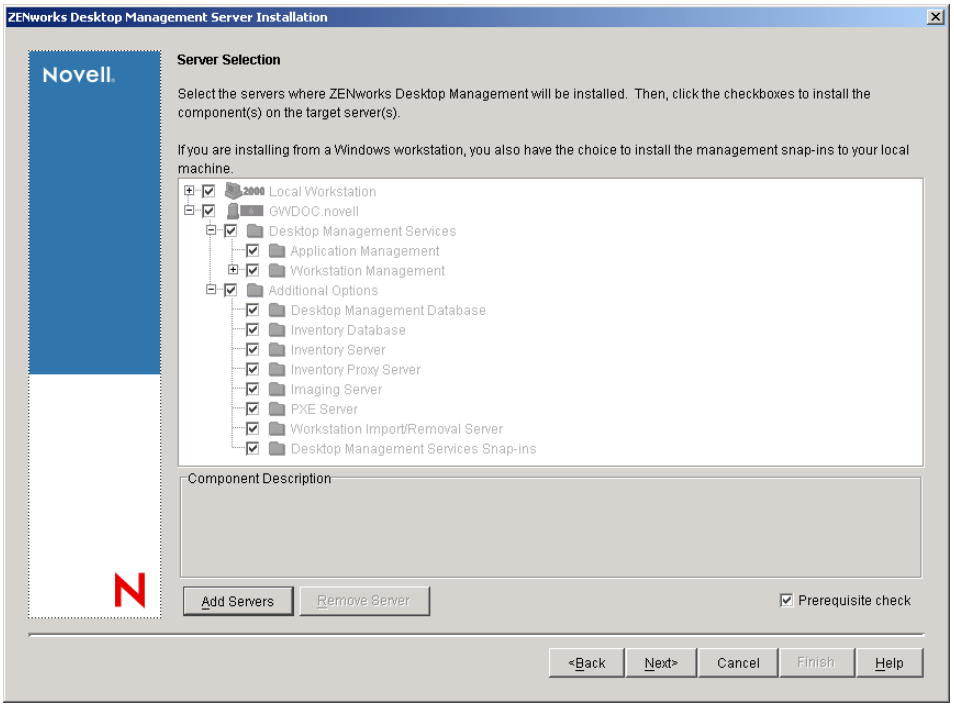


3 Select Desktop Management, the select English to display the ZENworks 6.5 Desktop Management page.



4 Select Desktop Management Services to launch the ZENworks Desktop Management Server installation program.

5 Follow the prompts until you've added the servers you want to upgrade and the Server Selection page is still displayed, as shown below.



6 Deselect any components you don't want installed to the server.

For example, because you are not upgrading Workstation Inventory, deselect Inventory Database, Inventory Server, and Inventory Proxy Server. Select a component to display a description in the Component Description box.

7 (Optional) If you don't want the installation program to check the target servers to ensure that they meet the ZENworks 6.5 prerequisites, deselect the Prerequisite Check option.

With the Prerequisite Check option selected, if a target server does not meet the prerequisites, installation does not occur on that server until you upgrade the server or rerun the installation program with the option deselected.

8 Click Next, then follow the remaining prompts to install the software.

9 Review the information in the following sections to complete the upgrade process:

- "Completing the Application Management Upgrade" on page 207
- "Completing the Workstation Management Upgrade" on page 211
- "Completing the Workstation Imaging Upgrade" on page 213
- "Completing the Remote Management Upgrade" on page 214
- "Completing the Workstation Inventory Upgrade" on page 214

Completing the Application Management Upgrade

The following sections provide information to help you complete your upgrade of the Application Management component of ZENworks Desktop Management:

- "Updating the Application Launcher Startup Method" on page 207
- "Updating Applications" on page 209
- "Transitioning from System Requirements to Distribution Rules" on page 209

Updating the Application Launcher Startup Method

When you upgrade the ZENworks 3.2 Server to the ZENworks 6.5 Desktop Management Server, nalexpld.exe and nal.exe are updated to launch naldesk or nalwin32 from the local directory where the Desktop Management Agent was installed. This change affects ZENworks for Desktops 3.2 SP3 workstations using the Novell Client that have not been updated with the ZENworks 6.5 Desktop Management Agent.

Until you can update the ZENworks for Desktops 3.2 SP3 workstations, you need to make sure that users are able to access the old Application Launcher. There are solutions for two scenarios:

- "If Users Access the Application Launcher When Connected to the Network" on page 207
- "If Users Access the Application Launcher When Disconnected from the Network" on page 209

If Users Access the Application Launcher When Connected to the Network

If your users primarily access the Novell Application Launcher while connected to the network, you might want to continue using the client login script to start the Application Launcher. One way of checking the workstation for updated ZENworks 6.5 Desktop Management files is to use the exist.exe tool to check c:\program_files\novell\zenworks for the existence of nalwin32.exe or naldesk.exe.

NOTE: The exist.exe tool can be downloaded from the Novell ZENworks Cool Solutions page (http://www.novell.com/coolsolutions/tools/1067.html). Run this tool from a login or application startup script to check for the presence of any file you specify. If the specified file is detected, the .exe returns ERROR_LEVEL of zero (0).

When you have downloaded exist.exe, edit your login scripts to put in a check to run ZENworks for Desktops 3.2 Novell Application Launcher locally, from the server, or to let the ZENworks 6.5 version run. These lines must be after the sys:\public directory is added to the search path or the exist.exe must have the full path specified. You need to modify the following (or an equivalent) line:

```
@z:\nalwin32.exe
```

This is how you need to modify the line:

```
; First check to see if the ZENworks 6.5 agent is present. If so, then you don't need
; to do anything; it will be launched automatically on the desktop.
#exist %<windir>\..\Program Files\Novell\Zenworks\naldesk.exe
; If the ZENworks 6.5 agent is NOT present, then keep checking
if "%ERRORLEVEL"!="0" then
; Check now to see if the ZfD 3.x App Launcher has been placed on the workstation
#exist %<windir>\system32\nalwin32.exe
; If the ZfD 3.x App Launcher has NOT been placed on the workstation then
; go and launch the App Launcher from the server.
if "%ERRORLEVEL"!="0" then
; Check our Windows 95 friends
#exist %<windir>\..\novell\client32\nalwin32.exe
if "%ERRORLEVEL"!="0" then
@z:\ZfD32NAL\nalwin32.exe
else
@%<windir>\..\novell\client32\nalwin32.exe
end
else
@%<windir>\system32\nalwin32.exe
end
end
```

This script change will launch Application Launcher in one of three ways:

- From the workstation copy of the ZENworks 6.5 Desktop Management Agent (it will automatically start, so it does not need to be launched from the login script)
- From a local copy of the ZENworks for Desktops 3.2 Application Launcher code, if it is present
- From the server if the ZENworks 6.5 Agent and the local ZENworks for Desktops 3.2 Application Launcher code are not on the workstation.

The only difference in launching the ZENworks for Desktops 3.2 files locally rather than from the server is that if you start the Application Launcher locally, updated ZENworks for Desktops 3.2 Application Launcher files on the server are not pushed to the workstation. During a migration period, this is usually not necessary, but if it does become necessary, you can use an Application Launcher /i command line switch in a Policy package to update the local ZENworks for Desktops 3.2 Application Launcher files. For more information, see the *ZENworks for Desktops 3.2 Administration Guide* in ZENworks for Desktops 3.2 archived documentation (http://www.novell.com/documentation/lg/zdfs/index.html).

NOTE: If your network environment contains shared workstations, you should edit all of the login scripts at the same time, regardless of when the container, partition, or site is upgraded to ZENworks 6.5. This will prevent shared workstations from having old Application Launcher files distributed to them.

If Users Access the Application Launcher When Disconnected from the Network

If your users are often disconnected from the network, you can start the Application Launcher by specifying in the ZENworks 6.5 Desktop Management Agent installation that the Application Launcher or the Application Explorer should be launched from the Startup Folder. Although this is the simplest method, command line parameters cannot be added to the shortcut and users sometimes remove items from the Startup folder.

If you want to specify command line parameters, you can start the Application Launcher by editing the Windows registry and adding NALWIN32 or NALDESK to the HKLM\Software\Microsoft\Windows\CurrentVersion\Run key.

Updating Applications

You should prepare your applications to move to ZENworks 6.5 Desktop Management. With ZENworks 6.5 Desktop management you need to decide if you are going to continue to have the Novell Client installed on your workstations or if you are moving to Desktop Management feature delivery through the ZENworks Middle Tier Server.

If you are going to continue to use the Novell Client, application objects require no changes in order to function in the new Desktop Management environment. You will, however, be required to install the Desktop Management Agent in order to update the ZENworks functionality of the Novell Client.

If you plan to deploy the Desktop Management Agent without the Novell Client on the workstation, see Chapter 10, “Installing and Configuring the Desktop Management Agent,” on page 91.

Any MSI applications to be delivered outside the corporate firewall must be marked Forced Cache. The Microsoft MSI installer is not aware of the ZENworks Middle Tier Server and cannot properly request applications through the browser; consequently, all of the files must be cached on the local workstation prior to installation.

Transitioning from System Requirements to Distribution Rules

The System Requirements feature used to help define ZfD 3.2 SP3 application distribution has been renamed to Distribution Rules to better reflect the enhanced functionality and to differentiate it from the old system requirements. ZENworks 6.5 Distribution Rules support more flexible distribution conditions through the use of AND/OR Boolean operators and groupings of requirements. In ZfD 3.2 SP3, the AND operator was used for all system requirements and there was no ability to group requirements.

Only ZENworks 6.5 (or later) versions of Novell Application Launcher™ have the ability to process the new operator logic and groupings used with the distribution rules. Therefore, to maintain backwards compatibility with the ZfD 3.2 SP3 Application Launcher, existing system requirements are retained as legacy system requirements during upgrading of your eDirectory tree’s schema. Both the ZfD 3.2 SP3 Application Launcher and the ZENworks 6.5 Application Launcher can process the legacy stem requirements, which means that applications with legacy system requirements continue to be available to users regardless of which Application Launcher version they are using.

As you transition from using legacy system requirements to using distribution rules, you need to be aware of the following:

- Distribution rules are defined on the Application object’s Distribution Rules page (Application object > Availability tab > Distribution Rules page).

- Legacy system requirements are available from the Distribution Rules page by clicking the Legacy button, then clicking Edit Legacy Settings. You can use this option to edit existing legacy system requirements or add new system legacy requirements (for example, if you create a new Application object that you want available on workstations running the ZfD 3.2 SP3 Application Launcher.
- When you access the Distribution Rules page for an application that has legacy system requirements but no distribution rules, you are prompted to import the requirements into the distribution rules. If you choose not to import them, you can import them later by using the Import Legacy Settings option on the Distribution Rules page.
- After you import legacy system requirements into distribution rules or manually define distribution rules, the ZENworks 6.5 Application Launcher processes only the distribution rules. It ignores the legacy system requirements. The ZfD 3.2 SP3 Application Launcher, however, continues to process the legacy system requirements because it does not know about the new distribution rules. Therefore, if you want to use distribution rules but still have workstations running the ZfD 3.2 SP3 Application Launcher, you need to maintain both a distribution rules list and a legacy system requirements list.
- Changes you make to distribution rules are not added to the legacy system requirements. Likewise, changes you make to legacy system requirements are not added to the distribution rules.
- If you define distribution rules and then import legacy system rules, your existing distribution rules are overwritten by the legacy system rules.
- The requirement for an operating system to be defined before an application is available has been removed. In ZfD 3.2 SP3, an OS platform had to be defined in System Requirements before an application would be available for distribution and launching. This requirement has been removed. The new behavior uses the following logic: If an application runs only on a specific operating system, define an operating system distribution rule. If an application does not require a specific operating system, there is no need to define a distribution rule. By default, applications without a defined operating system distribution rule are available on all supported platforms (Windows 98, Windows 2000, and Windows XP).

Keeping the above listed details in mind, we recommend the following process to ensure a smooth transition from system requirements to distribution rules:

1. For each Application object, import the legacy system rules into distribution rules. Modify the rules as desired.
2. Retain the legacy system requirements to support workstations using ZfD 3.2 SP3 Application Launcher.
3. If an application's distribution conditions change, modify both the distribution rules and the legacy system requirements to ensure that both the ZENworks 6.5 and ZfD 3.2 SP3 Application Launcher enforce the distribution condition.
4. After all workstations are upgraded to the ZENworks 6.5 Application Launcher (see "Upgrading Workstations" on page 255), remove the legacy system requirements.

   or

   If you are supporting Windows NT 4.0 workstations in your environment by continuing to run the ZfD 3.2 SP3 Desktop Management Agent on the workstations, do not remove the legacy system requirements. You will need to keep both the legacy system requirements and distribution rules.

For more information about distribution rules and legacy system requirements, see "Distribution Rules Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Completing the Workstation Management Upgrade

When you first install ZENworks 6.5 Desktop Management into your eDirectory tree, additional ZENworks 6.5 Desktop Management policy schemas are placed there. Existing ZENworks for Desktops 3.2 SP3 policies are automatically migrated into your tree when new ZENworks 6.5 Desktop Management policies are created.

The following sections provide information to help you complete your upgrade of the Workstation Management component of ZENworks Desktop Management:

- "Updating Search Policies" on page 211
- "Additional Information about Upgrading Policies" on page 213

Updating Search Policies

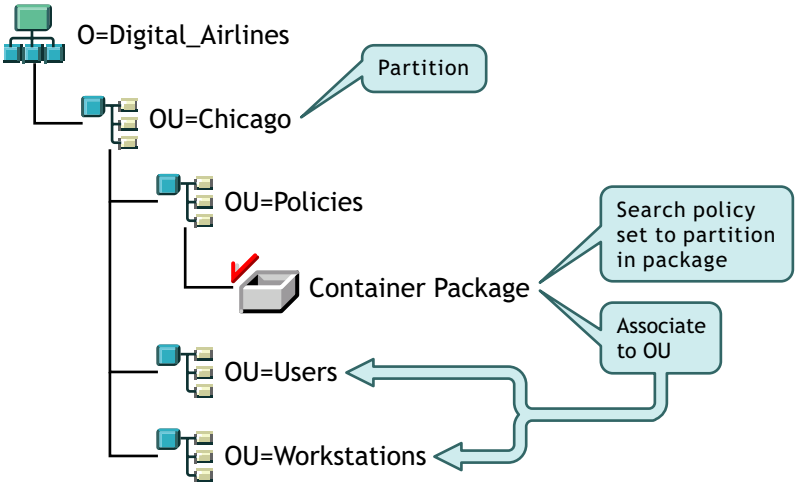
Examine eDirectory to see if there are any Search policies in the tree. Search policies, part of the Container Package, are very important because they keep ZENworks agents from walking to the root to find policies and configuration information.

If the tree does not have a Search policy, you need to create a new ZENworks 6.5 Desktop Management Search policy to ensure optimal performance of the ZENworks agents. There are some policy behaviors that you need to consider:

- If you plan to authenticate using only the Novell Client in your network environment, the search policy functions the same way as a ZENworks for Desktops 3.2 SP3 Search policy.
- If you plan to use the ZENworks Middle Tier Server and run the Desktop Management Agent on workstations without the Novell Client, the behavior of the search policies might change when you upgrade the network.

Unlike ZENworks for Desktops 3.2 agents, ZENworks 6.5 agents do not recognize the partition boundary of a container. Consequently, if you have any existing Search policies that are based on the partition boundary, the ZENworks 6.5 agents search to the container where the Container Package is associated, regardless of whether the agents cross any partition boundaries in search of policies.

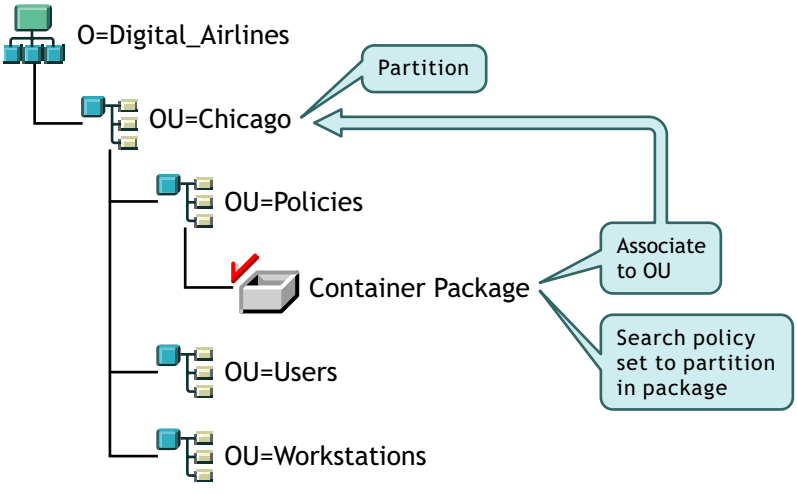
For example, assume that you have the following tree:



With ZENworks for Desktops 3.2 SP3, the agents for the users or workstations first walk to their parent container and find the associated Search policy that states that the agents should look only to the partition boundary for their policies. When the agents look for policies, they walk the tree only to the Chicago container (partition boundary).

With ZENworks 6.5 Desktop Management, the Partition option is not available in the Search Policy. It has been replaced with the Associated Container option. This means that any earlier Search Policies that were upgraded to ZENworks 6.5 the Partition option are now replaced with the Associated Container option. If you do not plan for this change, a different policy retrieval could result.

If you want to continue receive the same search results as when you used the Partition option as the search boundary, you need to associate the container package (that is, the policy package where the configured Search policy resides) to the eDirectory container that represents the partition boundary where you want user and workstation objects to end their search for policies.



When the ZENworks 6.5 agents search the tree now, they will find the Container Package with the Search Policy at Chicago, and then will search for policies up to Chicago, because it is the associated container.

NOTE: The container that is associated with the package determines where the agents will stop walking the tree. It is not based on where the package is actually stored in the directory. The search level in the Search policy will now apply to the associated container rather than the partition boundary.

Additional Information about Upgrading Policies

The list below includes some things you need to know when you upgrade ZENworks for Desktops 3.2 SP3 policies:

- If a workstation with ZENworks for Desktops 3.2 SP3 and the Novell Client installed is upgraded to the new ZENworks 6.5 agent, and the client remains, the workstation continues to use the policies that were created in the directory prior to the ZENworks 6.5 upgrade.
- If a workstation with ZENworks for Desktops 3.2 SP3 and the Novell Client is upgraded to the new ZENworks 6.5 agent and the client is removed, the workstation uses only those policies that are valid in ZENworks 6.5 (for example, the RAS configuration policy would not be enforced).
- If a new workstation has only the ZENworks 6.5 agent installed (no client or ZENworks for Desktops 3.2 SP3), the workstation uses only those policies that are valid in ZENworks 6.5.
- If you install ZENworks 6.5 without upgrading an existing ZENworks for Desktops 3.2 SP3 installation, only the valid ZENworks 6.5 policies are present. The original ZENworks for Desktops 3.2 SP3 policies are present only if an upgrade is performed.

For a comparison of ZENworks for Desktops 3.2 policies and ZENworks 6.5 Desktop Management policies, see Appendix A, "Differences in ZENworks for Desktops 3.2 and ZENworks 6.5 Policy Packages," on page 359.

Completing the Workstation Imaging Upgrade

When you install ZENworks 6.5 Desktop Management, you should upgrade your ZENworks for Desktops 3.2 SP3 Workstation Imaging to benefit from the new ZENworks 6.5 Desktop Management image compression features.

- "Upgrading the Imaging Server" on page 213
- "Upgrading Imaging When the Linux Partition Resides on Workstations" on page 213
- "Upgrading to ZENworks 6.5 Preboot Services" on page 214

Upgrading the Imaging Server

To upgrade to the ZENworks 6.5 Workstation Imaging server, insert the *Novell ZENworks 6.5 Desktop Management* CD, then run the ZENworks 6.5 Desktop Management installation program to install Workstation Imaging. This upgrades the ZENworks for Desktops 3.2 SP3 Imaging engine.

Upgrading Imaging When the Linux Partition Resides on Workstations

If you continue to use the Linux partition on your ZENworks for Desktops 3.2 SP3 workstations, the imaging engine is updated when the workstations next contact the imaging server. If necessary, all other Linux OS files are copied to the Linux partition and installed after you upgrade to ZENworks 6.5 Workstation Imaging.

Following the automatic updates, all of the workstations with Linux partitions will be running the ZENworks 6.5 Desktop Management system.

Upgrading to ZENworks 6.5 Preboot Services

If you decide to move to ZENworks 6.5 Preboot Services (PXE) to eliminate the Linux partitions on your workstations, use the following steps:

1. Install ZENworks 6.5 Preboot Services on a network server.

   For installation and setup instructions, see "Desktop Management Server Installation Procedure" on page 55in this guide and "Using ZENworks Desktop Management Preboot Services" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

   You might need to make some configuration changes to the DHCP server.

2. Verify that ZENworks 6.5 Preboot Services is working either through the PXE supplied on your network cards, or through a PXE bootable floppy you generate with pxebuilder.exe.
3. In ConsoleOne, right-click the ZENworks Imaging Policy in Server Policy Package > click Properties > General > Imaging Partition.
4. Disable the ZENworks imaging partition.

This procedure will make the Linux partition non-bootable on the workstation hard drive. It will not eliminate the Linux partition.

If you want to eliminate the Linux partition, you need to restore a base image on the workstation and select the option to delete the existing Linux partition in the Image object, which you can reference in the Server Policy package or the Workstation Policy package.

Completing the Remote Management Upgrade

ZENworks 6.5 Desktop Management console can remotely control both the ZENworks for Desktops 3.2 agent workstations and the ZENworks 6.5 agent workstations. Be aware, however, that the ZENworks 6.5 Desktop Management do not provide any features that have been discontinued, and the ZENworks for Desktops 3.2 agents do not support any enhancements provided in ZENworks 6.5 Desktop Management.

NOTE: It is no longer necessary to use Remote Management Application objects to control the Remote Management Agents on workstations. The Remote Management Agents are now installed on the workstation as part of the Desktop Management Agent installation.

Completing the Workstation Inventory Upgrade

To upgrade Workstation Inventory from ZENworks for Desktops 3.2 SP3 to ZENworks 6.5, perform the following tasks in the order listed:

1. Review the information in "Pre-Upgrade Considerations" on page 215.
2. Preform the tasks explained in "Tasks To Be Performed Before Upgrade and Database Migration" on page 217.
3. Perform the tasks explained in "Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Database" on page 218.
4. Perform the tasks explained in "Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Server" on page 220.
5. Perform the tasks explained in "Manually Migrating ZENworks for Desktops 3.2 SP 3 Inventory Policies" on page 221.
6. Perform the tasks explained in "Post Database Migration Tasks" on page 222.

Pre-Upgrade Considerations

Before you upgrade ZENworks for Desktops 3.2 SP3 Inventory components, review the following facts:

- "Inventory Server" on page 215
- "Inventory Agent" on page 216
- "Management Console" on page 217

Inventory Server

- ZENworks for Desktops 3 or ZENworks for Desktops 3.2 SP1 is not backward compatible with ZENworks 6.5 Desktop Management. You must upgrade all ZENworks for Desktops 3, ZENworks for Desktops 3 SP1, ZENworks for Desktops 3.2, ZENworks for Desktops 3.2 SP1, or ZENworks for Desktops 3.2 SP2 Inventory servers in your Inventory tree to ZENworks for Desktops 3.2 SP3 before upgrading to ZENworks 6.5 Desktop Management.

  In order for your network to support both ZENworks for Desktops 3.2 and ZENworks 6.5 Desktop Management, you must first install ZENworks for Desktops 3.2 SP3 into your network. Installing ZENworks 6.5 Desktop Management without first installing ZENworks for Desktops 3.2 SP3 will not have the Novell eDirectory schema or ConsoleOne plug-in support for ZENworks for Desktops 3.2 policies. On the other hand, installing ZENworks for Desktops 3.2 SP3 first places the ZENworks for Desktops 3.2 schema and the plug-ins into ConsoleOne. When you install ZENworks 6.5 Desktop Management after ZENworks for Desktops 3.2 SP3, the ZENworks for Desktops 3.2 schema and plug-ins remain.

  If the Inventory server is running ZENworks for Desktops 3, you must install ZENworks for Desktops 3.2 and ZENworks for Desktops 3.2 SP3, and start the Inventory service and the database at least once prior to upgrading the server to ZENworks 6.5 Desktop Management. For more information on how to install ZENworks for Desktops 3.2, see the Novell Support Web site (http://support.novell.com).

- After you install ZENworks 6.5 Desktop Management, ZENworks 6.5 Desktop Management Workstation Inventory pieces and ZENworks for Desktops 3.2 SP3 agents and policies will coexist in the following ways:

  - Inventory data from ZENworks 6.5 Desktop Management agents cannot be sent to a ZENworks for Desktops 3.2 SP3 Inventory server and placed in a ZENworks for Desktops 3.2 SP3 database. A ZENworks for Desktops 3.2 SP3 Inventory Agent cannot send its inventory data to a new ZENworks 6.5 Desktop Management Inventory server. It can send its inventory data only to a ZENworks for Desktops 3.2 SP3 Inventory server or to a ZENworks 6.5 Desktop Management Inventory server that has been upgraded from ZENworks for Desktops 3.2 SP3.
  - ZENworks for Desktops 3.2 SP3 Inventory servers can roll up their inventory data to a ZENworks 6.5 Desktop Management Inventory server, but a ZENworks 6.5 Desktop Management Inventory server cannot roll up its inventory data to a ZENworks for Desktops 3.2 SP3 server.
  - ZENworks for Desktops 3.2 SP3 Inventory servers can roll up their databases to a ZENworks 6.5 Desktop Management Inventory server, but a ZENworks 6.5 Desktop Management Inventory server cannot roll up its database to a ZENworks for Desktops 3.2 SP3 server.
  - Any ZENworks for Desktops 3.2 SP3 Inventory servers that roll up their data to a ZENworks 6.5 Desktop Management Inventory server must be patched in order to function properly.

- A ZENworks for Desktops 3.2 SP3 inventory server cannot roll up its data to a ZENworks for Desktops 3.2 SP3 or ZENworks 6.5 Desktop Management Inventory server in another eDirectory tree.

- ZENworks for Desktops 3.2 SP3 Inventory servers must be upgraded to ZENworks 6.5 Desktop Management in a top-down order. If you perform roll-up of your inventory data, the root server must be upgraded first, then the intermediate servers, and lastly the leaf servers.
- A ZENworks 6.5 Desktop Management Inventory server cannot send its inventory data to a ZENworks for Desktops 3.2 SP3 Inventory server.
- Do not attach a ZENworks 6.5 Desktop Management Inventory database directly to a ZENworks for Desktops 3.2 SP3 Inventory server.
- A ZENworks 6.5 Desktop Management Inventory server can process the .str files of the ZENworks for Desktops 3.2 SP3 inventoried workstations.
- A ZENworks for Desktops 3.2 SP3 Inventory server can roll up its database information to ZENworks for Desktops 3.2 SP3 or ZENworks 6.5 Desktop Management Inventory server.
- A ZENworks 6.5 Desktop Management Inventory server can process the .zip files of the ZENworks for Desktops 3.2 SP3 Inventory servers.
- Do not delete the ZENworks for Desktops 3.2 SP3 .str and .zip files in SCANDIR and its subdirectories of a ZENworks for Desktops 3.2 SP3 Inventory server that has been migrated to ZENworks 6.5 Desktop Management.
- Do not have a ZENworks for Desktops 3.2 SP3 Inventory server and a ZENworks 6.5 Desktop Management Inventory server store the inventory data directly to the same Inventory database.
- Do not specify an Inventory server residing in another eDirectory tree as the next-level server in the Roll-Up policy of a ZENworks for Desktops 3.2 SP3 Inventory server.
- Do not associate a ZENworks for Desktops 3.2 SP3 Roll-up policy to a ZENworks 6.5 Desktop Management Inventory server.
- The ZENworks for Desktops 3.2 SP3 Inventory server and a ZENworks 6.5 Desktop Management Inventory server can use a ZENworks for Desktops 3.2 SP3 Roll-Up policy that has been migrated to ZENworks 6.5 Desktop Management.
- Upgrading a ZENworks for Desktops 3.2 SP3 Inventory server to ZENworks 6.5 Desktop Management does not change the role of the Inventory server.
- If the ZENworks for Desktops 3.2 SP3 Inventory server roll up the scan data to another ZENworks for Desktops 3.2 SP 3 Inventory server or to a ZENworks 6.5 Desktop Management Inventory server, it must have the required authentication patch installed. For more information on the authentication patch, see Step 1 on page 220 in "Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Server" on page 220.

Inventory Agent

- A ZENworks for Desktops 3.2 SP3 Inventory Agent cannot send its inventory data to a new ZENworks 6.5 Desktop Management Inventory server. It can send its inventory data only to a ZENworks for Desktops 3.2 SP3 Inventory server or to a ZENworks 6.5 Desktop Management Inventory server that has been upgraded from ZENworks for Desktops 3.2 SP3.
- A ZENworks for Desktops 3.2 SP3 or ZENworks 6.5 Desktop Management Inventory Agent can use a ZENworks for Desktops 3.2 SP3 Inventory policy that has been migrated to ZENworks 6.5 Desktop Management, or they can use a newly created ZENworks 6.5 Desktop Management Inventory policy.

- A ZENworks 6.5 Desktop Management Inventory Agent cannot send its inventory data to a ZENworks for Desktops 3.2 SP3 Inventory server.
- If you want to install or upgrade the ZENworks for Desktops 3.*x* agents through Workstation Imaging, ensure that the image is taken on a ZENworks 6.5 Desktop Management workstation that is unregistered.

Management Console

- Do not use both ZENworks for Desktops 3.2 SP3 and ZENworks 6.5 management consoles to configure the same ZENworks for Desktops 3.2 SP3 Inventory objects.
- You cannot use a ZENworks for Desktops 3.2 SP3 management console to administer ZENworks 6.5 Desktop Management inventory data and inventory objects.
- You can use ZENworks 6.5 Desktop Management ConsoleOne snap-ins to administer both ZENworks for Desktops 3.2 SP3 and ZENworks 6.5 Desktop Management inventory data and inventory objects (such as Inventory Service object, database objects, Workstation Inventory policy, Roll-Up policy, Dictionary Updated policy, and Database Location policy).

Tasks To Be Performed Before Upgrade and Database Migration

After reviewing the facts mentioned in "Pre-Upgrade Considerations" on page 215, you must perform the following tasks before you upgrade from ZENworks for Desktops 3.2 SP3 to ZENworks 6.5 Desktop Management:

1. Stop the Inventory service.
   - On a NetWare Inventory server: At the server console prompt, enter **`stopser *`**.

     NOTE: If you do not want the Sybase database to be stopped automatically when you stop the Inventory services, comment the `Unload dbsrv8.nlm` line in the sys:\system\invstop.ncf file.
   - On a Windows 2000 Inventory server: In the Control Panel, double-click Administrative Tools > Services, select ZENworks Inventory Service, then click Stop.
2. Stop the Inventory database.

   To stop the Sybase Inventory database:
   - On NetWare: At the Sybase console prompt, press the Q key.
   - On Windows 2000: In the Control Panel, double-click Administrative Tools > Services, then select Adaptive Server Anywhere - Zenworks for Desktops 3, then click Stop.
3. If Java has not been unloaded on the target NetWare servers, unload java.nlm (at the server console, enter **`java -exit`**).

   IMPORTANT: This command stops all Java processes running on the server. Verify that all Java processes can be stopped while you are installing Desktop Management.
4. On the target Windows servers, close the Services window.
5. Make sure that you have made and archived a reliable backup of the ZENworks for Desktops 3.2 SP3 database.
6. Make sure that the ZENworks for Desktops 3.2 SP3 database is not accessed from ConsoleOne.
7. Make sure that the recommended ZENworks 6.5 Workstation Inventory requirements are met. For more information, see "Preparation" on page 29.
8. If you have a ZENworks for Desktops 3.2 SP3 database running Oracle, you must perform the following tasks before the migration:

1 In *inventory_database_installation_path**init.ora_path*\init.ora, set the value of `db_block_buffers` to obtain a net value of approximately 128 MB for the database buffer cache.

   If the `db_block_size` is 4096 then the minimum value must be 32768. This allocates 128 MB of database cache for the Inventory database. If the existing value of `db_block_buffers` is greater than 128 MB, do not change the value.

   We recommend that you set the Oracle's Shared Global (SGA) memory to 30-40 % or above during the database migration.

2 Ensure that the Inventory database is up and running.

3 You must have a bigger rollback segment because the database migration and the storage of further data will not succeed due to ORA-01555 and other rollback segment related issues.

   To increase the value of rollback segment, execute the following sql script to add an additional data file to rollback segment (rbs) and to add a Redo log group.

```
connect internal;

alter tablespace rbs add datafile
'Inventory_database_installation_path\rbs2.ora' size 40M autoextend on
next 50K maxsize 60M;

alter rollback segment rb0 storage (maxextents unlimited);

alter rollback segment rb1 storage (maxextents unlimited);

ALTER DATABASE ADD LOGFILE GROUP 3
('Inventory_database_installation_path\log3.ora') SIZE 50M;
```

Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Database

During the ZENworks 6.5 Desktop Management Server installation, if you choose to install Sybase and you do not choose to overwrite the database files, the server installation program automatically upgrades the existing ZENworks for Desktops 3.2 SP3 database engine only. During the Sybase database upgrade, a message indicating that the existing database can be migrated is displayed. If you choose Yes, then the existing database will be overwritten by the new ZENworks 6.5 Desktop Management database files. If you choose No, the database will be migrated when the Inventory service starts for the first time.

You must perform the following tasks to upgrade the Inventory database:

1 If you have a ZENworks for Desktops 3.2 SP3 Oracle database object, or if you have manually created Sybase database objects, you must manually migrate the database object using the Inventory Migration tool. For more information, see "Manually Migrating the Database Objects" on page 219.

2 If you have a ZENworks for Desktops 3.2 SP3 database running Sybase, ensure that the value of Sybase cache ("-c" parameter) is set to 25% or above of the server's memory.

   - To change the database cache size on a NetWare database server:

     1.Close all connections to the Inventory database.
     2. Quit the Sybase server.
     3. Open the mgmtdbs.ncf file in the sys:\system directory.
     4. Modify the *-c* parameter. For example, -c 128M sets the cache size to 128 MB.
     5. Save the file.
     6. On the server console, load the Inventory database. Enter **MGMTDBS.**

- To change the database cache size on a Windows database server:

  1. Stop the Sybase service. On Windows NT, in the Control Panel, double-click Services, select Novell Database - Sybase, then click Stop. On Windows 2000, in the Control Panel, double-click Administrative Tools > double-click Services, select Novell Database - Sybase, then click Stop.
  2. On the database server, run the ntdbconfig.exe file from the dbengine directory. Ntdbconfig.exe is a ZENworks database configuration utility for the ZENworks database using Sybase on Windows NT/2000 servers. This utility enables you to reconfigure the Sybase service.
  3. Modify the *-c* parameter.
  4. Click OK.
  5. Restart the Sybase service. On Windows NT, in the Control Panel, double-click Services, select Novell Database - Sybase, then click Start. On Windows 2000, in the Control Panel, double-click Administrative Tools > double-click Services, select Novell Database - Sybase, then click Start

IMPORTANT: You can upgrade multiple Inventory servers and database servers at the same time by running the ZENworks 6.5 Desktop Management Server installation program.

However, you must manually migrate the existing ZENworks for Desktops 3.2 Workstation Inventory policy, Database Location policy, and Roll-up policy. If you have manually created the database object, you must also migrate the database object. For more information on how to manually migrate the policies, see "Manually Migrating the Database Objects" on page 219.

Manually Migrating the Database Objects

1. In ConsoleOne with ZENworks 6.5 Desktop Management Workstation Inventory snap-ins installed, click Tools, click ZENworks Inventory, then click Inventory Migration.
2. Click Browse to browse for and select the database object to be migrated or the container that has the database object.
3. If you selected a container in Step 2, do the following:

   3a If you want to search for the database object in all the subcontainers within the selected container, select the Search SubContainers check box.

   The Search SubContainers check box is available only if you select a container in Search Context.

   3b Select the Search for Database Objects check box to search for the database objects within the selected container to be migrated.

   This option is available only if you select a container in Search Context. By default, this option is selected.

   3c Click Find.

   All the ZENworks for Desktops 3.2 database objects that are found within the specified context are displayed in the Report panel.
4. Click Migrate.
5. Click Close.
6. In ConsoleOne, right-click the database object, then click Properties, then click the ZENworks Database tab.
7. Ensure that the following database object options have the specified values mentioned depending on the Inventory database:

Database Object Options	Value for the Sybase Inventory Database Object	Value for the Oracle8i Inventory Database Object
Database (Read-Write) User Name	*MW_DBA*	*MW_DBA*
Database (Read-Write) Password	*novell*	*novell*
Database (Read Only) User Name	*MW_READER*	*MWO_READER*
Database (Read Only) Password	*novell*	*novell*
Database (Write Only) User Name	*MW_UPDATER*	*MWO_UPDATER*
Database (Write Only) Password	*novell*	*novell*

8 Click Apply, then click Close.

Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Server

Before you upgrade a ZENworks for Desktops 3.2 SP3 Inventory server, make sure that you have upgraded the associated database server.

You can upgrade the ZENworks for Desktops 3.2 SP3 Inventory server by installing ZENworks 6.5 Desktop Management Inventory server if the server where you want to install the ZENworks 6.5 Desktop Management Inventory server meets the installation requirements. For more information on how to install the ZENworks 6.5 Desktop Management Inventory server, see "Desktop Management Server Installation Procedure" on page 55. The ZENworks 6.5 Desktop Management Inventory server supports the same set of roles as ZENworks for Desktops 3.2 SP 3. Therefore, when you upgrade from ZENworks for Desktops 3.2 SP3 to ZENworks 6.5 Desktop Management, the role of the Inventory server is retained.

IMPORTANT: If you have a ZENworks for Desktops 3.2 SP3 Inventory server attached to a ZENworks for Desktops 3.2 SP3 database and if you upgrade either the Inventory server or the database to ZENworks 6.5 Desktop Management, you must upgrade the associated component to ZENworks 6.5 Desktop Management (the ZENworks for Desktops 3.2 SP3 Inventory services should not interact with ZENworks 6.5 Desktop Management compliant database and vice versa).

If you have multiple ZENworks for Desktops 3.2 SP 3 Inventory servers connected to a ZENworks for Desktops 3.2 SP3 database server and if you upgrade the database server to ZENworks 6.5 Desktop Management, you must also upgrade all the associated ZENworks for Desktops 3.2 SP3 Inventory servers.

The ZENworks 6.5 Desktop Management installation program automatically migrates only the ZENworks for Desktops 3.2 SP3 Inventory Service object to ZENworks 6.5 Desktop Management. Before starting the Inventory service, you must manually migrate the existing ZENworks for Desktops 3.2 SP 3 policies to ZENworks 6.5 Desktop Management policies using the ZENworks for Desktops Inventory Migration tool. For more information, see "Manually Migrating ZENworks for Desktops 3.2 SP 3 Inventory Policies" on page 221.

After migrating the policies, do the following:

1 If a ZENworks for Desktops 3.2 SP3 Inventory server is rolling up its information to a ZENworks 6.5 Desktop Management Inventory server, you must apply the following authentication patches that are bundled with the *ZENworks 6.5 Desktop Management Companion 2* CD:

Server	Source file	Target destination on Inventory server
Netware	all files in the \invzfd3xpatch\zfd32\common\public\zenworks\wminv\lib directory	*Inventory_server_installation_path*\zenworks\inv\server\wminv\lib
	\invzfd3xpatch\zfd32\nw\java\bin\zenws.nlm	sys:\java\bin
	all files in the \invzfd3xpatch\zfd32\nw\java\lib directory	sys:\java\lib
Windows NT/2000	all files in the \invzfd3xpatch\zfd32\common\public\zenworks\wminv\lib directory	*Inventory_server_installation_path*\zenworks\inv\server\wminv\lib
	\invzfd3xpatch\zfd32\nt\zenworks\jre\1.2\bin\ zenws.dll	*sys_share*\zenworks\jre\1.2\bin
	all files in the \invzfd3xpatch\zfd32\nt\zenworks\jre\1.2\lib directory	*sys_share*\zenworks\jre\1.2\lib

2. In the Workstation Inventory policy, select the Enable Scan of Machine option to reactivate the inventory scanning for all the inventoried workstations that send the inventory data directly to this Inventory server.
3. If the inventory data is rolled up, start the Sender service running on all lower-level Inventory servers that roll up the inventory data to this Inventory server.

Manually Migrating ZENworks for Desktops 3.2 SP 3 Inventory Policies

1. In ConsoleOne with ZENworks 6.5 Desktop Management Workstation Inventory snap-ins installed, click Tools > ZENworks Inventory > Inventory Migration.
2. Click Browse to browse for and select the Inventory Service object or the container that has the Inventory Service object.
3. If you selected a container in Step 2, do the following:
   - **3a** If you want to search for the Inventory Service object in all the subcontainers within the selected container, select the Search SubContainers check box.

     The Search SubContainers check box is available only if you select a container in Search Context.
   - **3b** Select the Search for Policies check box to search for the Inventory policies associated with the Inventory Service object within the selected container.

     This option is available only if you select a container in Search Context. By default, this option is selected.
   - **3c** Click Find.

     All the ZENworks for Desktops 3.2 SP3 Inventory policies that are associated with the Inventory Service object and are found within the specified context are displayed in the Report panel.
4. Click Migrate.
5. Click Close.

After migrating the policies, perform the following tasks:

1. Start the ZENworks 6.5 Desktop Management Inventory services.

When you start the Inventory service, the Upgrade Service automatically migrates the ZENworks for Desktops 3.2 database schema and the inventory data to a ZENworks 6.5 Desktop Management database. The data migration process might take a significant amount of time. On the Inventory server screen, messages indicating that the database has been successfully migrated and initialized are displayed.

After the database is migrated, the Inventory ConsoleOne utilities (Query, Summary, Inventory Report, and Database Export) and the Storer can access the database

2 Create and configure the Dictionary Update policy to get the latest version of the dictionary for ZENworks 6.5 Inventory Agent. For more information on how to create the Dictionary Update policy, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Post Database Migration Tasks

You must perform the following tasks after upgrading the Inventory server and migrating the Inventory database:

1 Stop the Inventory service.

2 If your Inventory database is running Oracle, do the following to improve the database performance:

2a In the *inventory_database_installation_path*_start.sql file, delete the existing entries and add the following entries:

```
SET ECHO ON

CONNECT INTERNAL

SET ECHO OFF

STARTUP PFILE=
inventory_database_installation_path\path_to_init.ora\init.ora

SET NUMWIDTH 20

SET CHARWIDTH 40

SET ECHO ON

connect mw_dba;

SET ECHO OFF

alter table cim.t$product cache;

SET ECHO ON

connect internal

SET ECHO OFF

@<path to oracle home directory>/rdbms/admin/dbmspool

call sys.dbms_shared_pool.keep('zenworks.zenpin','P');

EXIT
```

2b Execute the oracle\common\oracle_perf.sql and oracle\common\oracle_perf2.sql files from the *Inventory_server_installation_path*\zenworks\inv\server\wminv\properties\sql.zip to add performance enhancing indexes to the database.

2c Execute oracle_dbexport_perf.sql from the *Novell ZENworks 6.5 Companion 2* CD\database\oracle8i\common directory.

For more information on how to improve the performance of the Inventory database, see "Performance Tips" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

3 Start the Inventory services.

Installing the ZENworks 6.5 Middle Tier Server

Although not mandatory, the ZENworks Middle Tier Server allows access to Novell eDirectory and the Windows or NetWare file system for the users and workstations inside or outside the corporate firewall.

For a discussion of the role and benefits of the ZENworks Middle Tier Server, see "What Is the ZENworks Middle Tier Server?" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

For instructions on installing the ZENworks Middle Tier Server, see Chapter 8, "Installing the ZENworks Middle Tier Server," on page 75 or Chapter 9, "Installing the Desktop Management Server and the Middle Tier Server on the Same Machine," on page 87.

Upgrading Managed Workstations

Before you upgrade to ZENworks 6.5, you must either upgrade the Novell Client or install the ZENworks 6.5 Desktop Management Agent. One of these will be used as your means to authenticate to eDirectory. See the following sections:

- "Installing the Desktop Management Agent" on page 223

Installing the Desktop Management Agent

When you have updated the Novell Client and the ZENworks Server (called the "Desktop Management Server in ZENworks 6.5), you need to install the Desktop Management Agent on the user workstations. This installation updates the Novell Application Launcher, Workstation Manager, and Remote Management software on the user workstation. It also installs the Workstation Inventory agent and the Image Safe Data service.

You can uninstall the Novell Client from user workstations after you deploy the Desktop Management Agent as the exclusive means for users to authenticate to eDirectory. In this sense, ZENworks 6.5 Desktop Management can be "clientless;" that is, ZENworks 6.5 Desktop Management does not require the Novell Client if users log in with the Desktop Management Agent. For more information, see "Using the Novell Client in a ZENworks 6.5 Environment" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

The workstation functionality afforded by ZENworks 6.5 Desktop Management components is available only if you install the Desktop Management Agent. This is true even if you currently have the Novell Client installed on that workstation. The Desktop Management Agent installation removes the Desktop Management features that were previously installed by the Novell Client and replaces them with selected ZENworks 6.5 Desktop Management workstation features.

The following tasks must be performed if you want to install the Desktop Management Agent on workstations that are currently using ZENworks for Desktops 3.2 SP3:

1. "Deploying the Windows Installer (MSI) Engine" on page 224
2. "Using the Novell Application Launcher to Distribute and Install the Desktop Management Agent" on page 225
3. "Pre-installation Considerations (Support Pack 2)" on page 228
4. "Manually Installing the Desktop Management Agent" on page 229

Deploying the Windows Installer (MSI) Engine

The Desktop Management Agent installation program, zfdagent.msi, requires a minimum of Microsoft Windows Installer (MSI) 1.1 during the installation process. You can upgrade Windows 98 workstations by manually installing version MSI 1.11 (or later) on every workstation prior to the installation.

The following table lists the versions of the MSI that should already be installed on Windows workstations.

Windows Version	Version of MSI Engine Included
Windows 98 SE Workstations	MSI is not included unless another application installed it.
Windows 2000 Workstations	MSI 1.1 is included with the OS.
Windows XP Workstations	MSI 2.0 is included with the OS.

NOTE: You should consider whether to upgrade all of the user workstations to use the same version of the MSI engine.

For your convenience, MSI 2.0 for Windows 2000/XP or Windows 98 is available in the \windows installer folder of the *Novell ZENworks 6.5 Companion 2* CD.

For detailed information about Microsoft Windows Installer, see the MSI Web site (http://www.microsoft.com/windows2000/techinfo/administration/management/wininstaller.asp).

If the MSI engine needs to be installed, you can use the Novell Application Launcher in ZENworks for Desktops 3.2 to install it with a Simple Application distribution.

1. From the *Novell ZENworks 6.5 Companion 2* CD, copy the appropriate MSI engine installer utility to your ZENworks Server.
   - \windows installer\98\instmsia.exe installs the MSI 2.0 engine on Windows 98 machines.
   - \windows installer\nt\instmsiw.exe installs the MSI 2.0 engine on Windows 2000/XP machines.
2. Using the newly installed ZENworks 6.5 Desktop Management snap-ins in ConsoleOne, create a Simple Application object for the version of the MSI engine you want to install.

   If you want to install both versions, you must create a Simple Application object for each version.

   2a. After you name the simple application, enter the path to the location from which the application's executable file will run. Include the executable file in the path. Because the Application Launcher will copy the file to a target directory on the workstation, specify the path as it will exist after the file is copied to the target directory.

   Example: c:\temp\instmsiw.exe

2b Define the system requirements that a workstation must meet before the MSI engine application will be distributed to it.

For more information, see "Configuring the Application in eDirectory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

2c Associate the application object to users or imported workstations, then select the characteristics you want to apply to the association.

We recommend that you select the Force Run characteristic for the association so that the Application object will run as soon as the Application Launcher or Workstation Helper starts and the Application object is available.

For more information, see "Configuring the Application in eDirectory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

3 Configure the Simple Application object.

3a In the Application object Properties page, click the Distribution Options tab > Application Files.

You need to add the file to the Application Files list so that the Application Launcher will copy it to the workstation. For more information, see the online help in ConsoleOne.

3b Click Add, click File, then fill in the following fields:

Source File: Select the MSI engine installer utility you want copied to the workstation (for example, q:\public\zenworks\instmsiw.exe).

Target File: Enter the full path, including the file name, where you want the file copied (for example, c:\temp\instmsiw.exe).

3c Click OK to add the file to the list, then click OK to save the Application Object information.

3d If you are installing to Windows 2000 or Windows XP, in the Application object Properties page, click the Run Options tab > Environment > select the Run Normal option, set the Executable Security Level to Run as Unsecure System User, then click OK to save the Application Object information.

If you selected Force Run on the Associations tab, he MSI Engine is installed as soon as the Application Launcher starts and the Application object is available.

The MSI engine installs an executable that will be used later for installing the Desktop Management Agent MSI. The MSI engine installer utility installs this file, called msiexec.exe, in the *windows_drive*:*windows_directory*\system directory of the workstation.

Using the Novell Application Launcher to Distribute and Install the Desktop Management Agent

The zfdagent.msi package is a complex application that installs many files and makes many configuration changes to the workstation. The most efficient method for installing the Desktop Management Agent is to distribute it to workstations as an MSI application using the Novell Application Launcher. The Novell Application Launcher not only distributes the Agent MSI package, it also calls the Windows Installer to perform the installation on the workstation.

This section provides the steps for configuring the MSI package for distribution with the Application Launcher, including:

- "Creating and Configuring the MSI Application Object" on page 98
- "Modifying Installed Features in the MSI Application Object" on page 99

- "Adding Properties to the MSI Application Object" on page 100

Creating and Configuring the MSI Application Object

1. In ConsoleOne, right-click the container where you want to create the Application object > click New > click Object to display the New Object dialog box.
2. In the New Application dialog box, select the Application That Has an .MSI File option, then click Next.
3. Specify the path to the network location where you copied the .msi file.
4. Click Next, then modify the fields as necessary to customize the Application object.
5. Click Next, then define the distribution rules that a workstation must meet before the Agent MSI will be distributed to it.
6. Click Next, then associate the Agent MSI Application object with the users or workstations to where you want to distribute it.
7. Click Next, review the Application object settings, then click Finish to create the Application object.

   IMPORTANT: Before you distribute the Agent MSI (or any MSI package) using the Novell Application Launcher, we recommend that you make sure the Agent MSI application object is set to Force Cache and that the user credentials on the local workstation, in eDirectory, and in Active Directory (if used) are synchronized.

For more information about creating an MSI Application object, see "Creating the Application Object from a Windows Installer (.MSI) File" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Modifying Installed Features in the MSI Application Object

By default, all of the following features are installed by the ZENworks 6.5 Desktop Management Agent MSI package:

- **Application Management:** Uses the Novell Application Launcher to provide users access to workstation applications that the administrator can install and then manage.
- **Workstation Manager:** Lets administrators configure and manage workstations by using eDirectory.
- **Workstation Inventory:** Helps administrators collect hardware and software inventory information from scanned workstations. Workstation Manager is selected by default when you select this feature.
- **Remote Management:** Lets an administrator manage remote workstations from a management console.
- **Mirror Driver:** Provides video adapter independence and co-existence with other Remote Control Solutions. If this feature is selected, the MSI installation overrides video driver checks and suppresses any Windows messages. If you do not want this driver, you can deselect it (optimization will be disabled).

  NOTE: The Mirror Driver is not yet signed by Microsoft.
- **Workstation Imaging:** Lets an administrator take an image of a workstation's hard drive and put it on other workstations over the network.

If you want to modify this default install, you can add MSI features as public properties of the zfdagent.msi Application object. Use the following steps to modify the list of installed features:

1. On the Properties page of the MSI tab of the Application Object, click Add to display the Select Property to Add dialog box.
2. In the Value Name field, enter ADDLOCAL (this is case-sensitive) as the property name, then specify the property's value in the Value Data field. Use one or more of the following feature names as a property value:
   - ApplicationLauncher
   - WorkstationManager
   - RemoteManagement
   - MirrorDriver (this property will not work unless you add the RemoteManagement property)
   - Imaging
   - Inventory

   You can add more than one of these values to the list by separating them with a comma (no spaces). For example, if you wanted to add Application Launcher and Workstation Manager as features, you would type ADDLOCAL as the property and ApplicationLauncher,WorkstationManager as the values for that property.
3. Click OK to add the property to the Properties list.

Adding Properties to the Agent MSI Application Object

Other properties you can modify and their values (including definitions for the values) are listed in the table below. If one of these properties is listed without a value, the MSI package uses the default value.

Property	Value	Meaning
ADDLOCAL	• WorkstationManager • ApplicationLauncher • RemoteManagement • MirrorDriver • Inventory • Imaging	Comma-delimited list of features to install.
LOGIN_PASSIVE_MODE	0	Displays a Novell login at user login time.
	1	Default. Displays the standard Microsoft login at user login time.
	NOTE: If you want to use Dynamic Local User, you need to assign a value of zero (0) to this property.	

Property	Value	Meaning
EDITABLE_MT_ADDRESS	1	Allows the user to change the ZENworks Middle Tier IP address where authentication will take place. This is available only if the Novell Client is not installed.
	0	Default. Do not allow the user to specify the Middle Tier address.
	The values for this property are effective only if the Novell Client is not installed on the workstation. If the Novell Client is already installed, the settings have no effect after the zfdagent.msi installation. If the Novell Client is removed after zfdagent.msi is installed, these settings take effect.	
STARTUP_APPEXPLORER	1	Launch Application Explorer on Windows startup.
	0	Default. Do not launch Application Explorer on Windows startup.
STARTUP_APPWINDOW	1	Launch Application Window on Windows startup.
	0	Default. Do not launch the Application Window on Windows startup.
MT_SERVER_ADDRESS	This property specifies the ZENworks Middle Tier Server IP address or DNS name. It is not necessary to specify this property if you are not using a Middle Tier Server.	
HTTP_PORT	0-65536	This property specifies the HTTP port to be used by the Desktop Management Agent when communicating with the Middle Tier Server. This property must be added and its value defined if you are using a Middle Tier Server.
	80	Default HTTP port.
NAL_SINGLE_TREE	1	Limit access of the Novell Application Launcher to applications in one tree only.
	0	Default. Do not limit the Application Launcher to one tree for access to applications.
ZENWORKS_TREE	*any tree name*	This property specifies the eDirectory tree to be used as the ZENworks tree. ◆ If Workstation Manager is installed, this tree becomes the tree where Workstation Manager looks for policies. ◆ If the NAL_SINGLE_TREE property is configured and the Novell Application Launcher is installed, this tree becomes the only tree where the Application Launcher looks for applications.

Pre-installation Considerations (Support Pack 2)

If Symantec PCAnywhere* 10.x (or an earlier version) is installed on the managed device, and if you are upgrading the Remote Management Agent, you need to know the following information:

- "Installing the Desktop Management Agent Selecting the Mirror Driver Option (Recommended)" on page 229
- "Installing the Desktop Management Agent without Selecting the Mirror Driver Option" on page 229

Installing the Desktop Management Agent Selecting the Mirror Driver Option (Recommended)

Selecting the Mirror Driver option during the Desktop Management Agent installation might cause the managed device to shift into low resolution or VGA mode. This occurs because PCAnywhere does not support coexistence with Remote Control solutions that are based on hook driver technology. The Remote Management hook driver shipping with ZENworks 6.5 has been deprecated and is not installed on the managed device during upgrade.

To resolve this issue, do the following:

1. Reinstall the system video driver on the managed device.
2. Reinstall PCAnywhere on the managed device.
3. Install the ZENworks Management Agent with the Mirror Driver option selected.

NOTE: You need to execute these steps only once. Because subsequent upgrades will not require these steps, we recommend that you select the Mirror Driver option during installation.

Installing the Desktop Management Agent without Selecting the Mirror Driver Option

If you choose not to select the Mirror Driver option, you will not encounter the low resolution or VGA screen problem. However, the remote sessions are not optimized for performance without Mirror Driver selected. For this reason, you will need to launch rmsetdrv.exe to enable the hook driver, which is deprecated with ZENworks 6.5.

To resolve this issue, do the following:

1. Install the ZENworks Management Agent without selecting the Mirror Driver option.
2. Run rmsetdrv.exe /hook.

   NOTE: Because you must launch rmsetdrv.exe every time you upgrade the agent without selecting the Mirror Driver option, and because the hook driver is deprecated with ZENworks 6.5, we recommend that you select the Mirror Driver option during the agent upgrade.

   For more information on rmsetdrv.exe, see TID 10089810 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).

Manually Installing the Desktop Management Agent

If you want to install to a single workstation at a time, you can install zfdagent.msi manually. For more information, see "Manually Installing the Desktop Management Agent" on page 92.

When completed with both manual command line parameters and MSI installation properties, the parameter field might look like this:

```
/i zfdagent.msi /qb STARTUP_APPEXPLORER=1
```

Because the Parameters field of the Application object has a line length limitation, you might not be able to add a large number of MSI Installation properties. To work around this limitation, you can do one of two things:

- Use the InstallShield* AdminStudio ZENworks Edition to create an .mst file.

  For more information about using InstallShield AdminStudio, see the *InstallShield AdminStudio ZENworks Edition Installation Guide*.

- Use the Microsoft MSI editor, orca.exe, to edit the property table of the zfdagent.msi file and add all of the Desktop Management Agent MSI installation properties you want. You can then install the edited MSI with all of the newly-added properties included.

For information about how to install and use orca.exe, see the Microsoft Knowledgebase Article 255905 (http://support.microsoft.com/default.aspx?scid=KB;en-us;255905&) at the Microsoft Support Web site (http://support.microsoft.com).

19 Upgrading from ZENworks for Desktops 4.*x*

The following sections provide information to help you upgrade from Novell® ZENworks® for Desktops 4 SP1b or ZENworks for Desktops 4.0.1 (both of which will be referred to as ZENworks for Desktops 4.*x* hereafter) to ZENworks 6.5 Desktop Management. To ensure a successful upgrade, perform the tasks in the following order:

1. “Meeting the ZENworks 6.5 Installation Prerequisites” on page 231
2. “Checking eDirectory” on page 231
3. “Extending the eDirectory Schema” on page 232
4. “Upgrading ConsoleOne” on page 233
5. “Upgrading ZENworks for Desktop 4.x Servers” on page 235
6. “Upgrading the Middle Tier Server” on page 250
7. “Upgrading Workstations” on page 255

Meeting the ZENworks 6.5 Installation Prerequisites

Ensure that the workstations and servers on your network meet the necessary prerequisites. For more information, see “Preparation” on page 29.

Checking eDirectory

You need to check the health of your eDirectory™ tree both before and after you extend the directory schema with ZENworks 6.5 attributes. The following resources provide the information required to perform the health check:

- Directory Health Check Procedures - Cross Platform: TID 10060600, available in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).
- Checking the OS and DS Health for Inconsistent ZENworks behavior: TID 10062741, available in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).
- eDirectory Cool Solutions (http://www.novell.com/coolsolutions/nds)

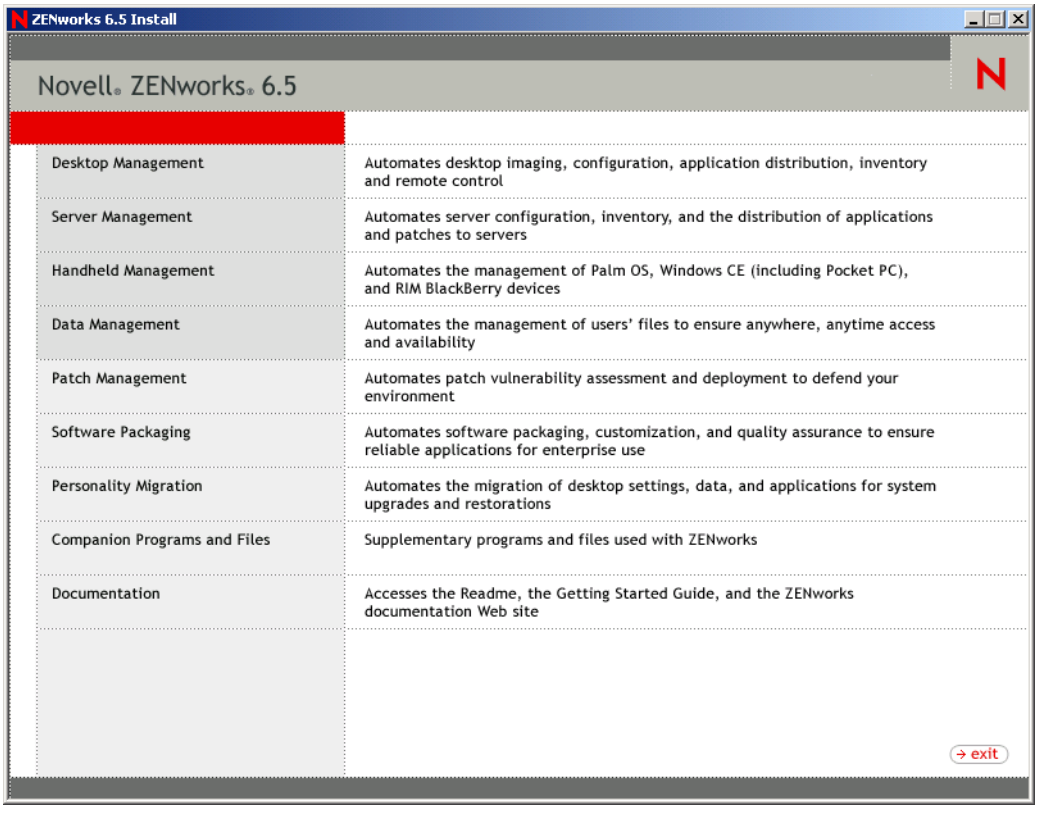
Extending the eDirectory Schema

The ZENworks 6.5 Desktop Management installation program extends the eDirectory schema to accommodate new ZENworks 6.5 attributes. The schema extensions are additive, meaning that no ZfD 4.*x* extensions are removed. Schema extension is not a reversible process.

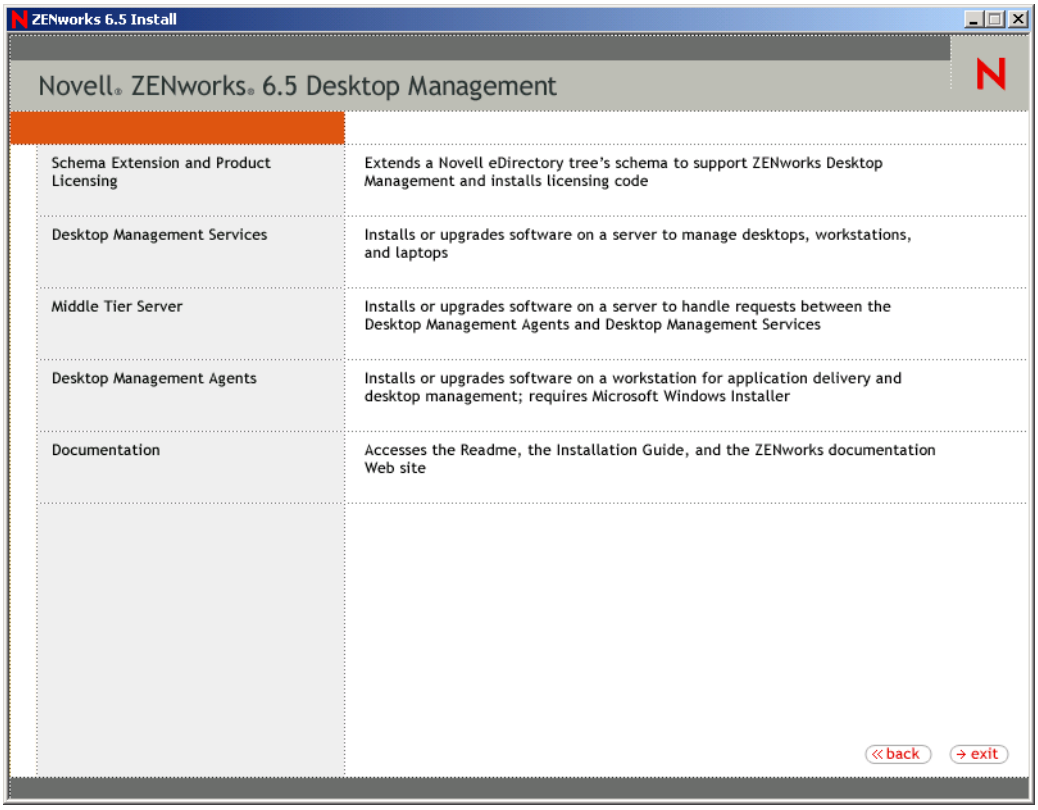
You must run the ZENworks 6.5 Desktop Management installation on a workstation that has a supported version of Windows and the Novell Client™ (see Chapter 3, "Preparing the Workstation or Server Where You Will Install or Administer ZENworks," on page 31).

1. From the installing workstation, authenticate to eDirectory as a user with administrative rights to the eDirectory tree whose schema will be extended.
2. Insert the *Novell ZENworks 6.5 Desktop Management* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, you can launch winsetup.exe from the root of the CD.



3. Select Desktop Management, then select English to display the ZENworks 6.5 Desktop Management page.



4. Select Schema Extensions and Product Licensing to launch the schema extension program.
5. In the Software License Agreement dialog box, select Accept, then click Next.
6. In the eDirectory Tree for Creating Objects dialog box, select the tree whose schema you want to extend, then click Next.
7. In the ZENworks License dialog box, type the license code provided with your ZENworks software, then click Next.

   If you do not have a license code, you can still install the ZENworks software. The full software is installed and you can use it for a 90-day evaluation period. At any time during or after the evaluation period, you can run the installation program again and use the Schema Extensions and Product Licensing option to enter a license code.
8. In the Installation Summary dialog box, click Finish to extend the schema.
9. (Optional) When the ZENworks Schema Extension completion dialog box appears, click View Log File to see the extensions that were applied.
10. In the ZENworks Schema Extension completion dialog box, click OK.
11. Perform an eDirectory health check (see "Checking eDirectory" on page 231).

Upgrading ConsoleOne

ZENworks 6.5 Desktop Management requires ConsoleOne® version 1.3.6.

ZfD 4.*x* required that ConsoleOne be installed on the ZfD 4.*x* Server in order to install the ZfD 4.*x* snap-ins to the server. If desired, you could then copy the ConsoleOne directory from the server to a workstation in order to run ConsoleOne from the workstation.

ZENworks 6.5 enables you to install the Desktop Management snap-ins to both a ConsoleOne directory on the Desktop Management Server and a ConsoleOne directory on a local workstation. By default, the snap-ins are installed to the server when you upgrade it from 4.*x* to 6.5.

As you upgrade ConsoleOne to version 1.3.6, you need to ensure that:

- You install it to all locations from which you want to administer ZENworks 6.5 Desktop Management.
- You keep at least one copy of a ConsoleOne installation that includes the ZfD 4.*x* snap-ins. This enables you to continue to manage ZfD 4.*x* during the upgrade process.

To perform a ConsoleOne upgrade:

1. (Optional) Make a copy of at least one ConsoleOne installation that includes the ZfD 4.*x* snap-in.

   ConsoleOne 1.3.6 supports the ZfD 4.*x* snap-ins. You have the option of making a copy of your current ConsoleOne with the snap-ins, waiting to make a copy of the ConsoleOne 1.3.6 installation with the snap-ins (see Step 3), or doing both.

   For example, if you have a ZfD 4.*x* Server with ConsoleOne 1.3.5 and the ZfD 4.*x* snap-ins located in the sys:\public\mgmt\consoleone\1.2 directory and you want to ensure that you retain a copy of that installation, create a sys:\public\mgmt\consoleone\zfd4 directory and copy all files and subdirectories from the 1.2 directory to the zfd4 directory.

2. Install ConsoleOne 1.3.6 to a local workstation or to a ZfD 4.*x* Server. To do so:

   2a. Insert the *Novell ZENworks 6.5 Companion 1* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, launch winsetup.exe from the root of the CD.

   2b. Select Companion Programs and Files.

   2c. Select Novell ConsoleOne to launch the ConsoleOne 1.3.6 installation program.

   2d. Follow the prompts to install ConsoleOne to the ...\consoleone\1.2 directory.

   When installation is complete, the ...\consoleone\1.2 directory contains ConsoleOne 1.3.6. If you installed ConsoleOne to a location that contains the ZfD 4.*x* snap-ins, the 4.*x* snap-ins still function.

3. (Optional) If you want to retain a copy of ConsoleOne 1.3.6 with the ZfD 4.*x* snap-ins, copy the installation you created in Step 2 to another location.

   IMPORTANT: If you want to administer an eDirectory tree where ZfD 4.*x* has been installed, you must use ConsoleOne with the ZfD 4.*x* snap-ins. If you want to administer an eDirectory tree where ZENworks 6.5 Desktop Management has been installed, you must use ConsoleOne with the ZENworks 6.5 snap-ins.

   If you try to administer a ZENworks 4.*x* object using the 6.5 snap-ins, you will be prompted to install the 6.5 license, even if you have already installed it, and you will not be able to administer ZENworks property pages.

Upgrading ZENworks for Desktop 4.*x* Servers

You upgrade your ZfD 4.*x* Servers by using the ZENworks 6.5 Desktop Management Server installation program.

The upgrade process for the Application Management, Workstation Management, Remote Management, and Workstation Imaging components is fairly simple and includes few issues you need to plan for as you upgrade.

The upgrade process for Workstation Inventory can be more complex, depending on how many servers you have with Inventory software and databases.

We recommend that you plan your Inventory upgrade separately from the rest of your upgrade, using the information in the following two sections:

- "Upgrading Application Management, Workstation Management, Remote Management, and Workstation Imaging" on page 235
- "Upgrading Workstation Inventory" on page 243

Upgrading Application Management, Workstation Management, Remote Management, and Workstation Imaging

Complete the tasks in the following sections to upgrade your ZfD 4.*x* Servers with the ZENworks 6.5 Application Management, Workstation Management, Remote Management, and Workstation Imaging software:

- "Installing the Software" on page 235
- "Completing the Application Management Upgrade" on page 238
- "Completing the Workstation Management Upgrade" on page 241
- "Completing the Remote Management Upgrade" on page 241
- "Completing the Workstation Imaging Upgrade" on page 242

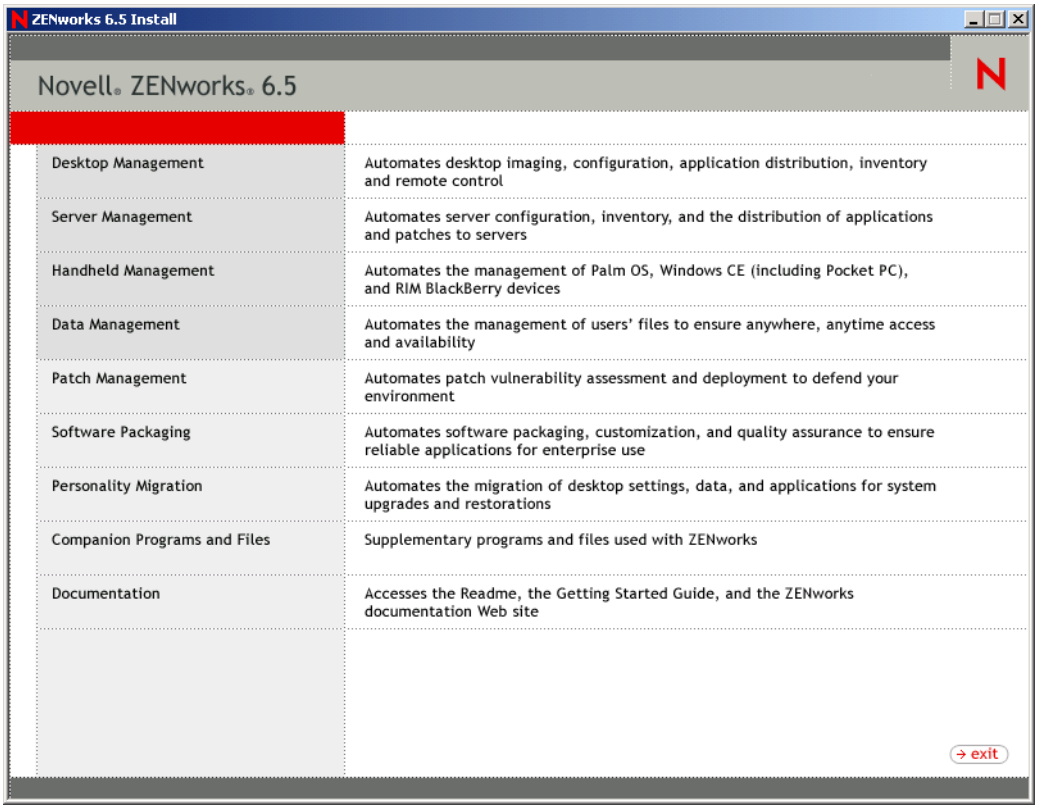
For information about upgrading your ZfD 4.*x* Servers with the ZENworks 6.5 Workstation Inventory software, see "Upgrading Workstation Inventory" on page 243.

Installing the Software

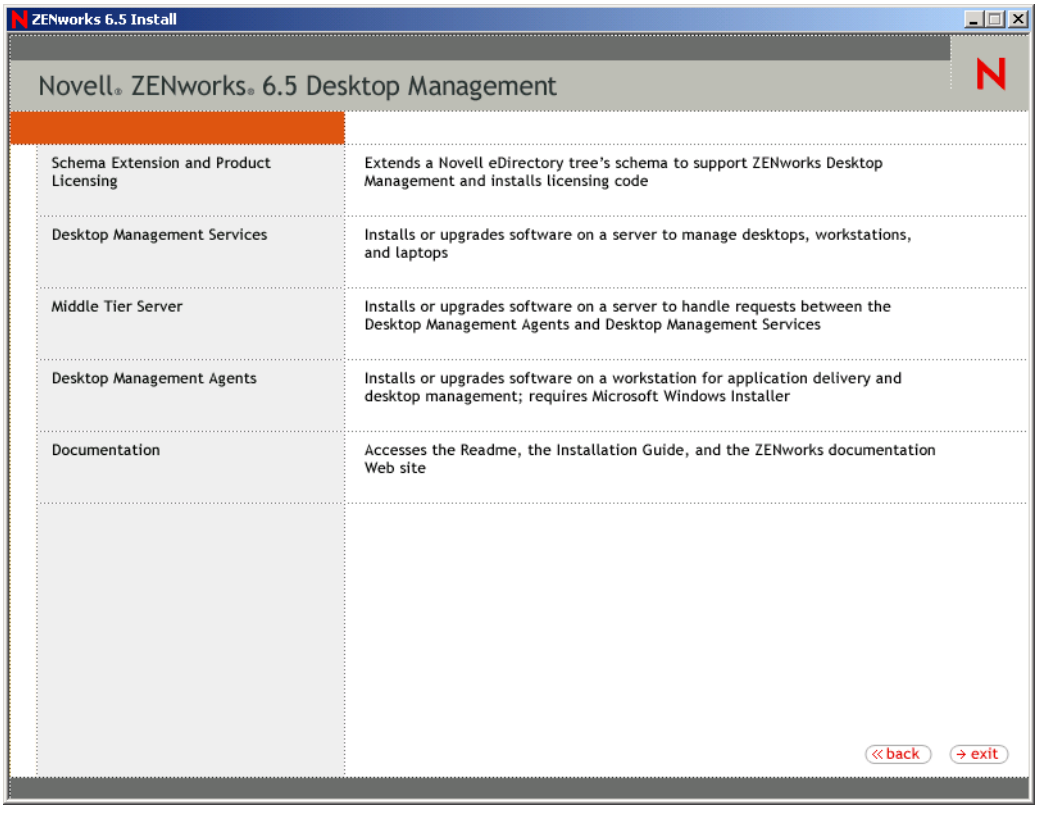
An upgrade installation is identical to a new installation. The following steps provide only the information you need to launch the installation program and make choices specific to upgrading. For more detailed installation information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.

1. From the installing workstation, authenticate to eDirectory as a user with administrative rights to the eDirectory tree whose schema you extended for ZENworks 6.5 (see "Extending the eDirectory Schema" on page 232).
2. Insert the *Novell ZENworks 6.5 Desktop Management* CD into the CD drive of the workstation to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, launch winsetup.exe from the root of the CD.

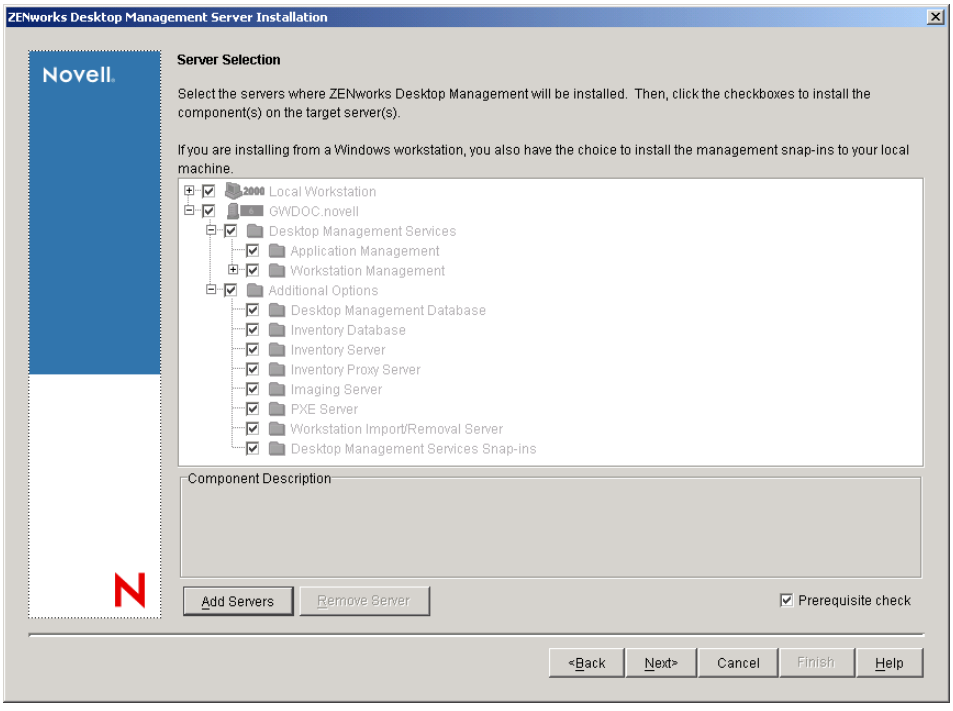


3 Select Desktop Management, then select English to display the ZENworks 6.5 Desktop Management page.



4 Select Desktop Management Services to launch the ZENworks Desktop Management Server installation program.

5 Follow the prompts until you've added the servers you want to upgrade and the Server Selection page is still displayed, as shown below.



6 Deselect any components you don't want installed to the server.

For example, if you are not yet upgrading Workstation Inventory, deselect Inventory Database, Inventory Server, and Inventory Proxy Server. Select a component to display a description in the Component Description box.

7 (Optional) If you don't want the installation program to check the target servers to ensure that they meet the ZENworks 6.5 prerequisites, deselect the Prerequisite Check option.

With the Prerequisite Check option selected, if a target server does not meet the prerequisites, installation does not occur on that server until you upgrade the server or rerun the installation program with the option deselected.

8 Click Next, then follow the remaining prompts to install the software.

9 Review the information in the following sections to complete the upgrade process:

- "Completing the Application Management Upgrade" on page 238
- "Completing the Workstation Management Upgrade" on page 241
- "Completing the Remote Management Upgrade" on page 241
- "Completing the Workstation Imaging Upgrade" on page 242

The following sections provide information to help you complete your upgrade of the Application Management component of ZENworks Desktop Management:

- "Managing Terminal Server Applications" on page 238
- "Transitioning from System Requirements to Distribution Rules" on page 239

For information about new Application Management features in ZENworks 6.5 Desktop Management, see Chapter 17, "What's New In ZENworks 6.5 Desktop Management," on page 183.

Managing Terminal Server Applications

In ZENworks 6.5, several features that were available for ZENworks for Desktops 4.*x* terminal server applications have been removed and several new features have been added, as shown in the list below.

Removed Features	Added Features
RDP Application: ◆ Compression ◆ Seamless Window	RDP Application: ◆ Define colors (256 Color, High Color 15-bit, High Color 16-bit, and High Color 24-bit) ◆ Define remote desktop size (resolution settings) ◆ Define the server's RDP port ◆ Define the server's domain ICA Application: ◆ Full Citrix feature support with all settings read from Citrix, not from the terminal server Application object RDP and ICA Applications: ◆ Support for ZENworks Dynamic Local User policy

IMPORTANT: This information does not apply to ZENworks 6 DeFrame™. If you were using ZENworks 6 DeFrame as your terminal server application solution, see the upgrade information in Chapter 21, "Upgrading from ZENworks 6 DeFrame," on page 261.

As a result of these changes, you need to consider the following when upgrading:

- **Desktop Management Agent:** The Desktop Management Agent support is as follows:
  - The ZfD 4.*x* Management Agent works only with ZfD 4.*x* terminal server applications. It does not work with ZENworks 6.5 terminal server applications (in other words, terminal server Application objects created with the ZENworks 6.5 snap-in to ConsoleOne).
  - The ZENworks 6.5 Desktop Management Agent works with terminal server applications created in both ZfD 4.*x* and ZENworks 6.5.
- **ConsoleOne:** ConsoleOne support is as follows:
  - ZfD 4.*x* terminal server Application objects cannot be maintained using the ZENworks 6.5 snap-ins to ConsoleOne. While the ZfD 4.*x* terminal server properties still exist in eDirectory, they are not displayed in the ZENworks 6.5 snap-ins. To maintain a ZfD 4.*x* terminal server Application object, you must use the ZfD 4.*x* snap-in to ConsoleOne.

- ZENworks 6.5 terminal server Application objects cannot be maintained using the ZfD 4.*x* snap-ins to ConsoleOne. The ZfD 4.*x* snap-ins do not display the ZENworks 6.5 terminal server properties.

Based on the details listed above, we recommend the following process to ensure a smooth transition:

1. Until all workstations have been upgraded to the ZENworks 6.5 Desktop Management Agent (see "Upgrading Workstations" on page 255), retain all existing ZfD 4.*x* terminal server applications and use the ZfD 4.*x* snap-ins to ConsoleOne to create new terminal server applications. This ensures that all users continue to have access to the terminal server applications regardless of the Desktop Management Agent version installed on their workstations.
2. After all workstations have been upgraded to the ZENworks 6.5 Desktop Management Agent, manually recreate the ZfD 4.*x* terminal server applications using the ZENworks 6.5 snap-ins to ConsoleOne.

   There is no automatic migration process available to move information from a ZfD 4.*x* terminal server Application object to a ZENworks 6.5 terminal server Application object. To manually re-create the ZfD 4.*x* Application object as a ZENworks 6.5 Application object:

   2a. In ConsoleOne, right-click the container where you want to create the Application object, click New, then click Application.

   2b. In the New Application Object dialog box, select the Terminal Server Application option, then click Next.

   2c. Follow the prompts provided to finish creating the Application object.

   If you need detailed information about creating a terminal server Application object, see "Configuring the Application in eDirectory" in "Distribution: Terminal Server Applications""Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
3. After creating the new ZENworks 6.5 terminal server application, delete the old ZfD 4.*x* terminal server applications.

   or

   If your are supporting Windows NT 4.0 workstations in your environment by continuing to run the ZfD 4.*x* Desktop Management Agent on the workstations, do not delete the ZfD 4.*x* terminal server applications. You need to keep both ZfD 4.x and a ZENworks 6.5 versions and manage each version using the corresponding ZENworks snap-ins to ConsoleOne.

Transitioning from System Requirements to Distribution Rules

The ZfD 4.*x* System Requirements has been renamed to Distribution Rules to better reflect the enhanced functionality and to differentiate it from the old system requirements. ZENworks 6.5 Distribution Rules support more flexible distribution conditions through the use of AND/OR Boolean operators and groupings of requirements. In ZfD 4.*x*, the AND operator was used for all system requirements and there was no ability to group requirements.

Only ZENworks 6.5 (or later) versions of Novell Application Launcher™ have the ability to process the new operator logic and groupings used with the distribution rules. Therefore, to maintain backwards compatibility with the ZfD 4.*x* Application Launcher, existing system requirements are retained as legacy system requirements during upgrading of your eDirectory tree's schema. Both the ZfD 4.*x* Application Launcher and the ZENworks 6.5 Application Launcher can process the legacy system requirements, which means that applications with legacy

system requirements continue to be available to users regardless of which Application Launcher version they are using.

As you transition from using legacy system requirements to using distribution rules, you need to be aware of the following:

- Distribution rules are defined on the Application object's Distribution Rules page (Application object > Availability tab > Distribution Rules page).
- Legacy system requirements are available from the Distribution Rules page by clicking the Legacy button, then clicking Edit Legacy Settings. You can use this option to edit existing legacy system requirements or add new system legacy requirements (for example, if you create a new Application object that you want available on workstations running the ZfD 4.*x* Application Launcher.
- When you access the Distribution Rules page for an application that has legacy system requirements but no distribution rules, you are prompted to import the requirements into the distribution rules. If you choose not to import them, you can import them later by using the Import Legacy Settings option on the Distribution Rules page.
- After you import legacy system requirements into distribution rules or manually define distribution rules, the ZENworks 6.5 Application Launcher processes only the distribution rules. It ignores the legacy system requirements. The ZfD 4.*x* Application Launcher, however, continues to process the legacy system requirements because it does not know about the new distribution rules. Therefore, if you want to use distribution rules but still have workstations running the ZfD 4.*x* Application Launcher, you need to maintain both a distribution rules list and a legacy system requirements list.
- Changes you make to distribution rules are not added to the legacy system requirements. Likewise, changes you make to legacy system requirements are not added to the distribution rules.
- If you define distribution rules and then import legacy system rules, your existing distribution rules are overwritten by the legacy system rules.
- The requirement for an operating system to be defined before an application is available has been removed. In ZfD 4.*x*, an OS platform had to be defined in System Requirements before an application would be available for distribution and launching. This requirement has been removed. The new behavior uses the following logic: If an application runs only on a specific operating system, define an operating system distribution rule. If an application does not require a specific operating system, there is no need to define a distribution rule. By default, applications without a defined operating system distribution rule are available on all supported platforms (Windows 98, Windows 2000, and Windows XP).

Keeping the above listed details in mind, we recommend the following process to ensure a smooth transition from system requirements to distribution rules:

1. For each Application object, import the legacy system rules into distribution rules. Modify the rules as desired.
2. Retain the legacy system requirements to support workstations using ZfD 4.*x* Application Launcher.
3. If an application's distribution conditions change, modify both the distribution rules and the legacy system requirements to ensure that both the ZENworks 6.5 and ZfD 4.*x* Application Launcher enforce the distribution condition.
4. After all workstations are upgraded to the ZENworks 6.5 Application Launcher (see "Upgrading Workstations" on page 255), remove the legacy system requirements.

or

If you are supporting Windows NT 4.0 workstations in your environment by continuing to run the ZfD 4.*x* Desktop Management Agent on the workstations, do not remove the legacy system requirements. You need to keep both the legacy system requirements and distribution rules.

For more information about distribution rules and legacy system requirements, see "Distribution Rules Page" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Completing the Workstation Management Upgrade

When you extended your eDirectory tree to accommodate the ZENworks 6.5 Desktop Management schema (see "Extending the eDirectory Schema" on page 232), new ZENworks 6.5 policy attributes were added. Your existing ZfD 4.*x* policies are migrated to ZENworks 6.5 policies and can be administered with the ZENworks 6.5 snap-ins. No additional actions are required to upgrade policies.

The ZfD 4.*x* Workstation Manager will continue to apply the ZENworks 6.5 policies. However, new policy features are not available on a workstation until the workstation is upgraded with the ZENworks 6.5 Workstation Manager. This upgrade is done as part of installing the ZENworks 6.5 Desktop Management Agent. See "Upgrading Managed Workstations" on page 223.

For information about new features in Workstation Management, see Chapter 17, "What's New In ZENworks 6.5 Desktop Management," on page 183.

For more information about managing and using ZENworks 6.5 policies, see "Workstation Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Completing the Remote Management Upgrade

After extending your eDirectory tree schema for ZENworks 6.5 and installing ConsoleOne 1.3.6 and the ZENworks 6.5 Desktop Management snap-ins, you can use the Remote Management features in ConsoleOne 1.3.6 to perform remote operations on any workstation that has the ZfD 4.*x* or ZENworks 6.5 Remote Management Agent installed.

If you are using the standalone Remote Management console, you can continue to use the ZfD 4.*x* Remote Management console or you can upgrade to the ZENworks 6.5 Remote Management console. The Remote Management console is included on the *Novell ZENworks 6.5 Companion 2* CD and can be installed by launching winsetup.exe on that CD, selecting Companion Programs and Files, clicking the More button, and then selecting Inventory and Remote Management Console.

No additional actions are required to upgrade Remote Management.

For information about new features in Remote Management, see Chapter 17, "What's New In ZENworks 6.5 Desktop Management," on page 183.

For more information about using Remote Management, see "Remote Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Completing the Workstation Imaging Upgrade

After upgrading your ZfD 4.x Servers to ZENworks 6.5, complete the following tasks to finish upgrading Workstation Imaging:

- "Upgrading Standalone Imaging Servers" on page 242
- "Upgrading the Workstation Imaging Engine" on page 242

For information about new features in Workstation Management, see Chapter 17, "What's New In ZENworks 6.5 Desktop Management," on page 183.

For more information about managing and using ZENworks 6.5 policies, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Upgrading Standalone Imaging Servers

If you have standalone Imaging servers, you need to run the installation program to upgrade the Imaging software on those servers. To do so, follow the instructions in "Installing the Software" on page 235. When you reach the Software Selection page, deselect all options except for Imaging Server and PXE Server.

Upgrading the Workstation Imaging Engine

The ZfD 4.*x* Imaging engine cannot communicate with the ZENworks 6.5 Imaging server. How you upgrade the Imaging engine on a workstation depends on the Imaging boot method being used:

- **Preboot Services (PXE):** No action required. The workstation's Imaging engine is updated from ZfD 4.*x* to ZENworks 6.5 the next time the Imaging engine contacts the ZENworks 6.5 Imaging server.
- **Linux Partition:** No action required. The workstation's Imaging engine is updated from ZfD 4.*x* to ZENworks 6.5 the next time the Imaging engine contacts the ZENworks 6.5 Imaging server.

  Be aware that in ZENworks 6.5, the Linux partition must be at least 50 MB. If a workstation's Linux partition is not that large, you must change the partition size or use Preboot Services instead. For information about changing from using a Linux partition to Preboot Services, see "Moving from a Linux Partition to Preboot Services" on page 242.
- **Boot CD or Disk:** Create a new boot CD or disk using the ZENworks 6.5 software. For instructions, see "Preparing an Imaging Boot Method" in "Workstation Imaging" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Moving from a Linux Partition to Preboot Services

If you decide to move to Preboot Services (PXE) to eliminate the Linux partitions on your workstations:

1. Make sure ZENworks 6.5 Preboot Services is installed on a network server.

   For detailed installation instructions, see "Preparing an Imaging Server" in "Workstation Imaging" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
2. Verify that Preboot Services is working either through the PXE supplied on your network cards, or through a PXE bootable floppy you generate with psetupn.exe.
3. In ConsoleOne, disable the Linux partition. To do so:

   3a. Right-click the Server Policy Package object, then click Properties to display the Server Policy Package properties.

3b On the General page (Policies tab > General page), select ZENworks Imaging Policy, then click Properties.

3c Click the Work to Do tab > Imaging Partition to display the Imaging Partition page.

3d Select the Disable the ZENworks Imaging Partition, If It Exists option to turn on the option.

3e Click OK to close the Imaging Partition page.

4 Click OK to save your changes.

The Linux partition becomes a non-bootable partition on the workstation hard drive. If you want to remove the Linux partition, you need to restore a base image on the workstation and select the option to delete the existing Linux partition in the Image object, which you can reference in the Server Policy package or the Workstation Policy package.

Upgrading Workstation Inventory

To upgrade Workstation Inventory from ZENworks for Desktops 4.*x* to ZENworks 6.5, perform the following tasks in the order listed:

1. Review the information in "Pre-Upgrade Considerations" on page 243.
2. Perform the tasks explained in "Tasks To Be Performed Before Upgrade and Database Migration" on page 245.
3. Perform the tasks explained in "Upgrading the ZENworks for Desktops 4.x Inventory Database" on page 246.
4. Perform the tasks explained in "Upgrading the ZENworks for Desktops 4.x Inventory Server" on page 248.
5. Perform the tasks explained in "Manually Migrating ZENworks for Desktops 4.x Inventory Policies" on page 248.
6. Perform the tasks explained in "Post Database Migration Tasks" on page 249.

Pre-Upgrade Considerations

Before you upgrade ZENworks for Desktops 4.*x* Inventory components to ZENworks 6.5, review the facts in the following sections:

- "Inventory Server" on page 243
- "Inventory Agent" on page 244
- "Management Console" on page 244

Inventory Server

- Both ZENworks 6.5 Inventory servers and ZENworks for Desktops 4.*x* Inventory servers can reside in the same eDirectory tree.
- ZENworks for Desktops 4.*x* Inventory servers can roll up inventory data to a ZENworks 6.5 Inventory server, but a ZENworks 6.5 Inventory server cannot roll up inventory data to a ZENworks for Desktops 4.*x* Inventory server.

  If you perform roll-up of your inventory data, ZENworks for Desktops 4.*x* Inventory servers must be upgraded to ZENworks 6.5 in a top-down order. Upgrade the root server first, then the intermediate servers, and lastly the leaf servers.

- Both ZENworks for Desktops 4.*x* Inventory servers and a ZENworks 6.5 Inventory servers can use ZENworks for Desktops 4.*x* Roll-Up policies that have been upgraded to ZENworks 6.5.
- Do not attach a ZENworks 6.5 Inventory database directly to a ZENworks for Desktops 4.*x* Inventory server; likewise, do not attach a ZENworks for Desktops 4.x Inventory database directly to a ZENworks 6.5 Inventory server. Upgrade the Inventory server and its database in unison. Although you can migrate all the supported databases (Sybase, Oracle, and MS SQL), the ZENworks 6.5 Desktop Management installation will automatically upgrade only the Sybase database.
- Do not have a ZENworks for Desktops 4.*x* Inventory server and a ZENworks 6.5 Inventory server store inventory data directly to the same Inventory database.
- A ZENworks 6.5 Inventory server can process .zip files from ZENworks for Desktops 4.*x* Inventory servers.
- Do not delete the ZENworks for Desktops 4.*x* .str and .zip files in a ZENworks for Desktops 4.*x* Inventory server's SCANDIR directories after you've upgraded the Inventory server to ZENworks 6.5.
- Upgrading a ZENworks for Desktops 4.*x* Inventory server to ZENworks 6.5 does not change the role of the Inventory server.

Inventory Agent

- The ZENworks for Desktops 4.*x* Inventory agent can send inventory data to a ZENworks 6.5 Inventory server, which means the data can be stored in a ZENworks 6.5 Inventory database.

  The ZENworks 6.5 Inventory agent cannot send inventory data to a ZENworks for Desktops 4.*x* Inventory server, which means the data cannot be stored in a ZENworks for Desktops 4.*x* Inventory database.

  Do not upgrade to the ZENworks 6.5 Inventory Agent (see "Upgrading Workstations" on page 255) until you've upgraded your Inventory servers and databases.
- Both the ZENworks for Desktops 4.*x* and ZENworks 6.5 Inventory agent can use a ZENworks for Desktops 4.*x* Inventory policy that has been upgraded to ZENworks 6.5, or they can use a ZENworks 6.5 Inventory policy created with the ZENworks 6.5 Desktop Management snap-ins.
- If you want to install or upgrade the ZENworks for Desktops 4.*x* agents through Workstation Imaging, ensure that the image is taken on a ZENworks 6.5 Desktop Management workstation that is unregistered.

Management Console

- You can use ZENworks 6.5 Desktop Management snap-ins to ConsoleOne to administer both ZENworks for Desktops 4.*x* and ZENworks 6.5 inventory data and inventory objects (such as Inventory Service object, database objects, Workstation Inventory policy, Roll-Up policy, Dictionary Update policy, and Database Location policy).
- You cannot use the ZENworks for Desktops 4.*x* ConsoleOne snap-ins to administer ZENworks 6.5 Desktop Management inventory data and inventory objects.
- Do not use both ZENworks for Desktops 4.*x* and ZENworks 6.5 Desktop Management consoles to configure the same ZENworks for Desktops 4.*x* Inventory objects.

Tasks To Be Performed Before Upgrade and Database Migration

After reviewing the facts mentioned in "Pre-Upgrade Considerations" on page 243, you must perform the following tasks before you upgrade from ZENworks for Desktops 4.*x* to ZENworks 6.5 Desktop Management:

1. Stop the Inventory service.
   - On a NetWare Inventory server: At the server console prompt, enter **`sys:\system\invstop.ncf`**.

     NOTE: If you do not want the Sybase database to be stopped automatically when you stop the Inventory services, comment the `Unload dbsrv8.nlm` line in the sys:\system\invstop.ncf file.
   - On a Windows 2000 Inventory server: In the Control Panel, double-click Administrative Tools > Services, select Novell Inventory Service, then click Stop.
2. Stop the Inventory database.

   To stop the Sybase Inventory database:
   - On NetWare: At the Sybase console prompt, press the Q key.
   - On Windows 2000: In the Control Panel, double-click Administrative Tools > Services, then select Novell Database - Sybase > click Stop.
3. Stop the ZENworks Web server.
   - On Windows NT: In the Control Panel, double-click Services, select Novell ZFS Web Server, then click Stop.
   - On Windows 2000: In the Control Panel, double-click Administrative Tools > Services, select Novell ZFS Web Server, then click Stop.
4. If Java has not been unloaded on the target NetWare servers, unload java.nlm (at the server console, enter **`java -exit`**).

   IMPORTANT: This command stops all Java processes running on the server. Verify that all Java processes can be stopped while you are installing ZENworks 6.5 Desktop Management.
5. On the target Windows servers, close the Services window.
6. Make sure that you have made and archived a reliable backup of the ZENworks for Desktops 4.*x* database.
7. Make sure that the ZENworks for Desktops 4.*x* database is not accessed from ConsoleOne.
8. Make sure that the recommended ZENworks 6.5 Workstation Inventory requirements are met. For more information, see "Preparation" on page 29.
9. If *zenworks_installation_path*\zenworks\inv\server\wminv\ properties\ inventoryremoval.properties has been modified after the ZENworks for Desktops 4.*x* installation, take a reliable backup of inventoryremoval.properties.
10. If you have a ZENworks for Desktops 4.*x* database running Oracle, you must perform the following tasks before the migration:

    1 In *inventory_database_installation_path\init.ora_path*\init.ora, set the value of `db_block_buffers` to obtain a net value of approximately 128 MB for the database buffer cache.

      If the `db_block_size` is 4096 then the minimum value must be 32768. This allocates 128 MB of database cache for the Inventory database. If the existing value of `db_block_buffers` is greater than 128 MB, do not change the value.

We recommend you to set the Oracle's Shared Global (SGA) memory to 30-40% or above during the database migration.

2. Ensure that the Inventory database is up and running.

3. You must have a larger rollback segment because the database migration and the storage of further data will not succeed due to ORA-01555 and other rollback segment related issues.

   To increase the value of rollback segment, execute the following sql script to add an additional data file to rollback segment (rbs) and to add a Redo log group:

```
connect internal;

alter tablespace rbs add datafile
'Inventory_database_installation_path\rbs2.ora' size 40M autoextend on
next 50K maxsize 60M;

alter rollback segment rb0 storage (maxextents unlimited);

alter rollback segment rb1 storage (maxextents unlimited);

ALTER DATABASE ADD LOGFILE GROUP 3
('Inventory_database_installation_path\log3.ora') SIZE 50M;
```

Upgrading the ZENworks for Desktops 4.*x* Inventory Database

During the ZENworks 6.5 Desktop Management Server installation, if you choose to install Sybase and you do not choose to overwrite the database files, the server installation program automatically upgrades the existing ZENworks for Desktops 4.*x* database engine only. During the Sybase database upgrade, a message indicating that the existing database can be migrated is displayed. If you choose Yes, then the existing database will be overwritten by the new ZENworks 6.5 Desktop Management database files. If you choose No, the database will be migrated when the Inventory service starts for the first time.

You must perform the following tasks to upgrade the Inventory database:

1. If you have a ZENworks for Desktops 4.*x* Oracle database object, or if you have manually created Sybase database objects, you must manually migrate the database object using the Inventory Migration tool. For more information, see "Manually Migrating the Database Objects" on page 247.

2. If you have a ZENworks for Desktops 4.*x* database running Sybase, ensure that the value of Sybase cache ("-c" parameter) is set to 25% or above of the server's memory.

   - To change the database cache size on a NetWare database server:

     1.Close all connections to the Inventory database.
     2. Quit the Sybase server.
     3. Open the mgmtdbs.ncf file in the sys:\system directory.
     4. Modify the *-c* parameter. For example, -c 128M sets the cache size to 128 MB
     5. Save the file.
     6. On the server console, load the Inventory database. Enter **MGMTDBS.**

   - To change the database cache size on a Windows database server:

     1. Stop the Sybase service. On Windows NT, in the Control Panel, double-click Services, select Novell Database - Sybase, then click Stop. On Windows 2000, in the Control Panel, double-click Administrative Tools > double-click Services, select Novell Database - Sybase, then click Stop.

2. On the database server, run the ntdbconfig.exe file from the dbengine directory. Ntdbconfig.exe is a ZENworks database configuration utility for the ZENworks database using Sybase on Windows NT/2000 servers. This utility enables you to reconfigure the Sybase service.
3. Modify the *-c* parameter.
4. Click OK.
5. Restart the Sybase service. On Windows NT, in the Control Panel, double-click Services, select Novell Database - Sybase, then click Start. On Windows 2000, in the Control Panel, double-click Administrative Tools > double-click Services, select Novell Database - Sybase, then click Start

3 If you have a ZENworks for Desktops 4.*x* database running MS SQL, ensure that the value of fixed memory is 25% or above of the server memory.

IMPORTANT: You can upgrade multiple Inventory servers and database servers at the same time by running the Desktop Management Server installation program.

However, you must manually migrate the existing ZENworks for Desktops 4.*x* Workstation Inventory policy, Database Location policy, and Roll-up policy. If you have manually created the database object, you must also migrate the database object. For more information on how to manually migrate the policies, see "Manually Migrating the Database Objects" on page 247.

Manually Migrating the Database Objects

1 In ConsoleOne with ZENworks 6.5 Desktop Management Workstation Inventory snap-ins installed, click Tools, click ZENworks Inventory, then click Inventory Migration.

2 Click Browse to browse for and select the database object to be migrated or the container that has the database object.

3 If you selected a container in Step 2, do the following:

3a If you want to search for the database object in all the subcontainers within the selected container, select the Search SubContainers check box.

The Search SubContainers check box is available only if you select a container in Search Context.

3b Select the Search for Database Objects check box to search for the database objects within the selected container to be migrated.

This option is available only if you select a container in Search Context. By default, this option is selected.

3c Click Find.

All the ZENworks for Desktops 4.*x* database objects that are found within the specified context are displayed in the Report panel.

4 Click Migrate.

5 Click Close.

6 In ConsoleOne, right-click the database object, then click Properties, then click the ZENworks Database tab.

7 Ensure that the following database object options have the specified values mentioned depending on the Inventory database:

Database Object Options	Value for the Sybase Inventory Database Object	Value for the Oracle Inventory Database Object	Value for the MS SQLServer 2000 Inventory Database Object
Database (Read-Write) User Name	*MW_DBA*	*MW_DBA*	*MW_DBA*
Database (Read-Write) Password	*novell*	*novell*	*novell*
Database (Read Only) User Name	*MW_READER*	*MWO_READER*	*MWM_READER*
Database (Read Only) Password	*novell*	*novell*	*novell*
Database (Write Only) User Name	*MW_UPDATER*	*MWO_UPDATER*	*MWM_UPDATER*
Database (Write Only) Password	*novell*	*novell*	*novell*

8 Click Apply, then click Close.

Upgrading the ZENworks for Desktops 4.*x* Inventory Server

Before you upgrade a ZENworks for Desktops 4.*x* Inventory server, ensure that you have stopped the Inventory services and have upgraded the associated database server.

You can upgrade the ZENworks for Desktops 4.*x* Inventory server by installing ZENworks 6.5 Desktop Management Inventory server if the server where you want to install the ZENworks 6.5 Desktop Management Inventory server meets the installation requirements. For more information on how to install the ZENworks 6.5 Desktop Management Inventory server, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55. The ZENworks 6.5 Desktop Management Inventory server supports the same set of roles as ZENworks for Desktops 4.*x*. Therefore, when you upgrade from ZENworks for Desktops 4.*x* to ZENworks 6.5 Desktop Management, the role of the Inventory server is retained.

IMPORTANT: If you have a ZENworks for Desktops 4.*x* Inventory server attached to a ZENworks for Desktops 4.*x* database and if you upgrade either the Inventory server or the database to ZENworks 6.5 Desktop Management, you must upgrade the associated component to ZENworks 6.5 Desktop Management (the ZENworks for Desktops 4.*x* Inventory services should not interact with ZENworks 6.5 Desktop Management compliant database and vice versa).

If you have multiple ZENworks for Desktops 4.*x* Inventory servers connected to a ZENworks for Desktops 4.*x* database server and if you upgrade the database server to ZENworks 6.5 Desktop Management, you must also upgrade all the associated ZENworks for Desktops 4.*x* Inventory servers.

The ZENworks 6.5 Desktop Management installation program automatically migrates only the ZENworks for Desktops 4.*x* Inventory Service object to ZENworks 6.5 Desktop Management. Before starting the Inventory service, you must manually migrate the existing ZENworks for Desktops 4.*x* policies to ZENworks 6.5 Desktop Management policies using the ZENworks Inventory Migration tool. For more information, see "Manually Migrating ZENworks for Desktops 4.x Inventory Policies" on page 248.

Manually Migrating ZENworks for Desktops 4.*x* Inventory Policies

1 In ConsoleOne with ZENworks 6.5 Desktop Management Workstation Inventory snap-ins installed, click Tools > ZENworks Inventory > Inventory Migration.

2 Click Browse to browse for and select the Inventory Service object or the container that has the Inventory Service object.

3 If you selected a container in Step 2, do the following:

3a If you want to search for the Inventory Service object in all the subcontainers within the selected container, select the Search SubContainers check box.

The Search SubContainers check box is available only if you select a container in Search Context.

3b Select the Search for Policies check box to search for the Inventory policies associated with the Inventory Service object within the selected container.

This option is available only if you select a container in Search Context. By default, this option is selected.

3c Click Find.

All the ZENworks for Desktops 4.*x* Inventory policies that are associated with the Inventory Service object and are found within the specified context are displayed in the Report panel.

4 Click Migrate.

5 Click Close.

The ZENworks 6.5 Inventory agents obtain the software scan configuration rules from the private dictionary and the general dictionary, instead from the Workstation Inventory policy. But the ZENworks for Desktops 4.*x* Inventory agents would continue to use the Workstation Inventory policy for software configuration.

After migrating the policies, perform the following tasks:

1 Start the ZENworks 6.5 Desktop Management Inventory services.

When you start the Inventory service, the Upgrade Service automatically migrates the ZENworks for Desktops 4.*x* database schema and the inventory data to a ZENworks 6.5 Desktop Management database. The data migration process might take a significant amount of time. On the Inventory server screen, messages indicating that the database has been successfully migrated and initialized are displayed.

After the database is migrated, the Inventory ConsoleOne utilities (Query, Summary, Inventory Report, and Database Export) and the Storer can access the database.

2 Create and configure the Dictionary Update policy to get the latest version of the dictionary for ZENworks 6.5 Inventory Agent. For more information on how to create the Dictionary Update policy, see "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Post Database Migration Tasks

You must perform the following tasks after upgrading the Inventory server and migrating the Inventory database is complete:

1 Stop the Inventory service.

2 If your Inventory database is running Oracle, do the following to improve the database performance:

2a In the *inventory_database_installation_path*_start.sql file, delete the existing entries and add the following entries:

```
SET ECHO ON

CONNECT INTERNAL

SET ECHO OFF
```

```
STARTUP PFILE=
inventory_database_installation_path\path_to_init.ora\init.ora

SET NUMWIDTH 20

SET CHARWIDTH 40

SET ECHO ON

connect mw_dba;

SET ECHO OFF

alter table cim.t$product cache;

SET ECHO ON

connect internal

SET ECHO OFF

@<path to oracle home directory>/rdbms/admin/dbmspool

call sys.dbms_shared_pool.keep('zenworks.zenpin','P');

EXIT
```

2b Execute the oracle\common\oracle_perf.sql and oracle\common\oracle_perf2.sql files from the *Inventory_server_installation_path*\zenworks\inv\server\wminv\properties\sql.zip to add performance enhancing indexes to the database.

2c Execute oracle_dbexport_perf.sql from the *Novell ZENworks 6.5 Companion 2* CD\database\oracle8i\common directory.

For more information on how to improve the performance of the Inventory database, see "Performance Tips" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

3 (Optional) If the Inventory database is running MS SQL, execute the following scripts from *Inventory_server_installation_path*\zenworks\inv\server\wminv\properties\sql.zip with appropriate user logins as explained below from the MS SQL Query Analyzer:

1. Login as CIM and execute the mssql_perf_cim.sql
2. Login as mw_dba and execute mssql_perf_mw_dba.sql
3. Login as zenworks and execute msswl_perf_zenworks.sql

This enhances the performance of the Inventory database.

For more information on how to improve the performance of the Inventory database, see "Performance Tips" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

4 Start the Inventory services.

Upgrading the Middle Tier Server

After you've extended your eDirectory tree's schema to accommodate the ZENworks 6.5 attributes (see "Extending the eDirectory Schema" on page 232), you can upgrade your ZfD 4.*x* Middle Tier Servers to ZENworks 6.5. Complete the tasks in the following sections to do so:

- "Pre-Upgrade Considerations" on page 251

- "Installing the Software" on page 251
- "Modifying the Myapps.html Page" on page 253

Pre-Upgrade Considerations

Before upgrading your Middle Tier Servers, consider the following:

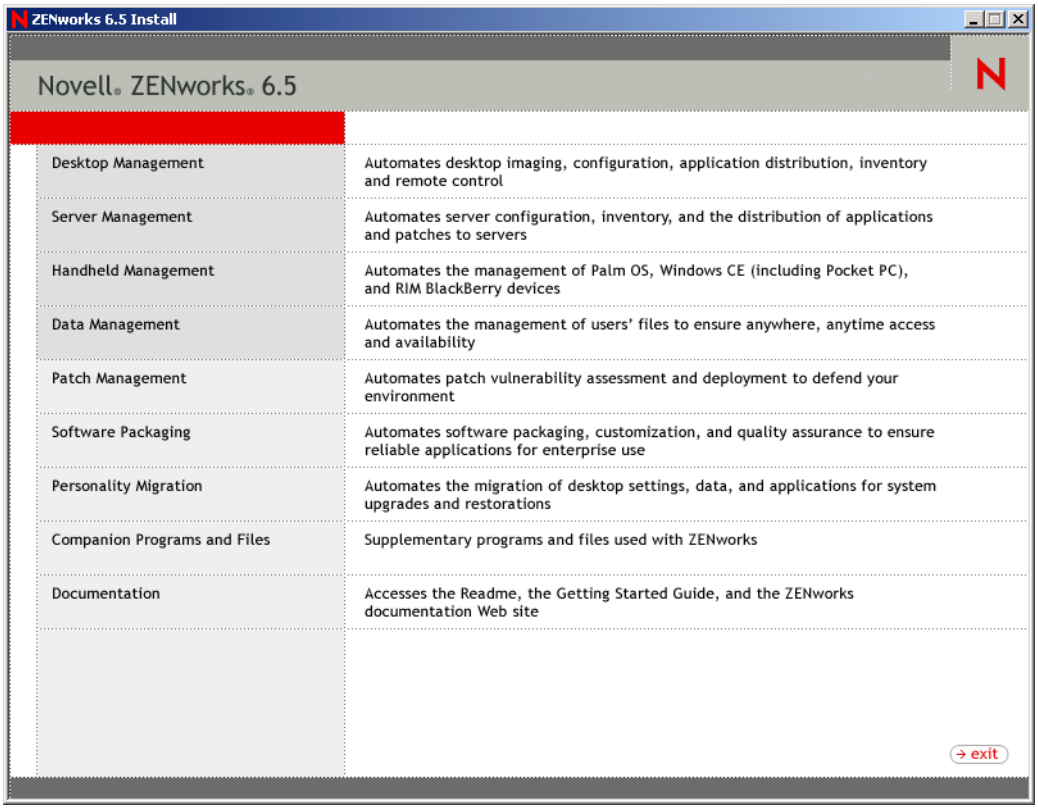
- We recommend that you upgrade all of your ZfD 4.*x* Servers to ZENworks 6.5 first (see "Upgrading ZENworks for Desktop 4.x Servers" on page 235). However, this is not required because the ZfD 4.*x* Middle Tier Server works with a ZENworks 6.5 Desktop Management Server and the ZENworks 6.5 Middle Tier Server works with a ZfD 4.*x* Server. It is simply good practice, when possible, to start with the back-end servers and work your way out to the Middle Tier Servers and then the user workstations.
- When upgrading a Middle Tier Server on a Windows server, authentication domains you defined for the ZfD 4.*x* Middle Tier Server are replaced with the context you specify during the ZENworks 6.5 Middle Tier installation. These contexts are stored in the Windows registry key at HKLM\Software\Novell\Xtier\Configuration\Xsrv\Authentication Domains\CX1, CX2, CX3, and so on. If you want to continue using these contexts, you should take note of them or consider exporting them from your registry. You can also set up new authentication domains using the NSAdmin utility. For more information, see "Authentication Domains" in "Configuring the ZENworks Middle Tier Server with NSAdmin" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Installing the Software

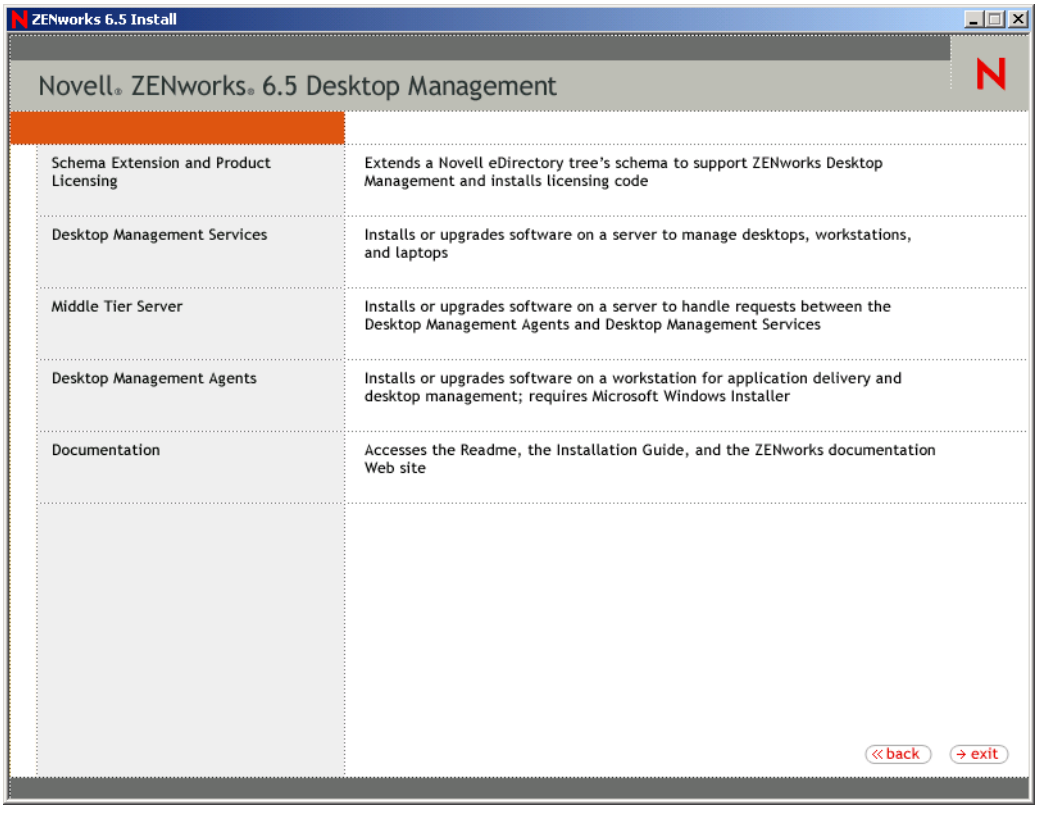
To upgrade a ZfD 4.*x* Middle Tier Server, you use the ZENworks 6.5 Middle Tier Server installation program to install the ZENworks 6.5 files over the existing Middle Tier Server files.

1. At a workstation that meets the installation requirements (see Chapter 3, "Preparing the Workstation or Server Where You Will Install or Administer ZENworks," on page 31), insert the *Novell ZENworks 6.5 Desktop Management* CD into the CD drive to autorun the ZENworks 6.5 installation program.

   If the installation program does not autorun, launch winsetup.exe from the root of the CD.



2 Select Desktop Management, then select English to display the ZENworks 6.5 Desktop Management page.



3 Select Middle Tier Server to launch the ZENworks Middle Tier Server installation program.

4 Follow the prompts to complete the installation.

For detailed installation steps, see Chapter 8, "Installing the ZENworks Middle Tier Server," on page 75.

Modifying the Myapps.html Page

This section applies only if you have users who access the myapps.html page on the Web server to download the Novell Application Launcher plug-in.

During the Middle Tier Server upgrade, a myapps.html.template file is copied to the *web_server_root*\nwdocs directory (NetWare) or the inetpub\wwwroot directory (Windows). In order for the ZENworks 6.5 Novell Application Launcher plug-in to be distributed to workstations when users access the myapps.html page, you need to modify the myapps.html.template file and rename it to myapps.html. To do so:

1 Make a backup copy of your ZfD 4.*x* myapps.html file.

On a NetWare server, the myapps.html file is in the *web_server_root*\nwdocs directory. On a Windows server, it is in the inetpub\wwwroot directory.

2 (Conditional) If you customized your ZfD 4.*x* myapps.html file, make the same customizations to the ZENworks 6.5 myapps.html.template file.

Three new parameters have been added for ZENworks 6.5: ShowAppFrameNavigation, ShowIEToolBarButton, and NT4PluginVersion. Each of these parameters is described below.

SingleTree: This parameter lets you specify a single Novell eDirectory tree from which to read application information. If this parameter is used, Application Launcher ignores any other trees to which the user authenticates.

This parameter applies only at installation time. After installation, changes to this parameter have no affect.

PortalView: This parameter lets you better support portals by removing the banner section of the Application Browser view. The value settings are True or False. True removes the banner section.

BannerURL: This parameter applies only if the PortalView parameter is set to False.

You can use this parameter to specify an alternate banner. For example, you could use a banner that contains your company's logo instead of the Novell logo. The value setting must be a URL to an HTML page or graphics file (GIF, JPEG, etc.). If you specify an HTML page, the page is cropped to the height specified by the BannerHeight parameter. If you specify a graphics file, the banner section scrolls to fit the entire graphics file. Unless you want the banner section to be scrollable, you should ensure that the graphic's height is not greater than the height specified in the BannerHeight parameter.

BannerHeight: This parameter applies only if PortalView parameter is set to False and the default Novell banner is being overridden by the BannerView parameter.

You can use this parameter to determine the height of the banner section. The value setting must be from 5 to 200. Any number less than 5 is rounded up to 5. Any number greater than 200 is rounded down to 200.

ShowTree: This parameter determines whether or not the Application Browser view includes the left pane (referred to as the folder view). The value settings are True and False. True causes the folder view to display, and False causes it to be removed.

ShowTasks: This parameter determines whether or not the folder view (left pane) includes the Work Online/Work Offline, MiddleTier Log In/Middle Tier Log Out, Refresh Applications, and Help options. The VALUE settings are True and False. True causes the options to display, and False causes them to be removed.

AppDisplayType: This parameter determines how the applications are displayed in the right pane of the Application Browser view. The value settings are 0 and 1. The default setting, 0, causes the application icons to display as large icons, similar to the Large Icons view in Windows Explorer. The 1 setting causes the applications to be listed in table format, similar to the List view in Windows Explorer.

ShowAppFrameNavigation: This parameter determines whether or not the right pane of the Application Browser view includes navigation. The VALUE settings are True and False. True causes the right pane to include navigation. The type of navigation depends on the setting for the AppDisplayType parameter:

- When the AppDisplayType parameter is set to 0 (large icons), navigation is displayed as a breadcrumb trail (for example, ZENworks Tree > Application Folder > Application A).
- When the AppDisplayType parameter is set to 1 (small icons), navigation is displayed as an Up arrow at the top of the applications list.

Setting this parameter's value to False causes the Application Browser view to start with the All folder open, meaning that all application icons are displayed in the right pane. If the All folder is disabled in the user's Launcher Configuration settings in ConsoleOne, this parameter is ignored (in other words, the default value of True is used).

ShowIEToolbarButton: This parameter determines whether or not the Application Browser button is added to the Internet Explorer toolbar. The Application Browser button launches the local version of the myapps.html file. The VALUE settings are True and False. The True setting is the default setting and causes the Application Browser button to be added to the toolbar. The False setting causes the Application Browser button to be removed from the toolbar. Whenever this setting is changed, the user must close Internet Explorer and then reopen it for the change to take affect.

MiddleTierAddress: This parameter applies only if you've configured a ZENworks Middle Tier Server for access to eDirectory.

The MiddleTierAddress parameter lets you specify the IP address of the Middle Tier Server that the user authenticates to. It is used only if a Middle Tier Server address is not included in the Windows registry; the registry includes the address if the user entered it when running the ZENworks Desktop Management Agent installation program.

Nt4PluginVersion: This parameter applies only when upgrading from ZfD 4.0.1.

The ZENworks 6.5 Novell Application Launcher plug-in is not supported on Windows NT 4 workstations (see "Interoperability with Windows NT 4 Workstations" on page 319 for more information about Windows NT 4 support). You can, however, continue to use the ZfD 4.0.1 Novell Application Launcher plug-in on those workstations. This parameter specifies the minimum version of the ZfD 4.0.1 Novell Application Launcher plug-in that will run on Windows NT workstations.

For example, the default parameter setting (4,0,1,0) requires only that the original ZfD 4.0.1 Novell Application Launcher plug-in be installed on the workstation. If you place an updated ZfD 4.0.1 Novell Application Launcher plug-in (zfd40.cab) with a version number higher than 4,0,1,0 (for example, 4,0,1,1 or 4,0,1,2) on the Middle Tier Server, workstations that have the 4.0.1.0 Novell Application Launcher plug-in are upgraded to the new version only if you change this parameter to the new version. In other words, upgrades do not happen automatically when you place a newer Novell Application Launcher plug-in version on the

Middle Tier Server; if you want workstations upgraded, you must force the upgrade by bumping up the version number specified in this parameter.

3 Test the setup by accessing the myapps.html page.

When Windows 98/2000/XP users access the myapps.html page, the new ZENworks 6.5 Novell Application Launcher plug-in (zfdplugin.cab) is installed to their workstations. If you have Windows NT users who access the myapps.html page, the ZfD 4.0.1 Novell Application Launcher plug-in (zfd40.cab) is used.

Upgrading Workstations

After you have updated the ZENworks Desktop Management Server and the ZENworks Middle Tier Server, you need to upgrade your workstations.

Listed below are upgrade procedures and software behaviors that you need to know about:

- On workstations that are using the Novell Client, upgrade the Novell Client to version 4.9 SP1a. This uninstalls the older Novell Client and installs the 4.9 SP1a version.
- On workstations that have the ZfD 4.*x* Agent installed, install the ZENworks 6.5 Desktop Management Agent. This uninstalls the ZfD 4.*x* Agent and installs the ZENworks 6.5 Desktop Management Agent.

  For installation methods and detailed installation steps, see Chapter 10, “Installing and Configuring the Desktop Management Agent,” on page 91.
- The version of the agent that shipped with ZfD 4.0 (setup.exe) is no longer supported. Prior to upgrading a ZfD 4.0 Agent to ZENworks 6.5, you should replace this older version of the agent with the version of the agent shipping with the ZENworks 6 Suite (ZENworks for Desktops 4.0.1/SP1b) or later.
- When configuring the upgrade Application object for the Desktop Management Agent (for use by the Novell Application Launcher), we recommend that you set the application to RUN ONCE so that after the agent is installed the user can no longer see the application in Novell Application Launcher. You should also make sure that uninstall is not enabled for the Application object.

  Administrator rights are not needed to upgrade the Desktop Management Agent. The user's privileges are elevated temporarily by the Desktop Management Agent during the installation.
- If you upgrade the ZfD 4.*x* Agent (excluding ZfD 4.0.1 Interim Release 4) to ZENworks 6.5, and if you use a workstation-associated Application object to perform the upgrade, users are not prompted to reboot their workstations.

  If you perform the upgrade with a user-associated Application object, the reboot prompt is displayed.
- If you want to set the NAL_SINGLE_TREE MSI property when you upgrade the ZfD 4.0.1 Agent (or later, except for Interim Release 4) to ZENworks 6.5, you must also set the ZENWORKS_TREE property and specify the tree from which the workstation will receive ZENworks files.

  If you are upgrading the ZfD 4.0.1 Agent from ZfD 4.0.1 Interim Release 4 to version 6.5, you need to set the tree value to the tree where the workstation is imported. If the workstation has not been imported, the setting is ignored.

Pre-upgrade Considerations (Support Pack 2)

If Symantec PCAnywhere 10.x (or earlier version) is installed on the managed device and if you are upgrading the Remote Management Agent, you need to be aware of the following:

- "Upgrading the Desktop Management Agent with the Mirror Driver Option Selected (Recommended)" on page 256
- "Upgrading the Desktop Management Agent without Selecting Mirror Driver Option" on page 256

Upgrading the Desktop Management Agent with the Mirror Driver Option Selected (Recommended)

Selecting the Mirror Driver option in the Desktop Management Agent installation might cause the managed device to shift to low resolution or VGA mode. This occurs because PCAnywhere does not support coexistence with Remote Control solutions that are based on hook driver technology. The Remote Management hook driver shipping with ZENworks 6.5 Desktop Management has been deprecated and is no longer being installed on the managed device during upgrade.

To resolve this issue, do the following:

1. Reinstall the system video driver on the managed device.
2. Reinstall PCAnywhere on the managed device.
3. Upgrade the ZENworks Desktop Management Agent with the Mirror Driver option selected.

NOTE: You need to execute these steps only once. Because subsequent upgrades will not require these steps, we recommend that you select the Mirror Driver option during installation.

Upgrading the Desktop Management Agent without Selecting Mirror Driver Option

If you choose not to install the mirror driver, you will not encounter the low resolution or VGA screen problem. However, the remote sessions are not optimized for performance if the mirror driver is not installed. For this reason, you need to execute rmsetdrv.exe to enable the hook driver, which is deprecated with ZENworks 6.5.

To resolve this issue, do the following:

1. Upgrade the ZENworks Management Agent without selecting the Mirror Driver option.
2. Run rmsetdrv.exe /hook.

   NOTE: Because you need to launch rmsetdrv.exe every time you upgrade the agent without selecting the Mirror Driver option, and because the hook driver is deprecated with ZENworks 6.5, we recommend that you select the Mirror Driver option during the agent upgrade.

   For more information on rmsetdrv.exe, see TID 10089810 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).

Rolling Back to the ZENworks for Desktops 4.*x* Agent

We strongly recommend against rolling back to the ZfD 4.*x* Agent after you have upgraded to the ZENworks 6.5 Desktop Management Agent. Rolling back (that is, installing the ZENworks for Desktops 4.0.1 Agent or a subsequent patch or interim release while the ZENworks 6.5 Management Agent is still installed) causes the Agent to stop working.

If you need to revert to an older version of the Agent, we recommend that you uninstall the ZENworks 6.5 Desktop Management Agent first, then install the ZENworks for Desktops 4.0.1 Agent.

20 Upgrading to the ZENworks 6.5 Launch Gadget

Novell® ZENworks® 6 Web Self-Service (also known as ZENworks OnDemand Services™ in previous releases) has been discontinued and is not included in ZENworks 6.5. Depending on how extensively you used the Web Self-Service functionality, you can either maintain full ZENworks 6 Web Self-Service functionality or you can upgrade and use only the launching capability provided by the ZENworks 6.5 Launch gadget.

- **Coexistence:** ZENworks 6 Web Self-Service can coexist with ZENworks 6.5 Desktop Management. The ZENworks 6 Launch Item gadget displays 6.5 applications (those applications whose Application objects are created with the ZENworks 6.5 snap-ins for ConsoleOne®) and pre-6.5 applications, but it can only successfully launch pre-6.5 applications. This means that you need to maintain your pre-6.5 applications by managing them with the pre-6.5 snap-ins. For DeFrame™ terminal server applications, you must also maintain your ZENworks DeFrame terminal servers.
- **Upgrade:** To maintain the ability to launch ZENworks applications from within a Novell exteNd™ Director™ 4.1 SE portal, the Launch Item gadget (renamed to the ZENworks Launch gadget in ZENworks 6.5) is included as part of ZENworks 6.5 Desktop Management. The ZENworks Launch gadget provides launching of applications whose Application objects are created using the ZENworks 6.5 snap-ins for ConsoleOne. It does not display applications whose Application objects were created with pre-6.5 snap-ins.

The following sections provide instructions for upgrading to the ZENworks Launch gadget:

- "Installing the ZENworks Launch Gadget to Your Portal" on page 257
- "Copying Citrix Files to Your Portal" on page 258
- "Installing the Citrix ICA and Microsoft RDP Clients to Workstations" on page 259
- "Upgrading Application Objects" on page 259
- "Removing ZENworks 6 Web Self-Service Components" on page 260

Installing the ZENworks Launch Gadget to Your Portal

1. Make sure you have Novell exteNd Director 4.1 Standard Edition installed and running on a NetWare 6.x or Windows 2000/2003 server.

   For installation information, see the Novell exteNd Director 4.1 Standard Edition *Installation Guide* (http://www.novell.com/documentation/lg/nedse41).

2. At a Windows workstation from which you can administer your exteNd Director 4.1 portal, insert the *Novell ZENworks 6.5 Companion 2* CD into the CD drive.

   The *Novell ZENworks 6.5 Companion 2* CD contains the portal module file, ZENworks.npm, that includes the ZENworks Launch gadget that you will install to the portal. The file is located in the \ZENworks Launch Gadget directory.

3. Log in to your portal as an administrator.
4. Click Portal Administration > Administer the Portal to display the Portal Administration page.
5. Click Modules to display the Modules page.
6. Click Install to display the Install a New Module page.
7. In the Path to Module File Package field, click Browse, then browse to and select the ZENworks.npm file.

   The .npm file is in the \ZENworks Launch Gadget directory on the *Novell ZENworks 6.5 Companion 2* CD.
8. Click Install to display the Thin Client Support options, select ICA & RDP if you want support for both ICA and RDP clients or select RDP if you want support for RDP clients only, then click Next.
9. (Conditional) If you selected ICA & RDP for thin-client support, fill in the following fields, then click Next:

   Citrix XML Service Address: Specify the DNS name or IP address of the server where the Citrix IMA database resides. If you have multiple Citrix farms, enter the addresses of each server where an IMA database resides, separated by a comma.

   Citrix XML Service Port: Specify the port number being used by the Citrix XML Service. Typically, this is port 80. To check the port number in MMC, click Servers > Server Properties > MetaFrame XP Settings, then check the TCP/IP Port field.
10. When installation is complete, exit the portal.
11. If the portal is on a NetWare® 6.x server, restart the server.

    or

    If the portal is on a Windows 2000/2003 server, either restart the server or restart Tomcat.

Copying Citrix Files to Your Portal

If you are using Citrix servers for your terminal server environment, you must copy several Citrix files to the exteNd Director portal. These files are used by the Launch gadget when launching an ICA client session.

1. Using the *Citrix MetaFrame XP Presentation Server* CD, copy the entire \metaframe\w2k\program files\citrix\application\nfuse directory to the following portal directory:

   tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZenLaunchGadget

   The resulting directory is:

   tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZenLaunchGadget\nfuse
2. Move the *.properties files from the com.novell.ondemand.gadgets.ZenLaunchGadget\nfuse directory to the following portal directory:

   tomcat\webapps\nps\portal\WEB-INF\classes

   If any of the files already exist in the directory, keep the files with the newest dates.
3. Move the *.jar files from the com.novell.ondemand.gadgets.ZenLaunchGadget\nfuse directory to the following portal directory:

   tomcat\webapps\nps\portal\WEB-INF\lib

If any of the files already exist in the directory, keep the files with the newest dates.

Installing the Citrix ICA and Microsoft RDP Clients to Workstations

In order for the ZENworks Launch gadget to launch thin-client applications, the workstation must have the Citrix ICA client and Microsoft RDP client installed.

The following sections contain additional information:

- "ICA Client" on page 259
- "RDP Client" on page 259

ICA Client

The ZENworks Launch gadget requires the workstation to have either the ICA Program Neighborhood (PN) client or the ICA Web client installed. To install the PN client or Web client:

1. Download the PN client or the Web client files from the Citrix Download Clients site (http://www.citrix.com/site/SS/downloads/downloads.asp?dID=2755).
2. Distribute the client files to each workstation:
   - **2a** For the Web client, copy the wficat.cab file to the following location on your portal server:

     tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

     When a user launches a terminal server application that you've configured to run in an ICA client session, the Launch gadget uses the CAB file to install the Web client.
   - **2b** For the PN client, follow the installation instructions in the *Citrix Administrator's Guide*, or use Novell Application Launcher™ to distribute the client files.

     or

     Rename the PN client file to wficat.cab and copy it to the following location on your portal server:

     tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

RDP Client

The Microsoft RDP 5.1 client (msrdp.ocx) is included with the ZENworks Launch gadget. When a user launches a terminal server application that you've configured to run in an RDP client session, the Launch gadget installs the msrdp.ocx file to the c:\program files\novell\zenworks directory on the user's workstation and registers the OCX file.

Upgrading Application Objects

The ZENworks Launch gadget only displays applications whose Application objects are created with the ZENworks 6.5 snap-ins for ConsoleOne. If you have pre-6.5 applications that you want displayed in the Launch gadget, you need to re-create them using the 6.5 snap-ins.

Removing ZENworks 6 Web Self-Service Components

After you've upgraded to the ZENworks 6.5 Launch gadget, you should remove the portal assignments that gave users access to the ZENworks 6 Web Self-Service gadgets. If desired, you can also remove the pages and gadgets from your portal, as well as the Web Self-Service objects from Novell eDirectory™.

21 Upgrading from ZENworks 6 DeFrame

Novell® ZENworks® 6 DeFrame™ has been discontinued and is not included in ZENworks 6.5. Terminal server application support is now available through the Novell Application Launcher™ ability to launch an RDP client session to Microsoft Windows Terminal Server or an ICA client session to Citrix MetaFrame Server.

Terminal server management functionality, such as load balancing and disconnected session tracking, that was provided by ZENworks DeFrame is no longer available. Instead, you can use similar functionality provided in Windows Terminal Services and Citrix MetaFrame Server.

The following sections provide information to help you upgrade:

- "Terminal Server Requirements" on page 261
- "Uninstalling the DeFrame Files" on page 262
- "Deleting the DeFrame Server Object" on page 262
- "Using ZENworks Workstation Manager to Manage Local User Accounts" on page 262
- "Using Non-ZENworks Methods to Manage Local User Accounts" on page 270
- "Upgrading Application Objects" on page 270
- "Installing the Citrix ICA and Microsoft RDP Client to Workstations" on page 273

Terminal Server Requirements

The following table lists the minimum requirements for a Windows terminal server or Citrix MetaFrame Server supported by ZENworks 6.5.

Item	Minimum Requirement
Operating System	Windows 2000 Server with Service Pack 4 (latest service pack recommended). Windows Server 2003 (latest service pack recommended)
Windows Terminal Services	Version supported by the Windows 2000/2003 Server operating system.
Citrix MetaFrame (Optional)	Citrix MetaFrame XP Feature Release 3 (FR3). The latest service pack and hotfixes are recommended. You can download them at the Citrix Web site (http://www.citrix.com).

Item	Minimum Requirement
Desktop Management Agent	ZENworks 6.5 version. The Desktop Management Agent is required only if you want to dynamically create local user accounts on the terminal server. You can install all Desktop Management Agent components, but terminal server support requires only the Application Management and Workstation Management components.
Novell Client	Novell Client™ 4.9 SP1 (or later) for Windows 2000/XP. The Novell Client is required only if you install the Desktop Management Agent. The Management Agent uses the Novell Client to authenticate to Novell eDirectory and access the Dynamic Local User policy.
Internet Explorer	Internet Explorer 5.5 with Service Pack 2 with high security (128-bit or higher) encryption. Internet Explorer is required only if you install the Desktop Management Agent. If you install Internet Explorer 6.0, make sure that the privacy settings are configured to accept cookies. By default, Internet Explorer 6.0 does not accept cookies.

Uninstalling the DeFrame Files

The DeFrame files are installed as part of the ZENworks for Desktops 4.0.1 Management Agent installation. You remove the files by removing the Management Agent from the terminal server.

1. At the terminal server, open the Add/Remove dialog box (Start menu > Settings > Control Panel > Add/Remove Programs).
2. In the Currently Installed Programs list, select ZENworks for Desktops Management Agent, click Remove, then follow the prompts.

Deleting the DeFrame Server Object

Deleting the terminal server's DeFrame Server object from eDirectory disassociates the DeFrame Server object from any Application objects.

1. In ConsoleOne®, right-click the terminal server's DeFrame Server object, then click Delete NDS Object.
2. Click Yes to confirm the deletion.

Using ZENworks Workstation Manager to Manage Local User Accounts

To run thin-client applications on a terminal server, users need to have local user accounts on the terminal server. You can use Workstation Manager (installed with the Desktop Management Agent) and user policies to dynamically manage terminal server user accounts. If you plan to use Workstation Manager, complete the tasks in the following sections. If you don't plan to use

Workstation Manager, see "Using Non-ZENworks Methods to Manage Local User Accounts" on page 270 for other user management possibilities.

- "Installing the Novell Client and Desktop Management Agent" on page 263
- "Setting Up Workstation Manager" on page 263
- "Configuring Passthrough Authentication" on page 264
- "Setting Up Dynamic Local User Accounts and Profiles" on page 264

Installing the Novell Client and Desktop Management Agent

You must install the Novell Client and the Desktop Management Agent on each terminal server where you want ZENworks to dynamically manage terminal server accounts.

The Desktop Management Agent includes the Workstation Manager component that dynamically creates local user accounts on the terminal server. The Management Agent uses the Novell Client to authenticate to Novell eDirectory and access the Dynamic Local User policy.

1. Download the Novell Client 4.9 SP1 (or later) from the Novell Download Web site (http://download.novell.com) and install the client on the terminal server.
2. Install the Desktop Management Agent, making sure to install the Workstation Manager and Application Management components; the other components are optional.

   For information about installing the Desktop Management Agent, see Chapter 10, "Installing and Configuring the Desktop Management Agent," on page 91.

Setting Up Workstation Manager

ZENworks Desktop Management includes Novell eDirectory™ user policies that enable you to easily manage local user accounts and profiles on terminal servers. Workstation Manager, running on the terminal server, applies the policies when a user logs into the terminal server. This section helps you ensure that Workstation Manager is installed and configured correctly. Information about creating and using user policies is provided in "Setting Up Dynamic Local User Accounts and Profiles" on page 264.

Workstation Manager is installed as part of the Desktop Management Agent installation. You can verify that Workstation Manager is installed and running on the terminal server by checking for the Workstation Manager service in the Services window.

If you have multiple eDirectory trees, you should also make sure Workstation Manager is configured to read the eDirectory tree where your User objects reside. To do so:

1. Click the Start menu > Settings > Control Panel > Network Identity.
2. In the Novell Network Identity dialog box, click Settings.
3. Verify that the Enable Workstation Manager box is selected and that the tree is set correctly.
4. (Optional) Verify the Tree value in the Windows registry, underneath the HKEY_LOCAL_MACHINE/SOFTWARE/NOVELL/Workstation Manager/Identification key.

Configuring Passthrough Authentication

To simplify the process of launching terminal server applications, ZENworks Desktop Management provides passthrough authentication. With passthrough authentication, a user is not prompted for a username and password when he or she launches a terminal server application as long as the user's eDirectory account and Windows user account have the same username and password.

By default, passthrough authentication is configured automatically during installation of the Desktop Management Agent to the terminal server. However, to verify that configuration occurred correctly, we recommend you do the following:

1. Turn on the terminal server's Use Client Provided Logon Information setting and turn off the Always Prompt for Password setting:
   - **1a** At the terminal server, click Start > Programs > Administrative Tools > Terminal Services Configuration.
   - **1b** Double-click a connection type (the default is RDP-Tcp) to enter the properties.
   - **1c** In the Logon Settings tab, select the Use Client Provided Logon Information setting and deselect the Always Prompt for Password setting.
   - **1d** Repeat for each connection type.
2. Check the default profile configuration for the terminal server's Novell Client:
   - **2a** At the terminal server, right-click the Novell icon (N icon) in the status area of the taskbar, then click Novell Client Properties.
   - **2b** Click the Location Profiles tab.
   - **2c** In the Location Profiles list, select Default, then click Properties to display the Location Profiles Properties dialog box.
   - **2d** Select Login Service in the Service list, select Default in the Service Instance List, then click Properties to display the Novell Login dialog box.
   - **2e** Deselect (turn off) the Save Profile After Successful Login option.
   - **2f** Click the NDS tab.
   - **2g** In the Tree field, select the eDirectory tree where the thin-client applications are configured as Application objects.
   - **2h** Delete any information from the Context and Server fields.
   - **2i** To save the configuration settings, click OK until you've closed all dialog boxes.

Setting Up Dynamic Local User Accounts and Profiles

After you installed and configured Workstation Manager on your terminal servers, you need to enable and configure the policies that control local user accounts. In addition, you can configure user profiles specific to the terminal server. The following sections provide instructions:

- "Creating a User Policy Package" on page 265
- "Configuring Dynamic Local User Accounts" on page 267
- "Configuring Terminal Server User Profiles" on page 268
- "Associating the User Package with Users" on page 269

Creating a User Policy Package

You use the Windows 2000-2003 Terminal Server policies, available in a User Policy package, to manage dynamic local user accounts and roaming user profiles. You can use an existing User Policy package, or you can create a new User Policy package specifically for Windows 2000-2003 Terminal Server policies. If you already have a User Policy package that you want to use, skip to "Configuring Dynamic Local User Accounts" on page 129. Otherwise, complete the following steps to create a User Policy package:

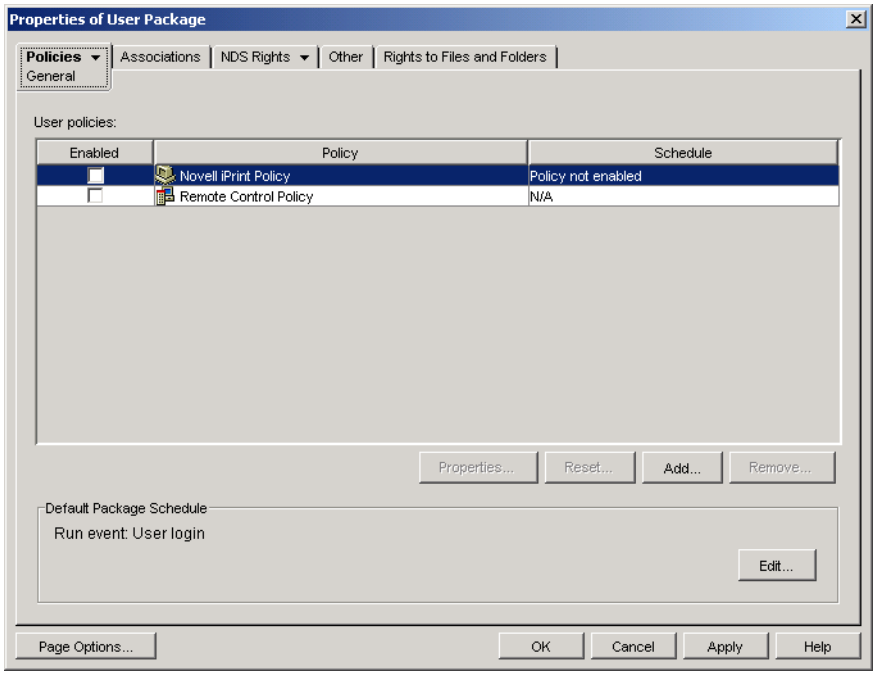
1. In ConsoleOne, right-click the container where you want to create the User Policy Package object, click New, then click Policy Package to display the Policy Package Wizard.

2. In the Policy Packages list, select User Package, then click Next.

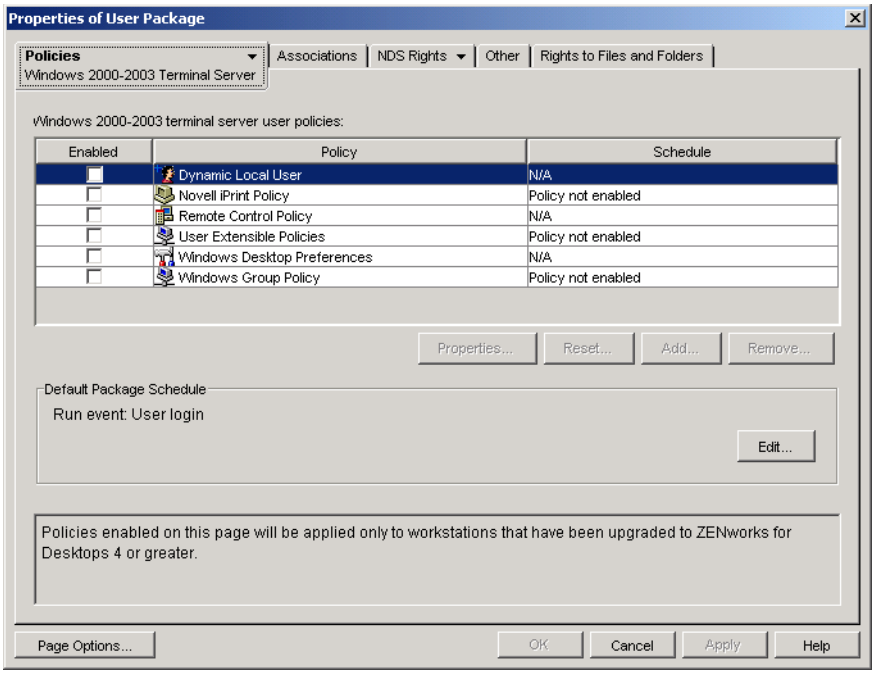
The package object's name must be unique within the container where it is created. If you plan to create multiple User Policy packages, you might want to use a more descriptive name, such as Win2000-2003 TS User Package. Or, you might want to create the policy in the same container where the policy's users reside.

3 If necessary, change the package's object name and the container where it will be created, then click Next.

4 In the Summary page, select Define Additional Properties, then click Finish to create the User Package object and display the object's property pages.



5 Click the Policies tab, then click Windows 2000-2003 Terminal Server to display the Windows 2000-2003 Terminal Server policies page.

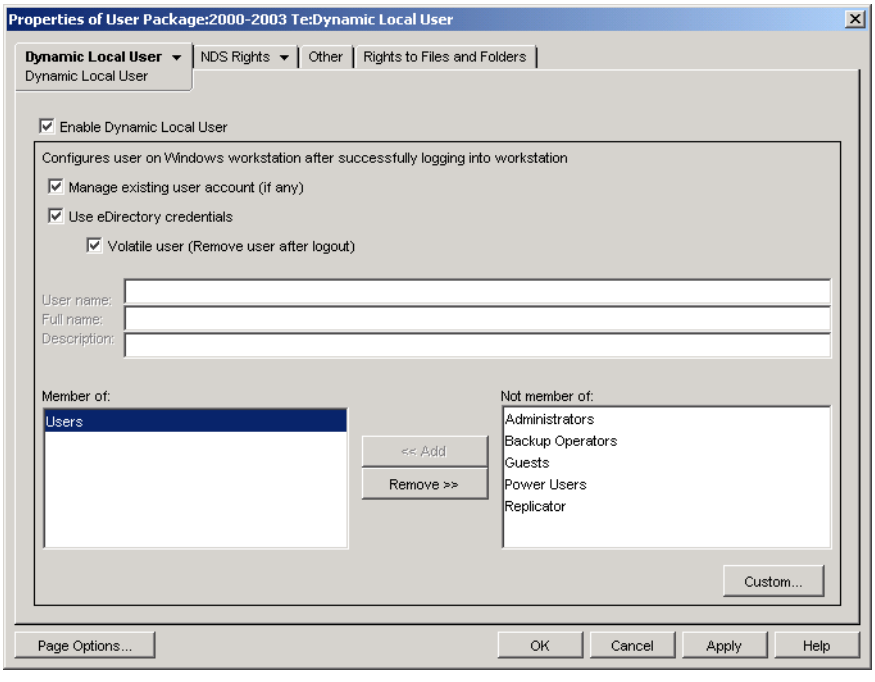


6 Continue with the next section, Configuring Dynamic Local User Accounts.

Configuring Dynamic Local User Accounts

You use the Dynamic Local User (DLU) policy to configure how Workstation Manager creates user accounts on the terminal server.

1 In the Windows 2000-2003 Terminal Server Policies page, select the check box to the left of the Dynamic Local User Policy to enable the policy, then click Properties to display the Dynamic Local Users property page.



2 Configure the following fields:

Enable Dynamic Local User: Select this option to enable Workstation Manager to dynamically create user accounts.

Manage Existing User Account (if any): If you want Workstation Manager to apply the DLU policy to existing user accounts, select this option. Otherwise, the DLU policy applies only to new user accounts.

Use eDirectory Credentials: Select this option to use eDirectory usernames and passwords for the local user accounts. With the user's eDirectory and Windows credentials synchronized and seamless authentication configured (see "Configuring Passthrough Authentication" on page 125), the user is not prompted for any credentials when launching a thin-client application from a terminal server.

Volatile User (Remove User after Logout): Select this option if you want a user's account removed after the user exits the thin-client application and the session is closed. All user account information is removed. If you want to retain user profiles, you can configure terminal server user profiles. Instructions are provided in the next section, Configuring Terminal Server User Profiles.

Member Of/Not Member Of: In the Not Member Of list, select the group (or groups) that you want users made members of, then click Add. Group membership determines a user's access rights on the terminal server. If none of the groups listed provides the exact file system rights you want assigned to user accounts, you can use the File Rights page (Dynamic Local User tab > File Rights page).

3 Click OK to save your changes and close the Dynamic Local Users property page.

4 Continue with the next section, Configuring Terminal Server User Profiles.

Configuring Terminal Server User Profiles

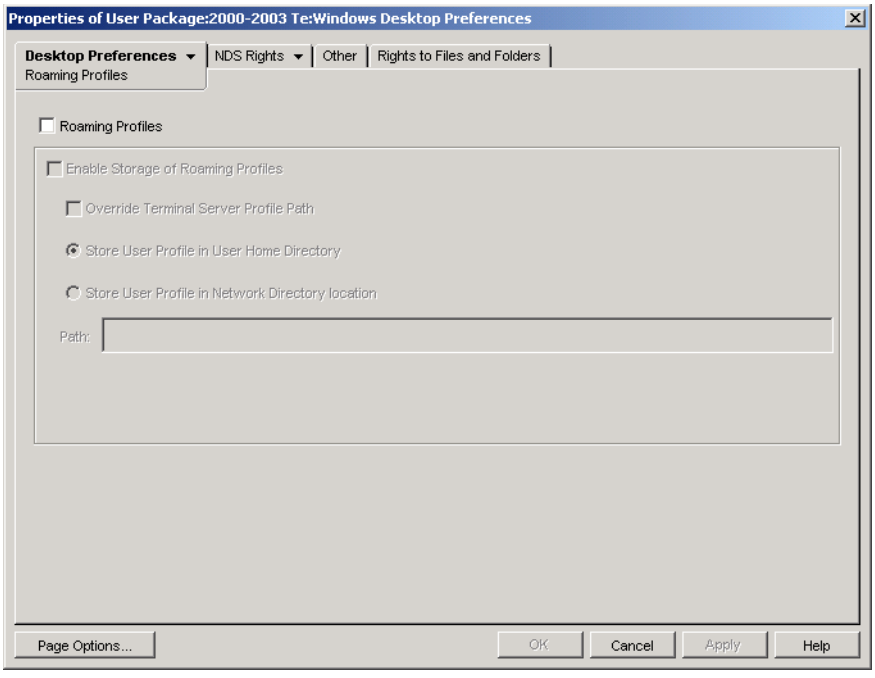
The Windows Terminal Server policy enables you to specify a network storage location for roaming user profiles. There are several advantages to using this policy: 1) It is applied only when a user logs into a terminal server, either through a remote or local session 2) It contains other configuration settings you can use to control client sessions.

Using this policy for user profiles is the same as configuring the Terminal Services Profile properties page for a user account on a Windows terminal server.

To configure user profiles through the Windows Terminal Server policy:

1 On the Windows 2000-2003 Terminal Server Policies page, select the check box to the left of the Windows Terminal Server Policy to enable the policy, then click Properties to display the policy's property pages.

2 Click the Terminal Configuration tab, then click Login to display the Login page.



3 Enable the Inherit Client Configuration option.

IMPORTANT: If you don't enable this option, when a user launches a terminal server application, the policy causes the session to open to the terminal server's desktop rather than the launched application.

4 In the Terminal Server Profile Path field, type the path to the network location where you want profiles stored. Keep in mind the following:

- Make sure you use the %username% variable to ensure that each user's profile is saved to a separate directory. For example:

  `\\server\vol1\profiles\%username%`

  Using the above path, the profile for user jsmith would be saved to the following location:

  `\\server\vol1\profiles\jsmith`

- Make sure the user's profile directory already exists. In the above example, \\server\vol1\profiles\jsmith must already exist for jsmith's profile to be saved there.
- Make sure the user has rights to his or her profile directory. If the profile directory is on a NetWare® server, you can assign rights through eDirectory. If the profile directory is on a Windows server, you must assign share rights through the user's Windows account.

5 Click OK to save your changes and close the Windows Terminal Server property pages.

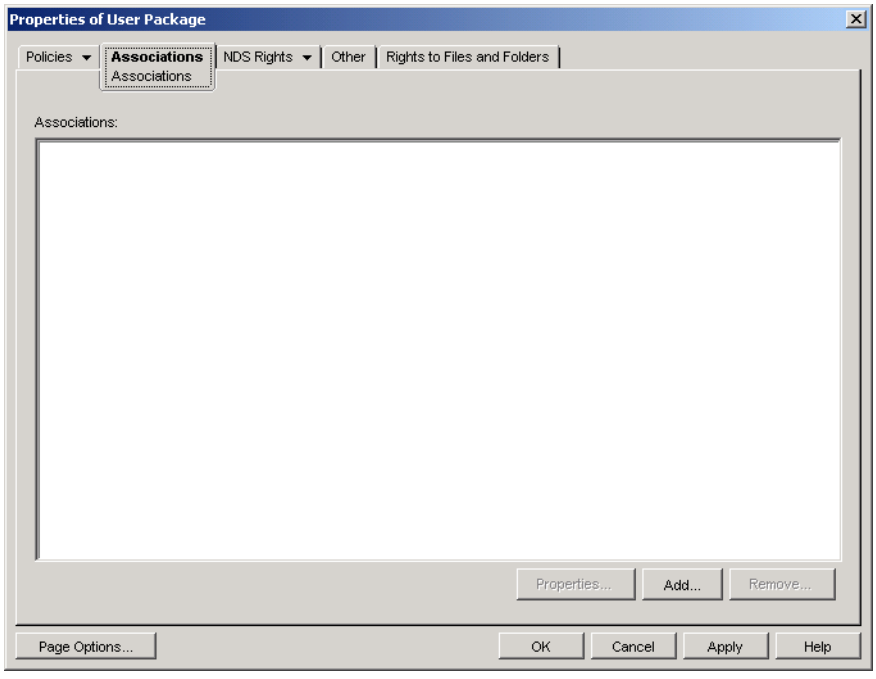
6 Continue with the next section, Associating the User Package with Users.

Associating the User Package with Users

You must associate the User Policy package with users before it will take effect.

1 If the User Package object's property page is not open, right-click the User Package, then click Properties.

2 Click the Associations tab to display the Associations page.



3. Click Add, then browse to and select the users you want the policy package applied to. You can add users, user groups, or containers.
4. When you've finished adding users, click OK to save your information.

Using Non-ZENworks Methods to Manage Local User Accounts

If you do not use Workstation Manager and user policies to dynamically create user accounts on terminal servers, you need to create the accounts some other way (for example, manually create static accounts on each terminal server or use Microsoft Active Directory to create them). For information about creating user accounts, see your Windows documentation. As you create user accounts, keep in mind the following:

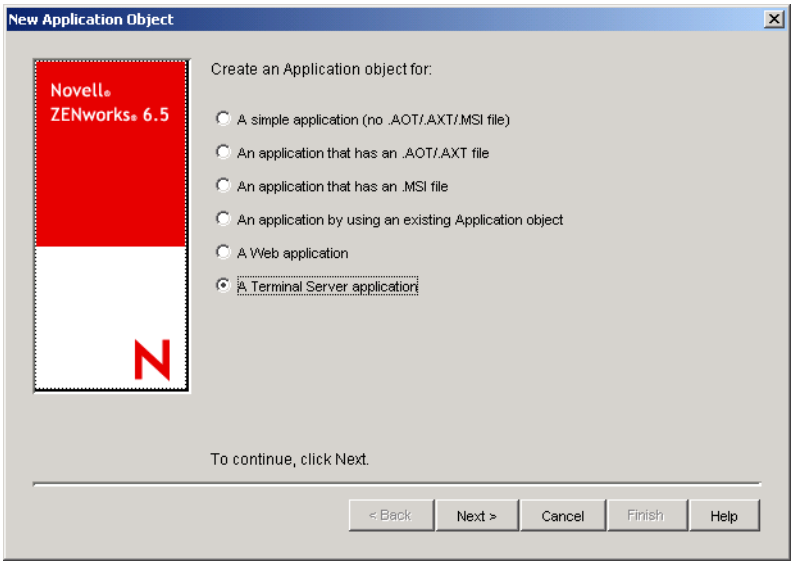
- For passthrough authentication to work for RDP applications, a user's Windows account must have the same username and password as his or her eDirectory account.
- Passthrough authentication does not work for ICA applications; users are always prompted for their login credentials when launching an ICA application. If you want passthrough authentication for ICA applications to work, you must use Workstation Manager and user policies.
- The user account must be given adequate file system access to run applications from the terminal server, either through group memberships or individual user permissions.

Upgrading Application Objects

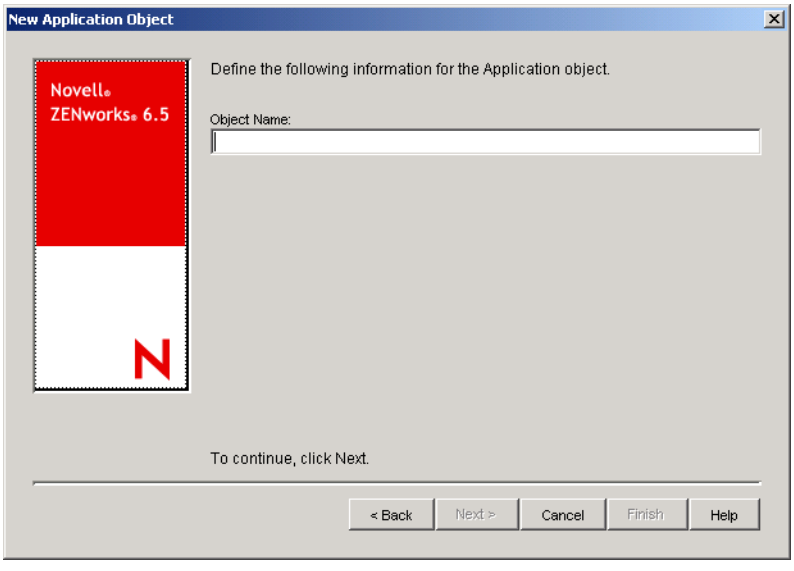
The Application objects created for applications hosted on DeFrame terminal servers cannot be used by the ZENworks 6.5 Novell Application Launcher, Novell Application Launcher plug-in, or ZENworks 6.5 Launch gadget. You must upgrade the Application objects by recreating them in eDirectory as Terminal Server Application objects. To do so:

1. In ConsoleOne, right-click the container where you want to create the Application object, click New, then click Object.

2 In the New Object dialog box, select Application, then click OK to display the New Application Object dialog box.



3 Select the Terminal Server Application option, then click Next to display the Object Name dialog box.



4 Specify a name for the Application object.

The Application object's name must conform to the following rules:

- The name must be unique in the container.
- Special characters are allowed. However, plus (+), equals (=), and period (.) must be preceded by a backslash (\) if used.
- The following characters are valid in Application object names but are invalid when used in Windows folder and file names:

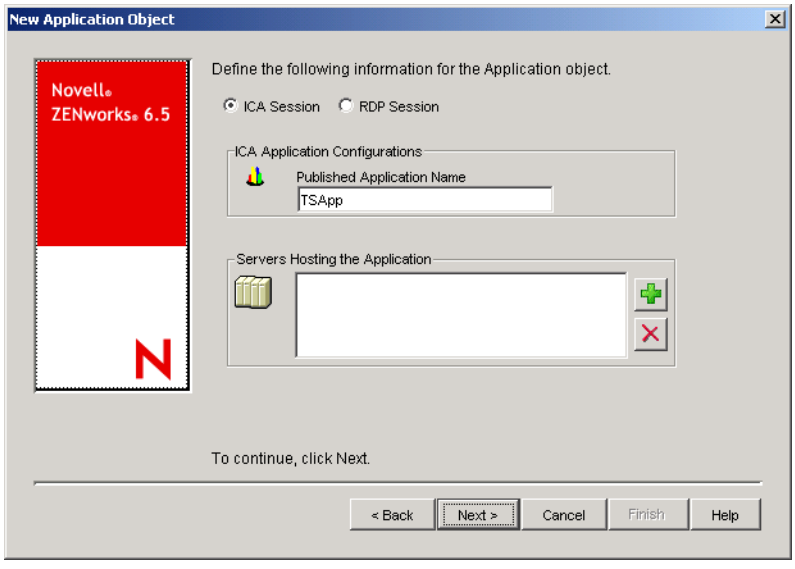
  \ / : * ? " < > |

If you use these characters in the Application object name, they are replaced by an underscore (_) when displayed in locations controlled by Windows and not Novell Application Launcher (for example, on the Windows desktop).

- Uppercase and lowercase letters, as well as underscores and spaces, are displayed as you first entered them, but they aren't distinguished. For example, ZENworks_Desktop_Management and ZENWORKS DESKTOP MANAGEMENT are considered identical.

The name is visible in eDirectory. By default, the Application object's name is also used as the Application object's icon title when displayed by Application Launcher on a user's workstation. You can, if necessary, change the icon title after the Application object has been created (Application object > Identification tab > Icon page).

5 Click Next to display the ICA/RDP Session dialog box.



6 Fill in the following information to configure the ICA or RDP client session in which the application will run.

If you select ICA Session, fill in the following fields:

ICA Session: Select this option if to have the application run in an ICA (Independent Computing Architecture) client session. Citrix MetaFrame requires ICA client sessions.

- **Published Application Name:** By default, this field is populated with the Application object name you entered on the previous page. If the name does not match the application name exactly as it is defined in the Citrix IMA database, change the name to the Citrix published application name.
- **Servers Hosting This Application:** Add the Citrix servers that host the application. To add a server, click the Add button, enter the server's IP address or DNS hostname, then click OK.

  The server's you define here are used only when the application is launched from Novell Application Launcher or the Novell Application Launcher plug-in. The ZENworks Launch gadget uses the servers defined in its configuration settings. For information about the ZENworks Launch gadget's configuration settings, see "ZENworks Launch Gadget: Configuring Settings" in "Application Management" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

RDP Session: Select this option if you want the application to run in an RDP (Remote Desktop Protocol) client session. Microsoft Windows Terminal Server requires RDP client sessions. Citrix MetaFrame also supports RDP client sessions.

If you select RDP Session, fill in the following fields:

- **Terminal Server Address and Port:** Specify the terminal server's IP address or hostname. If the terminal server is not using default port 3389, edit the Port field to specify the correct port number.
- **Server Domain:** If the terminal server is part of a Windows NT domain or an Active Directory domain, specify the domain name.
- **Application Path:** Specify the path to the application's executable file. If you are running ConsoleOne on the terminal server, you can browse for and select the file.
- **Working Directory: Specify the path to the directory where the application can create work files.**

7 Click Next, then define the rules that control distribution of the application to a workstation. To do so:

7a Click Add, then select the type of rule you want to define.

7b Fill in the information for the rule (click Help for information about the rule), then click OK to add the requirement to the list.

NOTE: An operating system version (OS Version) rule was required in previous ZENworks versions. It is no longer required.

8 Click Next, then associate the Application object with the users or workstations that you want to distribute the application to. To do so:

8a Click Add, then browse for and select User or Workstation objects. You can also select Group objects, Workstation Group objects, and container objects (Organizational Unit, Organization, or Country). If you select a container object, you are given the choice of associating all the container's User and/or Workstation objects with the application.

IMPORTANT: Each workstation to be associated with applications must first be imported into eDirectory as a Workstation object.

8b After you add the user or workstation to the list, select the appropriate check boxes for the user or workstation to set the characteristics (Force Run, App Launcher, Start Menu, Desktop, System Tray, Quick Launch, and Force Cache) you want applied to the application. Click Help for a description of each of these characteristics.

9 Click Next, review the Application object settings, then click Finish to create the Application object.

Installing the Citrix ICA and Microsoft RDP Client to Workstations

Whenever Novell Application Launcher, the Novell Application Launcher plug-in, or the ZENworks Launch gadget launches a terminal server application, it uses the Citrix ICA or Microsoft RDP client to create the client session with the terminal server. This requires that the ICA and RDP client be installed on each user's workstation.

ICA Client

The workstation must have either the ICA Program Neighborhood (PN) client or the ICA Web client installed. If the PN client or Web client is not already installed on your users' workstations:

1 Download the PN client or the Web client files from the Citrix Download Clients site (http://www.citrix.com/site/SS/downloads/downloads.asp?dID=2755).

2 Distribute the client files to each workstation. To do so:

2a Follow the instructions in the *Citrix Administrator's Guide*, or use Novell Application Launcher to distribute the files.

2b (Conditional) If you are using the ZENworks Launch gadget, copy the Web client file (wficat.cab) to the following location on your portal server:

tomcat\webapps\nps\portal\gadgets\com.novell.ondemand.gadgets.ZENLaunchGadget\bin

or

For the PN client, rename the file to wficat.cab and copy it to the location listed above.

When a user launches a terminal server application that you've configured to run in an ICA client session, the Launch gadget uses the CAB file to install the client. After that occurs, users can launch ICA applications from Novell Application Launcher, the Novell Application Launcher plug-in, and the ZENworks Launch gadget.

For information about using the ZENworks Launch gadget, see Chapter 20, "Upgrading to the ZENworks 6.5 Launch Gadget," on page 257.

RDP Client

The Microsoft RDP 5.1 client (msrdp.ocx) is included with the ZENworks Desktop Management Agent and the ZENworks Launch gadget. During installation of the Desktop Management Agent, msrdp.ocx is installed to the c:\program files\novell\zenworks directory. With the ZENworks Launch gadget, when a user launches a terminal server application that you've configured to run in an RDP client session, the Launch gadget installs the msrdp.ocx file to the c:\program files\novell\zenworks directory.

22 Upgrading to ZENworks 6.5 Desktop Management Support Pack 1

This section includes procedural information necessary for upgrading from Novell® ZENworks® 6.5 Desktop Management to ZENworks 6.5 Desktop Management Support Pack 1 (SP1).

The following information is included in this section:

- "Overview" on page 275
- "Pre-Installation Checklist" on page 276
- "Installing the SP1 Upgrade for the Desktop Management Server" on page 277
- "Upgrading the ZENworks Middle Tier Server" on page 283
- "Upgrading the ZENworks Management Agent" on page 293

Overview

Review the following information to understand the functions of the SP1 upgrade.

- "What to Expect from the SP1 Installation" on page 275
- "What the SP1 Installation Program Does Not Do" on page 276
- "Incrementally Upgrading Your Network Servers" on page 276

For information about the changes in SP1, see "What's New in ZENworks 6.5 Desktop Management Support Pack 1" on page 193.

What to Expect from the SP1 Installation

- The SP1 installation program uses the original 6.5 installation paths to discover and upgrade the ZENworks 6.5 Desktop Management software.
- The SP1 installation program automatically stops and restarts services (except for the Inventory service) if they are running on a server.
- SP1 files are always copied, replacing both older and newer files with the upgraded files. Files copied to other locations outside of the ZENworks directories are replaced only if they are older.
- The SP1 installation upgrades the ConsoleOne® snap-ins to ZENworks 6.5 SP1 on both the installation workstation and on any target servers found by the upgrade wizard. For the ConsoleOne check box to show as selected, the version of the snap-ins previously installed must be version 6.5.

What the SP1 Installation Program Does Not Do

- The installation program does not allow you to deselect any feature check boxes in the installation program. Their status is determined by the installation program when you select the servers for upgrading.
- The installation program does not upgrade any ZENworks versions earlier than ZENworks 6.5 Desktop Management to ZENworks 6.5 Desktop Management SP1.
- The installation program does not install ZENworks components where they were previously not installed.
- The installation program does not allow you to select Workstation objects where ConsoleOne is installed but does not have the 6.5 Desktop Management snap-ins. To update an individual workstation with the Desktop Management SP1 snap-ins, you must run the original ZENworks 6.5 Desktop Management Server installation program from that workstation.
- The installation program does not upgrade any eDirectory objects; it updates only previously installed ZENworks 6.5 software.
- If you are upgrading the Inventory server, the installation program does not automatically start the Inventory service. You must manually start the service after the SP1 upgrade.

Incrementally Upgrading Your Network Servers

You can upgrade all ZENworks 6.5 servers (in a single eDirectory tree) to SP1 in one pass, or incrementally (such as geographical locations).

The SP1 installation program updates servers one at a time. If you have several servers, consider the time that it might take to upgrade all of them in one installation session. If that single session might take too long, select target servers in groups so that you can upgrade one group at a time.

Pre-Installation Checklist

- ❑ Make sure you have fulfilled all of the installation requirements listed in "Preparation" on page 29.
- ❑ Make sure that ZENworks 6.5 Desktop Management has been installed on the machines where you want to install ZENworks 6.5 Desktop Management SP1.
- ❑ Review the SP1 Readme for any last-minute information concerning installation. The readme for ZENworks 6.5 Desktop Management Support Pack 1 is available on the Novell ZENworks 6.5 documentation Web site (http://www.novell.com/documentation/zenworks65).
- ❑ Download and save the ZENworks 6.5 Desktop Management Support Pack 1 installation program from the Novell Support Web site (http://support.novell.com).

  If you save the SP1 installation download to the installing workstation's hard drive, the path between the root of the hard drive and the directory where you copied the SP1 installation download can contain only directory names that conform to the 8.3-character DOS file naming convention. If any long directory names exist in the path, the installation program does not launch.
- ❑ If you are installing to a cluster, you must manually unload Java on each cluster node. Although the installation program normally unloads Java automatically, it does so only on nodes where the virtual server resides. To unload Java on each cluster node, enter **`Java -exit`** on the server's command line.

- If you have any instance of Novell ConsoleOne that was launched from mapped drive on a workstation and is currently running on a target server, or if there is an instance of ConsoleOne that is running from the installing workstation, exit those instances of ConsoleOne before you run the installation program. If ConsoleOne is running in these situations, the updated ZENworks 6.5 Desktop Management snap-ins for ConsoleOne are not installed at those locations.
- On the workstation you will use to install Desktop Management, if you have not already done so, log in to all eDirectory trees where you will be installing Desktop Management software.

  During installation, you are authenticated to all of the target NetWare servers in the trees where you are logged in, so you can select those servers for installing SP1.
- If you will be installing SP1 to any Windows servers, make sure you have closed the Services window on each Windows server and that you have authenticated to the servers or to a domain containing the servers.

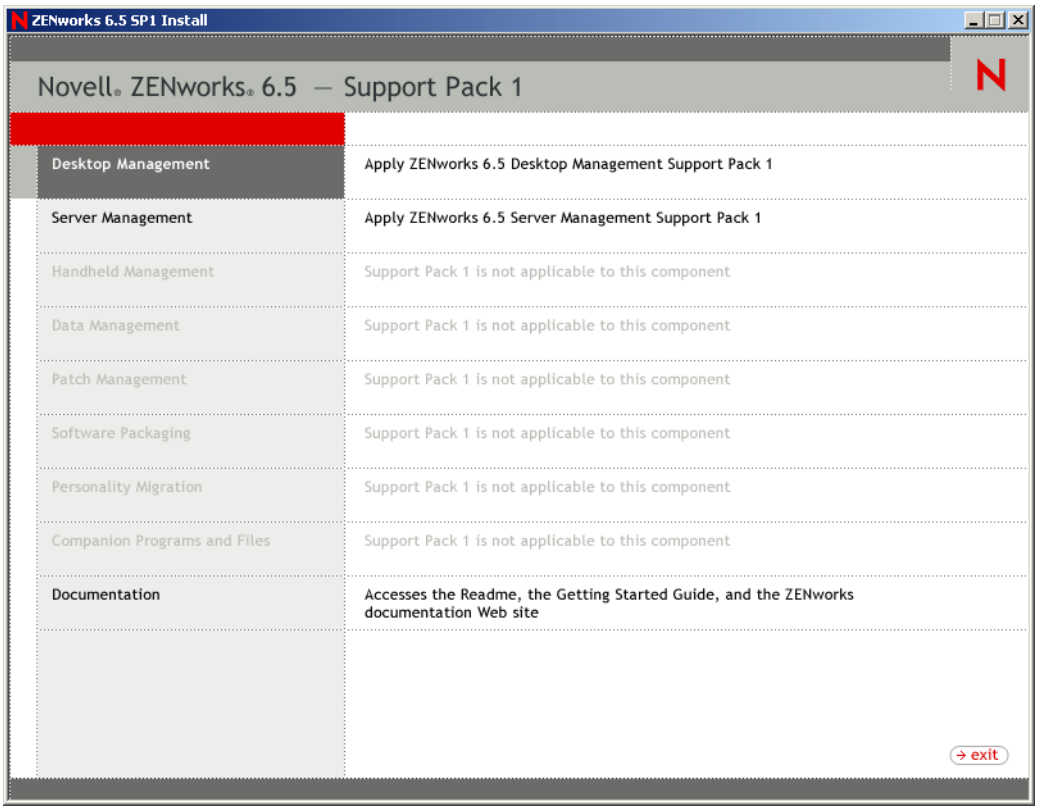
  Although the installation program stops all ZENworks Desktop Management services, these services cannot be registered if the Services window is open during installation to the server.
- If you will be installing SP1 to a ZENworks 6.5 Inventory server that has been previously upgraded from ZENworks for Desktops 3.2 SP3 or ZENworks for Desktops 4.*x,* you must start the Inventory service and the database at least once prior to upgrading the server to ZENworks 6.5 Desktop Management SP1.

Installing the SP1 Upgrade for the Desktop Management Server

Use the following steps to install the ZENworks 6.5 Desktop Management Server Support Pack 1 (SP1) on a NetWare® or Windows server.

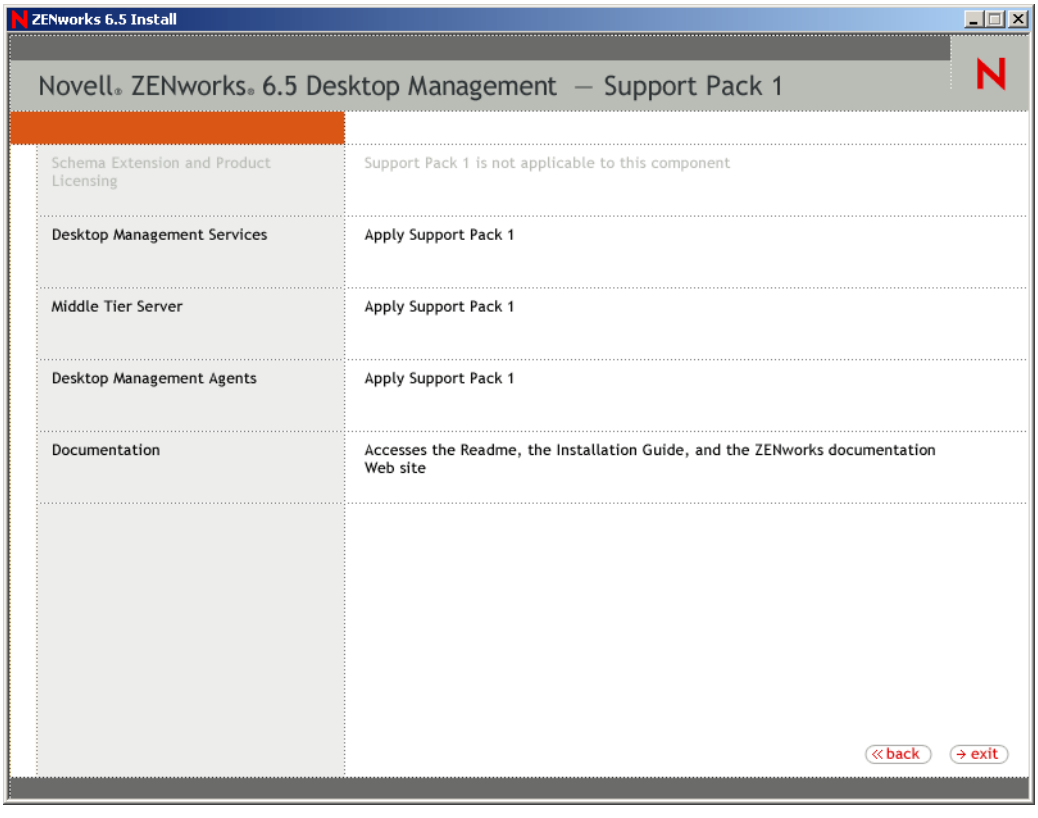
1. Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the SP1 installation program.

   The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.
2. Browse to the SP1 installation program that you previously downloaded from Novell Support and run the winsetup.exe program.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Desktop Management Services to launch the Desktop Management Server installation wizard.

6 On the first Installation page, read the details about running the installation program, then click Next.

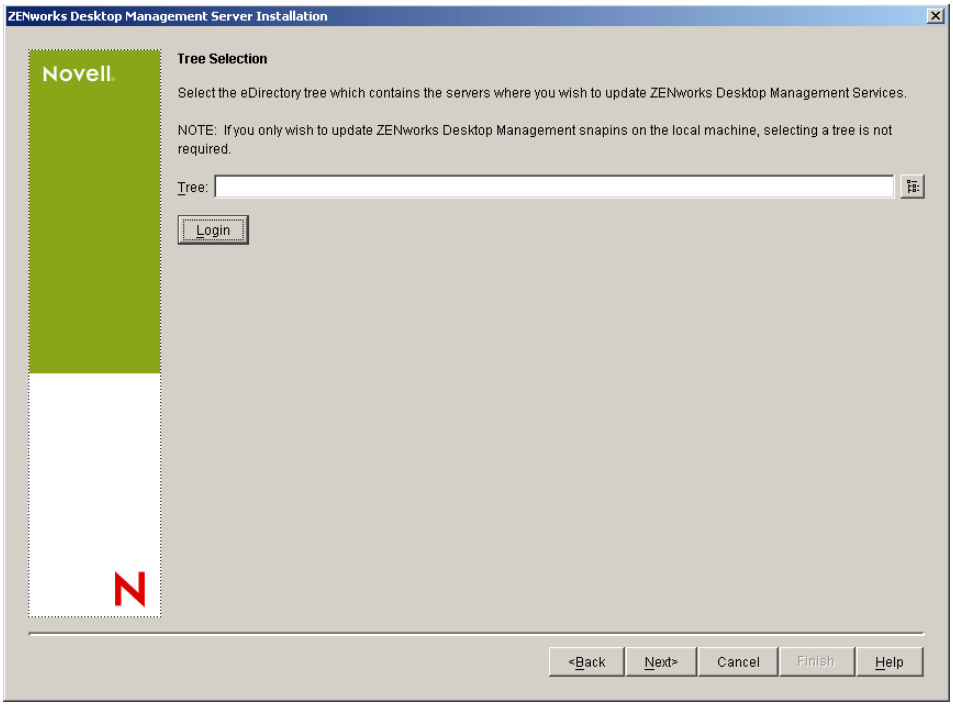
7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Desktop Management Server Support Pack 1, make sure that the server where you plan to install meets the listed requirements, then click Next.

9 On the Tree Selection page, type or browse to the name of the Novell eDirectory™ tree where you want to update the Desktop Management Server to SP1, then click Next.

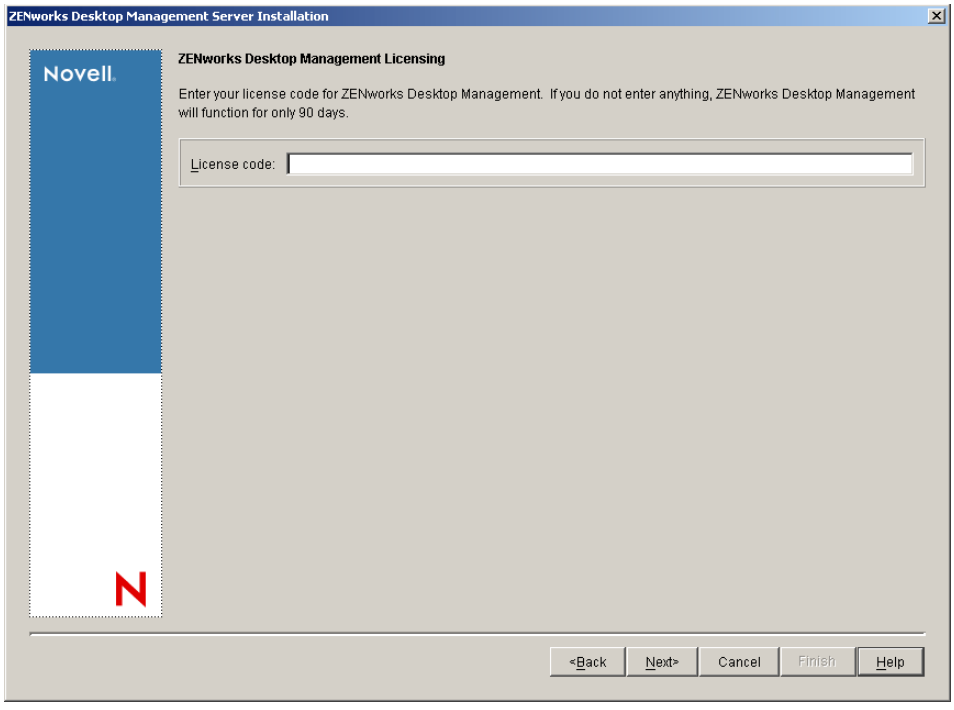
Because you are installing ZENworks 6.5 Support Pack 1 (SP1), the eDirectory tree is already extended, so the Extend Schema check box from the 6.5 installation is not included on this page of the SP1 installation.



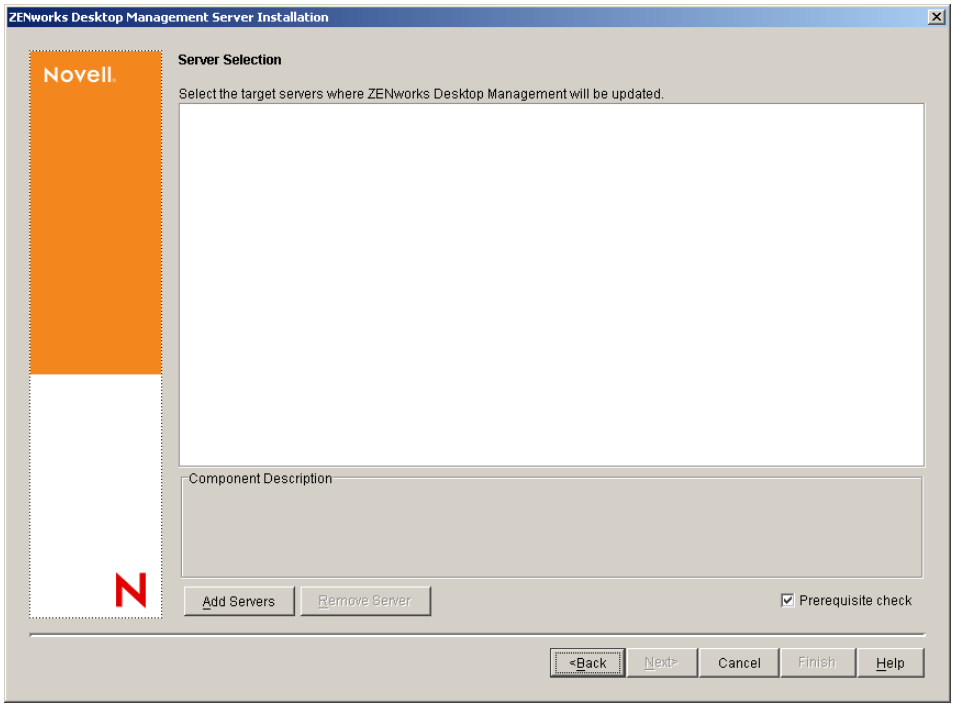
If you want to install only the ZENworks Desktop management snap-ins to your local administrative workstation, you do not need to select a tree.

You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

10 On the ZENworks Desktop Management Licensing page, click Next to retain the license code you installed with the original version of ZENworks 6.5 Desktop Management.



11 On the Server Selection page, click Add Servers to browse to the names of the servers where you want to install Support Pack 1.



You can select servers only from the tree you selected in Step 9.

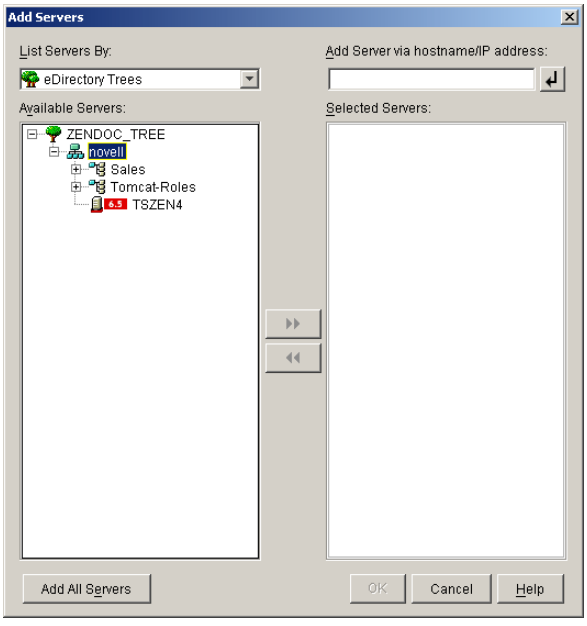
The Desktop Management Server is not supported on some network operating systems, even though those servers might be included on the available servers list. Check the list of supported servers displayed at the beginning of this installation program (following the

license agreement) or refer to the ZENworks Desktop Management Online Documentation for more information.

In ZENworks 6.5 Desktop Management SP1 it is possible add to servers that have no previous installation of the ZENworks Desktop Management Server, but if they are selected for addition, the installation rejects them as candidates for the SP1 update.

IMPORTANT: If you previously installed Desktop Management Services on a NetWare cluster, you should select the cluster volume (that is, the virtual cluster server) as the target for those components. If you are installing the ConsoleOne snap-ins on the cluster, choosing the cluster volume installs the snap-ins on each cluster node.

11a (Optional) In the Add Servers dialog box, you can list servers by their eDirectory tree names. To install to a server, select eDirectory Trees, then browse to and click the name of the server you want to install to or click Add All Servers to select all of the servers in a container, click the right-arrow button to move your selected servers to the Selected Servers pane, then click OK.



Windows servers are not available for selection when you browse the directory unless you have installed eDirectory on those servers.

If you want to add a Windows server that you might not be authenticated to, you can double-click the server icon to display a dialog box where you can enter credentials to allow for Windows authentication.

11b (Optional) In the Add Servers dialog box, you can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you provide must be resolvable to the name of a server.

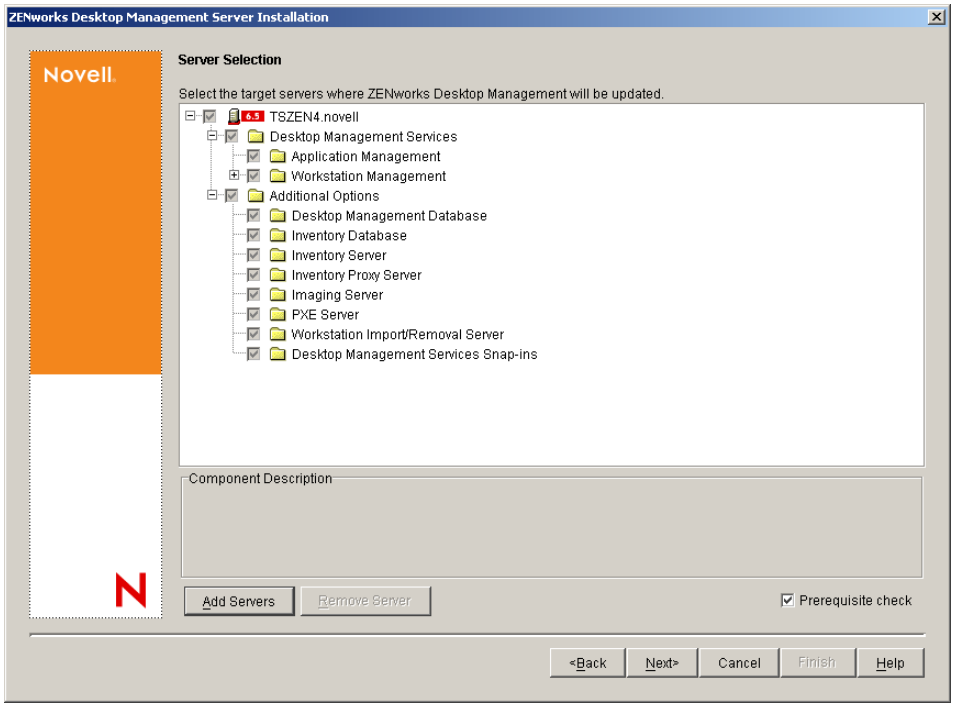
Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

12 On the now-populated Server Selection page, only those services previously installed by ZENworks 6.5 on that server are available for the SP1 update. With the exception of the Local Workstation setting, you cannot change the selections.

NOTE: For a description of these services, see "Performing the Full Installation (Including Schema Extension)" on page 58.

Local Workstation: In the ZENworks 6.5 installation, you had the option of installing Desktop Management Services snap-ins to your local workstation by selecting the Desktop Management Service Snap-ins check box under the Local Workstation option.

In the SP1 installation, the check box is displayed if the snap-ins were previously installed locally. You can deselect the check box if you want to.



13 (Optional) Prerequisite Check is selected by default. Retain the selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Desktop Management Services.

The installation program checks the version of the server's network operating system (including any required service or support packs), the presence and version of the Novell Client™ (4.9 SP1a) on Windows servers and on the installing workstation, and the presence and version of ConsoleOne (1.3.6).

If the server operating system and support/service packs are not the correct version, the installation displays an error or a warning message and does not continue until the required software is installed and detected or until you deselect the check box.

14 On the Summary page, review the list of components and their parts that are to be installed. If the summary is correct, click Finish to launch the installation program.

You can click Back as many times as necessary to make changes.

If you click Cancel, no installation information is saved.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmserver_install.log (for example: 20040304_024034_zdmserver_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmserver_installsummary.log

(for example: 20040304_024034_zdmserver_installsummary.log). It is also located in c:\novell\zfdtemp.

15 (Conditional) If you have upgraded Inventory server, you must manually start the Inventory service.

- **On NetWare Servers:** Enter `startinv` at the server's main console prompt.
- **On Windows Servers:** Continue with Step 15a, below.

15a Open the Control Panel.

15b Double-click Administrative Tools, then double-click Services.

15c Select Novell Inventory Service, then click Start.

Post-Upgrade Task

If a ZENworks 6.5 Inventory server receives ZENworks software dictionary updates from a ZENworks 6.5 SP1 Inventory server, you must perform the following tasks on the ZENworks 6.5 Inventory server:

1 Stop the Inventory service.

2 Make a reliable backup of desktopcommonutility.jar located in the *Inventory_server_installation_path*\zenworks\inv\server\wminv\lib directory

3 Copy desktopcommonutility.jar from *ZENworks 6.5 SP1 Companion CD*\companion2\zen65patch\inv\server\wminv\lib to the *Inventory_server_installation_path*\zenworks\inv\server\wminv\lib directory.

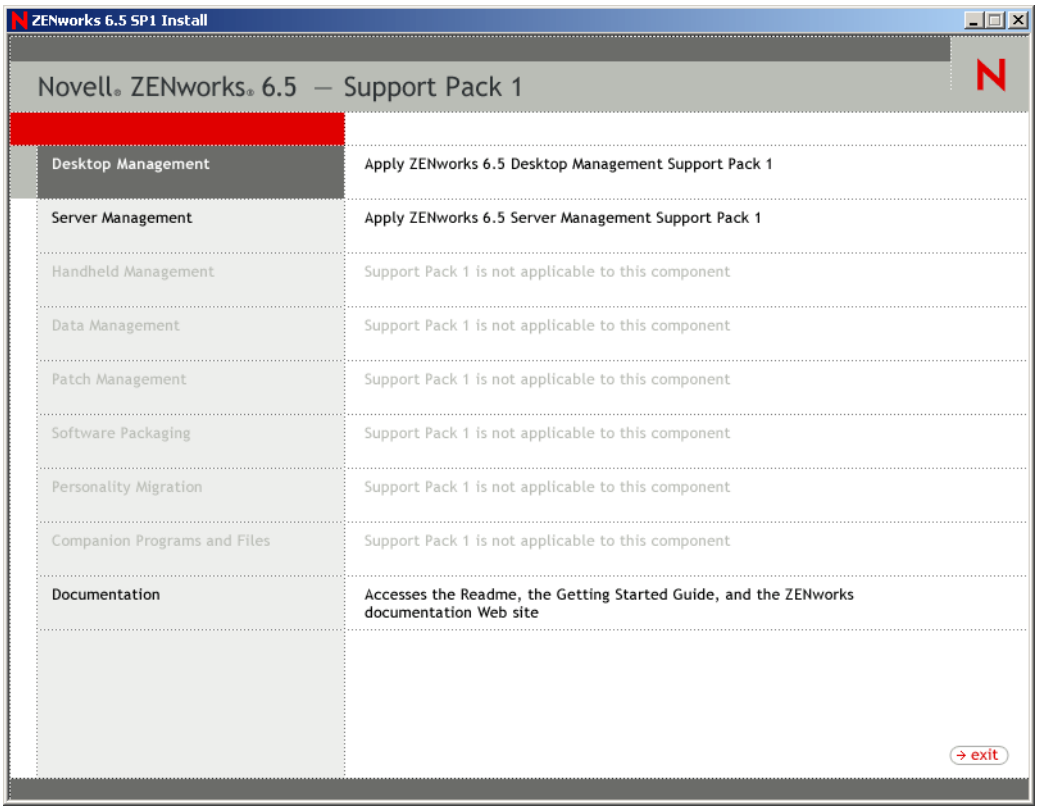
4 Start the Inventory service.

Upgrading the ZENworks Middle Tier Server

Use the following steps to install the ZENworks 6.5 Desktop Management Server Support Pack 1 (SP1) on a NetWare or Windows server.

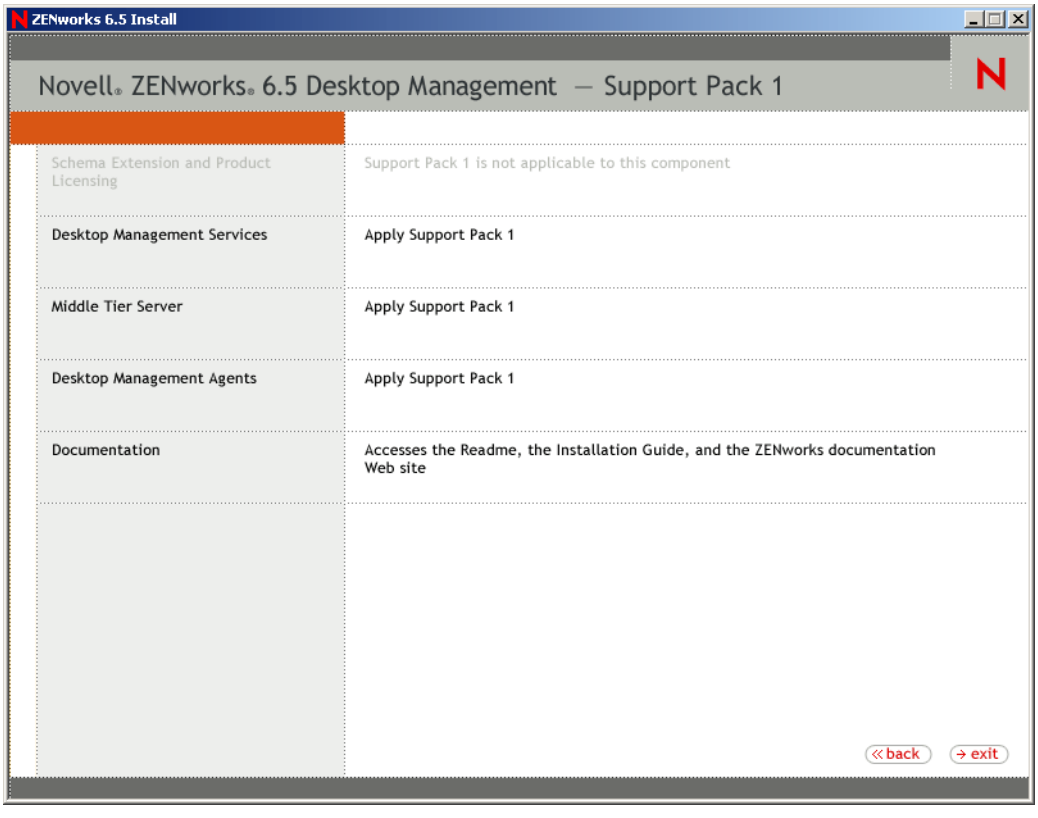
1 Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the Middle Tier Server SP1 installation program. The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.

2 Browse to the SP1 installation program that you previously downloaded from Novell Support and run the winsetup.exe program.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Middle Tier Server to launch the Middle Tier Server installation program.

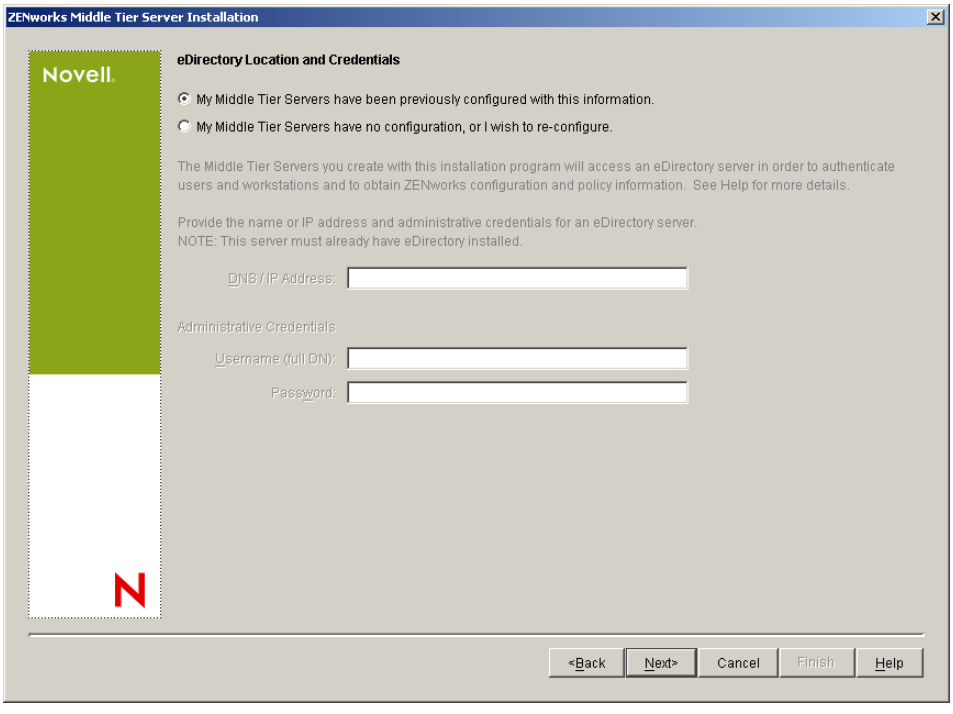
6 On the first Installation page, read the details about running the installation program, then click Next.

7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Middle Tier Server software, make sure that the server where you plan to install meets the listed requirements, then click Next.

9 The eDirectory Location and Credentials page in the SP1 installation program includes a radio button you can select to retain the Middle Tier configuration you used with the original 6.5 installation. It also includes a radio button that you can select to enable you to configure or to reconfigure the ZENworks Middle Tier Servers.



9a (Optional) If you choose to retain the original configuration, click Next to continue the installation. Proceed to Step 12 on page 287.

9b (Optional) If you choose to configure or reconfigure the Middle Tier Servers, fill in the fields:

DNS/IP Address: Specify the DNS name or IP address of the server where eDirectory is installed.

Username (full DN): Specify the fully-qualified distinguished username of the Middle Tier proxy user account (for example, midtier-proxy.org-unit.org). To ensure that these credentials remain secure, you can set up an arbitrary user with specific administrative rights.

For a description of the required rights, see "Required Rights for the Middle Tier Proxy User Account" on page 84.

Password: Specify the eDirectory password for the Middle Tier proxy user.

10 (Conditional, if you previously chose Step 9b) On the ZENworks User Context page (User Context field), specify the eDirectory context where the Middle Tier Server can look for user objects that will be used by Desktop Management.

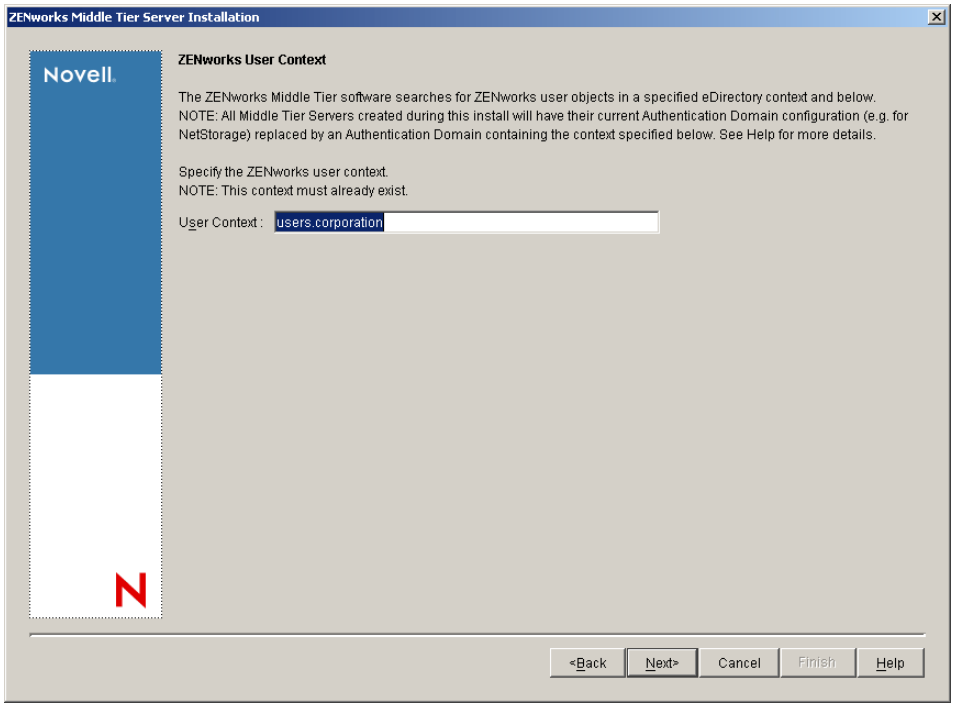
You should use the context of the highest-level container where user objects reside. This value is passed to the ZENworks Middle Tier Server, which will use it as a starting point in searching for a user.

For example, if users exist in many subcontainers, specify the context of the container that holds all of those subcontainers. When a user logs in through the ZENworks Middle Tier Server, the server begins searching for a user in the designated eDirectory container, then searches subcontainers in that container until the correct user is found.

For any Middle Tier Server you designate during this installation, currently configured authentication domains (for example, the authentication domain configured for NetStorage) are replaced by a single authentication domain having the context that you specify here.

After the installation, you can reconfigure this authentication domain context using the NSAdmin utility. You can open the utility in a Web browser (http://*middle_tier_server_name*/oneNet/nsadmin).

The installation program verifies the existence of the context (that is, the container) before continuing.



11 (Conditional, if you previously chose Step 10) On the ZENworks Files Location page, select the network location where you will access application and policy files managed by ZENworks.

The ZENworks Middle Tier Server requires access to ZENworks files installed elsewhere on your network. As the ZENworks Administrator, you define the location of these files when you create policies or applications for distribution. The information you provide on this page is used to help the Middle Tier Server determine how to access different file systems. This

decision is necessary for the installation now, even if you have not yet created any ZENworks files.

- Select the first option button if your ZENworks-managed application and policy files will be located on NetWare servers only.
- Select the second option button if some or all of your ZENworks-managed application and policy files will be located on Microsoft Windows servers.

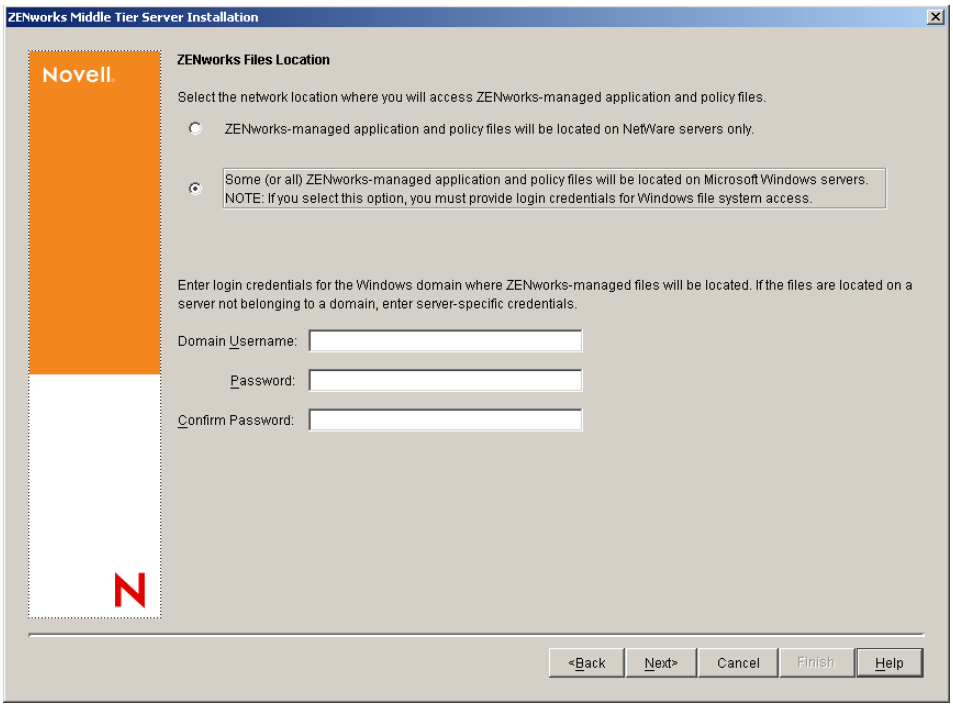
If your ZENworks files will be located in a Windows file system, the Middle Tier Server might not be able to access them using a username and password for Novell eDirectory; instead, it requires Windows domain credentials to access the files.

If the files are located on a server not belonging to a domain, enter server-specific credentials.

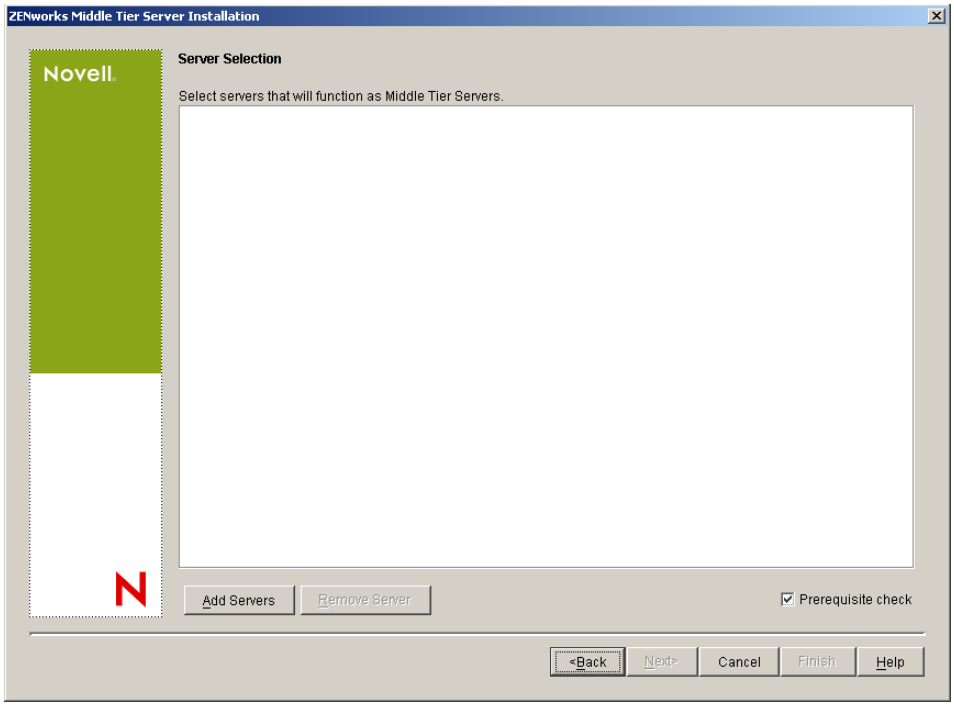
Domain Username: Specify the username of any user in the Microsoft domain who has Windows file system rights to the ZENworks file locations.

Password: Specify the password for the user in the Microsoft domain who has file system rights to ZENworks files.

Confirm Password: Specify the same password to confirm that it was entered correctly.



12 On the Server Selection page, you need to build a list of target servers that you want to function as Middle Tier Servers. The Add Servers button calls a dialog box that is used to find and add servers to the list. The Remove Servers button lets you delete servers from the target list after they are added. Click Add Servers.



13 (Optional) Prerequisite Check is selected by default. You can retain this selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Middle Tier Servers.

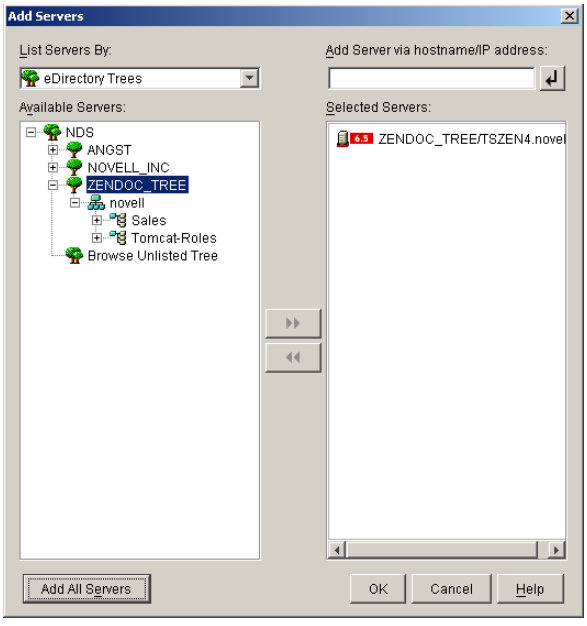
The installation program checks the version of any previously installed Middle Tier Server software, the server's network operating system (including any required service or support packs), the presence and version of the IIS Web server on Windows servers, the presence and version of the appropriate Web server on NetWare servers, and the presence and version of NetStorage (2.6.0) on target servers.

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, but it can continue. If other requirements are not met, the installation displays a warning and does not continue until the required software is installed and detected.

14 In the Add Servers dialog box, open the List Servers By drop-down list to show the options of listing the servers according to their location in Novell eDirectory trees, in Microsoft Windows Network structures, or in Microsoft Active Directory trees.

You can install the ZENworks Middle Tier Server software to several servers during the installation. When you have finished adding servers to the list, click OK.

14a (Conditional if you want to list servers in eDirectory trees.) In the List Servers By drop-down box, select eDirectory Trees to list all of the eDirectory Trees to which you are currently authenticated, browse the tree to the server of your choice, then click the double right-arrow to move the server icon to the Selected Servers list box.

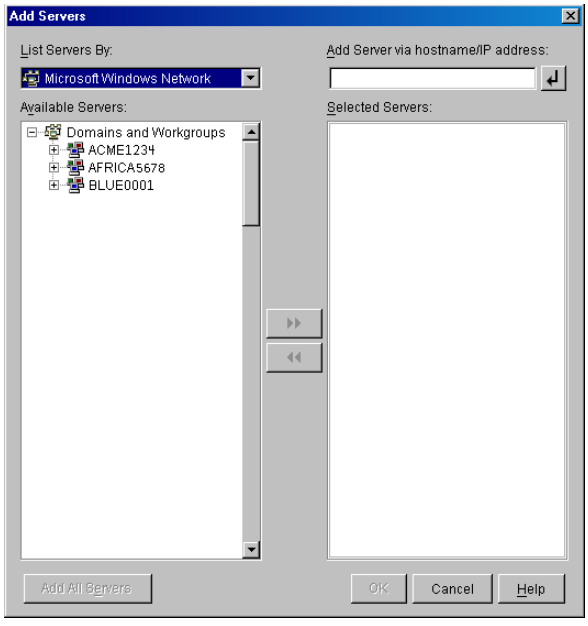


Other options in this dialog box include the following:

- You can click Browse Unlisted Tree to open a dialog box listing all of the trees in your network. Double-clicking any one of these trees moves it to the Available Servers list, even though you are not authenticated to that tree.
- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.
- If you select a server to which you are not authenticated, you are prompted to provide eDirectory credentials for that tree.
- Click Add All Servers to add all of the servers in a selected tree or container when authentication is complete. Selecting a high-level container selects all of the servers in that container and in all of its subordinate containers.
- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

14b (Conditional if you want to list servers in Microsoft Windows Network structure.) In the List Servers By drop-down list, select Microsoft Windows Network to list all of the Windows Workgroups and Microsoft Domains to which you are currently authenticated, browse the structure to the server of your choice, then click the double-right arrow to move it to the Selected Servers list.



Other options in this dialog box include the following:

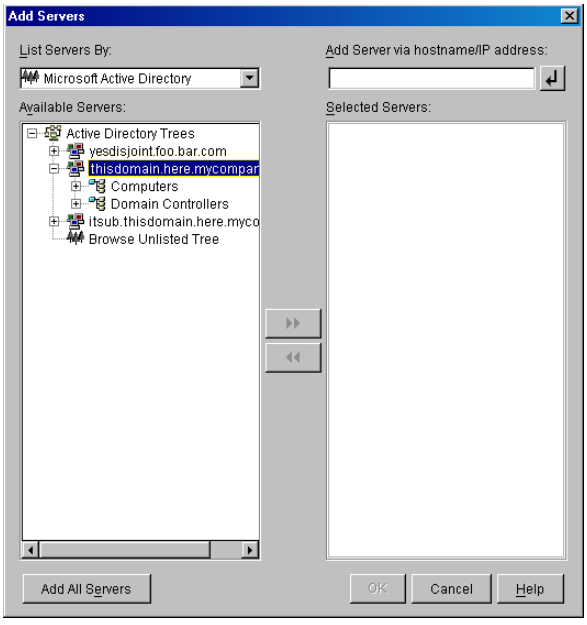
- You must be an administrative user for a server in order to add it to the Selected Servers list. If you are not authenticated to a server, the object is designated by a question mark. You can double-click the question mark to authenticate to the server, then click the double right-arrow to move the server to the Selected Servers list, provided it is a supported server platform for ZENworks 6.5 Desktop Management.
- When you list servers in Microsoft domains, NetWare servers are not listed for browsing because ZENworks files that are located on a Windows server cannot be obtained through a Middle Tier Server installed on NetWare.
- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you specify must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

  If you are using multiple hostname aliases for a Windows server, the first alias must be the physical name of your Windows server.
- If the credentials you provided for authentication to the server (see Step 11) are not administrative credentials, you can add it as a target server, but you will be prompted again for Administrative credentials when you close the Add Servers dialog box.
- Click Add All Servers to add all of the servers in a selected domain or workgroup. Selecting a domain or workgroup selects all of the authenticated servers in that domain or workgroup.
- To remove a server from the Selected Servers list and return it to the Available Servers list, click the server name in the Selected Servers list, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

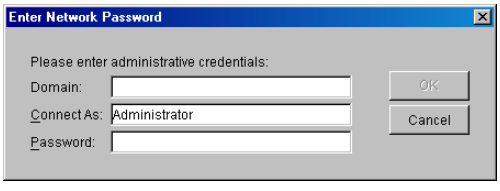
14c (Conditional if you want to list servers in a Microsoft Active Directory.) In the List Servers By drop-down list, select Microsoft Active Directory. If your workstation is a member of an Active Directory, the domains in the Active Directory trees are displayed.

You can browse to all of the servers listed in Active Directory (on a per domain basis), browse the structure to the server of your choice, then click the double right-arrow to move it to the Selected Servers list.



Other options in this dialog box include the following:

- You can also click Browse Unlisted Tree to open a dialog box where you can specify the name of the domain you want to add, then authenticate to it with the proper credentials prior to displaying its servers in the List Servers By drop-down list.



- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

- Right-click a domain object to select one of three search methods:

  Search Standard Locations: Lists the computers and domain controllers at the root of the domain. This is the default search method.

  Search Entire Directory: Lists all directory containers where computers are located.

  Browse Directory Hierarchy: Lists all of the containers in the directory, which you can expand and browse one at a time to find the computer you want. This search method might be useful if you have computers in a non-standard location of a large directory.

- Click Add All Servers to add all of the servers in a selected domain or container. Selecting a domain or container selects all of the servers in that domain or container.
- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

15 On the Summary page, review the location where you have chosen to install the ZENworks Middle Tier Server software and the Desktop Management Server to which it is associated, then click Finish to begin the installation process if the summary is correct.

The Middle Tier Server Installation Wizard launches another installation program. Wait until this program is completed.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmmidtier_install.log (for example: 20040304_024034_zdmmidtier_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmmidtier_installsummary.log (for example: 20040304_024034_zdmmidtier_installsummary.log). It is also located in c:\novell\zfdtemp.

16 In ConsoleOne pointing to eDirectory on the Desktop Management Server, make sure you have set up the Desktop Management Server to allow clear text passwords.

See Step 15 on page 66 for more information.

17 (NetWare 6 Installation Only.) Edit the autoexec.ncf file on the NetWare 6 ZENworks Middle Tier Server so that the Apache Web Server will load and bind properly.

For more information, see “Editing Autoexec.ncf on a NetWare 6 ZENworks Middle Tier Server” on page 85.

18 Reboot the server where you installed the ZENworks Middle Tier Server software.

19 Verify that the ZENworks Middle Tier Server is installed and running by entering one of the following URLs at a browser on the workstation:

http://*Middle_Tier_Server_DNS_or_IP*/oneNet/xtier-stats
http://*Middle_Tier_Server_IP_address*/oneNet/zen

If the ZENworks Middle Tier Server is running, the first URL opens a Web page where server statistics are displayed. You should be able to see where the request count increases by clicking the Refresh button on your browser.

If you are not authenticated, the second URL launches a dialog box that prompts for user credentials. If you are authenticated, the URL launches a Web page where a message is displayed stating that XZEN (the Xtier module in the Middle Tier Server) is running.

Upgrading the ZENworks Management Agent

Listed below are upgrade notes and software behaviors that you need to know about:

- On workstations that are using the Novell Client, upgrade the Novell Client to version 4.9 SP1a. This uninstalls the older Novell Client and installs the 4.9 SP1a version.
- On workstations that have the ZEnworks for Desktops 4.*x* Agent installed, install the ZENworks 6.5 SP1 Desktop Management Agent. This uninstalls the ZENworks for Desktops 4.*x* Agent and installs the ZENworks 6.5 SP1 Desktop Management Agent.

  Installation steps for the SP1 version of the Desktop Management Agent are identical to those used for the original version of the 6.5 Agent. For installation methods and detailed installation steps, see Chapter 10, "Installing and Configuring the Desktop Management Agent," on page 91.
- The version of the agent that shipped with ZfD 4.0 (setup.exe) is no longer supported. Prior to upgrading a ZfD 4.0 Agent to ZENworks 6.5 SP1, you should replace this older version of the agent with the version of the agent shipping with the ZENworks 6 Suite (ZENworks for Desktops 4.0.1/SP1b) or later.
- When configuring the upgrade Application object for the Desktop Management Agent, we recommend that you set the application to Run Once so that after the agent is installed the user can no longer see the application in Novell Application Launcher. You should also make sure that uninstall is not enabled for the Application object.

  Administrator rights are not needed to upgrade the Desktop Management Agent. The user's privileges are elevated temporarily by the Desktop Management Agent during the installation.
- If you upgrade the ZfD 4.*x* Agent (excluding ZfD 4.0.1 Interim Release 4 or Interim Release 5) to ZENworks 6.5 SP1, and if you use a workstation-associated Application object to perform the upgrade, users are not prompted to reboot their workstations.

  If you perform the upgrade with a user-associated Application object, the reboot prompt is displayed.
- If you want to set the NAL_SINGLE_TREE MSI property when you upgrade the ZfD 4.0.1 Agent (or later, except for Interim Release 4) to ZENworks 6.5 SP1, you must also set the ZENWORKS_TREE property and specify the tree from which the workstation will receive ZENworks files.

  If you are upgrading the ZfD 4.0.1 Agent from ZfD 4.0.1 Interim Release 4 to version 6.5 SP1, you need to set the tree value to the tree where the workstation is imported. If the workstation has not been imported, the setting is ignored.

23 Upgrading to ZENworks 6.5 Desktop Management Support Pack 2

This section includes procedural information necessary for upgrading from Novell® ZENworks® 6.5 Desktop Management or ZENworks 6.5 Desktop Management Support Pack 1 (SP1) to ZENworks 6.5 Desktop Management Support Pack 2 (SP2).

The following information is included in this section:

- "Overview" on page 295
- "Pre-Installation Checklist" on page 296
- "Installing the SP2 Upgrade for the Desktop Management Server" on page 297
- "Upgrading the ZENworks Middle Tier Server" on page 304
- "Upgrading the ZENworks Management Agent" on page 313

Overview

Review the following information to understand the functions of the SP2 upgrade.

- "What to Expect from the SP2 Installation" on page 295
- "What the SP2 Installation Program Does Not Do" on page 296
- "Incrementally Upgrading Your Network Servers" on page 296

For information about the changes in SP2, see "What's New in ZENworks 6.5 Desktop Management Support Pack 2" on page 198.

What to Expect from the SP2 Installation

- The SP2 installation program uses the original 6.5 installation paths to discover and upgrade the ZENworks 6.5 Desktop Management or SP1 software.
- The SP2 installation program automatically stops and restarts services (except for the Inventory service) if they are running on a server.
- SP2 files are always copied, replacing both older and newer files with the upgraded files. Files copied to other locations outside of the ZENworks directories are replaced only if they are older.
- The SP2 installation upgrades the ConsoleOne® snap-ins to ZENworks 6.5 SP2 on both the installation workstation and on any target servers found by the upgrade wizard. For the ConsoleOne check box to show as selected, the version of the snap-ins previously installed must be version 6.5 or 6.5 SP1.

What the SP2 Installation Program Does Not Do

- The installation program does not allow you to deselect any feature check boxes in the installation program. Their status is determined by the installation program when you select the servers for upgrading.
- The installation program does not upgrade any ZENworks versions earlier than ZENworks 6.5 Desktop Management to ZENworks 6.5 Desktop Management SP2.
- The installation program does not install ZENworks components where they were previously not installed.
- The installation program does not allow you to select Workstation objects where ConsoleOne is installed but does not have the 6.5 Desktop Management snap-ins. To update an individual workstation with the Desktop Management SP2 snap-ins, you must run the original ZENworks 6.5 Desktop Management Server installation program from that workstation.
- The installation program does not upgrade any eDirectory objects; it updates only previously installed ZENworks 6.5 or ZENworks 6.5 SP1 software.
- If you are upgrading the Inventory server, the installation program does not automatically start the Inventory service. You must manually start the service after the SP2 upgrade.

Incrementally Upgrading Your Network Servers

You can upgrade all ZENworks 6.5 or 6.5 SP1 servers (in a single eDirectory tree) to SP2 in one pass, or incrementally (such as geographical locations).

The SP2 installation program updates servers one at a time. If you have several servers, consider the time that it might take to upgrade all of them in one installation session. If that single session might take too long, select target servers in groups so that you can upgrade one group at a time.

Pre-Installation Checklist

- ❑ Make sure you have fulfilled all of the installation requirements listed in "Preparation" on page 29.
- ❑ Make sure that a minimum version of ZENworks 6.5 Desktop Management has been installed on the machines where you want to install ZENworks 6.5 Desktop Management SP2.
- ❑ Review the SP2 Readme for any last-minute information concerning installation. The readme for ZENworks 6.5 Desktop Management Support Pack 2 is available on the Novell ZENworks 6.5 documentation Web site (http://www.novell.com/documentation/zenworks65).
- ❑ Download and save the ZENworks 6.5 Desktop Management Support Pack 2 installation program from the Novell Support Web site (http://support.novell.com).

  If you save the SP2 installation download to the installing workstation's hard drive, the path between the root of the hard drive and the directory where you copied the SP2 installation download can contain only directory names that conform to the 8.3-character DOS file naming convention. If any long directory names exist in the path, the installation program does not launch.
- ❑ If you are installing to a cluster, you must manually unload Java on each cluster node. Although the installation program normally unloads Java automatically, it does so only on nodes where the virtual server resides. To unload Java on each cluster node, enter **`Java -exit`** on the server's command line.

- If you have any instance of Novell ConsoleOne that was launched from mapped drive on a workstation and is currently running on a target server, or if there is an instance of ConsoleOne that is running from the installing workstation, exit those instances of ConsoleOne before you run the installation program. If ConsoleOne is running in these situations, the updated ZENworks 6.5 Desktop Management snap-ins for ConsoleOne are not installed at those locations.
- On the workstation you will use to install Desktop Management, if you have not already done so, log in to all eDirectory trees where you will be installing Desktop Management software.

  During installation, you are authenticated to all of the target NetWare servers in the trees where you are logged in, so you can select those servers for installing SP2.
- If you will be installing SP2 to any Windows servers, make sure you have closed the Services window on each Windows server and that you have authenticated to the servers or to a domain containing the servers.

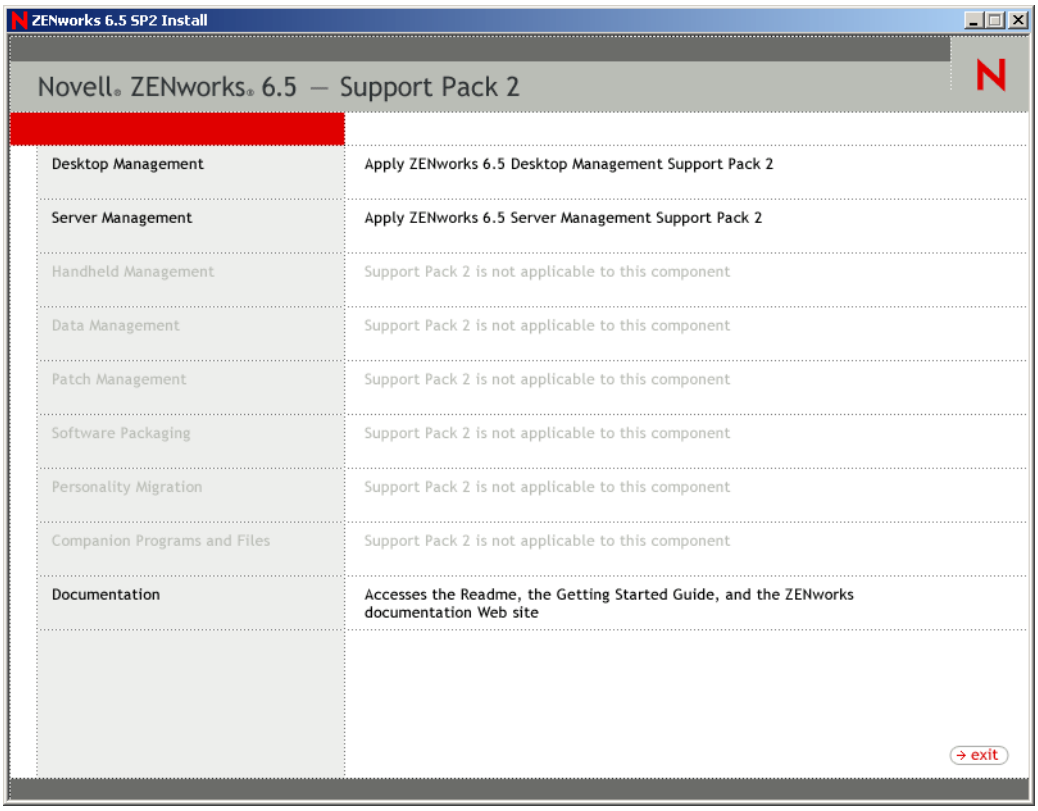
  Although the installation program stops all ZENworks Desktop Management services, these services cannot be registered if the Services window is open during installation to the server.
- If you will be installing SP2 to a ZENworks 6.5 Inventory server that has been previously upgraded from ZENworks for Desktops 3.2 SP3 or ZENworks for Desktops 4.*x,* you must start the Inventory service and the database at least once prior to upgrading the server to ZENworks 6.5 Desktop Management SP2.

Installing the SP2 Upgrade for the Desktop Management Server

Use the following steps to install the ZENworks 6.5 Desktop Management Server Support Pack 2 (SP2) on a NetWare® or Windows server.

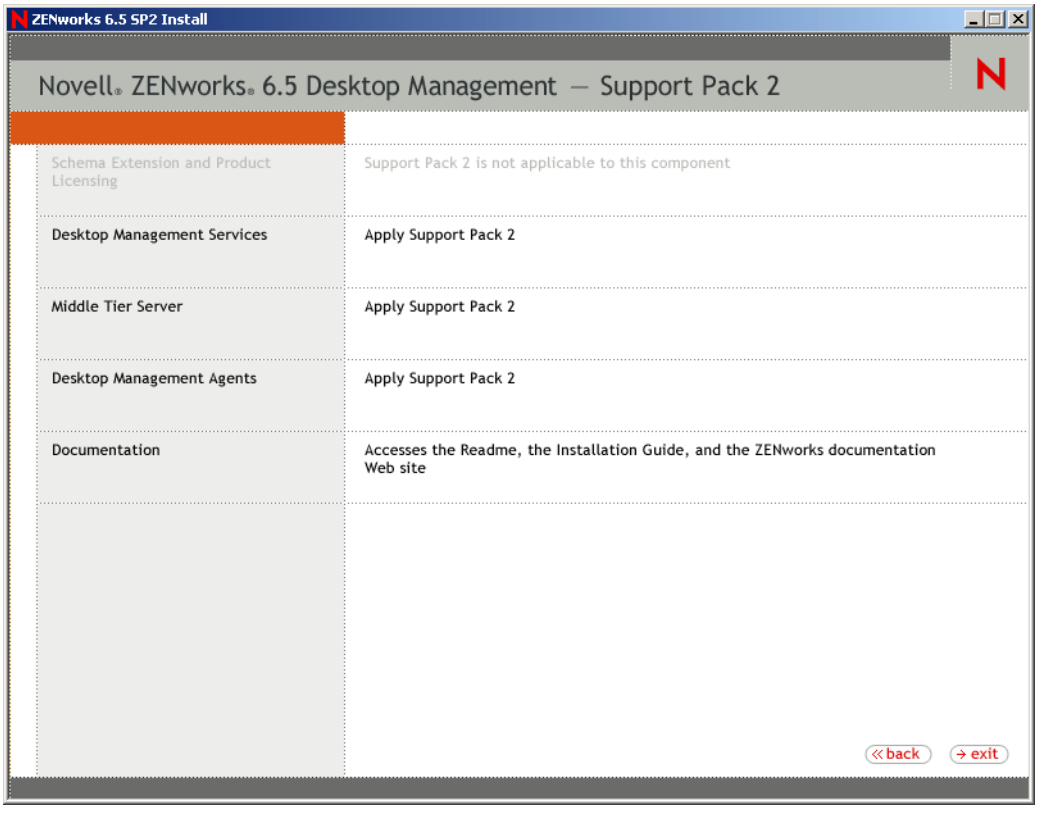
1. Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the SP2 installation program.

   The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.
2. Browse to the SP2 installation program that you previously downloaded from Novell Support and run the winsetup.exe program.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Desktop Management Services to launch the Desktop Management Server installation wizard.

6 On the first Installation page, read the details about running the installation program, then click Next.

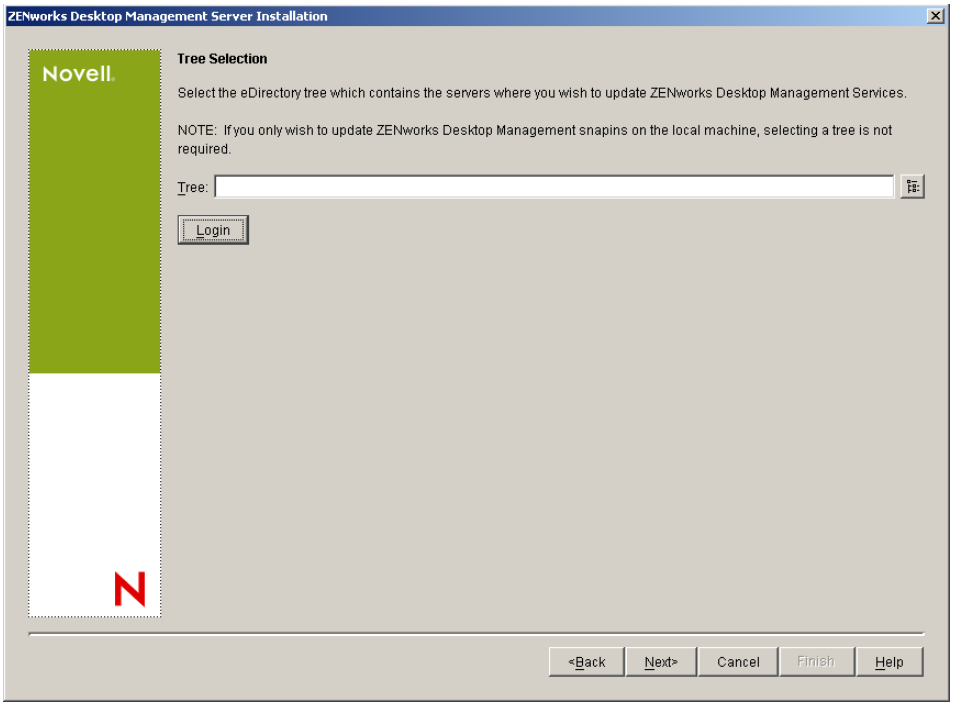
7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Desktop Management Server Support Pack 2, make sure that the server where you plan to install meets the listed requirements, then click Next.

9 On the Tree Selection page, type or browse to the name of the Novell eDirectory™ tree where you want to update the Desktop Management Server to SP2, then click Next.

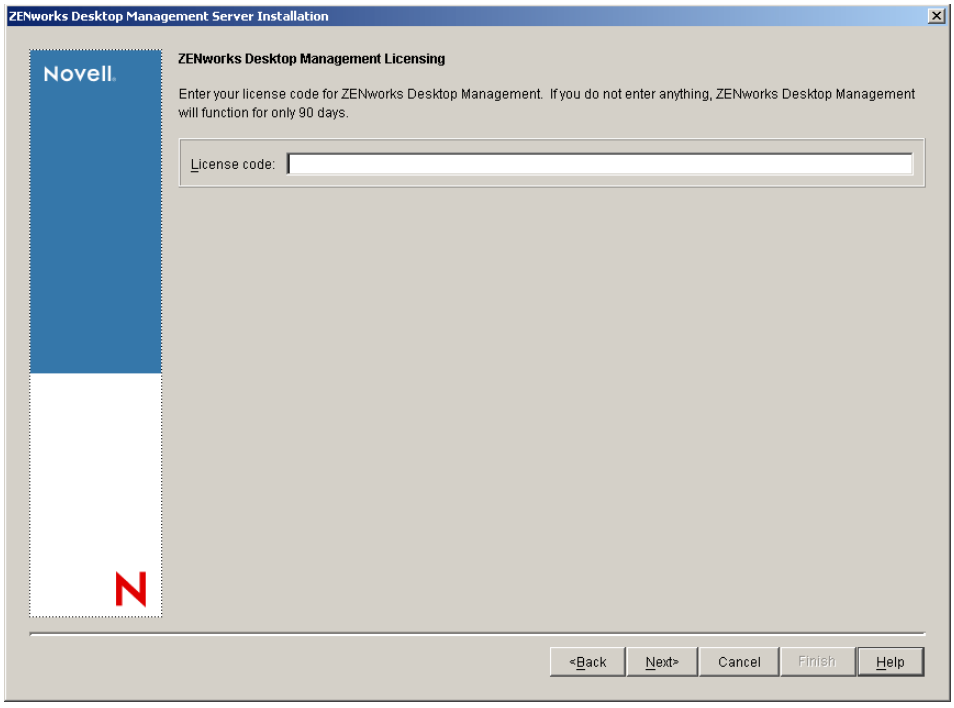
Because you are installing ZENworks 6.5 Support Pack 2 (SP2), the eDirectory tree is already extended, so the Extend Schema check box from the 6.5 installation is not included on this page of the SP2 installation.



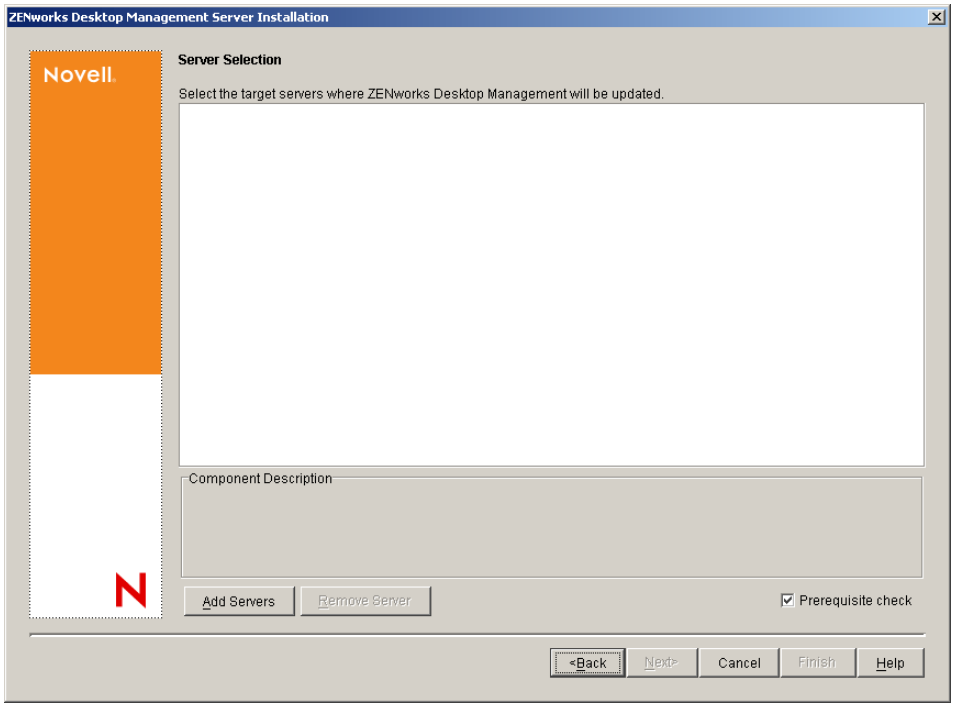
If you want to install only the ZENworks Desktop management snap-ins to your local administrative workstation, you do not need to select a tree.

You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

10 On the ZENworks Desktop Management Licensing page, click Next to retain the license code you installed with the original version of ZENworks 6.5 Desktop Management.



11 On the Server Selection page, click Add Servers to browse to the names of the servers where you want to install Support Pack 2.



You can select servers only from the tree you selected in Step 9.

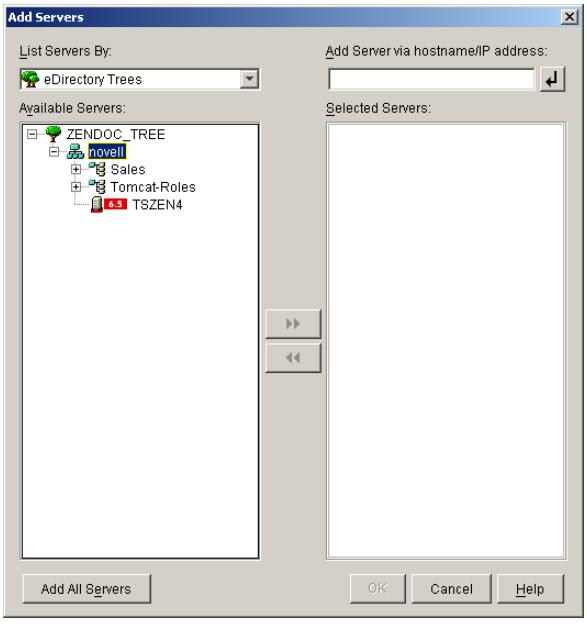
The Desktop Management Server is not supported on some network operating systems, even though those servers might be included on the available servers list. Check the list of supported servers displayed at the beginning of this installation program (following the

license agreement) or refer to the ZENworks Desktop Management Online Documentation for more information.

In ZENworks 6.5 Desktop Management SP2, it is possible add to servers that have no previous installation of the ZENworks Desktop Management Server, but if they are selected for addition, the installation rejects them as candidates for the SP2 update.

IMPORTANT: If you previously installed Desktop Management Services on a NetWare cluster, you should select the cluster volume (that is, the virtual cluster server) as the target for those components. If you are installing the ConsoleOne snap-ins on the cluster, choosing the cluster volume installs the snap-ins on each cluster node.

11a (Optional) In the Add Servers dialog box, you can list servers by their eDirectory tree names. To install to a server, select eDirectory Trees, then browse to and click the name of the server you want to install to or click Add All Servers to select all of the servers in a container, click the right-arrow button to move your selected servers to the Selected Servers pane, then click OK.



Windows servers are not available for selection when you browse the directory unless you have installed eDirectory on those servers.

If you want to add a Windows server that you might not be authenticated to, you can double-click the server icon to display a dialog box where you can enter credentials to allow for Windows authentication.

11b (Optional) In the Add Servers dialog box, you can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you provide must be resolvable to the name of a server.

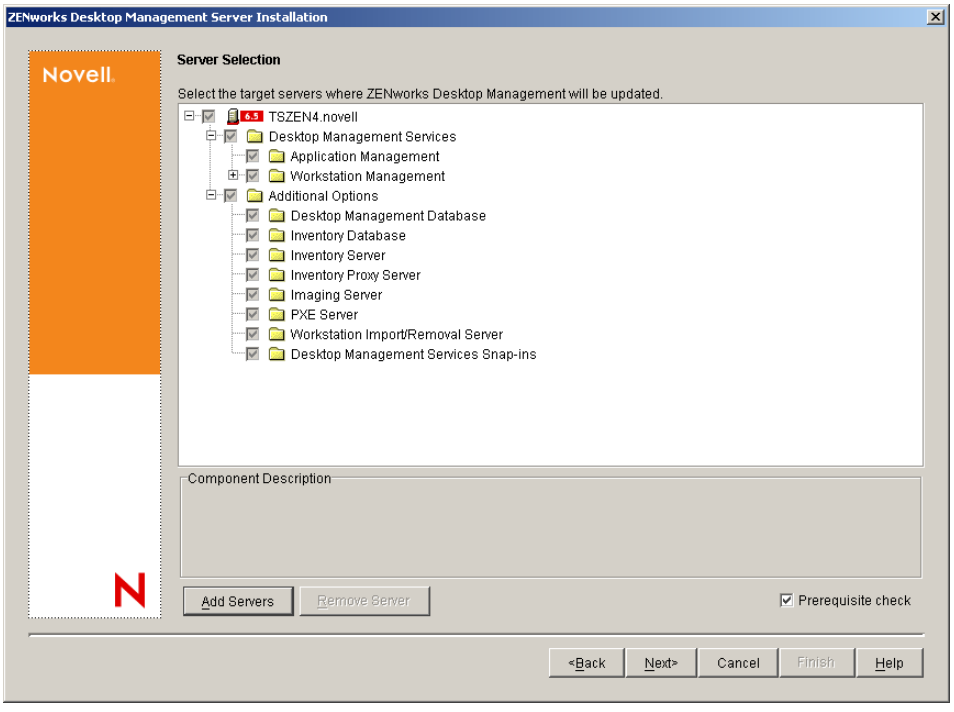
Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

12 On the now-populated Server Selection page, only those services previously installed by ZENworks 6.5 on that server are available for the SP2 update. With the exception of the Local Workstation setting, you cannot change the selections.

NOTE: For a description of these services, see "Performing the Full Installation (Including Schema Extension)" on page 58.

Local Workstation: In the ZENworks 6.5 installation, you had the option of installing Desktop Management Services snap-ins to your local workstation by selecting the Desktop Management Service Snap-ins check box under the Local Workstation option.

In the SP2 installation, the check box is displayed if the snap-ins were previously installed locally. You can deselect the check box if you want to.



13 (Optional) Prerequisite Check is selected by default. Retain the selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Desktop Management Services.

The installation program checks the version of the server's network operating system (including any required service or support packs), the presence and version of the Novell Client™ (4.9 SP1a) on Windows servers and on the installing workstation, and the presence and version of ConsoleOne (1.3.6).

If the server operating system and support/service packs are not the correct version, the installation displays an error or a warning message and does not continue until the required software is installed and detected or until you deselect the check box.

14 On the Summary page, review the list of components and their parts that are to be installed. If the summary is correct, click Finish to launch the installation program.

You can click Back as many times as necessary to make changes.

If you click Cancel, no installation information is saved.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmserver_install.log (for example: 20050904_024034_zdmserver_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmserver_installsummary.log

(for example: 20050904_024034_zdmserver_installsummary.log). It is also located in c:\novell\zfdtemp.

15 (Conditional) If you have upgraded Inventory server, you must manually start the Inventory service.

- **On NetWare Servers:** Enter **`startinv`** at the server's main console prompt.
- **On Windows Servers:** Continue with Step 15a, below.

15a Open the Control Panel.

15b Double-click Administrative Tools, then double-click Services.

15c Select Novell Inventory Service, then click Start.

Post-Upgrade Task

If you are upgrading the Workstation Inventory components to ZENworks 6.5 Desktop Management Server Support Pack 2, perform the following tasks after installing the support pack:

1 Stop the Inventory service.

2 (Conditional) If a ZENworks 6.5 Inventory server receives ZENworks software dictionary updates from a ZENworks 6.5 SP*x* Inventory server, you must perform the following tasks on the ZENworks 6.5 Inventory server:

2a Make a reliable backup of desktopcommonutility.jar located in the *Inventory_server_installation_path*\zenworks\inv\server\wminv\lib directory.

2b Copy desktopcommonutility.jar from *ZENworks 6.5 SPx Companion CD*\companion2\zen65patch\inv\server\wminv\lib to the *Inventory_server_installation_path*\zenworks\inv\server\wminv\lib directory.

3 Add non-English enumerated values for Inventory Attributes to the database by running the AddEnums utility.

To run the AddEnums utility:

- **On Sybase Inventory database:** Perform the steps explained in "Adding Non-English Enumerated Values for Inventory Attributes into the Sybase Inventory Database" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- **On Oracle8i Inventory database:** Perform the step "Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database."explained in "Creating the Oracle8i Inventory Database on a Windows Server" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- **On Oracle9i Inventory database on Windows:** Perform the step "Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database."explained in"Creating the Oracle9i Inventory Database on a Windows Server" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- **On Oracle9i Inventory database on UNIX:** Perform the step " Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database."explained in "Creating the Oracle9i Inventory Database on a UNIX Server" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

- **On MS SQL Inventory database:** Perform the step "(Optional) Add non-English enumerated (enum) values for certain Inventory attributes into the Inventory database." explained in"Configuring the MS SQL Server 2000 Inventory Database" in "Workstation Inventory" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

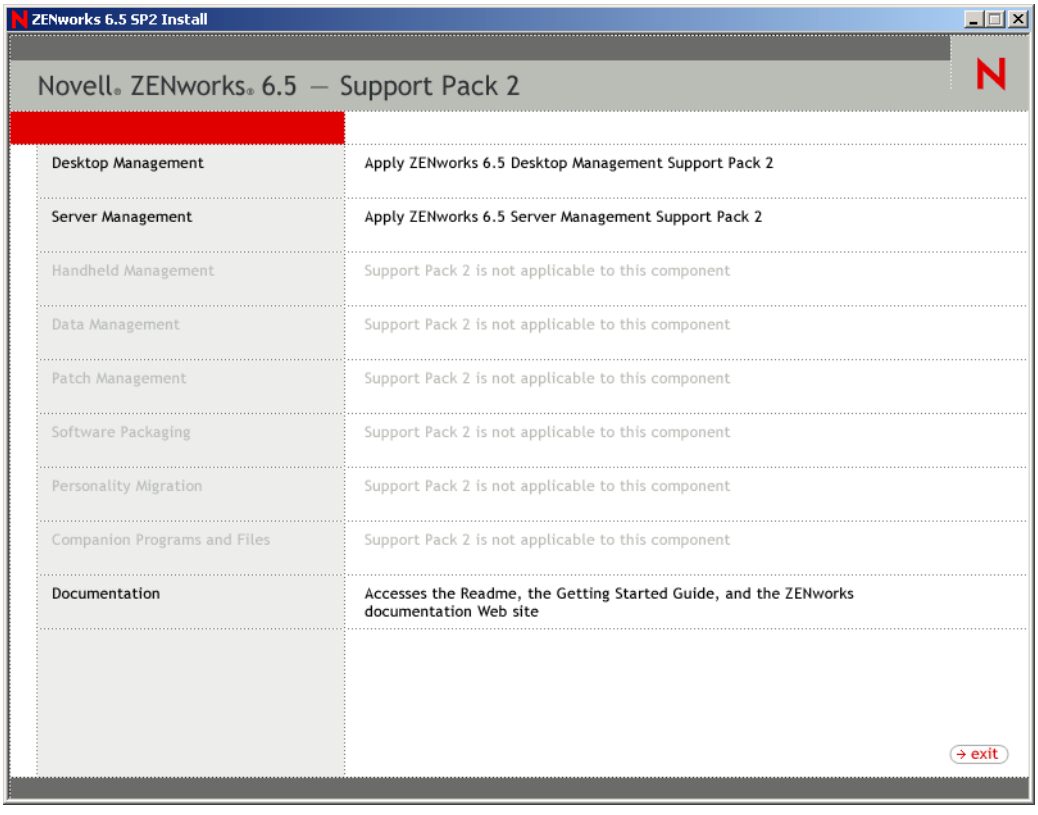
4 Start the Inventory service.

Upgrading the ZENworks Middle Tier Server

Use the following steps to install the ZENworks 6.5 Desktop Management Server Support Pack 2 (SP2) on a NetWare or Windows server.

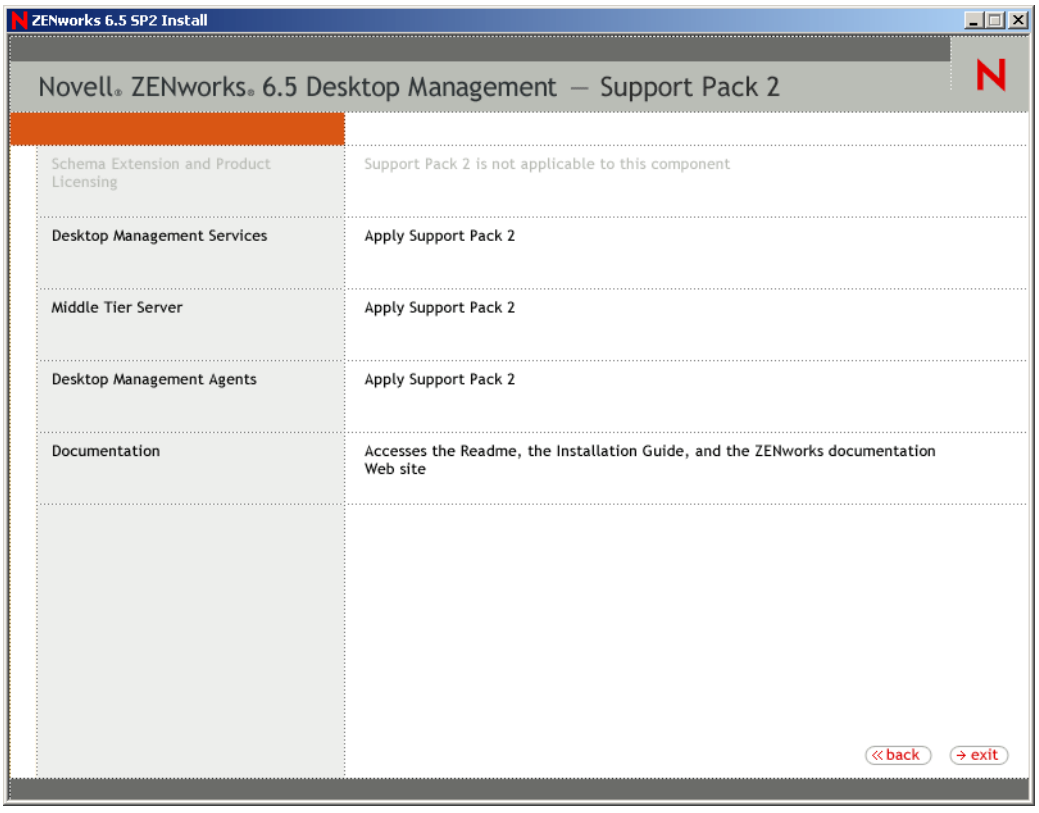
1 Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the Middle Tier Server SP2 installation program. The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.

2 Browse to the SP2 installation program that you previously downloaded from Novell Support and run the winsetup.exe program.



3 Click Desktop Management to display a page with options to install in various languages.

4 Click English to display a page with Desktop Management installation options.



5 Click Middle Tier Server to launch the Middle Tier Server installation program.

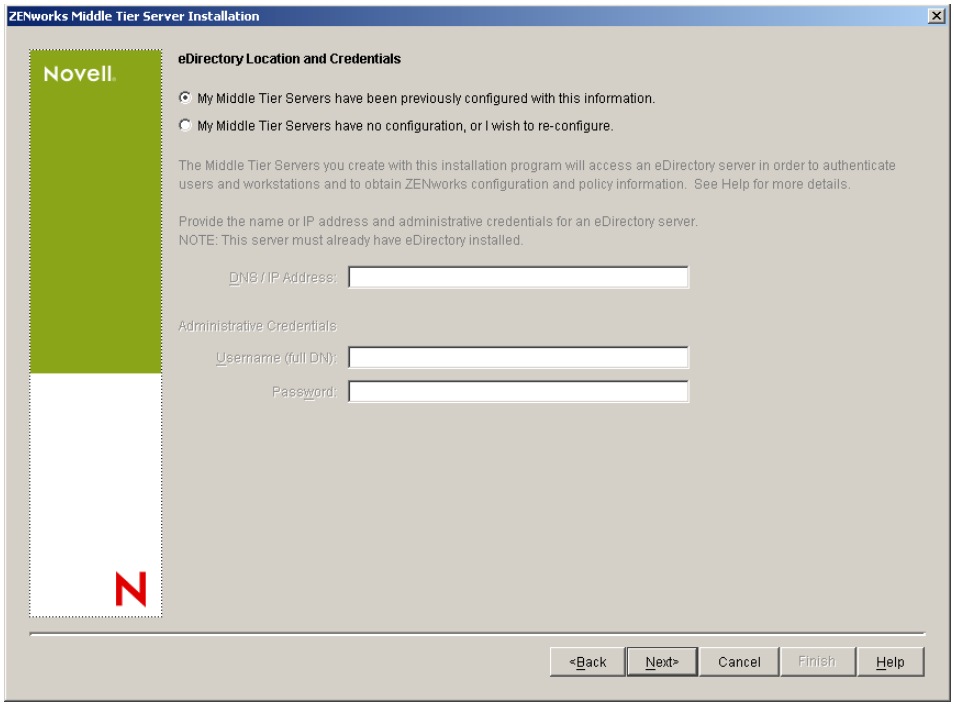
6 On the first Installation page, read the details about running the installation program, then click Next.

7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Middle Tier Server software, make sure that the server where you plan to install meets the listed requirements, then click Next.

9 The eDirectory Location and Credentials page in the SP2 installation program includes a radio button you can select to retain the Middle Tier configuration you used with the original 6.5 installation. It also includes a radio button that you can select to enable you to configure or to reconfigure the ZENworks Middle Tier Servers.



9a (Optional) If you choose to retain the original configuration, click Next to continue the installation. Proceed to Step 12 on page 308.

9b (Optional) If you choose to configure or reconfigure the Middle Tier Servers, fill in the fields:

DNS/IP Address: Specify the DNS name or IP address of the server where eDirectory is installed.

Username (full DN): Specify the fully-qualified distinguished username of the Middle Tier proxy user account (for example, midtier-proxy.org-unit.org). To ensure that these credentials remain secure, you can set up an arbitrary user with specific administrative rights.

For a description of the required rights, see "Required Rights for the Middle Tier Proxy User Account" on page 84.

Password: Specify the eDirectory password for the Middle Tier proxy user.

10 (Conditional, if you previously chose Step 9b) On the ZENworks User Context page (User Context field), specify the eDirectory context where the Middle Tier Server can look for user objects that will be used by Desktop Management.

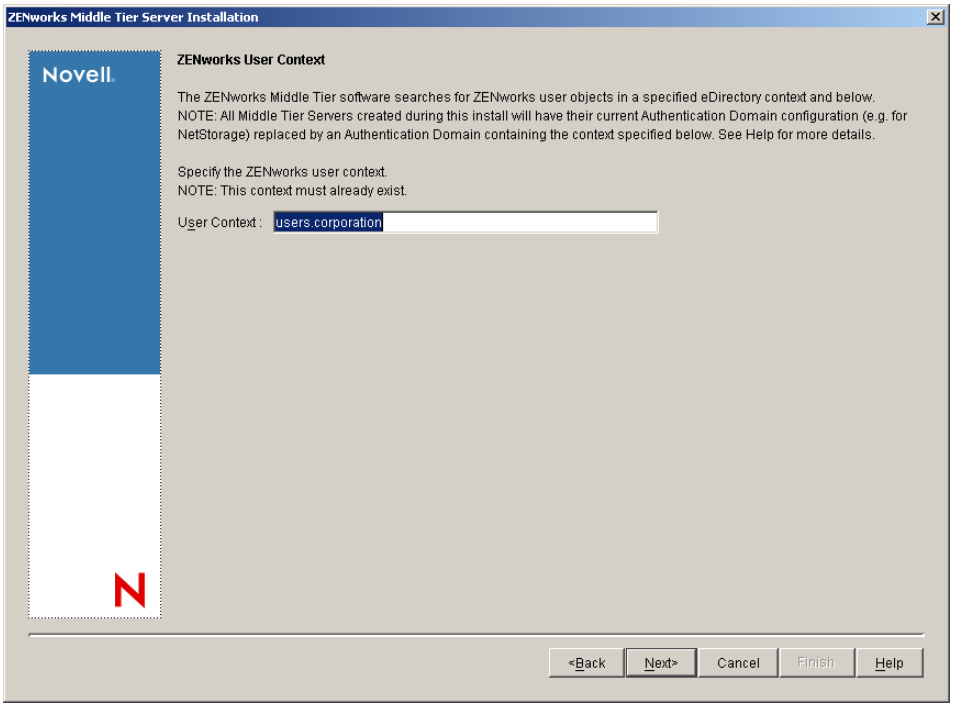
You should use the context of the highest-level container where user objects reside. This value is passed to the ZENworks Middle Tier Server, which will use it as a starting point in searching for a user.

For example, if users exist in many subcontainers, specify the context of the container that holds all of those subcontainers. When a user logs in through the ZENworks Middle Tier Server, the server begins searching for a user in the designated eDirectory container, then searches subcontainers in that container until the correct user is found.

For any Middle Tier Server you designate during this installation, currently configured authentication domains (for example, the authentication domain configured for NetStorage) are replaced by a single authentication domain having the context that you specify here.

After the installation, you can reconfigure this authentication domain context using the NSAdmin utility. You can open the utility in a Web browser (http://*middle_tier_server_name*/oneNet/nsadmin).

The installation program verifies the existence of the context (that is, the container) before continuing.



11 (Conditional, if you previously chose Step 10) On the ZENworks Files Location page, select the network location where you will access application and policy files managed by ZENworks.

The ZENworks Middle Tier Server requires access to ZENworks files installed elsewhere on your network. As the ZENworks Administrator, you define the location of these files when you create policies or applications for distribution. The information you provide on this page is used to help the Middle Tier Server determine how to access different file systems. This decision is necessary for the installation now, even if you have not yet created any ZENworks files.

- Select the first option button if your ZENworks-managed application and policy files will be located on NetWare servers only.
- Select the second option button if some or all of your ZENworks-managed application and policy files will be located on Microsoft Windows servers.

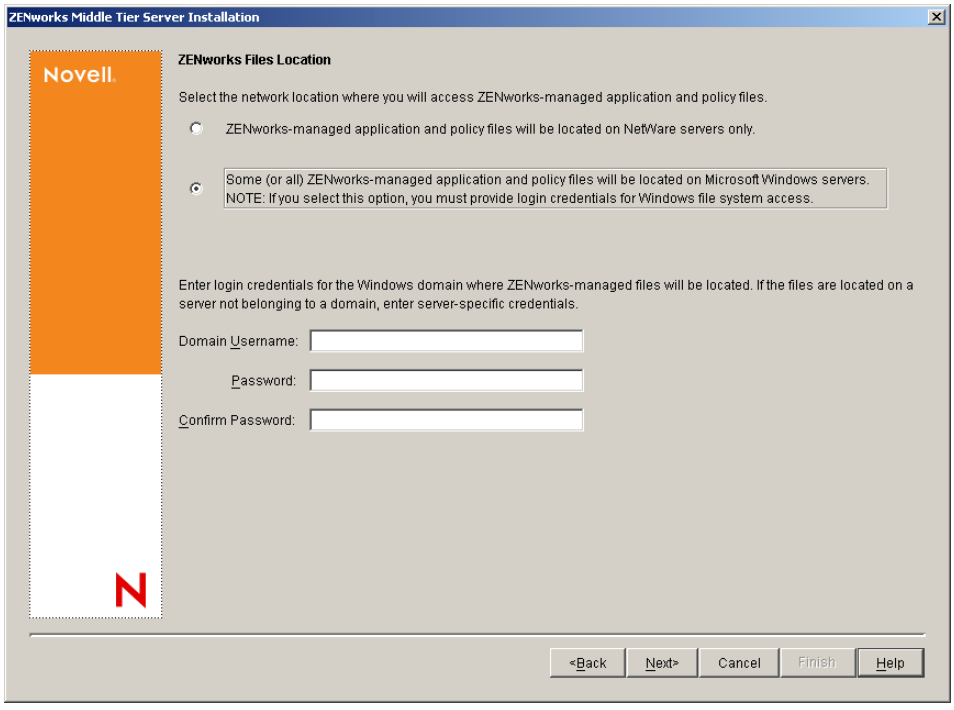
If your ZENworks files will be located in a Windows file system, the Middle Tier Server might not be able to access them using a username and password for Novell eDirectory; instead, it requires Windows domain credentials to access the files.

If the files are located on a server not belonging to a domain, enter server-specific credentials.

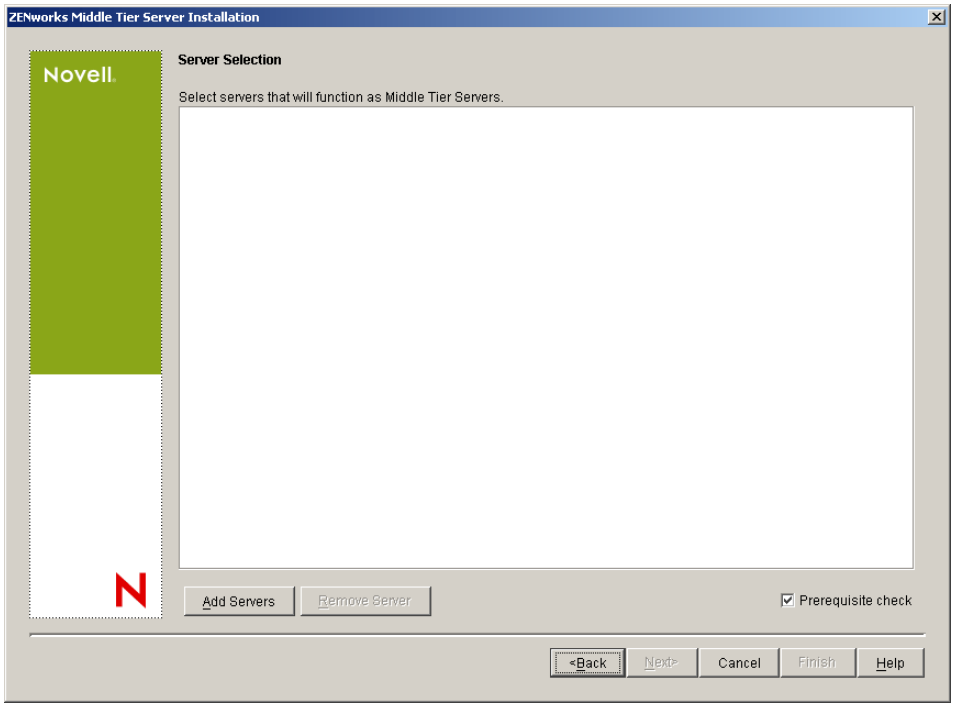
Domain Username: Specify the username of any user in the Microsoft domain who has Windows file system rights to the ZENworks file locations.

Password: Specify the password for the user in the Microsoft domain who has file system rights to ZENworks files.

Confirm Password: Specify the same password to confirm that it was entered correctly.



12 On the Server Selection page, you need to build a list of target servers that you want to function as Middle Tier Servers. The Add Servers button calls a dialog box that is used to find and add servers to the list. The Remove Servers button lets you delete servers from the target list after they are added. Click Add Servers.



13 (Optional) Prerequisite Check is selected by default. You can retain this selection if you want the installation program to verify that the server or servers meet the installation requirements for ZENworks Middle Tier Servers.

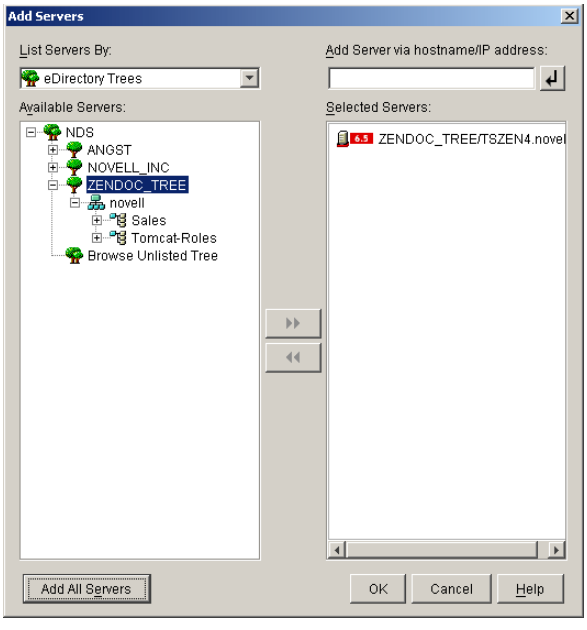
The installation program checks the version of any previously installed Middle Tier Server software, the server's network operating system (including any required service or support packs), the presence and version of the IIS Web server on Windows servers, the presence and version of the appropriate Web server on NetWare servers, and the presence and version of NetStorage (2.6.0) on target servers.

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, but it can continue. If other requirements are not met, the installation displays a warning and does not continue until the required software is installed and detected.

14 In the Add Servers dialog box, open the List Servers By drop-down list to show the options of listing the servers according to their location in Novell eDirectory trees, in Microsoft Windows Network structures, or in Microsoft Active Directory trees.

You can install the ZENworks Middle Tier Server software to several servers during the installation. When you have finished adding servers to the list, click OK.

14a (Conditional if you want to list servers in eDirectory trees.) In the List Servers By drop-down box, select eDirectory Trees to list all of the eDirectory Trees to which you are currently authenticated, browse the tree to the server of your choice, then click the double right-arrow to move the server icon to the Selected Servers list box.



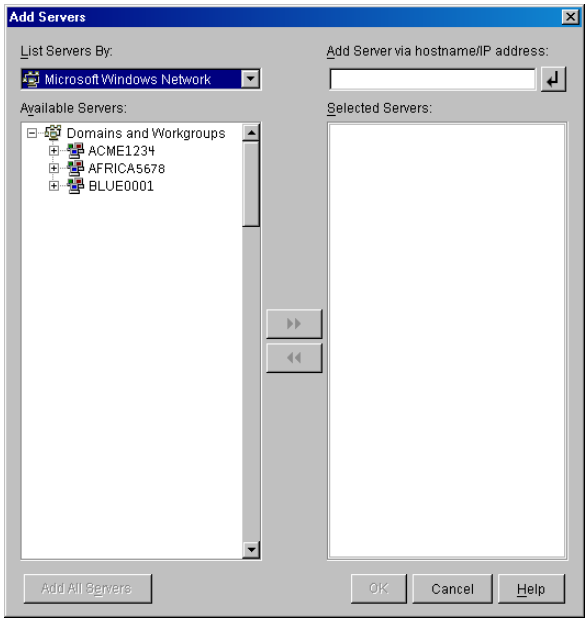
Other options in this dialog box include the following:

- You can click Browse Unlisted Tree to open a dialog box listing all of the trees in your network. Double-clicking any one of these trees moves it to the Available Servers list, even though you are not authenticated to that tree.
- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server.

Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

- If you select a server to which you are not authenticated, you are prompted to provide eDirectory credentials for that tree.
- Click Add All Servers to add all of the servers in a selected tree or container when authentication is complete. Selecting a high-level container selects all of the servers in that container and in all of its subordinate containers.
- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

14b (Conditional if you want to list servers in Microsoft Windows Network structure.) In the List Servers By drop-down list, select Microsoft Windows Network to list all of the Windows Workgroups and Microsoft Domains to which you are currently authenticated, browse the structure to the server of your choice, then click the double-right arrow to move it to the Selected Servers list.



Other options in this dialog box include the following:

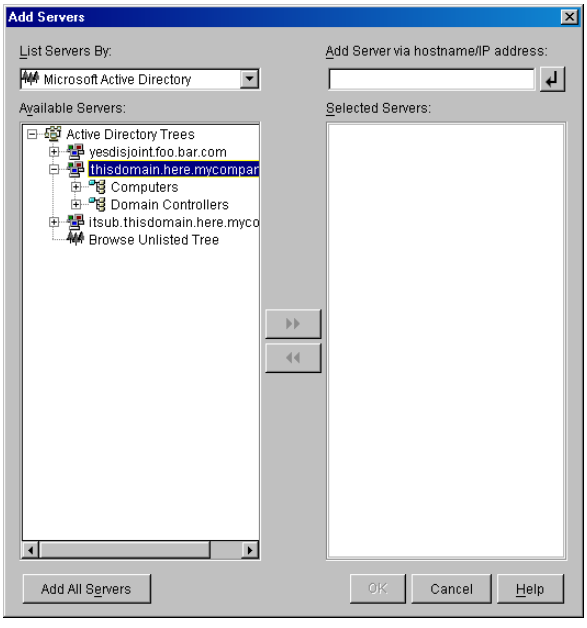
- You must be an administrative user for a server in order to add it to the Selected Servers list. If you are not authenticated to a server, the object is designated by a question mark. You can double-click the question mark to authenticate to the server, then click the double right-arrow to move the server to the Selected Servers list, provided it is a supported server platform for ZENworks 6.5 Desktop Management.
- When you list servers in Microsoft domains, NetWare servers are not listed for browsing because ZENworks files that are located on a Windows server cannot be obtained through a Middle Tier Server installed on NetWare.
- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you specify must be resolvable to the name of a server located in the designated operating environment.

Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

If you are using multiple hostname aliases for a Windows server, the first alias must be the physical name of your Windows server.

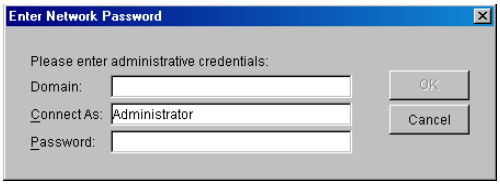
- If the credentials you provided for authentication to the server (see Step 11) are not administrative credentials, you can add it as a target server, but you will be prompted again for Administrative credentials when you close the Add Servers dialog box.
- Click Add All Servers to add all of the servers in a selected domain or workgroup. Selecting a domain or workgroup selects all of the authenticated servers in that domain or workgroup.
- To remove a server from the Selected Servers list and return it to the Available Servers list, click the server name in the Selected Servers list, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

14c (Conditional if you want to list servers in a Microsoft Active Directory.) In the List Servers By drop-down list, select Microsoft Active Directory. If your workstation is a member of an Active Directory, the domains in the Active Directory trees are displayed. You can browse to all of the servers listed in Active Directory (on a per domain basis), browse the structure to the server of your choice, then click the double right-arrow to move it to the Selected Servers list.



Other options in this dialog box include the following:

- You can also click Browse Unlisted Tree to open a dialog box where you can specify the name of the domain you want to add, then authenticate to it with the proper credentials prior to displaying its servers in the List Servers By drop-down list.



- You can specify the hostname or IP address of a server in the Add Server Via Hostname/IP Address field. The value that you enter must be resolvable to the name of a server located in the designated operating environment.

  Click ↵ to begin the name resolution process and add the server to the Selected Servers list.

- Right-click a domain object to select one of three search methods:

  Search Standard Locations: Lists the computers and domain controllers at the root of the domain. This is the default search method.

  Search Entire Directory: Lists all directory containers where computers are located.

  Browse Directory Hierarchy: Lists all of the containers in the directory, which you can expand and browse one at a time to find the computer you want. This search method might be useful if you have computers in a non-standard location of a large directory.

- Click Add All Servers to add all of the servers in a selected domain or container. Selecting a domain or container selects all of the servers in that domain or container.

- To remove a server from the Selected Servers box and return it to the Available Servers list box, click the server name in the Selected Servers box, then click the double left-arrow. You can remove multiple servers from the Selected Servers box by selecting them with the Shift and Ctrl keys.

15 On the Summary page, review the location where you have chosen to install the ZENworks Middle Tier Server software and the Desktop Management Server to which it is associated, then click Finish to begin the installation process if the summary is correct.

The Middle Tier Server Installation Wizard launches another installation program. Wait until this program is completed.

You can review the installation log file after the installation has completed. The log file name is *datestamp_timestamp*_zdmmidtier_install.log (for example: 20050904_024034_zdmmidtier_install.log). It is located in the \novell\zfdtemp directory on the machine you are installing from. This log file indicates whether any component failed to install.

You can also review the installation summary to review the selections you made. The summary is saved in a log file named *datestamp_timestamp*_zdmmidtier_installsummary.log (for example: 20050904_024034_zdmmidtier_installsummary.log). It is also located in c:\novell\zfdtemp.

16 In ConsoleOne pointing to eDirectory on the Desktop Management Server, make sure you have set up the Desktop Management Server to allow clear text passwords.

See Step 15 on page 66 for more information.

17 (NetWare 6 Installation Only.) Edit the autoexec.ncf file on the NetWare 6 ZENworks Middle Tier Server so that the Apache Web Server will load and bind properly.

For more information, see "Editing Autoexec.ncf on a NetWare 6 ZENworks Middle Tier Server" on page 85.

18 Reboot the server where you installed the ZENworks Middle Tier Server software.

19 Verify that the ZENworks Middle Tier Server is installed and running by entering one of the following URLs at a browser on the workstation:

http://*Middle_Tier_Server_DNS_or_IP*/oneNet/xtier-stats
http://*Middle_Tier_Server_IP_address*/oneNet/zen

If the ZENworks Middle Tier Server is running, the first URL opens a Web page where server statistics are displayed. You should be able to see where the request count increases by clicking the Refresh button on your browser.

If you are not authenticated, the second URL launches a dialog box that prompts for user credentials. If you are authenticated, the URL launches a Web page where a message is displayed stating that XZEN (the Xtier module in the Middle Tier Server) is running.

Upgrading the ZENworks Management Agent

Listed below are upgrade notes and software behaviors that you need to know about:

- On workstations that are using the Novell Client, upgrade the Novell Client to version 4.9 SP1a. This uninstalls the older Novell Client and installs the 4.9 SP1a version.
- On workstations that have the ZENworks for Desktops 4.*x* Agent installed, install the ZENworks 6.5 SP2 Desktop Management Agent. This uninstalls the ZENworks for Desktops 4.*x* Agent and installs the ZENworks 6.5 SP2 Desktop Management Agent.

  Installation steps for the SP2 version of the Desktop Management Agent are identical to those used for the original version of the 6.5 Agent and for the SP1 Agent. For installation methods and detailed installation steps, see Chapter 10, "Installing and Configuring the Desktop Management Agent," on page 91.
- The version of the agent that shipped with ZfD 4.0 (setup.exe) is no longer supported. Prior to upgrading a ZfD 4.0 Agent to ZENworks 6.5 SP2, you should replace this older version of the agent with the version of the agent shipping with the ZENworks 6 Suite (ZENworks for Desktops 4.0.1/SP1b) or later.
- When configuring the upgrade Application object for the Desktop Management Agent, we recommend that you set the application to Run Once so that after the agent is installed the user can no longer see the application in Novell Application Launcher. You should also make sure that uninstall is not enabled for the Application object.

  Administrator rights are not needed to upgrade the Desktop Management Agent. The user's privileges are elevated temporarily by the Desktop Management Agent during the installation.
- If you upgrade the ZfD 4.*x* Agent (excluding ZfD 4.0.1 Interim Releases 4-6) to ZENworks 6.5 SP2, and if you use a workstation-associated Application object to perform the upgrade, users are not prompted to reboot their workstations.

  If you perform the upgrade with a user-associated Application object, the reboot prompt is displayed.
- If you want to set the NAL_SINGLE_TREE MSI property when you upgrade the ZfD 4.0.1 Agent (or later, except for Interim Release 4) to ZENworks 6.5 Desktop Management SP2, you must also set the ZENWORKS_TREE property and specify the tree from which the workstation will receive ZENworks files.

If you are upgrading the ZfD 4.0.1 Agent from the latest ZfD 4.0.1 Interim Release to version 6.5 SP2, you need to set the tree value to the tree where the workstation is imported. If the workstation has not been imported, the setting is ignored.

V Interoperability

Interoperability is defined as two or more products that interact one with another in the same network environment (for example, the same tree, the same server, and so on).

The topics in this section include:

- Chapter 24, “Interoperability with ZENworks for Desktops 4.x,” on page 317
- Chapter 25, “Interoperability in Inventory,” on page 323
- Chapter 26, “Interoperability in Remote Management,” on page 335
- Chapter 27, “Interoperability with Other Novell Products,” on page 337

24 Interoperability with ZENworks for Desktops 4.*x*

As you upgrade ZENworks for Desktops 4.*x* to ZENworks Desktop Management, there are several things you need to know about compatibility, component differences, and how to make similar components work together. This section includes the following information:

- "Workstation and Server Compatibility in a 4.x/6.5 Interoperating Environment" on page 317
- "Component Differences in Versions 4.x and 6.5" on page 318
- "Interoperability with Windows NT 4 Workstations" on page 319

Workstation and Server Compatibility in a 4.*x*/6.5 Interoperating Environment

If you have previously installed ZENworks for Desktops 4 Support Pack 1b (SP1b), ZENworks for Desktops 4.0.1, or ZENworks for Desktops 4 with Interim Release 2 or Interim Release 4 (collectively referred to as ZENworks for Desktops 4.*x*), you will probably be upgrading gradually to ZENworks 6.5 Desktop Management. For this reason, you should understand the ability of different ZENworks components to interoperate when two versions of the product are installed on various workstations and servers.

Each row of the tables below lists the ZENworks workstation and server compatibility combinations of ZENworks Desktop Management components.

The first table lists the version compatibility for Application Management, Workstation Policy Management, and Workstation Imaging.

Desktop Agent Version	Middle Tier Server Version	Desktop Management Server Version
4.*x*	4.*x*	6.5
4.*x*	6.5	6.5
6.5	6.5	6.5

The next table lists the version compatibility for Workstation Inventory.

Desktop Agent Version	Workstation Inventory Server Version
4.*x*	6.5

The next table lists the version compatibility for Remote Management.

Desktop Agent Version	Remote Console Version
4.*x*	6.5

Component Differences in Versions 4.*x* and 6.5

Businesses with large networks might not be able to perform a wholesale upgrade of their workstations, policies, applications, or other ZENworks functionality from ZENworks for Desktops 4.x to ZENworks 6.5. This section includes information that will help you to understand the differences in how the two versions behave while co-existing prior to upgrade.

The following tables show the supported workstation and server configurations

With a few exceptions, ZENworks 6.5 Desktop Management is backward compatible with ZENworks for Desktops 4.*x* features. However, you will notice a difference in the way ZENworks 6.5 handles some functionality. The following sections explain the differences that you need to be aware of.

- "Workstation Import" on page 318
- "Policy Management" on page 318
- "Application Management" on page 318
- "Workstation Imaging" on page 318
- "Remote Management" on page 319
- "Workstation Inventory" on page 319

Workstation Import

If the Import Service is upgraded to ZENworks 6.5 on a server, the ZENworks 4.*x* workstations register in the same way and the 6.5 Import Service imports them. Both ZENworks 4.*x* and ZENworks 6.5 workstations can be imported by a ZENworks 6.5 Import Server.

Policy Management

ZENworks 6.5 Desktop Management does not support Windows NT 4 workstations, Windows 95 workstations, Windows 98 workstations without the SE upgrade, Novell eDirectory™ versions before NDS® 8, NetWare® 4.*x*, NetWare 5.0, or NetWare 5.1.

There are almost no differences between ZENworks for Desktops 4.x and ZENworks 6.5 policies, so the policies will co-exist without a problem. The Windows Terminal Server policy has been removed in ZENworks 6.5.

Application Management

If you import ZENworks for Desktops 4.x Application Management system requirements into the new ZENworks 6.5 system requirements, make sure that the legacy system requirements still exist. If the older application requirements are left intact, the ZENworks 4.*x* application still works.

Workstation Imaging

When you upgrade Workstation Imaging from ZENworks for Desktops 4.*x*, make sure to use the same boot disk version as the version on the Desktop Management Server. For example, if you upgrade the Imaging server to ZENworks 6.5, make sure to use a ZENworks 6.5 boot CD when you manually invoke imaging.

Remote Management

The Remote Management component of ZENworks 6.5 Desktop Management will co-exist with other vendor products offering Remote Management functionality, if you install the mirror driver on Windows 2000/XP workstations during the Remote Management installation. This will enable you to use other vendor products offering Remote Management functionality along with the Remote Management component of ZENworks 6.5 Desktop Management.

The Remote Management console of ZENworks 6.5 Desktop Management is interoperable with the Remote Management Agent bundled with ZENworks for Desktops 3.2 SP3, ZENworks for Desktops 4.*x*, ZENworks for Servers 3.*x*, and ZENworks 6.5 Server Management.

Workstation Inventory

In ZENworks 6.5 Desktop Management, the Inventory Agent reads the software scan configuration from the dictionary file. In ZENworks for Desktops 4.*x*, the Inventory Agents read the software scan configuration from the Workstation Inventory policy.

Interoperability with Windows NT 4 Workstations

Although ZENworks 6.5 Desktop Management does not officially support Windows NT 4 workstations, if you have NT 4 workstations with the ZENworks for Desktops 4.0.1 Management Agent installed, you can still manage those workstations (that is, they can communicate with the ZENworks 6.5 Management Server), with ZENworks 6.5 Desktop Management, given some limitations.

This section explains the extent of ZENworks 6.5 support for Windows NT workstations. The information is organized into the following sections:

- "Desktop Management Agent" on page 319
- "Policies and Policy Packages" on page 320
- "Automatic Workstation Import and Removal" on page 320
- "Application Management" on page 320
- "Workstation Imaging" on page 321
- "Remote Management" on page 321
- "Workstation Inventory" on page 322

Desktop Management Agent

The ZENworks 6.5 Desktop Management Agent MSI (zfdagent.msi) does not install on a Windows NT 4 workstation.

We recommend that you use the latest patched version of the ZENworks for Desktops 4.x Agent on Windows NT 4 workstations. You can obtain the public release of this agent at the ZENworks for Desktops 4.0.1 Product Updates Web site (http://support.novell.com/filefinder/17511/index.html).

Policies and Policy Packages

The following list explains how the features and functionality of ZENworks 6.5 Desktop Management policies and policy packages can be applied to Windows NT 4 workstations.

- The NT only property page for policies and packages is retained. It remains functional for NT workstation management, even after you upgrade to ZENworks 6.5.
- The NT/2000/XP property page for policies and policy packages is retained. It remains functional for NT workstation management, even after you upgrade to ZENworks 6.5.
- The property pages of Policy and Policy Package objects include a note explaining that NT4 workstations must use the ZENworks for Desktops 4.0.1 Management Agent in order to read policies with NT only or NT/2000/XP property pages.
- Any miscellaneous references to Windows NT workstations remain on Policy property pages.
- The local redirector file copy feature known as the ZENworks Multiple UNC Provider or ZEN MUP, is not supported on NT workstations. For more information, see "Understanding the ZENworks Multiple UNC Provider" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- Policy error logging is not supported for NT workstations.
- DHCP delivery of the Middle Tier IP address is not supported on NT4 workstations. For more information, see "Implementing a DHCP Option for Delivering the Middle Tier Server Address" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- The ZENworks Tree is not supported on Windows NT 4 workstations. For more information, see "Using a ZENworks Tree" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- The following table lists the Workstation Management settings that are unavailable or that are ignored in ConsoleOne™ for Windows NT workstations:

Steps to Locate in ConsoleOne	Ignored Settings
Workstation or User package > Novell iPrint policy > Settings page	Remove Any Installed iPrint Printer That is Not Included in This List of Printers
Server package > Workstation Import policy > Limits page	Disable User History
Workstation object > User History page	Do Not Add to History

Automatic Workstation Import and Removal

You can add or remove NT 4 Workstation objects to an eDirectory tree where ZENworks 6.5 exists, regardless of whether ZENworks was installed there for the first time or upgraded from ZENworks for Desktops 4.*x*.

Application Management

The following list explains how the features and functionality of ZENworks 6.5 Application Management can be applied to Windows NT 4 workstations.

- Application Management property pages in ConsoleOne retain references to Windows NT 4 workstations.

- Application objects created in ZENworks 6.5 using the legacy system requirements apply to Windows NT4/2000/XP and Windows 98 SE workstations.
- The install manager of the Web Browser view of the Novell Application Launcher™ detects the workstation operating system and requests the appropriate .cab file for that workstation. The zfd40.cab file is used on Windows NT 4 workstations, while zfdplugin.cab is used for Windows 98/2000/XP workstations. The zfd40.cab file remains on the server's local drive after it has been upgraded to ZENworks 6.5 Desktop Management.
- The following table lists the Application Management features that are unavailable or that are ignored in ConsoleOne™ for Windows NT workstations:

Steps to Locate in ConsoleOne	Feature
MSI Application object > Identification tab > Package Information page	Administration Package Path
Application object > Distribution Options tab > Pre-Distribution Process Termination page	All settings
Application object > Distribution Options tab > Options page	Distribute in the Workstation Security Space if Workstation Associated
Application object > Availability tab > Distribution Rules page	All Distribution Rules features are ignored; only legacy system requirements are read.
Application object > Common tab > Uninstall Scripts page	All settings

Workstation Imaging

The following list explains how the features and functionality of ZENworks 6.5 Workstation Imaging can be applied to Windows NT 4 workstations.

- Windows NT 4 Workstation objects in eDirectory are still valid for ZENworks 6.5 imaging policies.
- The version of the ZENworks Imaging Windows Agent (ziswin.exe) shipping with ZENworks for Desktops 4.0.1 can create image safe data that can be used by the ZENworks 6.5 Imaging Server.

Remote Management

The following list explains how the features and functionality of ZENworks 6.5 Remote Management can be applied to Windows NT 4 workstations.

- Windows NT 4 workstations running the Remote Management Agent installed by ZENworks for Desktops 4.0.1 can be managed by the ZENworks 6.5 Remote Control Console.
- The following ZENworks 6.5 Remote Management features are not available or will not work for Windows NT4 workstations:
  - Agent Initiated Connection
  - Session Encryption
  - Force 256 Color Palette

Workstation Inventory

The following list explains how the features and functionality of ZENworks 6.5 Workstation Inventory can be applied to Windows NT 4 workstations.

- The ZENworks for Desktops 4.0.1 Management Agent installed on Windows NT 4 workstations sends a scan directly to the ZENworks 6.5 Inventory Server. The received data is stored in the ZENworks 6.5 inventory database.
- The ZENworks 6.5 console can be used for viewing data present on the Windows NT 4 workstation and for configuring inventory policies.
- Some information is either not available or is limited on Windows NT 4 workstations:

  Hardware: The following hardware information is either not available or is limited on scanned Windows NT 4 workstations:

  - Monitor information is not available.
  - System chassis information is not available.
  - System information new attributes is not shown.

  Software Related Enhancements: The following software related enhancements are either not available or are limited on scanned Windows NT 4 workstations:

  - Only the product name, vendor, version, the identifying number, and the location are scanned using ZENworks for Desktops 4.0.1 methodology.
  - Scanning and viewing of information generated using the software dictionary is not available.
  - Scanning and viewing of information for product suites, products, anti-virus information, and so on, is not available.
  - File information is not available.
  - Disk usage data is not available.

25 Interoperability in Inventory

If you are planning to run the Workstation Inventory component of Novell® ZENworks® 6.5 Desktop Management in the same environment as the Server Inventory component of ZENworks 6.5 Server Management, you must first understand and plan for the compatibility issues described in this section before upgrading or installing these products.

The following prerequisites are especially applicable to Inventory interoperability:

- Follow top-down deployment approach to upgrade the Inventory servers in the Inventory tree. Always begin at the topmost level server (Root Server) and proceed with the next lower-level servers.
- If you have ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management installed on the same machine, and if you upgrade ZENworks 6.5 Desktop Management to ZENworks 6.5 Desktop Management Support Pack 1 (SP1), you must upgrade ZENworks 6.5 Server Management to ZENworks 6.5 Server Management SP1, and vice versa
- ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management can use the same Inventory database (Sybase, Oracle, or MS SQL). If you have installed the Inventory database as a part of the ZENworks 6.5 Server Management installation, you do not need to install an Inventory database as a part of the ZENworks 6.5 Desktop Management installation, or vice versa.
- To administer Server Inventory and Workstation Inventory, you must install the Novell ConsoleOne® Inventory snap-ins for both ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management.
- If an Inventory server receives Server Inventory scans either directly from inventoried servers or through roll-up, you must install ZENworks 6.5 Server Management on this server.
- If an Inventory server should receive Workstation Inventory scans either directly from inventoried workstations or through roll-up, you must install ZENworks 6.5 Desktop Management on this server.
- The following objects and policies apply to Inventory in both ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management:

  Database object
  Inventory Service object
  Dictionary Update policy
  Roll-Up policy
  ZENworks Database policy

You should make sure that each of the above requirements are met in order to ensure Inventory interoperability.

To set up Inventory interoperability, review the following sections:

- "Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management" on page 324
- "Interoperability Between ZENworks 6.5 Desktop Management and Earlier Versions of ZENworks for Desktops Installed on Multiple Servers" on page 330
- "Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions" on page 331

Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management

- "Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management Installed on the Same Server" on page 324
- "Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management Installed on Multiple Servers" on page 324

Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management Installed on the Same Server

On the same server, the Workstation Inventory component of ZENworks 6.5 Desktop Management is interoperable only with the Server Inventory component of ZENworks 6.5 Server Management, and vice versa.

You must install ZENworks 6.5 Desktop Management on the same file system location where you install ZENworks 6.5 Server Management, and vice versa.

Interoperability Between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management Installed on Multiple Servers

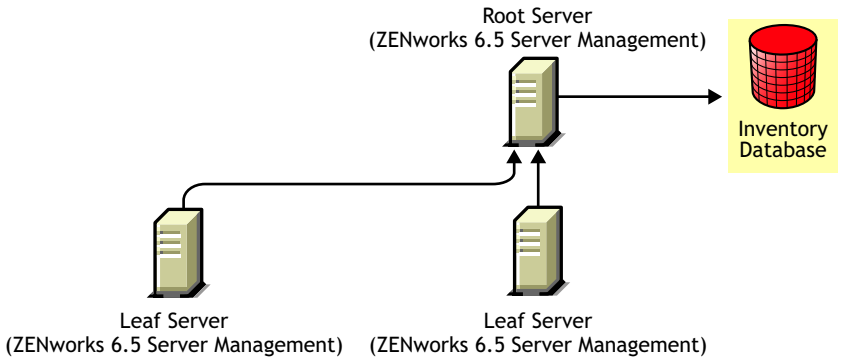
This section includes installation scenarios that demonstrate interoperability between ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management when these two capabilities are installed on different servers in the same network.

- "Scenario 1: Installing Desktop Management in a Server Management Environment" on page 325
- "Scenario 2: Installing Server Management in a Desktop Management Environment" on page 326
- "Scenario 3: Rolling Up Inventory Across Trees" on page 328

Scenario 1: Installing Desktop Management in a Server Management Environment

In this scenario, all the servers in your Inventory tree have only ZENworks 6.5 Server Management installed.

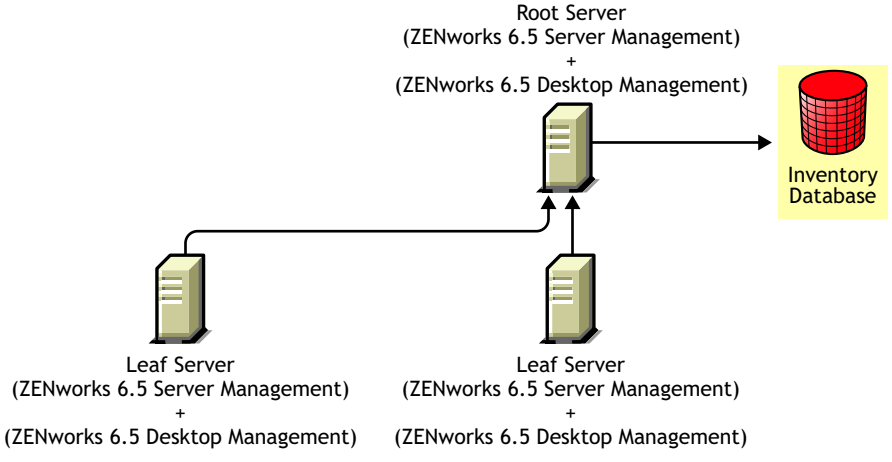
This scenario is depicted in the following figure.



You can install ZENworks 6.5 Desktop Management on ZENworks 6.5 Server Management using either of two methods:

- **Method 1:** Install ZENworks 6.5 Desktop Management on all the ZENworks 6.5 Server Management servers in a top-down installation method. Always begin the installation at the topmost level server and proceed with the next lower-level servers. In the sample scenario, install ZENworks 6.5 Desktop Management first on the Root Server and then on the Leaf Servers. For more information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

  This scenario is depicted in the following figure.

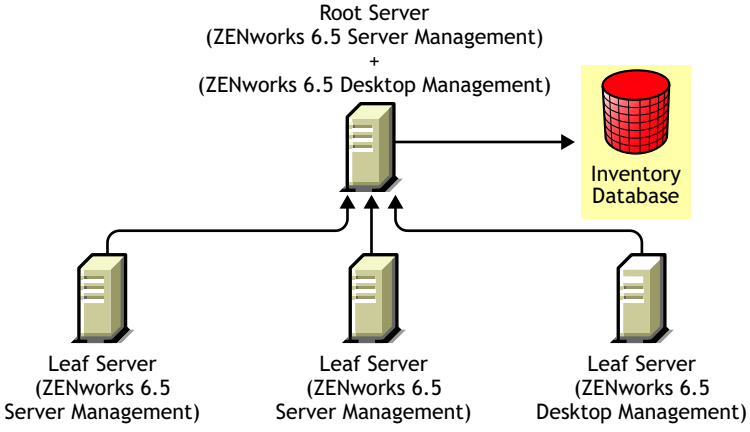


- **Method 2:** Perform the following tasks in the order listed:

  1. Install ZENworks 6.5 Desktop Management on the Root Server. For more information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.
  2. Add another Leaf server with ZENworks 6.5 Desktop Management installed, and configure it to roll up to the Root Server. For more information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

The ZENworks 6.5 Server Management Leaf Server receive the .str files from the inventoried servers attached to it and the ZENworks 6.5 Desktop Management Leaf Servers receive the .str files from the inventoried workstations attached to them. The ZENworks 6.5 Server Management and the ZENworks 6.5 Desktop Management Leaf Servers roll-up the inventory information to the Root Server.

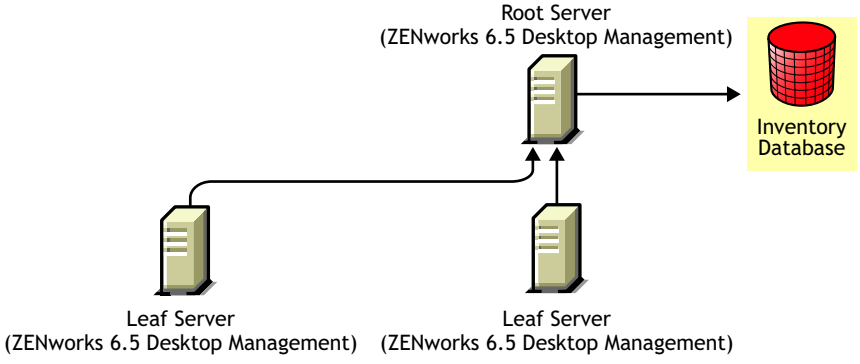
This scenario is depicted in the following figure.



Scenario 2: Installing Server Management in a Desktop Management Environment

In this scenario, all the servers in your Inventory tree have only ZENworks 6.5 Desktop Management installed.

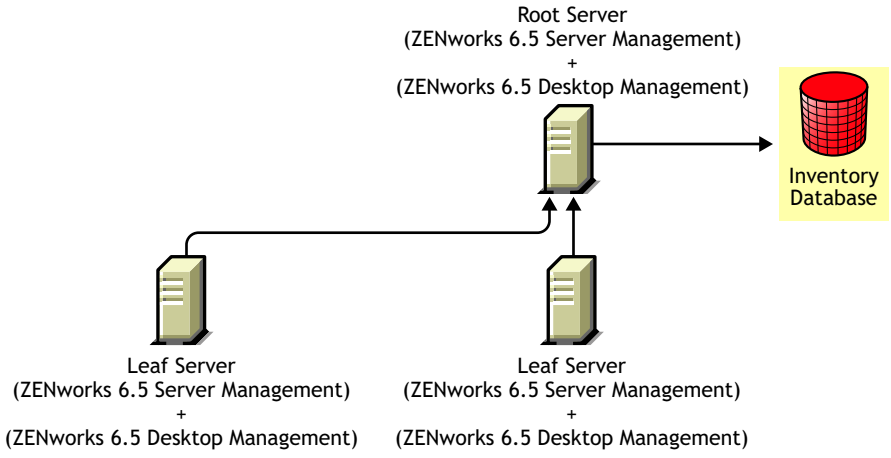
This scenario is depicted in the following figure.



You can install ZENworks 6.5 Server Management on ZENworks 6.5 Desktop Management using either of two methods:

- **Method 1:** Install ZENworks 6.5 Server Management on all of the ZENworks 6.5 Desktop Management servers in a top-down installation method. Always begin the installation at the topmost-level server and proceed with the next lower-level servers. In the sample scenario, install ZENworks 6.5 Server Management first on the Root Server and then on the Leaf Servers. To install ZENworks 6.5 Server Management, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.

  This scenario is depicted in the following figure.

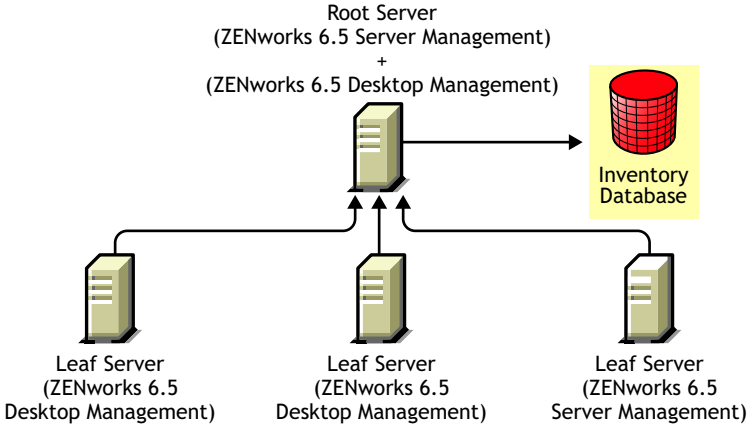


- **Method 2:** Perform the following tasks in the order listed:

  1. Install ZENworks 6.5 Server Management on the Root Server. To install ZENworks 6.5 Server Management, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.
  2. Add another Leaf Server with ZENworks 6.5 Server Management installed, and configure the Leaf Server to roll up to the Root Server. To install ZENworks 6.5 Server Management, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.

  The ZENworks 6.5 Server Management Leaf Server will receive the .str files from the inventoried servers attached to it and the ZENworks 6.5 Desktop Management Leaf Servers will receive the .str files from the inventoried workstations attached to them. The ZENworks 6.5 Server Management and the ZENworks 6.5 Desktop Management Leaf Servers will roll-up the inventory information to the Root Server.

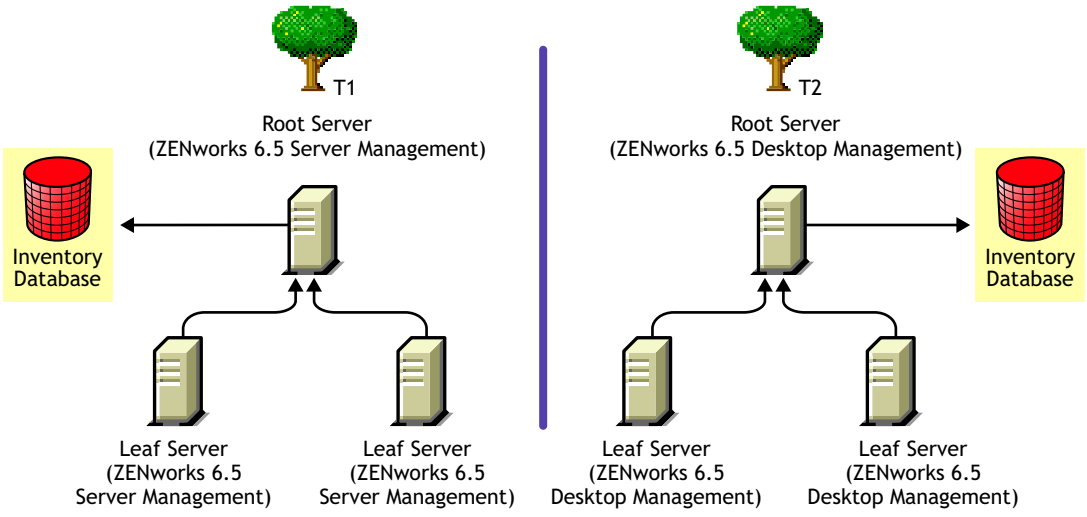
  This scenario is depicted in the following figure.



Scenario 3: Rolling Up Inventory Across Trees

In this scenario, there are two eDirectory trees: T1 and T2. ZENworks 6.5 Server Management is installed on T1 and ZENworks 6.5 Desktop Management is installed on T2. The Inventory trees in T1 and T2 must be merged to have one Root Server to receive both server and workstation inventory information.

This scenario is illustrated in the following figure.



T1 and T2 can be merged using either of two methods:

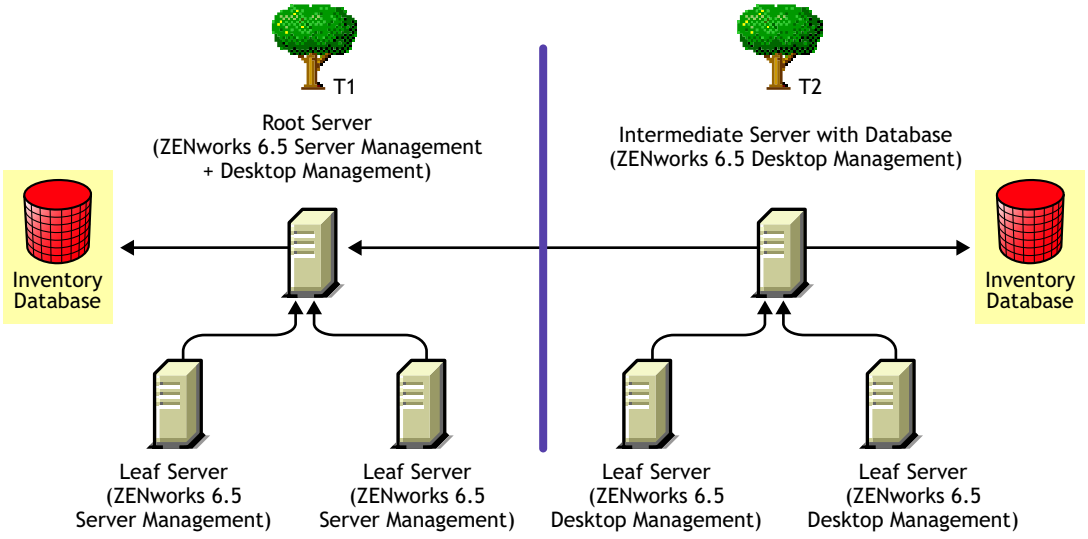
- "Merge Method 1" on page 328
- "Merge Method 2" on page 329

Merge Method 1

You can use the following general steps to merge the inventory data in T2 with the inventory data in T1:

1. Install ZENworks 6.5 Desktop Management on Root Server in T1. For more information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.
2. Change the role of the Root Server in T2 to Intermediate Server with Database and configure it to roll up to the Root Server in T1. For more information, see "Changing the Role of the Inventory Server" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

This scenario is illustrated in the following figure.

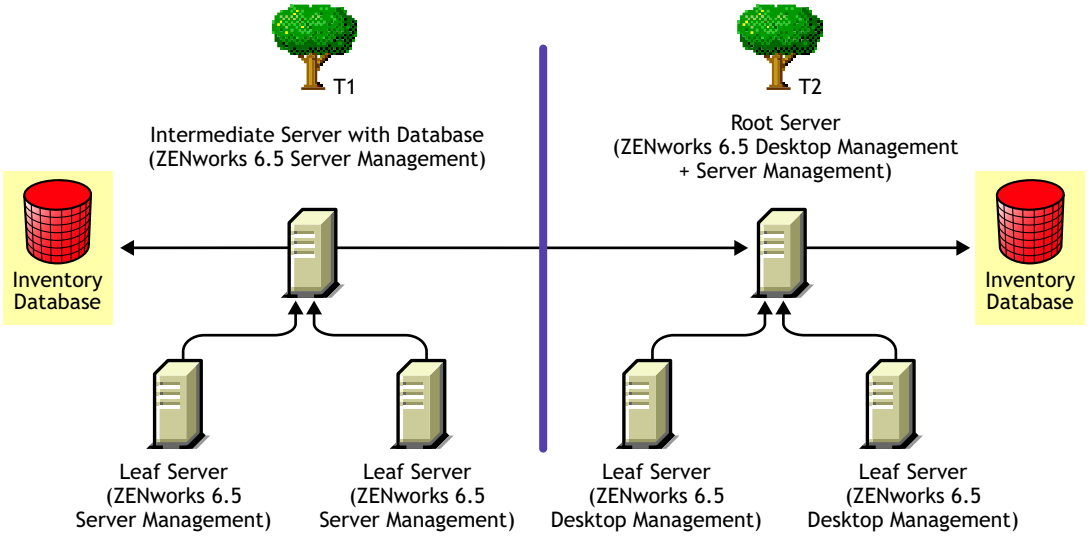


Merge Method 2

You can use the following general steps to merge the inventory data in T1 with the inventory data in T2:

1. Install ZENworks 6.5 Server Management on Root Server in T2. For more information, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.
2. Change the role of the Root Server in T1 to Intermediate Server with Database and configure it to roll up to the Root Server in T2. For more information, see "Changing the Role of the Inventory Server" in the *Novell ZENworks 6.5 Server Management Administration Guide*.

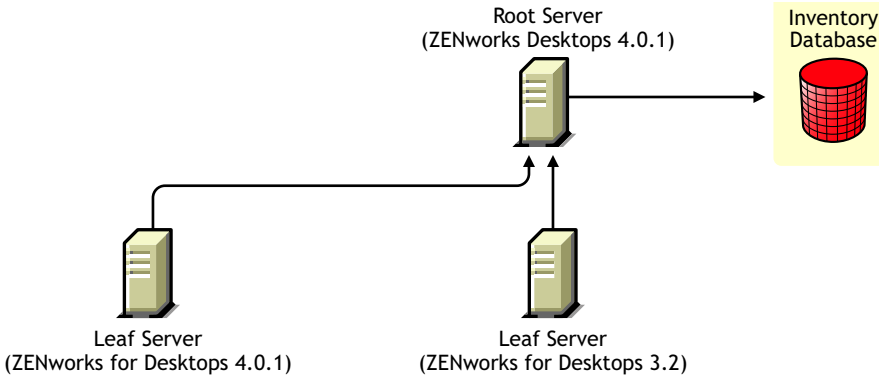
This is illustrated in the following figure.



Interoperability Between ZENworks 6.5 Desktop Management and Earlier Versions of ZENworks for Desktops Installed on Multiple Servers

In this scenario, there are two Leaf Servers having ZENworks for Desktops 4.0.1 and ZENworks for Desktops 3.2 installed respectively. The Leaf Servers roll up the inventory information to a Root Server having ZENworks for Desktops 4.0.1 installed.

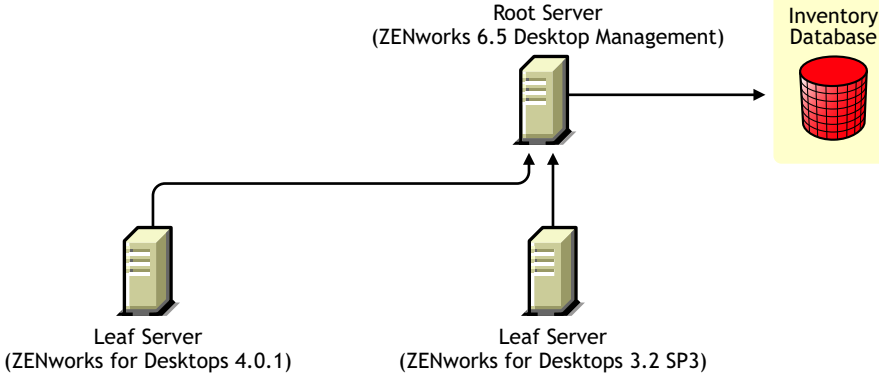
This scenario is depicted in the following figure.



You can use the following general steps to achieve interoperability between ZENworks 6.5 Desktop Management and the earlier versions of ZENworks for Desktops installed on multiple servers:

1. Upgrade ZENworks for Desktops 4.0.1 Root Server to ZENworks 6.5 Desktop Management. For more information, see "Upgrading Workstation Inventory" on page 243.
2. Upgrade ZENworks for Desktops 3.2 Leaf Server to ZENworks for Desktops 3.2 SP3. For more information, see "Completing the Workstation Inventory Upgrade" on page 214.

This is illustrated in the following figure.



Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions

- "Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on a Single Server" on page 331
- "Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on Multiple Servers" on page 332

Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on a Single Server

The following ZENworks versions or combinations of ZENworks versions might exist on a particular machine where you want Inventory for both ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management to be running on the same server:

ZENworks for Desktops 4.0.1
ZENworks for Desktops 4.0 SP1b
ZENworks for Servers 3.0.2
ZENworks for Servers 3.0 SP2
ZENworks for Desktops 4.0.1 and ZENworks for Servers 3.0.2
ZENworks for Desktops 4.0.1 and ZENworks for Servers 3.0 SP2
ZENworks for Desktops 4.0 SP1b and ZENworks for Servers 3.0.2
ZENworks for Desktops 4.0 SP1b and ZENworks for Servers 3.0 SP2
ZENworks for Desktops 3.2 SP3

Except for ZENworks for Desktops 3.2 SP3, you can first upgrade or install either ZENworks 6.5 Server Management or ZENworks 6.5 Desktop Management, then later upgrade or install the other. Then Inventory will be interoperable between ZENworks 6.5 Server Management and ZENworks 6.5 Desktop Management.

For where ZENworks for Desktops 3.2 SP3 exists, follow these steps:

1. Install ZENworks 6.5 Desktop Management.
2. Install ZENworks 6.5 Server Management.

For more information about:

- Installing ZENworks 6.5 Desktop Management, see "Installation" on page 53*Novell ZENworks 6.5 Desktop Management Installation Guide*.
- Upgrading ZENworks 6.5 Desktop Management, see "Upgrade" on page 181.
- Installing ZENworks 6.5 Server Management, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.
- Upgrading ZENworks 6.5 Server Management, see "Upgrade" in the *Novell ZENworks 6.5 Server Management Installation Guide*.

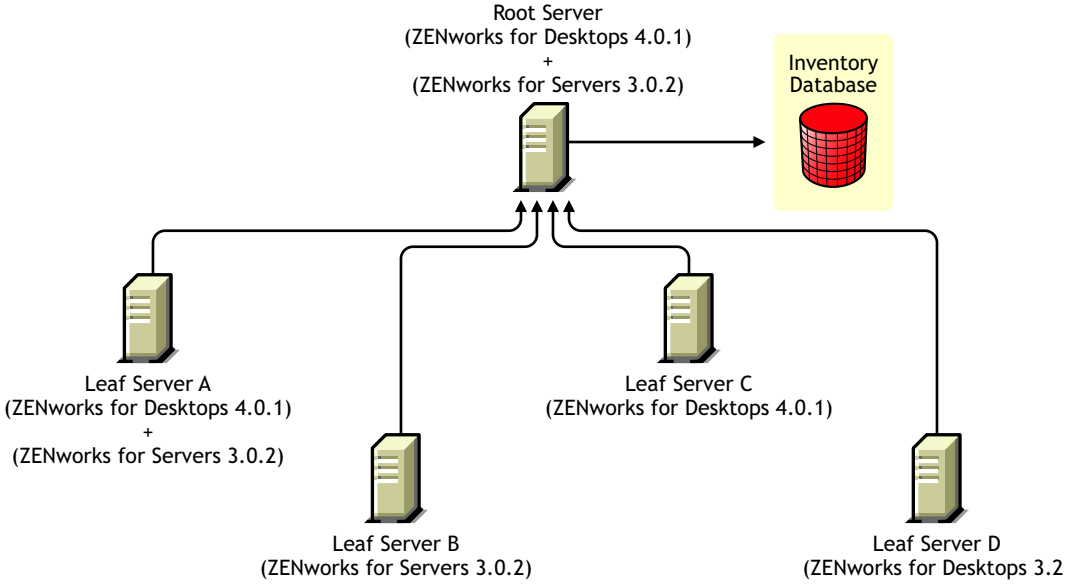
Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on Multiple Servers

In this scenario, there are four Leaf Servers namely, A, B, C, and D, on which the following versions of ZENworks are installed:

Leaf Server	Installed ZENworks Version
Leaf Server A	ZENworks for Desktops 4.0.1 and ZENworks for Servers 3.0.2
Leaf Server B	ZENworks for Servers 3.0.2
Leaf Server C	ZENworks for Desktops 4.0.1
Leaf Server D	ZENworks for Desktops 3.2

The Leaf Servers roll up the inventory information to a Root Server having ZENworks for Desktops 4.0.1 and ZENworks for Servers 3.0.2 installed.

This scenario is depicted in the following figure.



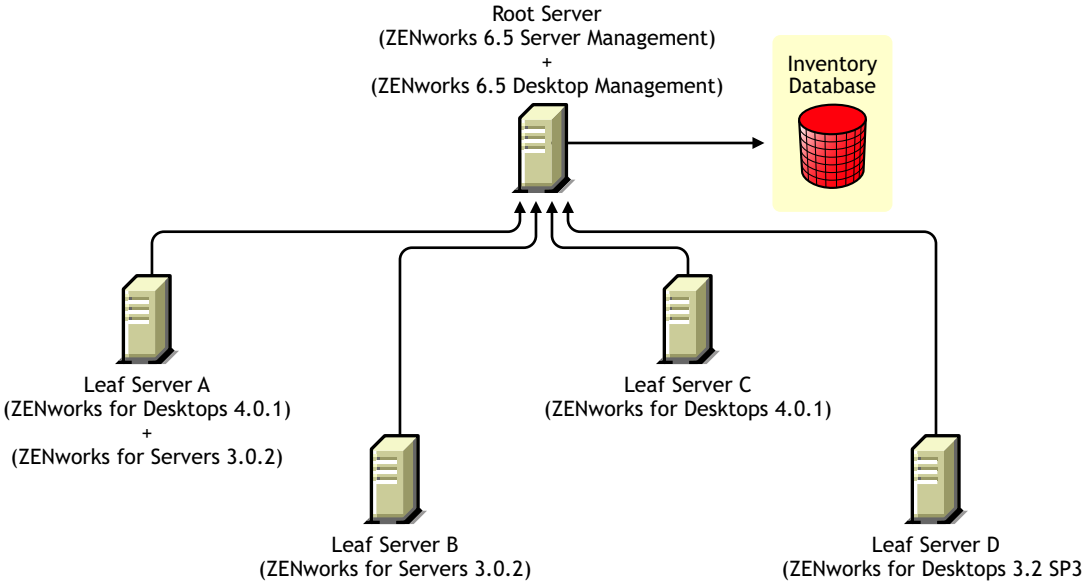
You can use the following general steps to achieve interoperability among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the earlier ZENworks versions installed on multiple servers:

1. On the Root Server, install ZENworks 6.5 Desktop Management and ZENworks 6.5 Server Management.

   For more information about installing ZENworks 6.5 Desktop Management, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55. For more information about installing ZENworks 6.5 Server Management, see "Policy-Enabled Server Management Installation" in the *Novell ZENworks 6.5 Server Management Installation Guide*.

2. Upgrade Leaf Server D from ZENworks for Desktops 3.2 to ZENworks for Desktops 3.2 SP3. For more information, see "Completing the Workstation Inventory Upgrade" on page 214.

This scenario is depicted in the following figure.



26 Interoperability in Remote Management

The Remote Management console of Novell® ZENworks® 6.5 Desktop Management is interoperable with the following versions of the Remote Management Agent:

ZENworks for Desktops 3.*x*/4.*x*

ZENworks for Servers 3.*x*

ZENworks 6.5 Server Management

27 Interoperability with Other Novell Products

Novell® ZENworks® 6.5 Desktop Management interoperates with and complements several other Novell products. This section includes more information and links to other information about that interoperation.

The following information is included in this section:

- "Interoperability with Third-Party Remote Management Products" on page 337
- "Interoperability with Novell iChain" on page 337
- "Interoperability with Novell Cluster Services" on page 337
- "Interoperability with the Novell GroupWise Client" on page 338
- "Interoperability with Novell Nterprise Branch Office" on page 338

Interoperability with Third-Party Remote Management Products

If you choose to install Mirror Driver on a Windows 2000/XP workstation when installing the Remote Management component of Novell ZENworks 6.5 Desktop Management, it can coexist with other vendor products offering remote management functionality.

This enables you to use other vendor products offering remote management functionality in the same environment with the Remote Management component of ZENworks 6.5 Desktop Management.

Interoperability with Novell iChain

Some useful interoperability is supported between ZENworks 6.5 Desktop Management and Novell iChain® 2.3 Support Pack 1. For more information, see TID 10092443 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).

Interoperability with Novell Cluster Services

ZENworks 6.5 Desktop Management can be installed in an existing Novell Cluster Services™ environment. For more information, see Appendix B, "Installing in a Novell Cluster Services Environment," on page 367.

Interoperability with the Novell GroupWise Client

You can easily deploy the Novell GroupWise® client by using ZENworks Application Management. For details about using Application Management to accomplish the deployment, see "Using ZENworks for Desktops to Deploy the GroupWise Client" (http://www.novell.com/documentation/lg/gw65/gw65_admin/data/a2iiiss.html) in the *GroupWise 6.5 Administration Guide*.

Interoperability with Novell Nterprise Branch Office

ZENworks Desktop Management can be integrated with Novell Nterprise Branch Office™ 2.0 using a centralized architecture to let you manage ZENworks centrally while using the branch office server as a repository for application files.

For more information about using these two Novell products together, see "Integrating ZENworks for Desktops with Nterprise Branch Office" (http://www.novell.com/documentation/lg/nbo2/setupguide/data/boj4ly3.html) in the *Novell Nterprise Branch Office Setup Guide*.

VI Uninstall/Reinstall

Circumstances might occasionally make it necessary for you to either uninstall or reinstall a Novell® ZENworks® Desktop Management component. This section contains information about both uninstalling and reinstalling the following Desktop Management components:

- Chapter 28, “Uninstalling Remote Management,” on page 341
- Chapter 29, “Uninstalling or Reinstalling Workstation Inventory,” on page 345

28 Uninstalling Remote Management

The information in this section details the steps to uninstall Novell® ZENworks® Remote Management.

- "Uninstalling Remote Management Agent Components" on page 341
- "Uninstalling Remote Management Server Components" on page 341

Uninstalling Remote Management Agent Components

This section provides information on removing the Remote Management agent files.

To remove the Remote Management agent:

1. From the Control Panel, double-click Add/Remove Programs.
2. Select ZENworks Desktops Management Agent.
3. Click Change.
4. The ZENworks 6.5 Desktop Management Agent InstallShield Wizard is launched. Click Next.
5. In the Custom Setup window, deselect Remote Management, click Next, then click Finish.

Uninstalling Remote Management Server Components

This section provides information on removing the Wake-on-LAN files and the ConsoleOne® files.

- "Removing the ConsoleOne Files" on page 341
- "Removing the Wake-on-LAN Files" on page 343

Removing the ConsoleOne Files

Removing the ConsoleOne files uninstalls the Remote Management Agent and the server-side Remote Management components.

1. Close ConsoleOne, if it is running.

   If ConsoleOne is invoked directly from the Remote Management server on multiple workstations, you must close ConsoleOne on all these workstations.

2. In the *ConsoleOne_installation_directory*\1.2 directory on your server or workstation, do the following:

   - Delete the following files:

     \bin\directoryrights.dll

\bin\ntgroups.ini
\bin\userreports.ini
\lib\zen\classes12.zip
\lib\zen\dataexportsnapins3x.jar
\lib\zen\dbexport.jar
\lib\zen\dbexport3x.jar
\lib\zen\dbexportres.jar
\lib\zen\jconn2.jar
\lib\zen\jdbcdrv.zip
\lib\zen\smanager.jar
\lib\zen\zenutility.jar
\reporting\export\invxml.dtd
\snapins\zen\dataexportsnapins.jar
\snapins\zen\inventorysnapins.jar
\snapins\zen\inventorysnapins3x.jar
\snapins\zen\jgl3.1.0.jar
\snapins\zen\policymigration.jar
\snapins\zen\swdictionarysnapins.jar
\snapins\zen\tableutilities.jar
\snapins\zen\tracer.jar
\snapins\zen\workstationsnapins.jar

- Delete the following sub-directories from the \reporting\canned\novell reporting\zeninventory directory:

  zeninventory
  zeninventory3x
  zeninventory4x
  zeninventory30
  zeninventory32

3. If you have not installed the Remote Management ConsoleOne snap-ins on the same workstation or server, do the following:

   - Delete the following files

     \bin\desktop4.exe
     \bin\desktop4.ini
     \bin\mssql.ini
     \bin\ndsaccess.dll
     \bin\oracle.ini
     \bin\remagent.ini
     \bin\sybase.ini
     \help\njha.jar
     \help\novellzeninven.hs
     \help\novellzenrmgt.hs
     \help\novhlp.css
     \lib\zen\desktop.jar
     \lib\zen\desktop3x.jar
     \lib\zen\desktopcommonutility.jar

\lib\zen\statuslog.jar
\lib\zen\zeninvimages.jar\bin\desktop4.exe

- Delete the following directories:

  \bin\zen\sybaseproxy
  \help\en\novell_zfd_inventory
  \help\en\novell_zfd_remotemgmt

4. Repeat Step 1 through Step 3 for each workstation or server where Inventory ConsoleOne snap-ins are installed.

Removing the Wake-on-LAN Files

1. Stop the Wake-on-LAN service.
   - On NetWare®: At the server console, enter **`stopWol.`**
   - On a Windows 2000/2003 server: In the Control Panel, double-click Administrative Tools > Services, select Novell ZENworks Wake on LAN Service, then click Stop.
2. Delete the directories where the Remote Management components are installed.
   - On a NetWare server, delete the following directories:

     install_path\remmgmt\server\logs
     install_path\\remmgt\server\lib
     install_path\remmgmt\server\properties
     sys:\system

     Delete the following files:

     wolenv.ncf
     wolsetenv.ncf
     startwol.ncf
     stopwol.ncf
     wolstatus.log

   - On a Windows server, delete the following directories:

     install_path\remmgmt\server\lib
     install_path\remmgmt\server\logs
     install_path\remmgmt\server\properties
     install_path\remmgmt\server\bin
3. On the Windows server, remove the following registry entry:
   `HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES\PROMETHEUS WAKE ON LAN SERVICE`
4. Delete the Wake-on-LAN service object (SERVERNAME_WOLSERVICE) from Novell® eDirectory™.
5. Use ConsoleOne to delete all instances of the Wake-on-LAN policy from eDirectory.

29 Uninstalling or Reinstalling Workstation Inventory

This section includes information that will help you to uninstall or reinstall the Workstation Inventory component of Novell® ZENworks® 6.5 Desktop Management.

- "Uninstalling Workstation Inventory" on page 345
- "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353

Uninstalling Workstation Inventory

Workstation Inventory cannot be automatically uninstalled from ZENworks Desktop Management. You must manually remove the Inventory server, the Inventory database running on Sybase, the Novell eDirectory™ objects, and the ConsoleOne® files.

NOTE: If your Inventory database is mounted on Oracle or MS SQL, follow the uninstall procedure recommended by Oracle or MS SQL respectively.

You must remove the objects and the files from every server and workstation where the Workstation Inventory components are installed.

In an enterprise deployment of Inventory, uninstall all Leaf Servers first, then uninstall Intermediate Servers, and finally uninstall the Root Server.

Before uninstalling Workstation Inventory, make sure you have made and archived a reliable backup of the Inventory database residing at the Root Server.

To manually uninstall Workstation Inventory, proceed in this sequence:

- "Uninstalling the Workstation Inventory eDirectory Objects" on page 346
- "Uninstalling the Database eDirectory Object" on page 346
- "Uninstalling the Sybase Inventory Database" on page 346
- "Uninstalling the Sybase Engine" on page 348
- "Uninstalling the Inventory Server Software" on page 349
- "Uninstalling the XML Proxy Server" on page 350
- "Uninstalling the Workstation Inventory Snap-Ins from ConsoleOne" on page 351
- "Uninstalling the Desktop Management Inventory Agent" on page 353

Uninstalling the Workstation Inventory eDirectory Objects

1. On the Inventory server, stop the Inventory services.
   - On a NetWare® server: At the server console prompt, enter `StopSer *`.
   - On a Windows 2000/2003 server: In the Control Panel, double-click Administrative Tools > Services, select Novell Inventory Service, then click Stop.
2. If the ZENworks Database policy is enabled, disable it.
   - **2a** In ConsoleOne, right-click the Service Location Package object, click Properties, then click Policies.
   - **2b** Select the ZENworks Database policy, click Properties, then click the Inventory Management tab.
   - **2c** Delete the specified Inventory Database entry, then click OK.

   IMPORTANT: If the ZENworks Database policy is used by more than one Inventory server, you must uninstall those Inventory servers before performing this step.
3. Disable the Workstation Inventory policy.
   - **3a** In ConsoleOne, right-click the Workstation Package object, then click Properties.
   - **3b** Click Policies, then select the appropriate operating system suboption.
   - **3c** If the Workstation Inventory policy is enabled, select the policy, click the Reset button, then click Yes.
   - **3d** Deselect the Workstation Inventory policy.
   - **3e** Click Apply, then click Close.

   IMPORTANT: If you have configured the Workstation Inventory policy for more than one operating system, select the appropriate operating system suboption from the Policies tab and repeat this step.
4. Disable the Roll-Up policy and the Dictionary Update policy, if the policies are configured.
   - **4a** In ConsoleOne, locate the container holding the Server Package, right-click the Server Package, click Properties, click Policies, then click the NetWare or Windows suboption.
   - **4b** Select the Roll-Up policy, then click the Reset button, then click Yes.
   - **4c** Deselect the Roll-Up policy.
   - **4d** Select the Dictionary Update policy, then click the Reset button, then click Yes.
   - **4e** Deselect the Dictionary Update policy.
   - **4f** Click Apply, then click Close.
5. In ConsoleOne, locate the container holding the Inventory Service object and delete the Inventory Service object.

Uninstalling the Database eDirectory Object

In ConsoleOne, locate the container holding the Inventory database object and delete the Inventory database object.

Uninstalling the Sybase Inventory Database

- “Uninstalling on NetWare Servers” on page 347
- “Uninstalling on Windows Servers” on page 347

Uninstalling on NetWare Servers

1. Stop Sybase by entering **q** at the Sybase console prompt.
2. Delete the *database_path*\mgmtdb.db entry from sys:\system\mgmtdbs.ncf.
3. Note the value of the INVDBPATH key from sys:\system\zenworks.properties.
4. From the value identified in the INVDBPATH key, delete the Inventory database files (mgmtdb*.db), including mgmtdb.log.

   Before deleting the database files, make sure that you have made a reliable backup of the database files if you want to use the inventory information stored in it.
5. Delete the INVDBPATH key from sys:\system\zenworks.properties.
6. Delete the ZFD_INVENTORY_DATABASE_SERVER key.

   Delete the following section from sys:\system\zenworks.properties:

   ```
   [ZfD_Inventory_Database_Server]

   Version = 6.5.0 Desktop Management product build date

   Installed_From = Product CD

   Support_Pack = 0
   ```
7. Start Sybase if it is not uninstalled and if it is used by other ZENworks products.

   At the NetWare server console prompt, enter **mgmtdbs.ncf**.

Uninstalling on Windows Servers

1. Note the value of the DBENGINEPATH key from the HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS registry entry.
2. Stop Sybase.
   - **2a** In the Windows Control Panel, double-click Administrative Tools, then double-click Services.
   - **2b** Select Novell Database - Sybase.
   - **2c** Click Stop.
3. Delete the mgmtdb.db entry.
   - **3a** Run *dbengine_installation_directory*\ntdbconfig.exe.
   - **3b** In the NTDBConfig dialog box, remove the path to mgmtdb.dB, then click OK.
   - **3c** If there are no other .db entries, remove the Sybase engine before proceeding to Step 4. For more information on how to remove the Sybase engine, see "Uninstalling the Sybase Engine" on page 348.
4. Note the value of the INVDBPATH key from the HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS registry entry.
5. From the value identified in the INVDBPATH key, delete the Inventory database files (mgmtdb*.db), including mgmtdb.log.

   Before deleting the database files, make sure that you have made a reliable backup of the database files if you want to use the inventory information stored in it.
6. Delete the INVDBPATH key from the HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS registry entry.

7 Delete the Inventory database server key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS\ZFD` registry entry.

8 Start Sybase if it is not uninstalled and if it is used by other ZENworks products.

8a In the Windows Control Panel, double-click Administrative Tools > Services.

8b Select Novell Database - Sybase

8c Click Start

Uninstalling the Sybase Engine

You can remove the Sybase engine only if it is not used by other ZENworks products.

- "Uninstalling on NetWare Servers" on page 348
- "Uninstalling on Windows Servers" on page 348

Uninstalling on NetWare Servers

1 If Sybase is used by other ZENworks products, you must uninstall the database first before proceeding to uninstall the Sybase engine.

2 Stop Sybase by entering **q** at the Sybase console prompt.

3 Note the value of the DBENGINEPATH key from sys:\system\zenworks.properties.

4 Verify if the database is mounted on the database server.

On NetWare, sys:\system\mgmtdbs.ncf has the .db entry if the database is mounted on the database server

If the file does not contain the .db entry, delete mgmtdbs.ncf. If the file contains the .db entry, do not continue to remove the Sybase engine.

5 Delete the mgmtdbs.ncf entry from sys:\system\autoexec.ncf.

6 Delete the directory specified in DBENGINEPATH (identified in Step 3).

7 Delete the DBENGINEPATH key from sys:\system\zenworks.properties.

Uninstalling on Windows Servers

1 If Sybase is used by other ZENworks products, you must uninstall the database first before proceeding to uninstall the Sybase engine.

2 Stop Sybase.

2a In the Windows Control Panel, double-click Administrative Tools, then double-click Services.

2b Select Novell Database - Sybase

2c Click Stop.

3 Note the value of the DBENGINEPATH key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS` registry entry.

4 Verify if the database is mounted on the database server.

4a Run *dbengine_installaton_directory*\ntdbconfig.exe to find if it has a .db entry.

4b The ntdbconfig.exe file has the .db entry if the database is mounted on the database server. If ntdbconfig.exe has the .db entry, do not continue to remove the Sybase engine.

If the .db entry does not exist, delete the ASANYS_ZENWORKS key from the `HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES` registry entry.

5. Delete the directory specified in DBENGINEPATH.

Uninstalling the Inventory Server Software

- "Uninstalling on NetWare Servers" on page 349
- "Uninstalling on Windows Servers" on page 350

Uninstalling on NetWare Servers

1. On the Inventory server, stop the Inventory Service by entering **`StopSer *`** at the server console prompt.
2. Unload the Java.nlm: At the server console, type **`java -exit`**.
3. Note the values of INVSRVPATH and ZWSPATH keys from sys:\system\zenworks.properties.
4. Delete the ZFD_INVENTORY_SERVER key.

   Delete the following section from sys:\system\zenworks.properties:

   ```
   [ZfD_Inventory_Server]

   Version = 6.5.0 Desktop Management product build date

   Installed_From = Product CD

   Support_Pack = 0
   ```

5. Delete the *invsrvpath*\scandir directory.
6. Delete the *invsrvpath*\server directory.
7. Delete the following entries from sys:\system\autoexec.ncf:

   ```
   ; ZENworks Inventory Settings

   StartInv.ncf
   ```

8. Delete the following files from sys:\system directory:

   invenv.ncf
   invenvset.ncf
   listser.ncf
   startinv.ncf
   startser.ncf
   startzws.ncf
   stopser.ncf
   dbexport.ncf
   debug.properties
   stopdb.ncf

9. If Policy and Distribution Services and the XML Proxy server are not installed on the Inventory server, remove the ZENworks Web Server components by deleting the directory specified by ZWSPATH.

9a Delete the following entries from sys:\system\autoexec.ncf:

```
; ZENworks Inventory Settings

ZFS.ncf
```

9b Delete the zwsstart.ncffile from the sys:\system directory.

9c Delete the ZWSPATH key from sys:\system\zenworks.properties.

9d Delete *zws_volume*:\zfs-startup.xml.

9e Delete *zws_volume*:\zenworks\zfs.ncf.

10 Delete the INVSRVPATH key from sys:\system\zenworks.properties.

Uninstalling on Windows Servers

1 On the Inventory server, stop the Inventory Service.

1a In the Windows Control Panel, double-click Administrative Tools, then double-click Services

1b Select Novell Inventory Service, then click Stop.

1c Select Novell ZENworks Service Manager, then click Stop.

2 Note the values of INVSRVPATH and ZWSPATH keys from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS` registry entry.

3 Delete the *invsrvpath*\scandir directory.

4 Delete the *invsrvpath*\server directory.

5 Delete the ZENINVENTORY key from the `HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES` registry entry.

6 Delete the Inventory server key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS\ZFD` registry entry.

7 If Policy and Distribution Services and the XML Proxy server are not installed on the Inventory server, remove the ZENworks Web Server components.

7a Delete the *zwspath* directory.

7b Delete the ZWSPATH key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS` registry entry.

7c Delete the ZWSSRV key from the `HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES` registry entry.

8 Delete the INVSRVPATH key from `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS` registry entry.

9 Reboot the machine for the changes to take effect.

Uninstalling the XML Proxy Server

To uninstall the Inventory XML Proxy Server files from the server if Policy and Distribution Services or Inventory is not installed on the server:

- “Uninstalling on NetWare Servers” on page 351
- “Uninstalling on Windows Servers” on page 351

Uninstalling on NetWare Servers

1. Unload the java.nlm by entering **`java -killzfsexit`** at the server console prompt.
2. Note the value of the ZWSPATH from sys:\system\zenworks.properties.
3. Delete the following section from sys:\system\zenworks.properties:

```
[ZfD_XML_Proxy_Server]

Version=6.5.0 Desktop Management product build date

Installed_From = Product CD

Support_Pack = 0
```

4. Delete the following entries from sys:\system\autoexec.ncf:

```
; ZENworks Inventory Settings


ZFS.ncf
```

5. Delete the zwsstart.ncf file from sys:\system directory.
6. Delete the ZWSPATH directory and the ZWSPATH entry from sys:\system\zenworks.properties.
7. Delete zfs-startup.xml and zfs.ncf from the *zws_volume*:\zenworks directory.

Uninstalling on Windows Servers

1. Stop ZENworks Web Server.

   In the Control Panel, double-click Administrative Tools, double-click Services, select Novell ZENworks Service Manager, then click Stop.
2. Note the value of the ZWSPATH key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS` registry entry. The value indicates the zwspath directory.
3. Delete the zwspath directory.
4. Delete the Inventory Proxy XML server key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS\ZFD` registry entry.
5. Delete the ZWSSRV key from the `HKEY_LOCAL_MACHINE\SYSTEM\CURRENTCONTROLSET\SERVICES` registry entry.
6. Delete the ZWSPATH key from the `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS\` registry entry.
7. Delete *zws_volume*:\zenworks\zfs-startup.xml.

Uninstalling the Workstation Inventory Snap-Ins from ConsoleOne

Do not uninstall ConsoleOne itself if you are using it to manage other products.

To remove only the Workstation Inventory snap-ins from ConsoleOne:

1. Close ConsoleOne, if it is running.

   If ConsoleOne is invoked directly from the Inventory server on multiple workstations, you must close ConsoleOne on all these workstations.

2 In the *ConsoleOne_installation_directory*\1.2 directory on your server or workstation, do the following:

- Delete the following files:

  \lib\zen\dbexport.jar
  \lib\zen\desktop.jar
  \lib\zen\zeninvimages.jar
  \lib\zen\zenutility.jar
  \lib\zen\statuslog.jar
  \lib\zen\classes12.zip
  \lib\zen\vbjapp.jar
  \lib\zen\vbjorb.jar
  \lib\zen\jdbcdrv.zip
  \snapins\zen\inventorysnapins.jar
  \snapins\zen\inventorysnapins3x.jar
  \snapins\zen\dataexportsnapins.jar
  \snapins\zen\policymigration.jar
  \snapins\zen\workstationsnapins.jar
  \snapins\zen\tracer.jar
  \help\novellserverinv.hs
  \bin\directoryrights.dll
  \bin\displayrules.properties
  \bin\schemarules.properties

- Delete the following directories:

  \reporting\canned\novellreporting\zeninventory
  \reporting\canned\novellreporting\zeninventory30
  \reporting\canned\novellreporting\zeninventory32
  \reporting\canned\novellreporting\zeninventory3x
  \reporting\canned\novellreporting\zeninventory4x

3 If you have not installed the Remote Management ConsoleOne snap-ins on the same workstation or server, delete the following files:

\bin\desktop4.exe
\bin\mssql.ini
\bin\msvp60.dll
\bin\ndsaccess.dll
\bin\oracle.ini
\bin\remagent.ini
\bin\sybase.ini
\help\novellzeninven.hs
\help\novellzenrmgt.hs
\help\en\novell_zfd_inventory
\help\en\novell_zfd_remotemgmt
\lib\zen\desktop.jar
\lib\zen\desktop3x.jar
\lib\zen\desktopcommonutility.jar
\resources\resources.jar
\snapins\zen\commonsnapins.jar

Uninstalling the Desktop Management Inventory Agent

If you need to uninstall the Desktop Management Inventory Agent on a user workstation, you can do so by running Add\Delete Programs in Windows. Any application icons created on the desktop by the Novell Application Launcher™ are not deleted.

NOTE: After installation, any user can try to execute the Add/Remove Programs in Windows to uninstall the Desktop Management Inventory Agent. Unless that user has local administrative rights to the workstation, the agent uninstall is not successful.

Reinstalling Workstation Inventory on NetWare and Windows Servers

You might need to reinstall the Workstation Inventory component of Desktop Management Services because it failed to install properly or because data corruption, such as an inadvertent file deletion, has occurred and the data can only be fixed by reinstalling.

IMPORTANT: A reinstallation does not require the schema to be extended again.

This section includes information that focuses on reinstalling the Workstation Inventory component.

- "Preparing to Reinstall Workstation Inventory" on page 353
- "Reinstalling Workstation Inventory" on page 354
- "Determining if Reinstalling Workstation Inventory Was Successful" on page 355
- "Reinstalling the Desktop Management Inventory Agent" on page 355

Preparing to Reinstall Workstation Inventory

1. Identify the servers that need Workstation Inventory reinstalled.
2. Stop the Inventory service.
   - On a NetWare Inventory server: At the server console prompt, enter **`sys:\system\invstop.ncf`**.

     NOTE: If you do not want the Sybase database to be stopped automatically when you stop the Inventory services, comment the `Unload dbsrv8.nlm` line in the sys:\system\invstop.ncf file.
   - On a Windows 2000/2003 Inventory server: In the Control Panel, double-click Administrative Tools > double-click Services > select Novell Inventory Service > click Stop.
3. Stop the Inventory database.
   - On NetWare: At the Sybase console prompt, press the Q key.
   - On Windows 2000/2003: In the Control Panel, double-click Administrative Tools > double-click Services > select Novell Database - Sybase > click Stop.
4. If Java has not been unloaded on the target NetWare servers, unload java.nlm (at the server console, enter **`java -exit`**).

   IMPORTANT: This command stops all Java processes running on the server. Verify that all Java processes can be stopped while you are installing Desktop Management.
5. On the target Windows servers, close the Services window.
6. Log into the Novell eDirectory™ tree that has the servers where you want to reinstall.

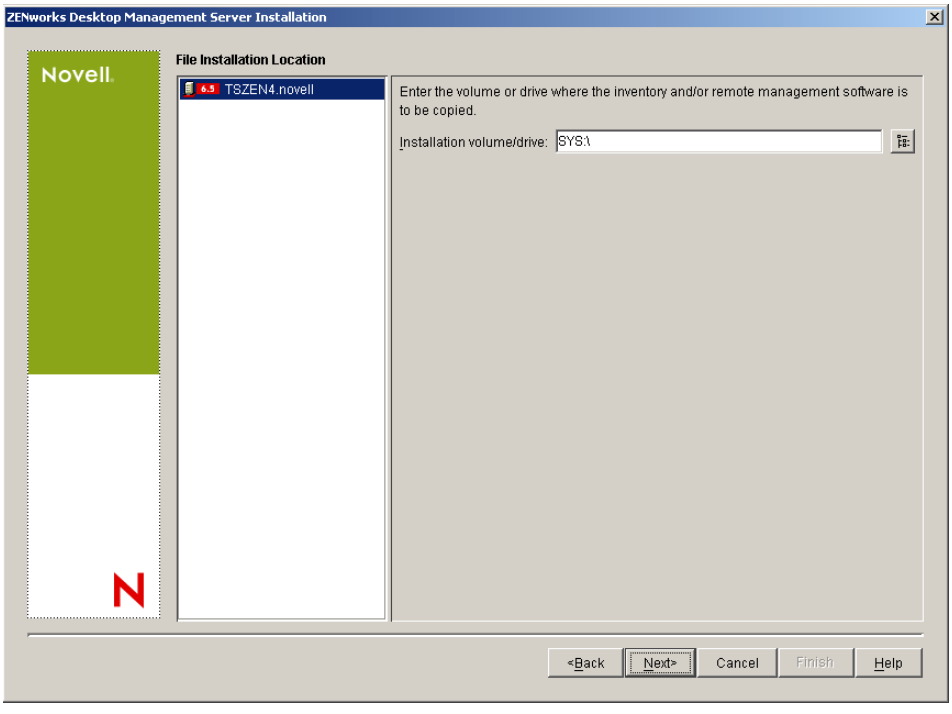
If you are reinstalling to a Windows 2000 server, you must be logged in as Administrator (or equivalent) in order to authenticate to the server you are reinstalling to.

7 Continue with "Installing the ZENworks Desktop Management Server" on page 55.

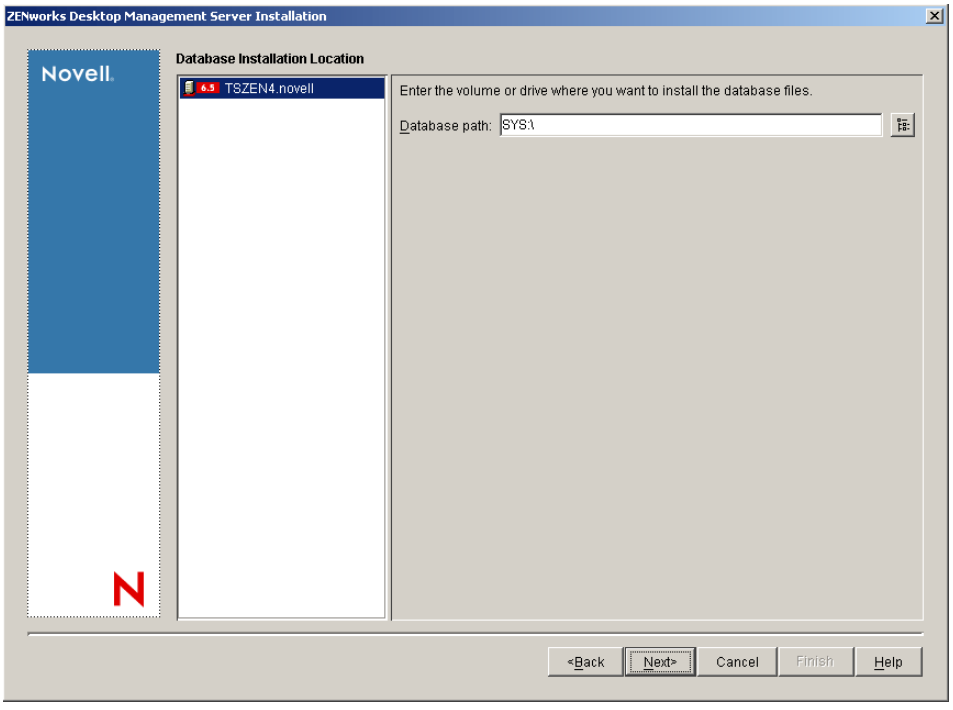
Reinstalling Workstation Inventory

If you reinstall Workstation Inventory over a prior installation, the ZENworks 6.5 Desktop Management Workstation Inventory uses the existing configured policies and the scandir directory.

On the File Installation Location page during reinstallation, the installation program searches for the previous installation path. If detected, the Workstation Inventory or Remote Management files is installed to the same path.



On the Database Installation Location page during a reinstallation, the Installation program searches for the previous installation path. If detected, the database is installed to the same path.



Determining if Reinstalling Workstation Inventory Was Successful

1. After the installation has finished, review the installation log file to determine whether any components failed to install.
2. If you reinstalled to fix a file missing or file corruption problem, check to see if the problem has been fixed.

Reinstalling the Desktop Management Inventory Agent

To reinstall the Desktop Management Inventory Agent on the workstation, see “Manually Installing the Desktop Management Agent” on page 92.

VII Appendixes

This section of the *Installation Guide* includes appendixes with additional information that might help you as you install ZENworks Desktop Management. The following appendixes are included:

- Appendix A, “Differences in ZENworks for Desktops 3.2 and ZENworks 6.5 Policy Packages,” on page 359
- Appendix B, “Installing in a Novell Cluster Services Environment,” on page 367
- Appendix C, “Limitations When Interoperating with the Novell BorderManager VPN Client,” on page 387
- Appendix D, “Registry Entries Containing Version Information,” on page 391
- Appendix E, “Installation Error Messages,” on page 403
- Appendix F, “License Agreements for XMLRPC,” on page 433
- Appendix G, “Documentation Updates,” on page 437

A Differences in ZENworks for Desktops 3.2 and ZENworks 6.5 Policy Packages

The following tables include information to help you understand how these policies are organized in an updated ZENworks 6.5 Desktop Management system:

- "Organization of the Container Policy Package" on page 359
- "Organization of the Server Policy Package" on page 359
- "Organization of the Service Location Policy Package" on page 360
- "Organization of the User Policy Package" on page 361
- "Organization of the Workstation Policy Package" on page 363

Organization of the Container Policy Package

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	Search Policy	Search Policy	Partition option removed.

Organization of the Server Policy Package

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	Imaging Server Policy	Imaging Server Policy	Added named servers and a DNS domain suffix to the policy to push as part of the image-safe data.
General	Workstation Import	Workstation Import	No changes.
General	Workstation Removal	Workstation Removal	No changes.
General	zeninvRollupPolicy	Roll-Up Policy	Renamed. Added an IP/DNS entry for server to cross trees. Also added the Proxy server configuration.
General	n/a	ZENworks Database	Allows configuration of the database type and URL. If Workstation Inventory is installed, you can specify the inventory database location on the server. This setting overrides the setting in the Service Location Package.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	n/a	Dictionary Update Policy	Allows configuration of the distribution of the software dictionaries to different Inventory servers. This is a new policy.
Windows	Imaging Server Policy	Imaging Server Policy	Added named servers and DNS domain suffixes to the policy to push as part of the image-safe data.
Windows	Workstation Import	Workstation Import	No changes.
Windows	Workstation Removal	Workstation Removal	No changes.
Windows	zeninvRollupPolicy	Roll-Up Policy	Renamed. Added an IP/DNS entry for server to cross trees. Also added the Proxy server configuration.
Windows	n/a	ZENworks Database	Allows configuration of the database type and URL. If Workstation Inventory is installed, you can specify the inventory database location on the server. This setting overrides the setting in the Service Location Package.
Windows	n/a	Dictionary Update Policy	Allows configuration of the distribution of the software dictionaries to different Inventory servers. This is a new policy.
NetWare	Imaging Server Policy	Imaging Server Policy	Added named servers and a DNS domain suffix to the policy to push as part of the image-safe data.
NetWare	Workstation Import	Workstation Import	No changes.
NetWare	Workstation Removal	Workstation Removal	No changes.
NetWare	zeninvRollupPolicy	Roll-Up Policy	Renamed. Added an IP/DNS entry for the server to cross trees. Also added the Proxy server configuration.
NetWare	n/a	ZENworks Database	Allows configuration of the database type and URL. If Workstation Inventory is installed, you can specify the inventory database location on the server. This setting overrides the setting in the Service Location Package.
NetWare	n/a	Dictionary Update Policy	Allows configuration of the distribution of the software dictionaries to different Inventory servers. This is a new policy.

Organization of the Service Location Policy Package

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	SMTP Host	SMTP Host	No changes.
General	SNMP Trap Targets	SNMP Trap Targets	No changes.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	n/a	XML Targets	New policy. Provides URL targets for XML logging data.
General	ZENworks Database	ZENworks Database	Allows configuration of the database type and URL.

Organization of the User Policy Package

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	Help Desk Policy	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
General	Remote Control Policy	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
General	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	Dynamic Local User	Dynamic Local User	No changes.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	Help Desk Policy	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	NT Desktop Preferences	Windows Desktop Preferences	Renamed.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	NT User Printer	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	NT User System Policies	Removed	Present only if upgraded.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	Remote Control Policy	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	User Extensible Policies	User Extensible Policies	No changes.
WinNT-2000 renamed to WinNT-2000-XP in ZfD 4	Windows 2000 Group Policy	Windows 2000 Group Policy	Renamed.
Win 9x	95 Desktop Preferences	Windows Desktop Preferences	Renamed.
Win 9x	95 User System Policies	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
Win 9x	Help Desk Policy	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
Win 9x	Remote Control Policy	Removed	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
Win 9x	User Extensible Policies	User Extensible Policies	No changes.
Win 9x	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinNT (new tab)	n/a	Dynamic Local User	No changes; new category.
WinNT (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinNT (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control and NAT.
WinNT (new tab)	n/a	User Extensible Policies	No changes.
WinNT (new tab)	n/a	Windows Desktop Preferences	No changes.
Win2000 (new tab)	n/a	Dynamic Local User	No changes; new category.
Win2000 (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
Win2000 (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
Win2000 (new tab)	n/a	User Extensible Policies	No changes.
Win2000 (new tab)	n/a	Windows Desktop Preferences	No changes.
Win2000 (new tab)	n/a	Windows Group Policy	No changes.
WinXP (new tab)	n/a	Dynamic Local User	No changes; new category.
WinXP (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinXP (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
WinXP (new tab)	n/a	User Extensible Policies	No changes.
WinXP (new tab)	n/a	Windows Desktop Preferences	No changes.
Win2000 Terminal Server (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
Win2000 Terminal Server (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
Win2000 Terminal Server (new tab)	n/a	User Extensible Policies	No changes.
Win2000 Terminal Server (new tab)	n/a	Windows Desktop Preferences	No changes.
Win2000 Terminal Server (new tab)	n/a	Windows Group Policy	No changes.
Win2000 Terminal Server (new tab)	n/a	Windows Terminal Server Policy	No changes.

Organization of the Workstation Policy Package

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	Remote Control Policy	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
General	Workstation Imaging Policy	Workstation Imaging Policy	No changes.
General	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
General	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for management agents.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Computer Extensible Policies	Computer Extensible Policies	No changes.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	NT Client Configuration	Removed	Present only if upgraded.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	NT Computer Printer	Removed	Present only if upgraded.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	NT RAS Configuration	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Remote Control Policy	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Restrict Login	Removed	Present only if upgraded.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Windows 2000 Group Policy	Windows Group Policy	Renamed. Warning message added regarding the validity of the policy for the local platform only.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Workstation Imaging Policy	Relocated	Removed from this category. Available only under the General tab.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	Workstation Inventory	Workstation Inventory Policy	Added configuration for Hardware and Software scan and customized software scan features.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
WinNT-2000 (tab renamed to WinNT-2000-XP in ZfD 4)	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for the management agents.
Win 9x	95 Client Configuration	Removed	Present only if upgraded.
Win 9x	95 Computer Printer	Removed	Present only if upgraded.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
Win 9x	95 Computer System Policies	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
Win 9x	95 RAS Configuration	Removed	Still enabled, but not configurable or visible using the ZENworks 6.5 ConsoleOne snap-ins. If you want to change this policy's configuration, you must use the ZENworks for Desktops 3.2 or 4.*x* ConsoleOne snap-ins.
Win 9x	Computer Extensible Policies	Computer Extensible Policies	No changes.
Win 9x	Remote Control Policy	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
Win 9x	Restrict Login	Removed	Present only if upgraded.
Win 9x	Workstation Imaging Policy	Relocated	Removed from this category. Available only under the General tab.
Win 9x	Workstation Inventory	Workstation Inventory Policy	Added configuration for Hardware and Software scan and customized software scan features.
Win 9x	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
Win 9x	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for management agents.
WinNT (new tab)	n/a	Computer Extensible Policies	No changes.
WinNT (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control and NAT.
WinNT (new tab)	n/a	Workstation Inventory Policy	Added configuration for Hardware and Software scan and customized software scan features.
WinNT (new tab)	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for management agents.
WinNT (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
Win2000 (new tab)	n/a	Computer Extensible Policies	No changes.
Win2000 (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.

Tab Name in the Policy Package	ZENworks for Desktops 3.2 SP3 Policies Included	ZENworks 6.5 Policies Included	Differences in ZENworks 6.5
Win2000 (new tab)	n/a	Workstation Inventory Policy	Added configuration for Hardware and Software scan and customized software scan features.
Win2000 (new tab)	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for management agents.
Win2000 (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.
Win2000 (new tab)	n/a	Windows Group Policy	Renamed. Warning message added regarding the validity of the policy for the local platform only.
WinXP (new tab)	n/a	Computer Extensible Policies	No changes.
WinXP (new tab)	n/a	Remote Control Policy	Chat removed. Enhanced for password-based remote control, NAT, Session Encryption, and Agent Initiated Connection.
WinXP (new tab)	n/a	Workstation Inventory Policy	Added configuration for Hardware and Software scan and customized software scan features.
WinXP (new tab)	n/a	ZENworks for Desktops Management Agent Policy	New policy. Provides configuration for management agents.
WinXP (new tab)	n/a	Novell iPrint Policy	New policy. Allows configuration of the iPrint agent.

B Installing in a Novell Cluster Services Environment

This document contains information that helps you understand the tasks necessary for successfully installing and configuring Novell® ZENworks® Desktop Management components in a Novell Cluster Services™ environment. The topics include:

- "Overview" on page 367
- "Installation Prerequisites" on page 368
- "Preparing the Clustering Environment" on page 368
- "Installing Desktop Management Components" on page 369
- "Configuring Workstation Imaging" on page 376
- "Configuring Workstation Inventory" on page 377
- "Upgrading Clustered Workstation Inventory from ZENworks for Desktops 3.2 SP3 to ZENworks 6.5 Desktop Management" on page 378
- "Uninstalling Workstation Inventory in a Clustering Environment" on page 378
- "Reinstalling Workstation Inventory in a Clustering Environment" on page 384
- "Configuring ZENworks 6.5 Workstation Imaging in a ZENworks Support Pack for a Novell Cluster Services Environment" on page 385

Overview

Most of the ZENworks 6.5 Desktop Management components are considered "cluster-safe," which means that you can install the ZENworks 6.5 Desktop Management services in a Novell Cluster Services environment, but if the cluster volume goes down, there will be an interruption in services while the cluster fails over.

When failover occurs, most of the Desktop Management services are restored, but Workstation Imaging must be restarted, and Application Management and some group policies that rely on a single resource (that is, a server where the policy files are copied) might time out waiting for the resource to become available. The policies are not applied until the next login or scheduled event occurs and the file resource becomes available again.

For more information about known issues regarding the operation of ZENworks 6.5 Desktop Management in a clustering environment, see the ZENworks 6.5 Desktop Management readme (http://www.novell.com/documentation/lg/zenworks65/readme/readme_desktops_65.html) at the Novell ZENworks 6.5 documentation Web site.

IMPORTANT: If you want to install the Remote Management and Workstation Inventory components of ZENworks 6.5 Desktop Management in a clustering environment, you must apply the steps found in TID 10096608 in the Novell Support Knowledgebase (http://support.novell.com/search/kb_index.jsp).

If you upgrade Remote Management and Workstation Inventory to ZENworks 6.5 Desktop Management Support Pack 1 (SP1), you need not apply the steps in TID 10096608. SP1 supports installation of Remote Management and Workstation Inventory in a clustering environment.

Installing the ZENworks Middle Tier Server in a clustering environment is not supported.

For more information about Novell Cluster Services, see the Novell Cluster Services documentation at the NetWare 6 documentation Web site (http://www.novell.com/documentation/lg/ncs6p/index.html) or the NetWare 6.5 documentation Web site (http://www.novell.com/documentation/lg/nw65/index.html).

Installation Prerequisites

Before you install and configure Novell ZENworks 6.5 Desktop Management to run with Novell Cluster Services, make sure that all of the hardware and software requirements for the respective products are met, including:

- ❑ At least two NetWare® 6 or NetWare 6.5 servers (also called "nodes") where Novell Cluster Services can be installed
- ❑ Novell Cluster Services 1.6 installed and running on the NetWare 6 servers that will be part of the cluster
- ❑ Novell Cluster Services 1.7 installed and running on the NetWare 6.5 servers that will be part of the cluster
- ❑ A cluster volume created and cluster-enabled (this is called a virtual server or a cluster server)

  For more information on clustering, see the Novell Cluster Services documentation (http://www.novell.com/documentation).

Preparing the Clustering Environment

To prepare cluster nodes for Desktop Management:

1. Upgrade each node to ConsoleOne® 1.3.6 or later.

   ConsoleOne 1.3.6 (or later), included on the *Novell ZENworks 6.5 Companion 1* CD, must be installed on each cluster node for Desktop Management to work properly. For more information, see "Upgrading ConsoleOne" on page 233.

2. Unload Java on each node.

   To avoid an error message displayed by the Desktop Management installation program if Java is running on the server (that is, the cluster node), you should unload Java before you begin the Desktop Management installation there. To do this, you need to have System console access to each servicing node. At the system console for each node, enter the following command:

   ```
   unload java
   ```

3. Install the Novell Client™ on the workstation. For more information about installing the appropriate client, see "Understanding the Novell Client" in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.

Installing Desktop Management Components

To install ZENworks Desktop Management in a network configured with Novell Cluster Services:

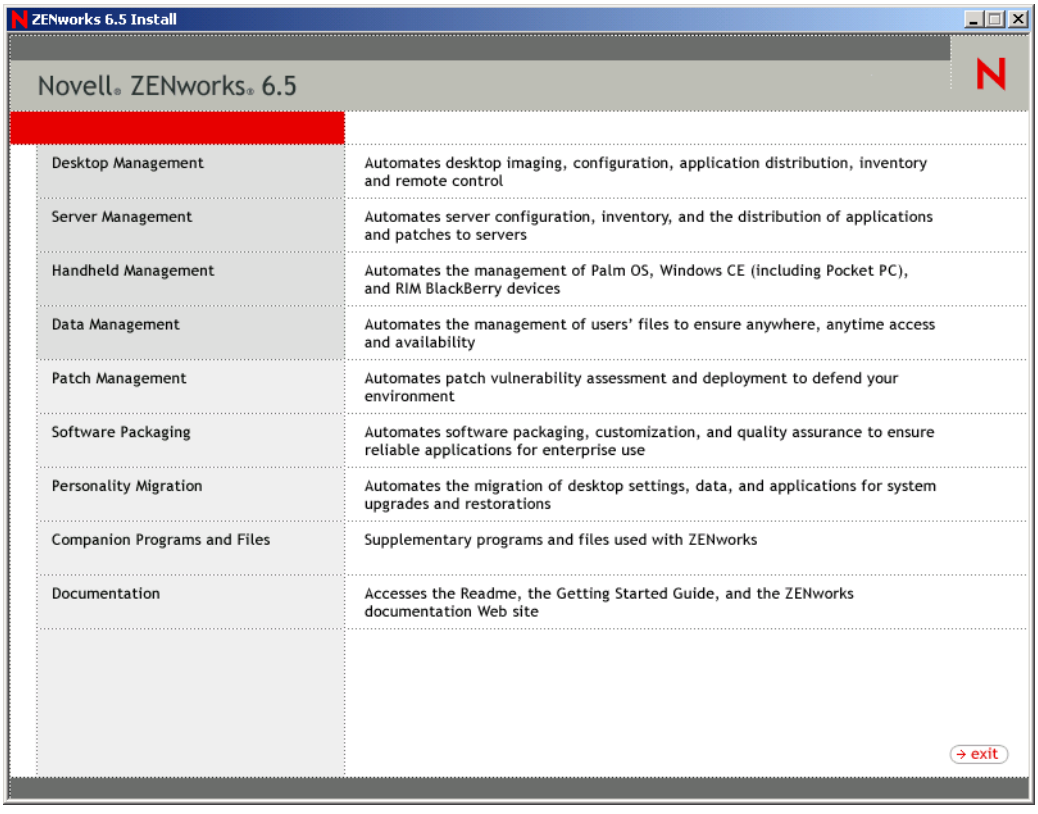
1. From a network workstation configured with the proper Novell Client, log in as Admin to the directory tree where your cluster resides.

   IMPORTANT: Make sure that this workstation and all other administrative workstations are not running ConsoleOne while the ZENworks Desktop Management installation is running.

2. Select a Windows 2000/XP workstation (or a Windows 2000/2003 server) to run the Desktop Management Server installation program. The workstation or server must meet the requirements for an installing workstation. For details, see "Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.

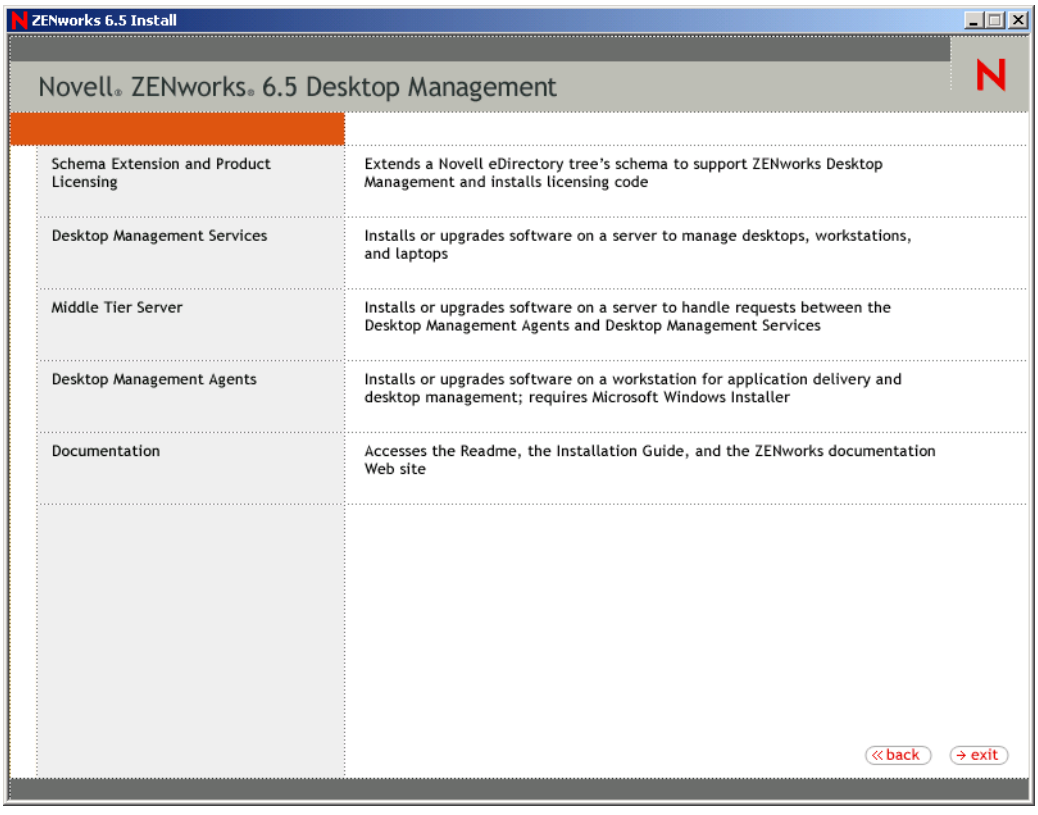
3. At the installing workstation, insert the *Novell ZENworks 6.5 Desktop Management* CD.

   The winsetup.exe program will autorun. If it does not autorun, launch it from the root of the CD.



4. Click Desktop Management to display a page with options to install in various languages.

5. Click English to display a page with Desktop Management installation options.



6 On the first Installation page, read the details about running the installation program, then click Next.

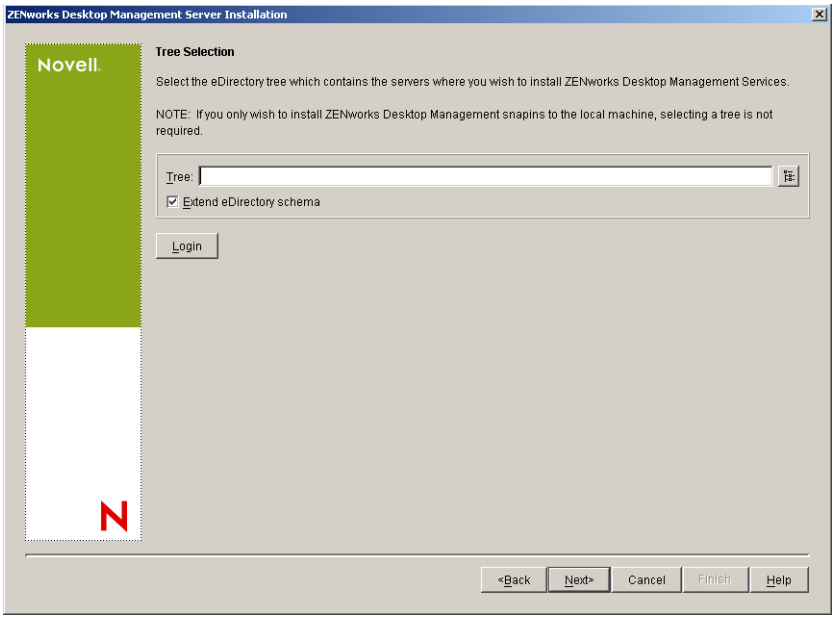
7 Read the License agreement, then click Accept if you agree with the terms of the License Agreement.

If you do not agree with the terms of the license agreement, do not install the software.

8 On the Installation Requirements page, read the requirements for installing the Desktop Management Server, make sure that the server where you plan to install meets the listed requirements, then click Next.

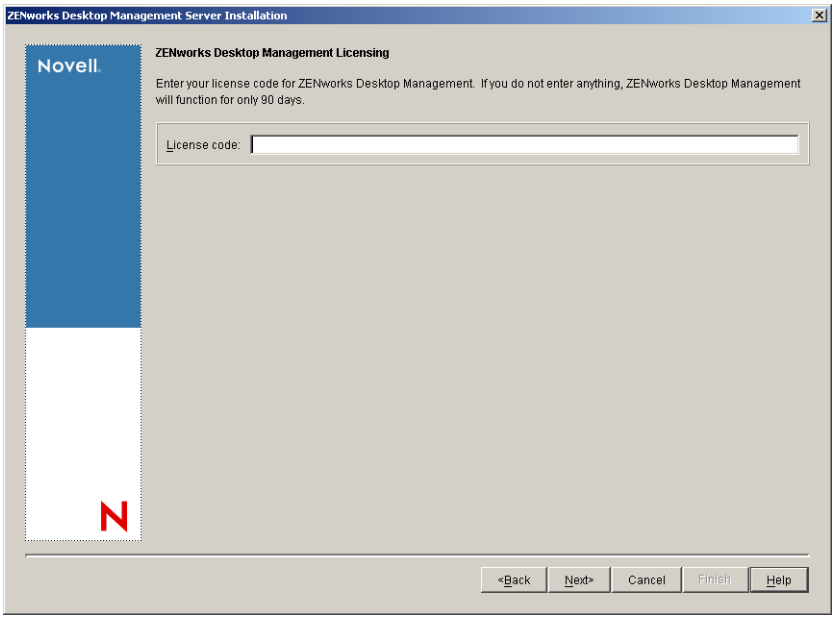
9 On the Tree Selection page, type or browse to the name of the Novell eDirectory™ tree where you want to install the Desktop Management Server. If you have not already extended the schema for this installation (see Step 1 on page 57), check Extend eDirectory Schema to extend the schema on the tree where you will be installing the ZENworks Desktop Management Server, then click Next.

NOTE: You cannot install the ZENworks Desktop Management Server on multiple trees at the same time.



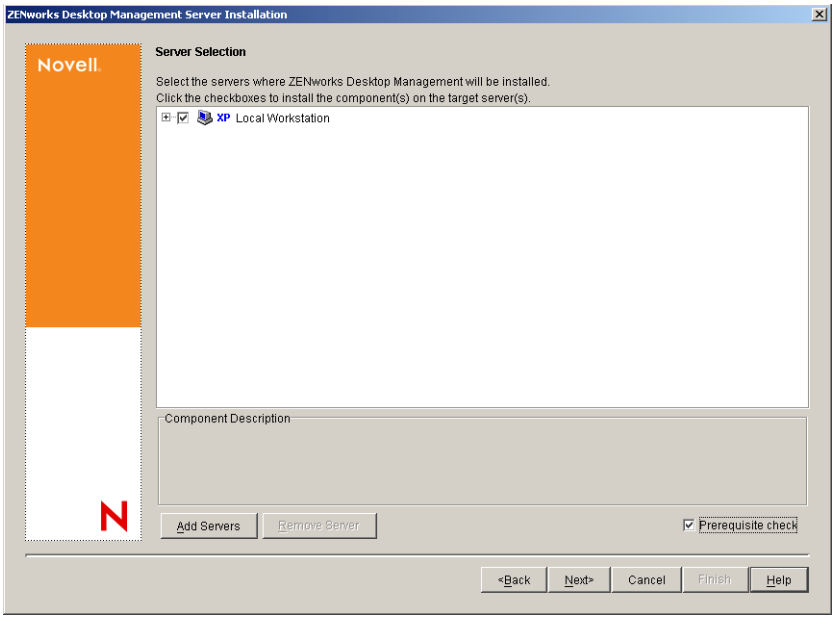
You need to extend the schema on a tree only once. You can authenticate to a tree by clicking the Login button and entering a user ID and password with the appropriate rights.

10 On the ZENworks Desktop Management Licensing page, specify the license code that was e-mailed to you as part of the SmartCert product registration package, then click Finish.

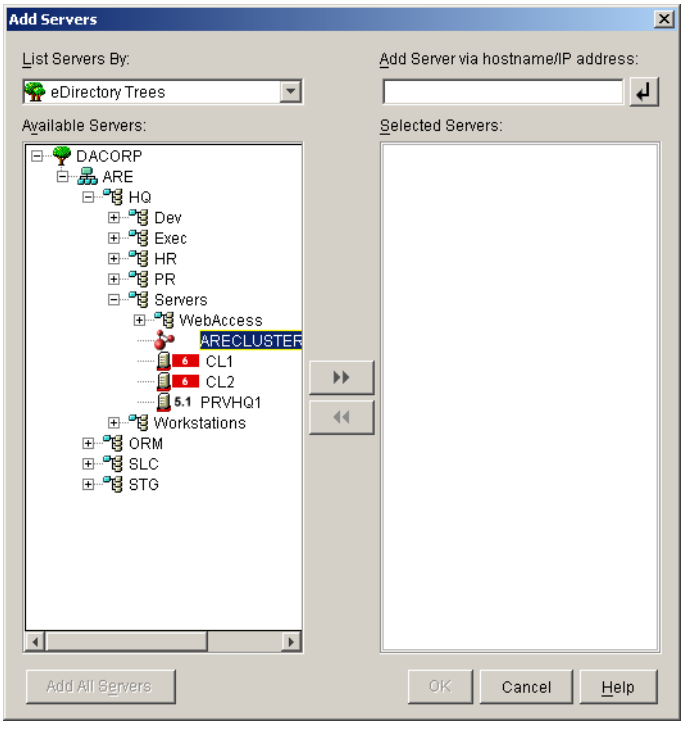


If you do not enter a license code on this page, the wizard considers this installation of ZENworks Desktop Management to be an evaluation version. If you install for an evaluation, you are reminded to license the product at periodic intervals. After 90 days, the product evaluation version no longer functions.

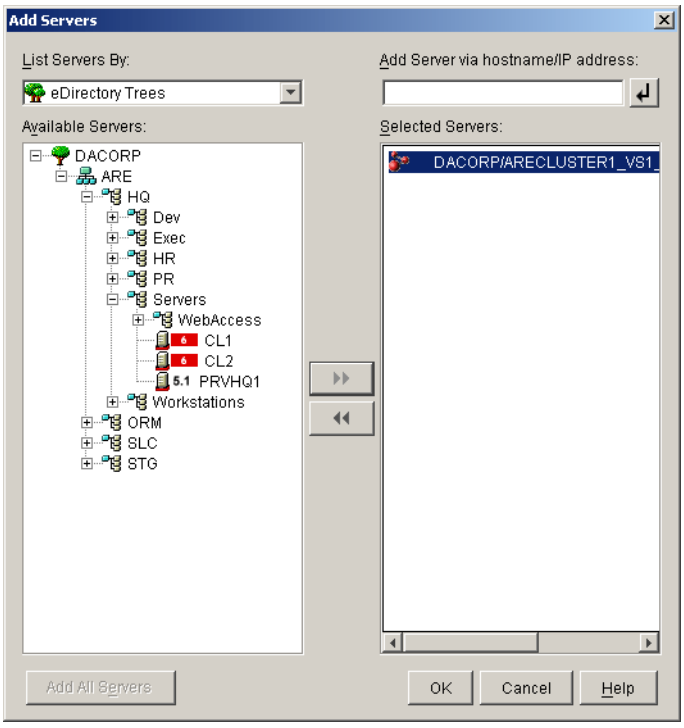
11 On the Server Selection page, click Add Servers to browse to the cluster object where you want to install Desktop Management Server software.



12 In the Add Servers dialog box, you can list the servers by their eDirectory tree names. You can select servers (or cluster objects) only from the tree you selected previously.

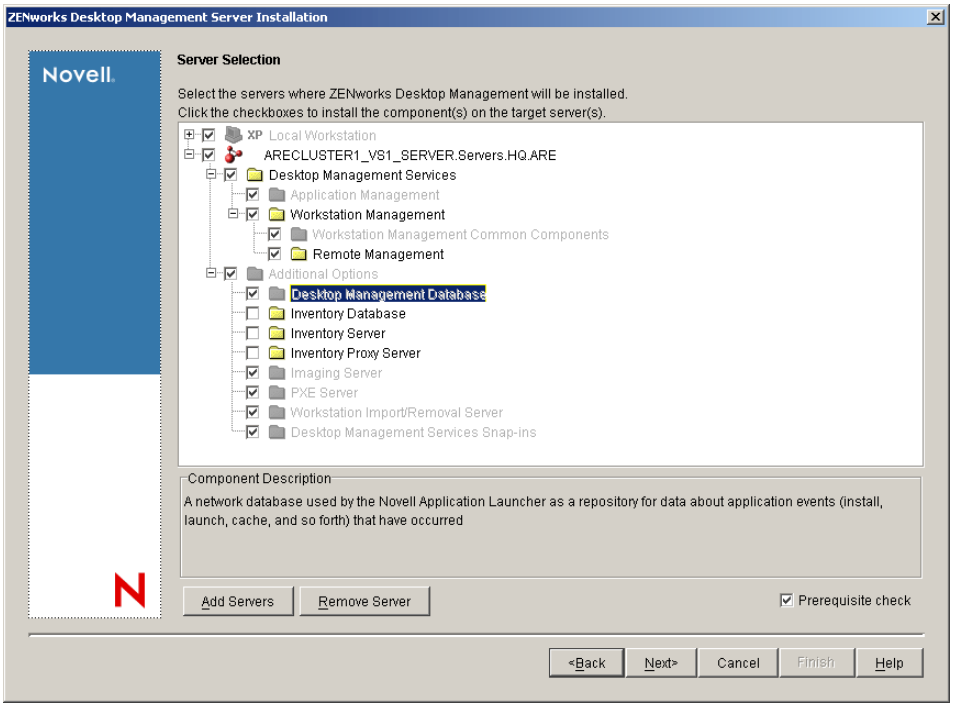


To install to a cluster, choose eDirectory Trees, browse to and click the name of the cluster object that you want to install to, click the right-arrow button to move the selected cluster object to the Selected Servers pane, then click OK.



IMPORTANT: When you select the cluster object, do not select an individual cluster node server that an object belongs to. The installation program detects these objects for you. If you want, you can also select non-clustered servers when you are installing to a cluster.

13 On the now-populated Server Selection page, you can further specify the Desktop Management services you want to install on the cluster, then click Next to save your settings.



The list of services includes the following:

Local Workstation: Even though the ConsoleOne 1.3.6 installation program lets you install ConsoleOne files to a local hard drive, that installation does not include the Desktop Management Services snap-ins.

If you want, you can install Desktop Management Services snap-ins to your local workstation by selecting the Desktop Management Service Snap-ins option under the Local Workstation name. ConsoleOne must be installed on the workstation before the snap-ins can be added.

Desktop Management Services: Desktop Management Services (collectively referred to as the "Desktop Management Server") are commonly used files and programs that enable the configuration and distribution of workstation applications and policies. These services provide automatic management of Windows applications, user and workstation configurations, processes, and behaviors.

- **Application Management:** Select this option to install software that enables the automated distribution, healing, and tracking of applications, updates, and patches.
- **Workstation Management Common Components:** Select this option to install workstation-resident modules that are used to authenticate the user to the workstation and network, and used to transfer configuration information to and from eDirectory.
- **Remote Management:** ZENworks 6.5 Desktop Management does not support this component for installation on a cluster object.

Additional Options: If you want to customize your deployment of Desktop Management Services, there are a number of services to choose from, each with specialized purpose.

- **Desktop Management Database:** Select this option if you want to install a network database to be used by the Novell Application Launcher™ as a repository for data about application events (install, launch, cache, and so forth) that have occurred.
- **Inventory Database:** Select this option if you want to install a network database to be used by Workstation Inventory as a repository for hardware and software inventory information collected from inventoried workstations.

  IMPORTANT: If you want to use the Inventory database with an existing Oracle or MS SQL setup, do not select this option during the Server Inventory installation. Follow the steps in the *Novell ZENworks 6.5 Desktop Management Administration Guide*.
- **Inventory Server:** Select this option if you want to install files and programs to enable the gathering and viewing of hardware and software inventory information for managed workstations.

  If the selected servers have the Server Inventory component of ZENworks for Servers 3.0.2 or earlier installed, you must upgrade the component to ZENworks 6.5 Server Management. For more information about upgrading to Server Management, see "Server Inventory" in "Upgrade" in the *Novell ZENworks 6.5 Server Management Installation Guide*.
- **Inventory Proxy Server:** Select this option if you want to install a proxy service that enables the roll-up of inventory scan data to an Inventory server located across a network firewall. Make sure that the selected servers do not have the ZENworks for Servers 3.0.2 (or earlier) Inventory component already installed.
- **Imaging Server:** Select this option if you want to install a Linux imaging environment to be used to create, store, send, or restore workstation image files to a workstation.
- **PXE Server:** Select this option if you want to install Preboot Execution Environment (PXE) protocols and programs to be used by the server to communicate with a PXE-enabled workstation and to enable sending imaging tasks to that workstation.

NOTE: When you install Preboot Services, one of the components that is installed is the Proxy DHCP server. If the standard DHCP server is on the same server where you are installing the Proxy DHCP server, you must set option tag 60 in DHCP services.

- **Workstation Import/Removal Server:** Select this option if you want to install files and programs that add workstation objects into eDirectory (or remove those already added), where they can be managed to receive applications or computer settings.
- **Desktop Management Services Snap-Ins:** Select this option if you want to install additions to ConsoleOne to enable you to launch Desktop Management tools and utilities, to view Desktop Management object property pages in eDirectory, and to browse and configure those objects.

NOTE: If you run the installation program again after the initial installation (for example, during an upgrade or when you add additional ZENworks components), some check boxes in the list might have a grey background, even though the check box is selected.This indicates that some component in this general category was not selected in a prior installation and can be installed now. You can expand the structure to display the list of components in a category, then you can select the check box of the component you want to install.

Also during a subsequent installation, you might see a grey-shaded item and label text in the component structure. This indicates that the component was previously installed. You need to double-click an item to deselect it as a component to reinstall. Deselecting does not mean that the item will be uninstalled. When a check box is selected, the installation program overwrites the old component.

14 (Optional) The Prerequisites Check check box is selected by default. Retain the selection if you want the installation program to verify that the cluster object meets the installation requirements for ZENworks Desktop Management Services. The installation program checks the version of the object's network operating system (including any required service or support packs), the presence and version of the Novell Client (4.9 SP1a) on the installing workstation, the presence and version of ConsoleOne (1.3.6), and the version of the JVM (1.4.1) on the cluster object.

If the server operating system and support/service packs are not the correct version, the installation displays a warning message, but can continue. If other requirements are not met, the installation displays a warning and will not continue until the required software is installed and detected.

15 Click Next.

16 (Optional) The File Installation Location page is displayed if you choose to install Workstation Inventory or Remote Management.

16a Select one or more target servers in the Selected Servers list, then browse for or enter the cluster-shared volume where you want the Workstation Inventory or Remote Management files to be installed.

NOTE: If a previous installation of ZENworks 6.5 Workstation Inventory or Remote Management component is detected on the machine, the existing path is displayed and dimmed. The current installation will install all the files in the same path.

16b Click Next.

17 (Optional) The Database Location Installation page is displayed if you choose to install the Inventory database or the Desktop Management database.

17a Select a previously designated NetWare cluster server in the left pane.

17b In the Database Path field, browse for or type in the name of the cluster-shared volume where the database file will be installed.

You can provide a different volume for each database server. For example, the volume names might be different on your various NetWare cluster servers. However, you cannot

have multiple instances of the database files on the same server, because you can run only one instance of the database engine per server. For NetWare cluster servers, this path cannot include extended or double-byte characters.

17c Click Next.

18 (Optional) The Inventory Standalone Configuration page is displayed if you choose to install the Inventory Server and the Inventory Database on the same NetWare cluster server. If you want the installation program to automatically create the Server Package and the Database Location policy within the Server Package, and to start the Inventory Service on the server, configure the following settings on the Inventory Standalone Configuration page:

18a Select the Configure Standalone check box.

18b Select the server or servers that you want to point to a common Database Location Search Policy.

18c Type in the name or browse to the tree container where you want to create and configure the Server Package containing this policy.

18d Click Next.

19 (Optional) On the Inventory Proxy Service Configuration page, select the NetWare cluster server or servers with a port you want to designate as one to allow XMLRPC requests pass through to the Inventory Proxy service, then in the Proxy Port field, designate the port you want to use.

You can configure the same port number for all servers by selecting all of them, or you can define the values individually by selecting the servers one at a time. If you want to change the Port 65000 default, specify a value between 0 and 65535. Ensure that the port number is not used by other services on the server.

20 Click Next.

21 On the Summary page, review the list of components and their parts that are to be installed. If the summary is correct, click Finish to launch the installation program.

22 In ConsoleOne, select the tree where you installed the Desktop Management Server software, then right-click the LDAP Group > click Properties > General > select Allow Clear Text Passwords.

NOTE: If you use ConsoleOne 1.3.6, Require TLS For Simple Binds With Password must be deselected in the LDAP Group Object for each server acting as the Authentication Domain for a ZENworks Middle Tier Server. If you need to set this parameter after you have installed the Desktop Management Server, make sure you reboot the ZENworks Middle Tier Server after you change the setting.

If you are installing to Windows servers in an Active Directory domain, configure the LDAP group object for servers that are to be used as Authentication Domains to use an alternate port number, because Active Directory will use ports 389 and 636.

If you have already installed the ZENworks Middle Tier Server, you need to reset the ZENworks Middle Tier Server so that it will recognize the change to LDAP clear text passwords at the Desktop Management Server. You can do this by rebooting the server.

Configuring Workstation Imaging

After you have completed the Desktop Management Services installation, you need to configure Workstation Imaging to work in the clustering environment. The following steps provide the configuration information you need. In addition, you need to be aware of a multicast issue in the clustering environment. For more information, see “Multicast Issue” on page 377.

1. Edit the tftp.ini file in *shared_cluster_volume*:\system, then comment the following line:

   ```
   ReadPath=sys:\tftp\
   ```

   Add the following line directly after the one you just commented, substituting the actual name of your shared cluster volume:

   ```
   ReadPath=shared_cluster_volume:\tftp\
   ```

2. Edit the pdhcp.ini file in *shared_cluster_volume*:\system, then add the following line, substituting the actual IP address of the shared volume on the virtual server:

   ```
   TRANSACTION_SERVER_IP = IP_address_of_the_shared_cluster_volume_on
   virtual_server
   ```

3. Edit the zfdstart.ncf file in *shared_cluster_volume*:\system, then change the following line from this:

   ```
   SEARCH ADD shared_cluster_volume:\SYSEM
   ```

   to this:

   ```
   SEARCH ADD shared_cluster_volume:\SYSTEM
   ```

4. Modify the cluster object in the unload script.

   4a In ConsoleOne, open the Cluster object, right-click the NWCS volume resource, then click Properties.

   4b On the Unload page, type unload imgserv <<y in the Script text box, then click Apply.

   4c On the Cluster State page, select the resource volume you want to offline, click Offline, reselect the same resource volume, then click Online.

   This step restarts the imaging server from scratch.

5. Edit the zfdstop.ncf file in *shared_cluster_volume*:\system, then comment the following line:

   ```
   Unload imgserv
   ```

Multicast Issue

Imaging multicast sessions that you set manually at the Image Server console (imgserv.nlm) are lost when the virtual server hosting imgserv.nlm fails over. The only workaround is to re-create those multicast sessions and restart the process manually.

Configuring Workstation Inventory

After you have completed the ZENworks 6.5 SP1 Desktop Management Services installation, you need to configure Workstation Inventory to work in the clustering environment. The following steps provide the configuration information you need:

1. Configure the Inventory database object. If you have selected Sybase* during Desktop Management installation, the installation program creates the Database object (Inventory database_*server_name*) and configures the properties of this object. Skip Step 1a and Step 1b. If you are using Oracle* or MSSQL*, continue with Step 1a.

   1a If you are maintaining the Inventory database in Oracle or MSSQL, ensure that you have created the Database object and configured the properties. For more information, see "Configuring the Inventory Database Object on a NetWare Server" on page 67.

1b To configure the Database object for a cluster environment: In ConsoleOne®, right-click the Database object, click Properties, click ZENworks Database, Browse for the DN (NCP server object) of the virtual server or specify the IP address of the virtual server, and then click OK.

2 If, during installation, standalone configuration is not selected then while creating database location policy set inventory database to Inventory database_*virtual_server_name*.

3 While creating Workstation Inventory policy set inventory service object DN to Inventory Service_*virtual_server_name*.

4 To configure all rollup policies, select the Inventory service object of the cluster service (Inventory Service_*virtual_server_name*).

Upgrading Clustered Workstation Inventory from ZENworks for Desktops 3.2 SP3 to ZENworks 6.5 Desktop Management

When you upgrade from ZENworks for Desktops 3.2 SP 3 Workstation Inventory in a clustering environment to ZENworks 6.5 Desktop Management, you need to reconfigure inventory policies. Perform the following tasks to reconfigure the policies:

- Reconfigure the Inventory Rollup policies that use the cluster as the target server to point to the Inventory Service object of the cluster service (that is, change *virtual_server_name* as the target to Inventory Service_*virtual_server_name* as the target).
- In ZENworks for Desktops 3.2 SP3, the Inventory Rollup policies are associated to the NCP server object of any cluster node. But after upgrading to ZENworks 6.5, you must manually associate the Inventory Rollup policies to the NCP server object of the virtual server.
- Associate all Inventory Rollup policies associated to the NCP server object a cluster node must be associated to the NCP server object for the virtual server.
- Reconfigure all workstation inventory policies to point to the virtual server's ISO.
- If you manually created DB objects, reconfigure the server DN to point to the virtual server's NCP server object

Uninstalling Workstation Inventory in a Clustering Environment

The Workstation Inventory component of ZENworks 6.5 Desktop Management SP1 cannot be automatically uninstalled. You must manually remove the Inventory server, the Inventory database running on Sybase, the Novell eDirectory™ objects, and the ConsoleOne® files.

NOTE: If your Inventory database is mounted on Oracle or MS SQL, follow the uninstall procedure recommended by Oracle or MS SQL respectively.

You must remove the objects and the files from every server and workstation where the Workstation Inventory components are installed.

In an enterprise deployment of Inventory, uninstall all Leaf Servers first, then uninstall Intermediate Servers, and finally uninstall the Root Server.

Before uninstalling Workstation Inventory, make sure you have made and archived a reliable backup of the Inventory database residing at the Root Server.

To manually uninstall Workstation Inventory, proceed in this sequence:

1. “Uninstalling the Workstation Inventory eDirectory Objects” on page 379

2. “Uninstalling the Database eDirectory Object” on page 380
3. “Uninstalling the Sybase Inventory Database” on page 380
4. “Uninstalling the Sybase Engine” on page 380
5. “Uninstalling the Inventory Server Software” on page 381
6. “Uninstalling the XML Proxy Server” on page 382
7. “Uninstalling the Workstation Inventory Snap-Ins from ConsoleOne” on page 382
8. “Applying Changes to the Cluster Scripts” on page 383

Uninstalling the Workstation Inventory eDirectory Objects

1 On the Netware Inventory server, stop the Inventory services by entering **`StopSer *`** at the server console prompt:

2 If the ZENworks Database policy is enabled, disable it.

2a In ConsoleOne, right-click the Service Location Package object, click Properties, then click Policies.

2b Select the ZENworks Database policy, click Properties, then click the Inventory Management tab.

2c Delete the specified Inventory Database entry, then click OK.

IMPORTANT: If the ZENworks Database policy is used by more than one Inventory server, you must uninstall those Inventory servers before performing this step.

3 Disable the Workstation Inventory policy.

3a In ConsoleOne, right-click the Workstation Package object, then click Properties.

3b Click Policies, then select the appropriate operating system suboption.

3c If the Workstation Inventory policy is enabled, select the policy, click the Reset button, then click Yes.

3d Deselect the Workstation Inventory policy.

3e Click Apply, then click Close.

IMPORTANT: If you have configured the Workstation Inventory policy for more than one operating system, select the appropriate operating system suboption from the Policies tab and repeat this step.

4 Disable the Roll-Up policy and the Dictionary Update policy, if the policies are configured.

4a In ConsoleOne, locate the container holding the Server Package, right-click the Server Package, click Properties, click Policies, then click the NetWare suboption.

4b Select the Roll-Up policy, then click the Reset button, then click Yes.

4c Deselect the Roll-Up policy.

4d Select the Dictionary Update policy, then click the Reset button, then click Yes.

4e Deselect the Dictionary Update policy.

4f Click Apply, then click Close.

5 In ConsoleOne, locate the container holding the Inventory Service object and delete the Inventory Service object.

Uninstalling the Database eDirectory Object

In ConsoleOne, locate the container holding the Inventory database object and delete the Inventory database object.

Uninstalling the Sybase Inventory Database

1. Stop Sybase by entering **q** at the Sybase console prompt.
2. Delete the *database_path*\mgmtdb.db entry from sys:\system\mgmtdbs.ncf on all cluster nodes.

   IMPORTANT: Do not delete other database paths.
3. Note the value of the INVDBPATH key in sys:\system\zenworks.properties on any of the cluster nodes.
4. From the value identified in the INVDBPATH key, delete the Inventory database files (mgmtdb*.db), including mgmtdb.log on all cluster nodes.

   IMPORTANT: Before deleting the database files, make sure that you have made a reliable backup of the database files if you want to use the inventory information stored in it.
5. Delete the INVDBPATH key from sys:\system\zenworks.properties on all cluster nodes.
6. Delete the ZFD_INVENTORY_DATABASE_SERVER key on all cluster nodes.

   Delete the following section from sys:\system\zenworks.properties on all cluster nodes:

   ```
   [ZfD_Inventory_Database_Server]

   Version = 6.5.0 Desktop Management product build date

   Installed_From = Product CD

   Support_Pack = 0
   ```
7. Start Sybase if it is not uninstalled and if it is used by other ZENworks products.

   At the Sybase console prompt, enter **mgmtdbs.ncf**.

Uninstalling the Sybase Engine

You can remove the Sybase engine only if it is not used by other ZENworks products.

1. If Sybase is used by other ZENworks products, you must uninstall the database first before proceeding to uninstall the Sybase engine.
2. Stop Sybase by entering **q** at the Sybase console prompt.
3. Note the value of the DBENGINEPATH key in sys:\system\zenworks.properties on any of the cluster nodes.
4. Verify if the database is mounted on the database server.

   The sys:\system\mgmtdbs.ncf file on any cluster node will have the .db entry if the database is mounted on the database server

   If the file does not contain the .db entry, delete mgmtdbs.ncf from all cluster nodes. If the file contains the .db entry, do not continue to remove the Sybase engine.
5. Delete the mgmtdbs.ncf entry from cluster load script on all cluster nodes.
6. Delete dbsrv8.nlm from the unload script.

7 Delete the directory specified in DBENGINEPATH (identified in Step 3).

8 Delete the DBENGINEPATH key from sys:\system\zenworks.properties on all cluster nodes.

Uninstalling the Inventory Server Software

1 On the NetWare Inventory server, stop the Inventory service by entering **`StopSer *`** at the console prompt.

2 Unload the java.nlm by entering **`java -exit`** at the NetWare Inventory server console prompt.

3 Note the values of INVSRVPATH and ZWSPATH keys in sys:\system\zenworks.properties on any of the cluster nodes.

4 Delete the ZFD_INVENTORY_SERVER key.

Delete the following section from sys:\system\zenworks.properties on all cluster nodes:

```
[ZfD_Inventory_Server]

Version = 6.5.0 Desktop Management product build date

Installed_From = Product CD

Support_Pack = 0
```

5 Delete the *invsrvpath*\scandir directory on all cluster nodes.

6 Delete the *invsrvpath*\server directory on all cluster nodes.

7 Delete the following entries from the cluster load script on all cluster nodes:

```
; ZENworks Inventory Settings

StartInv.ncf
```

8 Delete the following entries from the unload script:

```
java -killzenwsinv

java -killzwexit
```

9 Delete the following files from sys:\system directory on all cluster nodes:

invenv.ncf
invenvset.ncf
listser.ncf
startinv.ncf
startser.ncf
startzws.ncf
stopser.ncf
dbexport.ncf
debug.properties
stopdb.ncf

10 If Policy and Distribution Services and the XML Proxy server are not installed on the Inventory server, remove the ZENworks Web Server components by deleting the directory specified by ZWSPATH.

10a Delete the following entries from the cluster load script on all cluster nodes:

```
; ZENworks Inventory Settings
```

```
ZFS.ncf
```

10b Delete zwsstart.ncf from the sys:\system directory on all cluster nodes.

10c Delete the ZWSPATH key from sys:\system\zenworks.properties on all cluster nodes.

10d Delete *zws_volume*:\zfs-startup.xml.

10e Delete *zws_volume*:\zenworks\zfs.ncf

11 Delete the INVSRVPATH key from the sys:\system\zenworks.properties file on all cluster nodes.

Uninstalling the XML Proxy Server

1 Unload the java.nlm by entering **`java -killzfsexit`** at the server console prompt.

2 Note the value of the ZWSPATH in sys:\system\zenworks.properties on any of the cluster nodes.

3 Delete the following section from sys:\system\zenworks.properties on all cluster nodes:

```
[ZfD_XML_Proxy_Server]

Version=6.5.0 Desktop Management product build date

Installed_From = Product CD

Support_Pack = 0
```

4 Delete the following entries from the cluster load script on all cluster nodes:

```
; ZENworks Inventory Settings

ZFS.ncf
```

5 Delete zwsstart.ncf from the sys:\system directory on all cluster nodes.

6 Delete the ZWSPATH directory and the ZWSPATH entry from sys:\system\zenworks.properties on all cluster nodes.

7 Delete zfs-startup.xml and zfs.ncf from the *zws_volume*:\zenworks\zfs-startup.xml directory.

Uninstalling the Workstation Inventory Snap-Ins from ConsoleOne

Do not uninstall ConsoleOne itself if you are using it to manage other products.

To remove only the Workstation Inventory snap-ins from ConsoleOne:

1 Close ConsoleOne, if it is running.

If ConsoleOne is invoked directly from the Inventory server on multiple workstations, you must close ConsoleOne on all these workstations.

2 In the *ConsoleOne_installation_directory*\1.2 directory on your server or workstation, do the following:

- Delete the following files:

  \lib\zen\dbexport.jar
  \lib\zen\desktop.jar
  \lib\zen\zeninvimages.jar
  \lib\zen\zenutility.jar
  \lib\zen\statuslog.jar

\lib\zen\classes12.zip
\lib\zen\vbjapp.jar
\lib\zen\vbjorb.jar
\lib\zen\jdbcdrv.zip
\snapins\zen\inventorysnapins.jar
\snapins\zen\inventorysnapins3x.jar
\snapins\zen\dataexportsnapins.jar
\snapins\zen\policymigration.jar
\snapins\zen\workstationsnapins.jar
\snapins\zen\tracer.jar
\help\novellserverinv.hs
\bin\directoryrights.dll
\bin\displayrules.properties
\bin\schemarules.properties

- Delete the following directories:

  \reporting\canned\novellreporting\zeninventory
  \reporting\canned\novellreporting\zeninventory30
  \reporting\canned\novellreporting\zeninventory32
  \reporting\canned\novellreporting\zeninventory3x
  \reporting\canned\novellreporting\zeninventory4x

3. If you have not installed the Remote Management ConsoleOne snap-ins on the same workstation or server, delete the following files:

   \bin\desktop4.exe
   \bin\mssql.ini
   \bin\msvp60.dll
   \bin\ndsaccess.dll
   \bin\oracle.ini
   \bin\remagent.ini
   \bin\sybase.ini
   \help\novellzeninven.hs
   \help\novellzenrmgt.hs
   \help\en\novell_zfd_inventory
   \help\en\novell_zfd_remotemgmt
   \lib\zen\desktop.jar
   \lib\zen\desktop3x.jar
   \lib\zen\desktopcommonutility.jar
   \resources\resources.jar
   \snapins\zen\commonsnapins.jar

Applying Changes to the Cluster Scripts

To apply changes, which you made in the previous sections, to the cluster scripts, you must offline the cluster and then online it again.

Reinstalling Workstation Inventory in a Clustering Environment

You might need to reinstall the Workstation Inventory component of Desktop Management Services (ZENworks 6.5 Desktop Management SP1) in a cluster environment because it failed to install properly or because data corruption, such as an inadvertent file deletion, has occurred and the data can only be fixed by reinstalling.

IMPORTANT: A reinstallation does not require the schema to be extended again.

This section includes information that focuses on reinstalling the Workstation Inventory component.

- "Preparing to Reinstall Workstation Inventory" on page 384
- "Reinstalling Workstation Inventory" on page 384
- "Determining if Reinstalling Workstation Inventory Was Successful" on page 384

Preparing to Reinstall Workstation Inventory

1. Identify the servers that need Workstation Inventory reinstalled.
2. Stop the Inventory service by entering **`sys:\system\invstop.ncf`** at the NetWare server console prompt.

   NOTE: If you do not want the Sybase database to be stopped automatically when you stop the Inventory services, comment the `Unload dbsrv8.nlm` line in the sys:\system\invstop.ncf file.
3. Stop the Inventory database by pressing the Q key at the NetWare Sybase console prompt.
4. If Java has not been unloaded on the target NetWare servers, unload java.nlm (at the server console, enter **`java -exit`**).

   IMPORTANT: This command stops all Java processes running on the server. Verify that all Java processes can be stopped while you are installing Desktop Management.
5. Log into the Novell eDirectory™ tree that has the servers where you want to reinstall.
6. Continue with "Installing Desktop Management Components" on page 369.

Reinstalling Workstation Inventory

If you reinstall Workstation Inventory over a prior installation, the ZENworks 6.5 Desktop Management Workstation Inventory uses the existing configured policies and the scandir directory.

- On the File Installation Location page during reinstallation, the installation program searches for the previous installation path. If detected, the Workstation Inventory or Remote Management files is installed to the same path.
- On the Database Installation Location page during a reinstallation, the Installation program searches for the previous installation path. If detected, the database is installed to the same path.

Determining if Reinstalling Workstation Inventory Was Successful

1. After the installation has finished, review the installation log file to determine whether any components failed to install.

2 If you reinstalled to fix a file missing or file corruption problem, check to see if the problem has been fixed.

Configuring ZENworks 6.5 Workstation Imaging in a ZENworks Support Pack for a Novell Cluster Services Environment

ZENworks 6.5 Desktop Management does not fully support the Workstation Imaging component in Novell Cluster Services (NCS) environment, particularly if used in conjunction with ZENworks Preboot Services (PXE). With the release of ZENworks 6.5 Desktop Management Support Packs, however, using Preboot Services for Workstation Imaging is now supported in an NCS 1.7.2 or NCS 1.6.5 environment

Use the following steps to install and use ZENworks 6.5 SP1 or SP2 Workstation Imaging with PXE in an NCS 1.7.2 or 1.6.5 environment:

1 Install ZENworks 6.5 Desktop Management in the Novell Cluster Services environment. The ZENworks 6.5 Desktop Management SP1 or SP2 installation program allows only previously-installed components to be updated; therefore, you must be sure that the ZENworks 6.5 Desktop Management Imaging Server and the ZENworks PXE Server are already installed on the virtual server in the cluster.

2 Make sure that you have met all of the prerequisites for installing ZENworks 6.5 Support Pack 1 or Support Pack 2. For more information, see "Pre-Installation Checklist" on page 276.

3 Install ZENworks 6.5 Desktop Management Support Pack 1 or Support Pack 2 in the same servers where you installed the original version of ZENworks 6.5 Desktop Management. For more information see "Installing the SP1 Upgrade for the Desktop Management Server" on page 277.

4 In the virtual server system directory, locate the dts.ini file. For example: *cvol:*system/dts.ini.

5 Open dts.ini in a file editor, then change the IP setting in the following line:

```
TransactionServerClusterIP=IP_Address
```

The IP address must point to the IP Address of the virtual server in the cluster. If this line is not present in the file, you need to add it.

6 Save the edited dts.ini file.

7 Locate the tftp.ini file located in the same system directory.

8 Open tftp.ini in a file editor, then change the IP setting in the following line:

```
IPADDRESS=IP_Address
```

The IP address must point to the IP Address of the virtual server in the cluster.

9 Save the edited tftp.ini file.

10 Locate the pdhcp.ini file located in the same system directory.

11 Open the pdhcp.ini file in a file editor, then change the IP setting in the following lines:

```
TRANSACTION_SERVER_IP=IP_Address
PDHCP_Server_IP=IP_Address
```

The IP address in both lines must point to the IP Address of the virtual server in the cluster.

In NCS 1.7.2, the following line is also included in the pdhcp.ini file:

```
TFTP_SERVER_IP=IP_Address
```

This IP variable must also point to the IP Address of the virtual server in the cluster.

12 Save the edited pdhcp.ini file.

13 Copy dts.ini, tftp.ini, and pdhcp.ini to /sys:system in each of the nodes (that is, servers) in the cluster.

14 Take the resource offline, then bring back online to reload ZENworks services.

C Limitations When Interoperating with the Novell BorderManager VPN Client

The following sections include a summary of the limitations you can expect to see when you use Novell® ZENworks® 6.5 Desktop Management and the Novell BorderManager® 3.8 VPN client in the same network environment.

The information is organized into two scenarios:

- "Scenario 1: Novell Client and Desktop Management Agent Installed on Workstations" on page 387
- "Scenario 2: Desktop Management Agent Only Installed on Workstations" on page 387

Scenario 1: Novell Client and Desktop Management Agent Installed on Workstations

The table below summarizes the limitations you can expect when using ZENworks 6.5 in the following environment:

- ZENworks 6.5 Desktop Management Server is installed in the same eDirectory® tree with BorderManager 3.8.
- Both the Novell Client™ and the ZENworks 6.5 Desktop Management Agent are installed on user workstations.

Tested Function	ZENworks Behavior or Limitation
Authentication: The user logs in to the VPN network and the eDirectory tree at the same time.	• All ZENworks policies are distributed to the workstation except those configured for distribution at system startup. • If users log in to local workstation first and then log in to the VPN network, exhibited behaviors and limitations are identical to an agent-only environment. For more information, see "Scenario 2: Desktop Management Agent Only Installed on Workstations" on page 387.

Scenario 2: Desktop Management Agent Only Installed on Workstations

The table below summarizes the limitations you can expect when using ZENworks 6.5 in the following environment:

- ZENworks 6.5 Desktop Management Server is installed in the same eDirectory® tree with BorderManager 3.8.

- The ZENworks 6.5 Desktop Management Agent (no Novell Client) is installed on user workstations.

Tested Function	ZENworks Behavior or Limitation
Authentication The user logs in to the VPN network and the eDirectory tree at the same time.	• No integration with the VPN client (unlike a Novell Client environment, users must always log in to the desktop first) • No integration with NetIdentity (the VPN client does not populate NetIdentity secure store with user credentials)
Automatic Workstation Import	• Manual registration (zwsreg.exe) is required after the user has used the VPN client to authenticate. • The zenwsimport DNS name can be configured at the ZENworks Middle Tier Server or in the DNS/hosts file, but the user must be authenticated to the Middle Tier Server in order to use the Middle Tier zenwsimport setting. • Workstations can be registered on the LAN first and then connected through the VPN client.
Distributing User Associated Policies	• The Dynamic Local User policy (DLU) fails because the user is required to log in to the workstation before starting the VPN client. • The iPrint policy is distributed normally if the policy distribution is configured as a login event or as a scheduled action. • The User Extensible policy is distributed normally if the policy distribution is configured as a login event or as a scheduled action. A workstation reboot may be required for some configuration changes to take effect. • The Windows Group policy is distributed normally if the policy distribution is configured as a login event or as a scheduled action. A workstation reboot may be required for some configuration changes to take effect. • The Remote Control policy is distributed normally. Remote control does not work based on imported Workstations IP address stored in the Workstation object. BorderManager 3.8 has a unique IP address for the VPN session, and that IP address must be used to remotely control the client. The Workstation object must also be logged in.
Distributing Workstation Associated Policies	• Agent policies that are configured to distribute with a scheduled action are distributed normally to workstations that must log in locally before authenticating through the VPN client. A workstation reboot may be required for some configuration changes to take effect. • The iPrint policy is distributed normally if the policy distribution is configured as a login event or as a scheduled action. • The Extensible policy configured to distribute with a scheduled action distributes normally to workstations that must log in locally before authenticating through the VPN client. A workstation reboot may be required for some configuration changes to take effect.

Tested Function	ZENworks Behavior or Limitation
Using the Novell Application Launcher™ to Distribute User Associated Applications ◆ MSI applications ◆ Simple applications ◆ Web applications ◆ AOT/AXT	◆ Distribution requires selecting ZENworks Middle Tier Server Login for authentication, even when user has already been successfully logged in using other Middle Tier applications (for example, NetStorage). ◆ The Work Online/Offline toggle might not function correctly until authentication through the ZENworks Middle Tier Login function is accomplished. ◆ Myapps.html access fails with the Internet browser, generating a GPF error. ◆ After authentication, the applications are distributed normally.
Using the Novell Application Launcher to Distribute Workstation Associated Applications ◆ MSI applications ◆ Simple applications ◆ Web applications ◆ AOT/AXT	◆ Application Launcher does not distribute workstation associated applications. ◆ If the user is unable to authenticate to the Workstation object on login, the Application Launcher Workstation Helper (zenappsws.dll) does not connect. In contrast, Workstation Manager logs in about 60 seconds after the VPN connection becomes available.

D Registry Entries Containing Version Information

This section defines the registry entries (workstation and server) made by the Novell® ZENworks® 6.5 Desktop Management installation programs. These entries contain the product version information for this release. The Workstation Inventory scanner software uses these entries to determine and report the Desktop Management component and version that are installed. If you need to contact Novell Support, you can convey this version information to support technicians who will use it to better understand and troubleshoot any problems you may be having.

The section contains the following information:

- "Version Information Available on Windows Workstations" on page 391
- "Version Information Available on a Windows Server" on page 393
- "Version Information Available on NetWare Servers" on page 398

NOTE: The format for build dates in the registry is *ymmdd*.

Version Information Available on Windows Workstations

Registry information in this section is organized according to the registry data available on Windows workstations for the following installed ZENworks agents:

- "Any of the ZENworks Desktop Management Agents Installed to the Workstation" on page 391
- "Inventory Agent on a Windows Workstation" on page 392
- "Remote Management Agent on a Windows Workstation" on page 392
- "Application Management Agent on a Windows Workstation" on page 392
- "Imaging Agent on a Windows Workstation" on page 393
- "Workstation Manager Agent on a Windows Workstation" on page 393

Any of the ZENworks Desktop Management Agents Installed to the Workstation

The registry keys and values indicating that any of the ZENworks 6.5 Desktop Management Agents have been installed to the workstation are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Display Name	ZENworks Desktop Management Agent

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\InstallPath	*Install Path - Install Root Directory* Example: C:\program files\novell\zenworks
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Langauge	*Language ID* Example: 1033 (for English)
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\ProductGUID	*MSI Product GUID*

Inventory Agent on a Windows Workstation

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Inventory Agent has been installed are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Inventory\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Inventory\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Inventory\Display Name	Desktop Management Inventory Agent
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Inventory\InstallPath	*Install Path*

Remote Management Agent on a Windows Workstation

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Remote Management Agent has been installed are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Remote Management\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Remote Management\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Remote Management\Display Name	ZENworks Desktop Management Remote Management Agent
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Remote Management\InstallPath	*Install Path*

Application Management Agent on a Windows Workstation

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Application Management Agent has been installed are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Application Management\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Application Management\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Application Management\Display Name	ZDM Application Management Agent
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Application Management\InstallPath	*Install Path*

Imaging Agent on a Windows Workstation

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Imaging Agent has been installed are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Imaging\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Imaging\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfDAgent\Imaging\Display Name	ZDM Imaging Agent
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Imaging\InstallPath	*Install Path*

Workstation Manager Agent on a Windows Workstation

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Workstation Manager Agent has been installed are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Workstation Manager\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Workstation Manager\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Workstation Manager\Display Name	ZDM Workstation Manager Agent
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Agent\Workstation Manager\InstallPath	*Install Path*

Version Information Available on a Windows Server

Registry information in this section is organized according to the registry data available on a Windows server for the following installed ZENworks servers:

- “Any of the ZENworks Desktop Management Server Components Installed to the Windows Server” on page 394
- “Application Management Server Component on a Windows Server” on page 394
- “Remote Management Server Component on a Windows Server” on page 395

- "NAL Database Server Component on a Windows Server" on page 395
- "Inventory Database Server Component on a Windows Server" on page 395
- "Inventory Server Component on a Windows Server" on page 396
- "Inventory (XML) Proxy Server Component on a Windows Server" on page 396
- "Imaging Server Component on a Windows Server" on page 396
- "Preboot Services Server Component on a Windows Server" on page 397
- "Workstation Import/Removal Server Component on a Windows Server" on page 397
- "ZENworks Middle Tier Server on a Windows Server" on page 397

Any of the ZENworks Desktop Management Server Components Installed to the Windows Server

The registry keys and values used by all of the ZENworks 6.5 Desktop Management Server components when any of them have been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Langauge	*Language ID* Example: 1033 (for English)
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Support Pack	0

Application Management Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Application Management Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\App Management Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\App Management Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\App Management Server\Display Name	ZENworks Application Management Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\App Management Server\Install Path	*Install Path*

Remote Management Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Remote Management Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Remote Management Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Remote Management Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Remote Management Server\Display Name	ZENworks Desktop Management Remote Management Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\RMPath	*Install Path*

NAL Database Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management NAL Database Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\NAL Database Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\NAL Database Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\NAL Database Server\Display Name	ZDM NAL Database Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\NALDBPath	*Install Path*

Inventory Database Server Component on a Windows Server

The registry keys and values that indicate that the ZENworks 6.5 Desktop Management Inventory Database Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Database Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Database Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Database Server\Display Name	ZDM Inventory Database Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\InvDBPath	*Install Path*

Inventory Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Inventory Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Inventory Server\Display Name	ZDM Inventory Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\InvSrvPath	*Install Path*

Inventory (XML) Proxy Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Inventory (XML) Proxy Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\XMLProxy Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\XMLProxy Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\XMLProxy Server\Display Name	ZDM XML Proxy Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZWSPath	*Install Path*

Imaging Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Imaging Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Imaging Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Imaging Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Imaging Server\Display Name	ZENworks Imaging Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Imaging Server\Install Path	*Install Path*

Preboot Services Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Preboot Services (PXE) Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\PXE Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\PXE Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\PXE Server\Display Name	ZENworks PXE Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\PXE Server\Install Path	*Install Path*

Workstation Import/Removal Server Component on a Windows Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Import/Removal Server component has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Workstation Import Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Workstation Import Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Workstation Import Server\Display Name	ZENworks Workstation Import Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Workstation Import Server\Install Path	*Install Path*

ZENworks Middle Tier Server on a Windows Server

The registry keys and values that indicate that the ZENworks 6.5 Middle Tier Server has been installed on a Windows server are listed in the table below.

Registry Key	Value
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Middle Tier Server\Version	6.5.*build.revision*
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Middle Tier Server\Support Pack	0
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Middle Tier Server\Display Name	ZENworks Middle Tier Server
HKEY_LOCAL_MACHINE\Software\Novell\ZENworks\ZfD\Middle Tier Server\InstallPath	*Install Path*

Version Information Available on NetWare Servers

Registry information in this section is organized according to the registry data available on NetWare® servers for the following installed ZENworks servers:

- "Any of the ZENworks Desktop Management Server Components Installed to a NetWare Server" on page 398
- "Application Management Server Component on NetWare" on page 398
- "Remote Management Server Component on NetWare" on page 399
- "NAL Database Server Component on NetWare" on page 399
- "Inventory Database Server Component on NetWare" on page 399
- "Inventory Server Component on NetWare" on page 400
- "Inventory (XML) Proxy Server Component on NetWare" on page 400
- "Imaging Server Component on NetWare" on page 400
- "Preboot Services Server Component on NetWare" on page 401
- "Workstation Import/Removal Server Component on NetWare" on page 401
- "ZENworks Middle Tier Server on NetWare" on page 401

Any of the ZENworks Desktop Management Server Components Installed to a NetWare Server

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Server has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Language	*Language ID* Example: 1033 (for English)
Software\Novell\ZENworks\ZfD\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Support Pack	0

Application Management Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Application Management Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\App Management Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\App Management Server\Support Pack	0
Software\Novell\ZENworks\ZfD\App Management Server\Display Name	ZENworks Application Management Server
Software\Novell\ZENworks\ZfD\App Management Server\InstallPath	*Install Path*

Remote Management Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Remote Management Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Remote Management Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Remote Management Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Remote Management Server\Display Name	ZENworks Desktop Management Remote Management Server
Software\Novell\ZENworks\ZfD\RMPath	*Install Path*

NAL Database Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management NAL Database Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\NAL Database Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\NAL Database Server\Support Pack	0
Software\Novell\ZENworks\ZfD\NAL Database Server\Display Name	ZDM NAL Database Server
Software\Novell\ZENworks\ZfD\NALDBPath	*Install Path*

Inventory Database Server Component on NetWare

The registry keys and values that indicate that the ZENworks 6.5 Desktop Management Inventory Database Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Inventory Database Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Inventory Database Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Inventory Database Server\Display Name	ZDM Inventory Database Server
Software\Novell\ZENworks\ZfD\InvDBPath	*Install Path*

Inventory Server Component on NetWare

The registry keys and values that indicate that the ZENworks 6.5 Desktop Management Inventory Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Inventory Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Inventory Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Inventory Server\Display Name	ZDM Inventory Server
Software\Novell\ZENworks\ZfD\InvSrvPath	*Install Path*

Inventory (XML) Proxy Server Component on NetWare

The registry keys and values that indicate that the ZENworks 6.5 Desktop Management Inventory Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\XMLProxy Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\XMLProxy Server\Support Pack	0
Software\Novell\ZENworks\ZfD\XMLProxy Server\Display Name	ZDM XML Proxy Server
Software\Novell\ZENworks\ZfD\ZWSPath	*Install Path*

Imaging Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Imaging Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Imaging Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Imaging Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Imaging Server\Display Name	ZENworks Imaging Server
Software\Novell\ZENworks\ZfD\Imaging Server\InstallPath	*Install Path*

Preboot Services Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Preboot Services Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\PXE Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\PXE Server\Support Pack	0
Software\Novell\ZENworks\ZfD\PXE Server\Display Name	ZENworks PXE Server
Software\Novell\ZENworks\ZfD\PXE Server\InstallPath	*Install Path*

Workstation Import/Removal Server Component on NetWare

The registry keys and values indicating that the ZENworks 6.5 Desktop Management Workstation Import/Removal Server component has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Workstation Import Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Workstation Import Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Workstation Import Server\Display Name	ZENworks Workstation Import Server
Software\Novell\ZENworks\ZfD\Workstation Import Server\InstallPath	*Install Path*

ZENworks Middle Tier Server on NetWare

The registry keys and values that indicate that the ZENworks 6.5 Middle Tier Server has been installed on a NetWare server are listed in the table below.

Registry Key	Value
Software\Novell\ZENworks\ZfD\Middle Tier Server\Version	6.5.*build.revision*
Software\Novell\ZENworks\ZfD\Middle Tier Server\Support Pack	0
Software\Novell\ZENworks\ZfD\Middle Tier Server\Display Name	ZENworks Middle Tier Server
Software\Novell\ZENworks\ZfD\Middle Tier Server\InstallPath	*Install Path*

E Installation Error Messages

During installation of Novell® ZENworks® 6.5 Desktop Management components, you might receive an error message if a ZENworks Desktop Management component cannot be installed successfully. This section provides information for resolving any error messages you might receive while installing ZENworks Desktop Management components.

Select the ZENworks Desktop Management component that you are trying to install:

- "Remote Management Installation Errors" on page 403
- "Workstation Inventory Installation Errors" on page 406

Remote Management Installation Errors

The following section contains detailed explanations of the error messages you might encounter while installing the Remote Management component:

1110: Unable to create the Wake On LAN Configuration property file on the server server_name
1111: Unable to create the filename file on the server server_name
1112: Unable to create WOLENVSET.NCF file on the server server_name
1113: Unable to create Wake-on-Lan Service object for the server server_name
1114: Unable to modify Wake-on-Lan Service object for the server server_name
1116: The install path for Remote Management components on server server_name is invalid
1117: Unable to create Wake-on-LAN as a service on Windows NT/ Windows 2000/ Windows Server 2003 server_name
1118: Unable to create Query.properties on the server server_name
1126: Unable to add startwol.ncf entry in file filename, on the server server_name
1127: Unable to add stopwol.ncf entry in file filename, on the server server_name
1134: Unable to set the Remote Management Server installation path on server server_name

1110: Unable to create the Wake On LAN Configuration property file on the server *server_name*

Source: ZENworks Desktop Management; Remote Management installation

Severity: Critical

Explanation: The Installation program creates the *RemoteManagement_installationpath*\zenworks\remmgmt\server\properties\wolconfig.properties file with the following entries:

```
NDSTree=Novell_eDirectory_tree_name
SingletonPort=65434
LDAPServer=DNS_name_or_IPaddress_of the_Wake_on_LAN_server
LDAPPort=LDAP_port_number
```

This error occurs if the Installation program is unable to create the config.properties file.

Consequently, the Inventory services will not be up.

Possible Cause: An input-output error occurred while creating the wolconfig.properties file.

Action: Follow these steps:

1. (Conditional) If wolconfig.properties does not exists, manually create the file in the *RemoteManagement_installationpath*\zenworks\remmgmt\server\properties directory.
2. Add the following entries:

```
NDSTree=Novell_eDirectory_tree_name
SingletonPort=65434
LDAPServer=DNS_name_or_IPaddress_of the_Wake_on_LAN_server
LDAPPort=LDAP_port_number
```

1111: Unable to create the *filename* file on the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program appends entries to the *install_path*\zenworks\remmgmt\server\bin\wolsetenv.ini file on the server.

Possible Cause: An input/output error occurred while copying the file.

Action: Contact Novell Support (http://www.support.novell.com).

1112: Unable to create WOLENVSET.NCF file on the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program creates the sys:\system\wolenvset.ncf file on the NetWare® Remote Management server. The `envset wol_install_dir = Remotemanagement_server_install_path` is added. You can obtain the Remote Management server installation path from the `RMPATH` key in the sys:\system\zenworks.properties directory.

Possible Cause: An input/output error occurred while modifying the file.

Action: Follow these steps:

1. (Conditional) If the wolenvset.ncf file does not exist in the sys:\system directory, create the file.
2. Add the following entry:

```
envset wol_install_dir = Remotemanagement_server_installation_path
```

1113: Unable to create Wake-on-Lan Service object for the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program failed to create the Wake-on-Lan service object for the server.

Action: Reinstall the Remote Management component of ZENworks 6.5 Desktop Management. For more information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

Action: If the problem persists, contact Novell Support (http://www.support.novell.com).

1114: Unable to modify Wake-on-Lan Service object for the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program was unable to modify the Wake-on-Lan service object for the server.

Action: Reinstall the Remote Management component of ZENworks 6.5 Desktop Management. For more information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.

Action: If the problem persists, contact Novell Support (http://www.support.novell.com).

1116: The install path for Remote Management components on server *server_name* is invalid

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program failed to obtain the path of the Remote Management installation directory.

Action: Check if you have logged in with the Administrator rights to the server from the console where you are running the Remote Management installation.

Action: Reinstall the Remote Management component of ZENworks 6.5 Desktop Management. For more information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.

Action: If the problem persists, contact Novell Support (http://www.support.novell.com).

1117: Unable to create Wake-on-LAN as a service on Windows NT/ Windows 2000/ Windows Server 2003 *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Possible Cause: The installation program creates the Wake-on-LAN service on Windows* 2000/2003 servers. This problem occurs if the Wake-on-LAN service is not created.

Action: Reinstall the Remote Management component of ZENworks 6.5 Desktop Management. For more information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.

Action: If the problem persists, contact Novell Support (http://www.support.novell.com).

1118: Unable to create Query.properties on the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program creates the query.properties file in the *consoleOne_path*\bin directory. If the file does not exist, the `rmver=both` entry is added for the Remote Management installation. The query.properties file will already exist if you are installing the Remote Management component of ZENworks 6.5 Desktop Management over the Remote Management component of ZENworks 6.5 Server Management.

Possible Cause: An input/output error occurred while modifying the query.properties file.

Action: Modify the query.properties file to contain the `rmver=both` entry.

1126: Unable to add startwol.ncf entry in file *filename*, on the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program failed to write the following WOL entries to the zfdstart.ncf file:

```
;ZENWORKS WAKEONLAN SETTINGS
startwol.ncf
```

Possible Cause: An input/output error occurred while writing to the zfdstart.ncF file.

Action: Add the following entries to the zfdstart.ncf file in the sys:\system directory:

```
;ZENWORKS WAKEONLAN SETTINGS
startwol.ncf
```

1127: Unable to add stopwol.ncf entry in file *filename*, on the server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The installation program failed to write the following WOL entries to the zfdstop.ncf file:

```
;STOP ZENWORKS WAKEONLAN SERVICES
stopwol.ncf
```

Possible Cause: An input/output error occurred while writing to the zfdstop.ncf file.

Action: Add the following entries to the zfdstop.ncf file in the sys:\system directory:

```
;STOP ZENWORKS WAKEONLAN SETTINGS
stopwol.ncf
```

1134: Unable to set the Remote Management Server installation path on server *server_name*

Source: ZENworks Desktop Management; Remote Management Installation

Severity: Critical

Explanation: The Remote Management installation updates the `hkey_local_machine\software\novell\zenworks\rmpath` registry key with the *RemoteManagement_install_path*\remmgmt value.

Action: Reinstall the Remote Management component of ZENworks 6.5 Desktop Management. For more information, see Chapter 7, “Installing the ZENworks Desktop Management Server,” on page 55.

Action: If the problem persists, contact Novell Support (http://www.support.novell.com).

Workstation Inventory Installation Errors

If the Workstation Inventory components installation is not successful, the Installation program logs one of the following error messages in the c:\novell\zfdtemp\p1debuglogs.txt file:

801: The installation program was unable to rename filename on the server server_name. filename may be in use

804: Unable to add the Startinv.ncf entry in the filename file on the server server_name

807: Unable to assign rights to the SCANDIR directory on server server_name

812: Unable to create the password for the Service object Inventory_Service_object_name

813: Unable to get the volumes on the server server_name

814: An internal error occurred while getting the volumes on the server server_name

817: An internal error occurred while creating rights for the scandir directory on the server server_name

819: Unable to create the configuration property file on the server server_name

826: Unable to load the mgmtdbs.ncf file on the server server_name

831: Unable to add the mgmtdbs.ncf entry in the sys\system\autoexec.ncf file on the server server_name

836: The installation program creates a new mgmtdbs.NCF file. The installation program was unable to rename the existing mgmtdbs.ncf file on the server server_name. Rename mgmtdbs.ncf before proceeding with the installation

837: Unable to create the TracerMedia property file on the server server_name

874: Unable to create the Service Manager as a service on Windows NT/ Windows 2000/ Windows Server 2003 server_name

875: Unable to get the path for the shared directory where the database is installed on server server_name

876: Unable to create the Sybase service on the Windows NT/ Windows 2000/ Windows Server 2003 server_name

887: An internal error occurred while creating the database object object_name on the server server_name

1051: Unable to write the JRE path to javadir.bat on the server server_name

1052: Unable to create the filename file on the server server_name

1053: Unable to get the path for the Share share_name on the server server_name

1060: Unable to add the STOPSER * entry in the filename file for the server server_name

1061: Unable to add the UNLOAD DBSRV8.NLM entry in the filename on the server server_name

1066: Unable to assign public rights to ODBC parameters of the Database object database_object_name

1071: Input-output error occurred while modifying the existing mgmtdbs.ncf for the server server_name

1080: Unable to create the Inventory Service object for the server server_name

1081: Unable to assign supervisor privileges to the Service object service_object_name

1082: Unable to assign the Inventory Service object as a trustee of the NCP server server_name

1084: Unable to initialize zwinstal.dll

1087: Unable to detect the operating system of the workstation where install is running

1088: An internal error occurred while checking for entry in file filename on the server server_name

1091: Unable to create the zwsenv.ncf file on the server server_name

1092: Unable to append entries to the zwssrv.cfg file on the server server_name

1093: Unable to append entries to the zws.properties file on the server server_name

1094: Unable to modify the Inventory Service object for the server server_name

1095: Unable to create the invenvset.ncf file on the server server_name

1097: Failed to modify mgmtdbs.ncf on the server server_name

1098: Failed to create mgmtdbs.ncf on the server server_name

1102: Unable to set the Inventory installation path on the server server_name

1104: Unable to set the ZENworks Web server installation path on the server server_name

1105: An input-output error occurred while reading the zenworks.properties file, for the server server_name. The previous installations of the Inventory server could not be detected

1106: Unable to detect a valid database installation on the server server_name

1107: The install path for Inventory components on server server_name is invalid

1118: Unable to create query.properties on the server server_name

1121: Unable to rename the database object old_database_object_name to new_database_object_name, on the server server_name

1122: Unable to modify the database object on the server server_name

1123: Failed to update load and unload scripts on the server server_name

1124: Unable to clean up old Inventory entries from the autoexec.ncf file on the server server_name

1125: Unable to create the database object database_object_name on the server server_name

1128: Unable to add the ZENworks Web Server entry in file filename, on the server server_name

1129: Unable to set the ZENworks installation path on server server_name

1130: Unable to set the Database Engine installation path on server server_name

1131: Unable to set the Inventory database installation path on the server server_name

1132: Unable to set the Novell Application Launcher database installation path on server server_name

1135: The install path for XML Proxy components on the server server_name is invalid

1137: Unable to add Inventory entries to the load script on the server server_name

1138: Unable to add Inventory entries to the unload script on the server server_name

1139: Unable to add database entries to the load script on the server server_name

1140: Unable to add database entries to the unload script on the server server_name

1143: Unable to retrieve the path where Inventory was installed for server server_name

1148: Unable to create ZENworks Web Server as a service on Windows NT/2000 server server_name

1149: Unable to add the ZENworks Web Server path to invenvset.bat on the server server_name

1149: Unable to add the ZENworks Web Server path to invenvset.bat on the server server_name

1150: Unable to add ZENworks Web Server entry to the load script on server_name

1151: Unable to add ZENworks Web Server entry to the unload script on server_name

1153: Unable to add Inventory entries to the password.txt file on the server server_name

1154: Unable to add the password.txt file path entry to zws.properties file on the server server_name

1159: Unable to add entry entry to file filename on the server server_name

1160: Unable to replace entry1 with entry2 in the file filename

1161: A previous installation of Policy and Distribution service has been detected on server server_name. Install cannot start Inventory service automatically. Start Policy and Distribution services and then the Inventory Service

1162: An incomplete installation of the Inventory server was detected on server server_name. Please reinstall the Inventory server

1163: Unable to start the ZENworks Web Server on server server_name. For more information, see the error message documentation

1164: Unable to start the Inventory service on server server_name. For more information, see the error message documentation

1166: Unable to create zwssearch.ncf file on the server server_name

1167: Unable to add a search path to the ZENworks Web Server on server server_name

1168: Unable to write version information to the registry on the server se rver_name

1169: Unable to remove the old Inventory entries from file filename, on server server_name

1170: Unable to add entries to the zenworks.properties file, on server se rver_name

1171: Unable to add the ZENworks Web Server entries to the file filename, on the server server_name

2701: Unable to create the zwsstart.ncf file on server server_name

2702: Unable to remove the entries from the load script on server server_name

2703: Unable to remove the entries from the unload script on server server_name

2704: Unable to append entries to zws.ncf file on the server sever_name

2707: Unable to create dbconfig.properties file on the server server_name

2708: Unable to assign rights to the directory directory_name on server server_name

The install path is too long

Failed to create share_name share on server_name at directory_path

801: The installation program was unable to rename *filename* on the server *server_name*. *filename* may be in use

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare® or Windows* servers

Severity: Informational

Explanation: If the Installation program detects a previous installation on the machine, it renames the files. This error occurs if the Installation program is unable to rename the files.

Action: None. The Installation program will proceed without renaming the files.

804: Unable to add the Startinv.ncf entry in the *filename* file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: On NetWare servers, the Installation program adds the following entries to sys:\system\autoexec.ncf file on the Inventory server:

```
SEARCH ADD ZEN_web_server_installation_path
zws.ncf
SEARCH ADD sys:\java\njclv2\bin
;ZENworks Inventory Settings
startinv.ncf
```

This error occurs if the Installation program is unable to add these entries in the autoexec.ncf file.

Possible Cause: The autoexec.ncf is in use or locked by some other application or does not exist.

Action: Follow these steps:

1. (Conditional) If the autoexec.ncf file does not exist, manually create the file in the sys:\system directory.
2. Add the following entries to the file:

   ```
   SEARCH ADD ZEN_web_server_installation_path
   zws.ncf
   SEARCH ADD sys:\java\njclv2\bin
   ;ZENworks Inventory Settings
   startinv.ncf
   ```

807: Unable to assign rights to the SCANDIR directory on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The installation program was unable to assign rights to the scandir directory.

Possible Cause: You have not logged into the Windows server as an administrator or with the equivalent administrator rights.

Action: Ensure that you have logged into to the Windows server as an administrator or with the equivalent administrator rights. For more information, see

Possible Cause: The installation program is not running from a Windows workstation or server.

Action: Ensure that the recommended installation workstation requirements for Windows workstation or server are met. For more information, see "User Workstation Requirements" on page 51.

Action: Ensure that the network is up and running.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

812: Unable to create the password for the Service object *Inventory_Service_object_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Action: Reinstall the Inventory server. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

813: Unable to get the volumes on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Important

Explanation: If Sybase* has already been installed on the server, the Installation program displays the volumes of the server that you specify. This error occurs if the Installation program is unable to display the volumes.

Action: None. The Installation program considers this to be a fresh installation and proceeds.

814: An internal error occurred while getting the volumes on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Important

Explanation: If Sybase has already been installed on the server, the installation program displays the volumes of the server that you specify. This error occurs if the installation program is unable to display the volumes.

Action: None. The Installation program considers this to be a fresh installation and proceeds.

817: An internal error occurred while creating rights for the scandir directory on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program assigns the [Root] as a trustee of the scandir directory with Create, Erase, and Write rights. This error occurs if the Installation program is unable to assign these rights to scandir.

Action: Ensure that you have logged in to the server as an administrator or with the equivalent administrator rights.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

819: Unable to create the configuration property file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program creates the *Inventoryserver_installationpath*\zenworks\inv\server\wminv\properties\config.properties file with the following entries:

```
NDSTree=Novell_eDirectory_tree_name
InventoryServiceDN=DN_of_Inventory_Service_object
SingletonPort=65433
StoreRolledupAuditData=false
LDAPServer=DNS_name_of_the_Inventory_server
LDAPPort=LDAP_port_number
```

This error occurs if the Installation program is unable to create the config.properties file. Consequently, the Inventory services will not be up.

Possible Cause: An input-output error occurred while creating the config.properties file.

Action: Follow these steps:

1. (Conditional) If config.properties does not exists, manually create the file in the *Inventoryserver_installationpath*\zenworks\inv\server\wminv\properties directory.
2. Add the following entries:

```
NDSTree=Novell_eDirectory_tree_name
InventoryServiceDN=DN_of_Inventory_Service_object
SingletonPort=65433
StoreRolledupAuditData=false
LDAPServer=DNS_name_of_the_Inventory_server
LDAPPort=LDAP_port_number
```

826: Unable to load the mgmtdbs.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Important

Explanation: The Installation program is unable to start Sybase after the installation.

Action: Manually load the mgmtdbs.ncf file by entering **`sys:\system\mgmtdbs.ncf`** at the NetWare console prompt.

831: Unable to add the mgmtdbs.ncf entry in the sys\system\autoexec.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Possible Cause: The autoexec.ncf file is locked by some other application or does not exist.

Action: Follow these steps:

1. (Conditional) If the autoexec.ncf file does not exist, create the file in sys:\system.
2. Add the following entries to the file:

```
;ZENworks Database Settings
sys:\system\mgmtdbs.ncf
```

836: The installation program creates a new mgmtdbs.NCF file. The installation program was unable to rename the existing mgmtdbs.ncf file on the server *server_name*. Rename mgmtdbs.ncf before proceeding with the installation

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program tries to backup the mgmtdbs.ncf file before making changes to it. This error occurs if it fails to backup.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

837: Unable to create the TracerMedia property file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program creates tracermedia.propertieS in the *Inventory_server_installaton_path*\zenworks\inv\server\wminv\ properties directory. This error occurs if the Installation program fails to create the file.

Possible Cause: An input-output error occurred while creating the tracemedia.properties file.

Action: Create the tracermedia.properties file in the *Inventory_server_installaton_path*\zenworks\inv\server\wminv\ properties directory with the following contents:

```
com.novell.utility.trace.TraceMediumConsole = ON; INFORMATION

com.novell.utility.trace.TraceMediumFile = ON; ALL;
Inventory_server_logs_path

com.novell.utility.trace.TraceMediumWindow = OFF; VERBOSE
```

874: Unable to create the Service Manager as a service on Windows NT/ Windows 2000/ Windows Server 2003 *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program creates the Service Manager as a service on the Windows Inventory server. This error occurs if the installation is not successful.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

875: Unable to get the path for the shared directory where the database is installed on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Possible Cause: You have not logged into the Windows server as an administrator or with equivalent administrator rights.

Action: Ensure that you log into the Windows server as an administrator or with the equivalent administrator rights.

876: Unable to create the Sybase service on the Windows NT/ Windows 2000/ Windows Server 2003 *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

887: An internal error occurred while creating the database object *object_name* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program creates a database object for Sybase and configures the properties of the object. This error occurs if the Installation program is unable to create the object.

Action: Contact Novell Support (http://support.novell.com).

1051: Unable to write the JRE path to javadir.bat on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program creates javadir.bat in *Inventory_server_installation_directory*\zenworks\server\wminv\bin directory with the following entry:

`set java_dir=installation_path\Inv\jre`

This error occurs if the Installation program fails to create javadir.bat file with the specified contents.

Action: Create javadir.bat in *Inventory_server_installation_directory*\zenworks\server\wminv\bin directory with the following entry:

`set java_dir=installation_path\Inv\jre`

1052: Unable to create the *filename* file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program creates javadir.bat in the *Inventory_server_installation_path*\zenworks\server\wminv\bin directory with the following entry:

`set java_dir=installation_path\Inv\jre`

This error occurs if the Installation program is unable to create javadir.bat.

Possible Cause: An input-output error occurred while creating javadir.bat.

Action: Create javadir.bat in the *Inventory_server_installation_path*\zenworks\server\wminv\bin directory with the following entry:

`set java_dir=installation_path\Inv\jre`

1053: Unable to get the path for the Share *share_name* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory, Inventory Database, or Proxy Service installation on NetWare servers

Severity: Critical

Possible Cause: An error occurred while retrieving the path where the component is installed.

Action: Ensure that you have logged in to the server as an administrator or with the equivalent administrator rights.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

1060: Unable to add the STOPSER * entry in the *filename* file for the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program was unable to add entries in invstop.ncf to stop the Inventory services.

Possible Cause: An input-output error occurred while adding the entries to invstop.ncf.

Action: Follow these steps:

1. (Conditional) If invstop.ncf does not exist, create it in the sys:\system directory.
2. Add the following entries to the file:

```
;ZENworks Inventory Settings
;-----Stop Inventory services and the Inventory database-----
```

```
StopSer *
```

IMPORTANT: If invstop.ncf already exists, add the specified entries before the database entry, `unload dbsrv8.nlm`.

1061: Unable to add the UNLOAD DBSRV8.NLM entry in the *filename* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program is unable to add the entries in invstop.ncf to stop the Sybase database.

Possible Cause: An input-output error occurred while adding the entries to invstop.ncf.

Action: In the sys:\system\invstop.ncf file, add the following entries:

```
;ZENworks Database Settings
Unload dbsrv8.nlm
```

1066: Unable to assign public rights to ODBC parameters of the Database object *database_object_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Warning

Explanation: An internal error has occurred during the configuration of the Database object.

Action: Follow these steps:

1. In ConsoleOne®, right-click the database object, then click Properties.
2. Click NDS Rights > Trustees of this object > Add Trustees.
3. Select Public, then click OK.
4. Click Add Property > zendbODBCConnectionParameters > OK.
5. Click Add Property > zendbODBCDriverFileName > OK.
6. Click Add Property > zendbODBCDataSourceName > OK.
7. Click OK.
8. Click Apply > Close.

1071: Input-output error occurred while modifying the existing mgmtdbs.ncf for the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program is unable to modify the existing mgmtdbs.ncf file.

Possible Cause: An input-output error occurred while modifying the existing mgmtdbs.ncf file.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1080: Unable to create the Inventory Service object for the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program is unable to create the Inventory Service object for the server.

Action: Reinstall the Inventory server. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1081: Unable to assign supervisor privileges to the Service object *service_object_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program is unable to assign the Inventory Service object entry rights to itself with supervisor privileges.

Action: Assign the supervisor rights to the Inventory Service object:

1. In ConsoleOne, right-click the Inventory Service object, then click Trustees of this Object.
2. Click the Add Trustee button, then select the Inventory Service object.
3. From the Property list, select [Entry Rights].
4. From the Rights list, click the Supervisor check box.
5. Click OK.
6. Click Apply > Close.

1082: Unable to assign the Inventory Service object as a trustee of the NCP server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Inventory Service object is made a trustee of the NCP server with Read and Compare privileges given for [All Attribute Rights].

Action: Assign the Inventory Service object as a trustee of the NCP server:

1. In ConsoleOne, right-click the NCP server object, then click Trustees of this Object.
2. Click the Add Trustee button.
3. Select the Inventory Service object.
4. From the Property list, select [All Attributes Rights].
5. From the Rights list, click the Read and Compare check boxes.
6. Click OK.
7. Click Apply > Close.

1084: Unable to initialize zwinstal.dll

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1087: Unable to detect the operating system of the workstation where install is running

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The ZENworks 6.5 Installation program is unable to detect the operating system of the workstation where the Installation program is running.

Action: Ensure that the recommended installation workstation requirements for Windows workstation are met. For more information, see Chapter 6, "User Workstation Requirements," on page 51.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1088: An internal error occurred while checking for *entry* in file *filename* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1091: Unable to create the zwsenv.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program creates zwsenv.ncf in the zws directory with the following entry:

```
envset zwsinstallpath=ZENworks_Web_Server_installation_path
```

This error occurs if the Installation program fails to create the zwsenv.ncf in the zws directory.

Action: Follow these steps:

1. To get the ZENworks Web Server installation path, note the value of the `ZWSPath` key in the sys:\system\zenworks.properties file.
2. Create zwsenv.ncf in the ZWS directory with the following entry:

   ```
   envset zwsinstallpath=ZENworks_Web_Server_installation_path
   ```

1092: Unable to append entries to the zwssrv.cfg file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program appends the following entries to the *zenworks_web_server_installation_directory*\bin\zwssrv.cfg file:

```
Computer=Windows_machine_name

CLASSPATH=ZWS_installation_directory\ZenWebServer.jar;
ZWS_installation_directory\xmlrpcext.jar;
ZWS_installation_directory\xmlrpcservlet.jar;
ZWS_installation_directory\jcert.jar;
ZWS_installation_directory\jnet.jar;
ZWS_installation_directory\jdom.jar;
ZWS_installation_directory\jsse.jar;
ZWS_installation_directory\xmlrpc.jar;
ZWS_installation_directory\servlet.jar;
ZWS_installation_directory\xerces.jar;

BinDirectory=ZWS_installation_directory\bin

WorkingDirectory=ZWS_installation_directory\bin
```

This error occurs if the installation program fails to appends the entries.

Possible Cause: An input-output error occurred while appending to the file.

Action: Follow these steps:

1. Note the ZENworks Web Server installation path.
   1a. Invoke REGEDIT.
   1b. In `HKEY_LOCAL_MACHINE\SOFTWARE\NOVELL\ZENWORKS`, read the value of the `ZWSPath` attribute.
2. Add the following entries to *zenworks_web_server_installation_directory*\bin\zwssrv.cfg:

```
Computer=Windows_machine_name

CLASSPATH=ZWS_installation_directory\ZenWebServer.jar;
ZWS_installation_directory\xmlrpcext.jar;
ZWS_installation_directory\xmlrpcservlet.jar;
ZWS_installation_directory\jcert.jar;
ZWS_installation_directory\jnet.jar;
ZWS_installation_directory\jdom.jar;
ZWS_installation_directory\jsse.jar;
ZWS_installation_directory\xmlrpc.jar;
ZWS_installation_directory\servlet.jar;
ZWS_installation_directory\xerces.jar;

BinDirectory=ZWS_installation_directory\bin

WorkingDirectory=ZWS_installation_directory\bin
```

1093: Unable to append entries to the zws.properties file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program is unable to edit the zws.properties file.

Possible Cause: An input-output error occurred while adding entries to the zws.properties file.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1094: Unable to modify the Inventory Service object for the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program is unable to modify the existing Inventory Service object.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1095: Unable to create the invenvset.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program creates the invenvset.ncf file in sys:\system directory of a NetWare Inventory server with the following contents:

```
envset inv_install_dir= Inventory_server_installation_path
envset zws_install_dir=ZWS_installation_path
```

Action: Follow these steps:

1. To get the Inventory server installation path, read the value of the `InvSrvpath` key in the sys:\system\zenworks.properties file.
2. To get the ZENworks Web Server installation path, read the value of the `ZWSPath` key in the sys:\system\zenworks.properties file.
3. Create invenvset.ncf in the sys:\system directory with the following entries:

   ```
   envset inv_install_dir= Inventory_server_installation_path
   envset zws_install_dir=ZWS_installation_path
   ```

1097: Failed to modify mgmtdbs.ncf on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Possible Cause: An input-output error occurred while editing mgmtdbs.ncf.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1098: Failed to create mgmtdbs.ncf on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Possible Cause: An input-output error occurred while creating mgmtdbs.ncf.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1102: Unable to set the Inventory installation path on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Possible Cause: The Installation program was unable to update the Inventory server install path in the registry.

Action: Reinstall the Inventory server. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1104: Unable to set the ZENworks Web server installation path on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Possible Cause: The Installation program is unable to update the ZWS server installation path in the registry.

Action: Reinstall the Inventory server. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1105: An input-output error occurred while reading the zenworks.properties file, for the server *server_name*. The previous installations of the Inventory server could not be detected

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Informational

Explanation: The Installation program reads the sys:\system\zenworks.properties file to detect if Inventory has been previously installed.

Action: None.

1106: Unable to detect a valid database installation on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Informational

Possible Cause: Unable to detect the location of the database engine from the registry.

Action: None. The Installation program considers this to be a fresh installation and proceeds.

1107: The install path for Inventory components on server *server_name* is invalid

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Action: Reinstall the Inventory server. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1118: Unable to create query.properties on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The ZENworks 6.5 Desktop Management installation program creates query.properties file in *ConsoleOne_installation_path*\bin with the entry, insver=zfd. If Workstation Inventory is installed over the Server Inventory component of ZENworks 6.5 Server Management, the value of insver is changed to "both."

Possible Cause: An input-output error occurred while creating or updating the query.properties file

Action: If the query.properties file already exists, ensure that the value of `insver` is correct.

Action: If the query.properties file does not exist, manually create the file in *ConsoleOne_installation_path*\bin directory with the following content:

- If you are installing Workstation Inventory on a fresh setup, enter `insver=zfd`.
- If you are installing Workstation Inventory over the Server Inventory component of ZENworks 6.5 Server Management, enter `insver=both`.

1121: Unable to rename the database object *old_database_object_name* to *new_database_object_name*, on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: If you are installing the Workstation Inventory component of ZENworks 6.5 Desktop Management over ZENworks for Desktops 4.*x* Inventory, the Installation program renames the ZENworks for Desktops 4.*x* database object to *server_name*_invDatabase. This error occurs if the ZENworks 6.5 Desktop Management installation program is unable to rename the database object.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1122: Unable to modify the database object on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program is unable to modify the existing database object on the server.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1123: Failed to update load and unload scripts on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The installation program adds entries in the load script and the unload script for the NetWare cluster server. This error occurs when the installation program is unable add the entries to these scripts.

Action: During installation, if you chose to install either the Inventory server or the Database, reinstall the selected component. If you chose to install both the Inventory server and the Database, reinstall both the components. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

1124: Unable to clean up old Inventory entries from the autoexec.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Important

Explanation: The Installation program deletes the following entries from sys:\system\autoexec.ncf file on the server: sybase.ncf, mgmtdbs.ncf, gatherer.ncf, master.ncf, and storer.ncf.

This error occurs if the Installation program is unable to delete the specified entries.

Action: Manually delete the following entries from autoexec.ncf: sybase.ncf, mgmtdbs.ncf, gatherer.ncf, master.ncf, and storer.ncf.

1125: Unable to create the database object *database_object_name* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1128: Unable to add the ZENworks Web Server entry in file *filename*, on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Important

Explanation: The Installation program was unable to add entries in the sys:\system\autoexec.ncf file to launch ZENworks Web Server.

Action: In the sys:\system\autoexec.ncf file, add the following entries:

```
SEARCH ADD zenworks_web_server_installation_path
zenworks_installation_volume\zenworks\zfs.ncf
```

1129: Unable to set the ZENworks installation path on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program failed to set the ZENworks path in the registry.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1130: Unable to set the Database Engine installation path on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1131: Unable to set the Inventory database installation path on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program is unable to set the Inventory database installation path in the registry.

Action: Reinstall the Inventory database. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1132: Unable to set the Novell Application Launcher database installation path on server *server_name*

Source: ZENworks Desktop Management; Inventory database installation on Windows servers

Severity: Critical

Explanation: The ZENworks 6.5 Desktop Management installation program updates the hkey_local_machine\software\novell\zenworks\ naldbpath registry key with the *database_installation_path*\database value.

Possible Cause: You have not logged into the Windows server as an administrator or with the equivalent administrator rights.

Action: Ensure that you have logged into to the Windows server as an administrator or with the equivalent administrator rights.

Action: Manually create the hkey_local_machine\software\novell\zenworks\ naldbpath registry key with the *database_installation_path*\database value.

1135: The install path for XML Proxy components on the server *server_name* is invalid

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The Installation program failed to get a valid path to install XML Proxy Service.

Action: Reinstall the XML Proxy service. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1137: Unable to add Inventory entries to the load script on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The installation program makes the following entries in the load script after the database entries:

SEARCH ADD *zws_installation_path*

```
invclst:\zenworks\zfs.ncf
SEARCH ADD SYS:\JAVA\NJCLV2\BIN
;ZENworks Inventory Settings
StartInv.ncf
```

This error occurs if the installation program is unable to add the specified entries in the load script.

Action: In the load script, add the following entries after the database entries:

SEARCH ADD *zws_installation_path*

```
invclst:\zenworks\zfs.ncf
SEARCH ADD SYS:\JAVA\NJCLV2\BIN
;ZENworks Inventory Settings
StartInv.ncf
```

1138: Unable to add Inventory entries to the unload script on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The installation program adds the following entries to unload scripts before the `del secondary ipaddress` line:

```
java -killzenWSInv
delay 8
java -killzfsexit
```

This error occurs if the installation program is unable to add the specified entries to the unload scripts.

Action: In the unload script, add the following entries after the Inventory entries (if any) but before the "`del secondary ipaddress`" entry:

```
java -killzenWSInv
delay 8
java -killzfsexit
```

1139: Unable to add database entries to the load script on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The installation program adds the following entries to the load script:

```
;ZENworks Database Settings
sys:\system\mgmtdbs.ncf
```

This error occurs if the installation program is unable to add the specified entries to the load scripts.

Action: In the load script, add the following entries before the Inventory entries:

```
;ZENworks Database Settings
sys:\system\mgmtdbs.ncf
```

1140: Unable to add database entries to the unload script on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The installation program adds the following entry to the unload scripts:

```
unload dbsrv8.nlm <<y
```

This error occurs if the installation program is unable to add the specified entry to the unload scripts.

Action: In the unload scripts, add the following entry after the Inventory entries and before the "`del secondary ipaddress`" entry:

```
unload dbsrv8.nlm <<y
```

1143: Unable to retrieve the path where Inventory was installed for server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Important

Explanation: The ZENworks 6.5 Desktop Management installation program is unable to detect the path where the earlier versions of ZENworks has been installed.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1148: Unable to create ZENworks Web Server as a service on Windows NT/2000 server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1149: Unable to add the ZENworks Web Server path to invenvset.bat on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program creates invenvset.bat in *Inventory_server_installation_path*\zenworks\inv\server\wminv\bin directory with the following entry:

`set zws_install_dir=ZWS_installation_path`

This error occurs if the Installation program is unable to retrieve the ZWS installation path from the registry.

Action: In the invenvset.bat file, manually add the following entry:

`set zws_install_dir=ZWS_installation_path`

To get the zws installation path:

1. Invoke REGEDIT.
2. In `hkey_local_machine\software\novell\zenworks`, read the value of the `ZWSPath` attribute.

1150: Unable to add ZENworks Web Server entry to the load script on *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program adds the following entries to the load script:

```
SEARCH ADD ZWS_installation_path
ZWS.ncf
```

This error occurs if the Installation program is unable to add the specified entries to the load script.

Action: Add the following entries to the load script:

```
SEARCH ADD ZWS_installation_path
ZWS.ncf
```

1151: Unable to add ZENworks Web Server entry to the unload script on *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The Installation program adds the following entry to the unload scripts:

`java -killzwsexit`

This error occurs if the Installation program is unable to add the specified entry to the unload scripts.

Action: Manually add the specified entry to the unload scripts before the `del secondary ipaddress` entry.

1153: Unable to add Inventory entries to the password.txt file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation NetWare or Windows servers

Severity: Critical

Explanation: During the XML Proxy service installation, the Installation program creates or updates the password.txt file in the ZWS installation directory with the following entry:

`inventory=novell`

Possible Cause: An input-output error occurred while creating or updating the password.txt file.

Action: Follow these steps:

1. (Conditional) If password.txt does not exist, create it in the ZENworks Web Server installation directory.
2. Add the following entry to the file:

   `inventory=novell`

1154: Unable to add the password.txt file path entry to zws.properties file on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Explanation: The installation adds the following entry in *ZENworks_Web_Server_installation_directory*\zws.properties.

`passwordfile=`*`path_of_password.txt`*

This error occurs if the Installation program is unable to create the zws.properties file with the specified entries.

Possible Cause: An input-output error occurred while creating the zws.properties file.

Action: Follow these steps:

1. (Conditional) If zws.properties does not exist, create it in the ZENworks Web Server installation directory.
2. Add the following entry to the file:

   `passwordFile=`*`path_of_password.txt`*

1159: Unable to add *entry* entry to file *filename* on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare or Windows servers

Severity: Critical

Possible Cause: An input-output error occurred while adding the `InvStop.ncf` entry in sys:\system\zfdstop.ncf.

Action: Manually add the `InvStop.ncf` entry in sys:\system\zfdstop.ncf, if the entry does not exist.

1160: Unable to replace *entry1* with *entry2* in the file *filename*

Source: ZENworks Desktop Management; Proxy Service installation on NetWare or Windows servers

Severity: Critical

Explanation: During the reinstallation of the Proxy Service, the Installation program, replaces the proxy port value in the zws.properties file with the new value. This error occurs if the Installation program is unable to replace the proxy port value with the new value.

Action: In the *zws_installation_directory*\zws.properties file, manually enter the new value of the proxy port.

1161: A previous installation of Policy and Distribution service has been detected on server *server_name*. Install cannot start Inventory service automatically. Start Policy and Distribution services and then the Inventory Service

Source: ZENworks Desktop Management; Standalone pre-configuration on NetWare and Windows servers

Severity: Informational

Explanation: If you choose the Standalone pre-configuration during the ZENworks 6.5 installation, the installation program configures for a Standalone server and automatically starts the Inventory and ZENworks Web Server services. But if Policy and Distribution services of ZENworks 6.5 Server Management has been already installed, the ZENworks 6.5 installation program will not automatically start the Inventory and the ZENworks Web Server services.

Action: You must manually start the Policy and Distribution services before starting the Inventory services. For more information on how to start the Policy and Distribution services, see ZENworks 6.5 documentation Web site (http://www.novell.com/documentation/zenworks).

1162: An incomplete installation of the Inventory server was detected on server *server_name*. Please reinstall the Inventory server

Source: ZENworks Desktop Management; Standalone pre-configuration on NetWare and Windows servers

Severity: Critical

Explanation: The ZENworks 6.5 installation program searches for the ZWS path in zenworks.properties before launching the ZWS service. This error occurs when the installation program fails to find this path.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

1163: Unable to start the ZENworks Web Server on server *server_name*. For more information, see the error message documentation

Source: ZENworks Desktop Management; Standalone pre-configuration on NetWare servers

Severity: Critical

Explanation: The ZENworks 6.5 installation program failed to start ZENworks Web Server service.

Action: Manually run sys:\system\zws.ncf on the server.

1164: Unable to start the Inventory service on server *server_name*. For more information, see the error message documentation

Source: ZENworks Desktop Management; Standalone pre-configuration on NetWare servers

Severity: Important

Explanation: The ZENworks 6.5 installation program failed to start the Inventory services

Action: Manually run sys:\sytem\startinv.ncf on the server.

1166: Unable to create zwssearch.ncf file on the server *server_name*

Source: ZENworks Desktop Management; Standalone pre-configuration on NetWare servers

Severity: Important

Explanation: The ZENworks 6.5 installation program creates the sys:\system\zwssearch.ncf file on the server with the entry `SEARCH ADD ZENworks_Web_Server_installation path.`

Action: Manually create the sys:\system\zwssearch.ncf file on the server.

1167: Unable to add a search path to the ZENworks Web Server on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory or Proxy Service installation on NetWare servers

Severity: Important

Explanation: The ZENworks 6.5 installation program is unable to launch sys:\system\zwssearch.ncf on the server.

Action: Manually run sys:\system\zwssearch.ncf on the server. This automatically adds the search path to the ZENworks Web Server.

1168: Unable to write version information to the registry on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare and Windows servers

Severity: Critical

Explanation: The ZENworks 6.5 installation program failed to write the version information to the registry.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1169: Unable to remove the old Inventory entries from file *filename*, on server *server_name*

Source: ZENworks Desktop Management; Sybase Inventory database installation on NetWare servers

Severity: Important

Explanation: If you are upgrading from ZENworks for Desktops 4.*x* to ZENworks 6.5 Desktop Management, the ZENworks 6.5 installation program deletes ZENworks for Desktops 4.*x* Inventory entries.

This error occurrs if the the ZENworks 6.5 installation program fails to remove the ZENworks for Desktops 4.*x* Inventory entries.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1170: Unable to add entries to the zenworks.properties file, on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare servers

Severity: Critical

Explanation: The ZENworks 6.5 installation program failed to write the version information and the installation path to the zenworks.properties file.

Action: Reinstall Workstation Inventory. For more information, see "Reinstalling Workstation Inventory on NetWare and Windows Servers" on page 353.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

1171: Unable to add the ZENworks Web Server entries to the file *filename*, on the server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare and Windows

Severity: Critical

Explanation: This error occurs if the installation fails to add the ZENworks Web Server entries to the invenv.ncf file for NetWare and Windows.

Possible Cause: An input-output error has occurred while modifying the file.

Action: Do the following:

On NetWare add the following entry, if it is not already present, in the invenv.ncf file:

```
envset tmppath=$tmppath;$zws_install_dir\xmlpcextRes.jar
```

On Windows add the following entry, if it is not already present, in the *inventory_install_path*\wminv\bin\invenv.bat file:

```
tmppath=%tmppath%;%zws_install_dir%\xmlpcextRes.jar
```

2701: Unable to create the zwsstart.ncf file on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory or Proxy Service installation on NetWare servers

Severity: Critical

Explanation: The installation program creates the sys:\system\zwsstart.ncf file to launch the ZWS Web server. This error occurs if the installation program fails to create the zwsstart.ncf file.

Possible Cause: An input-output error occurred while creating the zwsstart.ncf file.

Action: Follow these steps:

1. Note the value of the `ZWSPath` key in the sys:\system\zenworks.properties file to get the ZENworks Web Server installation path.
2. (Conditional) If the zwsstart.ncf does not exist, create the file in the sys:\system directory.
3. Add the following entries to the file:

   ZENworks_Web_Server_installation_path\zwsenv.ncf

   ZENworks_Web_Server_installation_path\zws\zws.ncf

2702: Unable to remove the entries from the load script on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory database or Proxy Service installation on NetWare servers

Severity: Critical

Possible Cause: If you are installing ZENworks 6.5 Desktop Management over a previous version of ZENworks for Servers or ZENworks for Desktops, the installation program cleans up the entries from the load scripts. This error occurs if the installation fails to clean up the entries from the load scripts.

Action: Contact Novell Support (http://support.novell.com).

2703: Unable to remove the entries from the unload script on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory database or Proxy Service installation on NetWare servers

Severity: Critical

Possible Cause: If you are installing ZENworks 6.5 Desktop Management over a previous version of ZENworks for Servers or ZENworks for Desktops, the installation program cleans up the entries from the load scripts. This error occurs if the installation fails to clean up the entries from the load scripts.

Action: Using ConsoleOne, remove the dbsrv8.nlm entry from the Unload script.

2704: Unable to append entries to zws.ncf file on the server *sever_name*

Source: ZENworks Desktop Management; Inventory Server or Proxy Service installation on NetWare or Windows servers

Severity: Critical

Explanation: This error occurs if the ZENworks 6.5 Desktop Management installation fails to add the ZEN loader entries to zfs.ncf.

Possible Cause: An input-output error has occurred while modifying zfs.ncf.

Action: Reinstall the following components of ZENworks 6.5 Desktop Management: Inventory server and Inventory Proxy server (XML Proxy). For more information, see Chapter 7, "Installing the ZENworks Desktop Management Server," on page 55.

2707: Unable to create dbconfig.properties file on the server *server_name*

Source: ZENworks Desktop Management; Inventory Server or Proxy Service installation on NetWare or Windows servers

Severity: Important

Explanation: This error occurs if the installation fails to add the ZENworks Web Server entries to the invenv.ncf file.

Possible Cause: An input-output error has occurred while modifying the file.

Action: Ensure that the following files exists:

- Invconfig.properties in the *Inventory_database_volume*\zenworks\database\inventory directory.
- Nalconfig.properties in the *NAL_database_volume*\zenworks\database\nal directory.

If the files are not present, manually create the following files.

- Invconfig.properties with the following entry:

  `DBObjectDN=`*`DN of the Inventory database object in eDirectory`*

- Nalconfig.properties with the following entry:

  `DBObjectDN=`*`DN of the NAL database object in eDirectory`*

2708: Unable to assign rights to the directory *directory_name* on server *server_name*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Explanation: The Installation program was unable to assign rights to scandir or dictdir directories.

Possible Cause: You have not logged into the Windows server as an administrator or with the equivalent administrator rights.

Action: Ensure that you have logged into to the Windows server as an administrator or with the equivalent administrator rights.

Possible Cause: The Installation program is not running from a Windows workstation or server.

Action: Ensure that the recommended installation workstation requirements for Windows workstation or server are met. For more information, see "User Workstation Requirements" on page 51.

Action: Ensure that the network is up and running.

Action: Do the following:

1. Stop the Inventory service.
2. Assign rights to scandir or dictdir directories.
   - **Scandir:** Share the *inventory_installation_drive*\zenworks\inv\scandir directory as "ScanDir" and assign the Create rights to everyone.
   - **Dictdir:** Share the *inventory_installation_drive*\zenworks\inv\dictdir directory as "DictDir" and assign the Full rights to everyone.
3. Start the Inventory service.

Action: If the problem persists, contact Novell Support (http://support.novell.com).

The install path is too long

Source: ZENworks Desktop Management; Workstation Inventory installation on NetWare and Windows servers

Severity: Critical

Action: Ensure that the characters specified for the installation path do not exceed 169 characters.

Failed to create *share_name* share on *server_name* at *directory_path*

Source: ZENworks Desktop Management; Workstation Inventory installation on Windows servers

Severity: Critical

Possible Cause: The machine where you want to create the share is not reachable.

Action: Ensure that the machine is reachable. Ping the machine to check the connectivity of the machine.

Action: Try to access any other share on the machine through Windows Explorer.

F License Agreements for XMLRPC

Novell® ZENworks® Desktop Management uses the XMLRPC protocol to roll up the inventory information from a lower-level Inventory server to the next-level Inventory server.

The following are license agreements for third-party XMLRPC code that is used in Desktop Management software:

- "HELMA License" on page 433
- "John Wilson License" on page 434
- "Brett McLaughlin & Jason Hunter License" on page 434

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This software consists of voluntary contributions made by many individuals on behalf of the JDOM Project and was originally created by Brett McLaughlin <brett@jdom.org> and Jason Hunter <jhunter@jdom.org>. For more information on the JDOM Project, please see <http://www.jdom.org/>.

G Documentation Updates

This section contains information on documentation content changes that have been made in the *Installation* guide since the initial release of Novell® ZENworks® 6.5 Desktop Management. The information will help you to keep current on updates to the documentation.

All changes that are noted in this section were also made in the documentation. The documentation is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the documentation changes listed in this section.

The documentation update information is grouped according to the date the changes were published. Within a dated section, the changes are alphabetically listed by the names of the main table of contents sections for ZENworks 6.5 Desktop Management.

If you need to know whether a copy of the PDF documentation you are using is the most recent, the PDF document contains the date it was published on the front title page or in the Legal Notices section immediately following the title page.

The documentation was updated on the following dates:

- "May 19, 2006" on page 437
- "February 28, 2006" on page 438
- "January 31, 2006" on page 439
- "October 24, 2005" on page 439
- "September 23, 2005 (Support Pack 2)" on page 439
- "June 17, 2005" on page 441
- "February 11, 2005 (Support Pack 1)" on page 442
- "October 25, 2004" on page 443
- "October 4, 2004" on page 444
- "August 25, 2004" on page 444
- "July 23, 2004" on page 446

May 19, 2006

Updates were made to the following sections:

- "Installing and Configuring the Desktop Management Agent" on page 438
- "User Workstation Requirements" on page 438

Installing and Configuring the Desktop Management Agent

The following changes were made in this section:

Location	Change
"Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain" on page 102.	Removed the following paragraph: *For a Windows 98 workstation that needs the Windows Installer installed, insert the Novell ZENworks Companion 2 CD, click Companion Programs and Files, click More, then click Microsoft Windows Installer.* Deployment of the Windows Installer engine on a Windows 98 workstation is not supported.
"Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup" on page 107.	Removed the following paragraph: *For a Windows 98 workstation that needs the Windows Installer installed, insert the Novell ZENworks Companion 2 CD, click Companion Programs and Files, click More, then click Microsoft Windows Installer.* Deployment of the Windows Installer engine on a Windows 98 workstation is not supported.

User Workstation Requirements

The following changes were made in this section:

Location	Change
"User Workstation Software Requirements" on page 52.	Removed the following paragraph: *If Internet Explorer 6.0 is installed on any workstation, make sure that the privacy settings are configured to accept cookies. By default, Internet Explorer 6.0 does not accept cookies.* Testing has shown that the default settings for Internet Explorer are acceptable.

February 28, 2006

Updates were made to the following sections:

- "Upgrade" on page 438

Upgrade

The following changes were made in this section:

Location	Change
"Upgrading Caution" on page 181.	Added this section to inform administrators that some files (including .conf and .ini files) might be overwritten when ZENworks Desktop Management is upgraded with a maintenance patch, an interim release, or a support pack.

January 31, 2006

Updates were made to the following sections for ZENworks 6.5 Support Pack 2 (SP2).

- "Upgrade" on page 439

Upgrade

The following changes were made in this section:

Location	Change
Chapter 19, "Upgrading from ZENworks for Desktops 4.x," on page 231 > "Upgrading Workstation Inventory" on page 243.	In "Tasks To Be Performed Before Upgrade and Database Migration" on page 245, added the following point to the list of tasks to be performed before upgrade: "If *zenworks_installation_path*\zenworks\inv\server\wminv\ properties\ inventoryremoval.properties has been modified after the ZENworks for Desktops 4.*x* installation, take a reliable backup of inventoryremoval.properties."

October 24, 2005

Updates were made to the following sections. The changes are explained below.

Location	Change
Chapter 18, "Upgrading from ZENworks for Desktops 3.2 SP3," on page 201.	Deleted a section called "Upgrading the Novell Client on Managed Workstations."

September 23, 2005 (Support Pack 2)

Updates were made to the following sections when ZENworks 6.5 Desktop Management Support Pack 2 was released. The changes are explained below.

Location	Change
"Configuring ZENworks 6.5 Workstation Imaging in a ZENworks Support Pack for a Novell Cluster Services Environment" on page 385.	Changed the title of this section to account for Support Pack 2. Also modified Step 14 on page 386 to avoid misleading the reader that the entire cluster should be taken down.

Location	Change
"Installing the ConsoleOne Snap-ins" on page 34.	Consolidated existing content about downloading and installing snap-ins in a section entitled "Downloading and Installing Snap-ins After the Initial Installation" on page 34. Added a section entitled "Installing Snap-ins During the Desktop Management Server Installation" on page 34. Added clarifying content to this section to better explain the required procedure for running ConsoleOne and snap-ins from a workstation.
"Novell Application Launcher Configuration Settings" on page 189.	This section in the What's New In ZENworks 6.5 Desktop Management section of the Upgrade information had previously been missing from the documentation. Its inclusion is not solely a result of SP2 changes.
"Pre-installation Considerations (Support Pack 2)" on page 228.	Added this section to the ZENworks for Desktops 3.2 SP3 Upgrade part of the guide to account for installing the Desktop Management Agent (which includes an upgrade of the Remote Management Agent) on workstations where Symantec PCAnywhere 10.x (or an earlier version) is also installed.
"Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.	Modified the original title of this section from "Prerequisites for the Installing Workstation." Appended the information originally found in another, separate section entitled, "Preparing the Administration Workstation or Server." Added a note to the introductory section to the administration section to clarify that ZENworks snap-ins to ConsoleOne do not work properly from the NetWare console.
"Pre-upgrade Considerations (Support Pack 2)" on page 256.	Added this section to the ZENworks for Desktops 4.*x* Upgrade part of the guide to account for upgrading the Remote Management component of the Desktop Management Agent on workstations where Symantec PCAnywhere 10.x (or an earlier version) is also installed.
"Software Requirements for Installing the ZENworks Database Only" on page 42.	Updated the table with the following information: . ◆ SLES 9 SP1 or Solaris versions on which you can set up the Oracle9i Inventory database ◆ If you want to achieve a better scalability of concurrent updates by Storer, you must apply Oracle 9i release 2 Patch 6 or later.
"Upgrading to ZENworks 6.5 Desktop Management Support Pack 2" on page 295.	Added this chapter for administrators who might be upgrading directly from the shipping version of ZENworks 6.5 Desktop Management to ZENworks 6.5 Desktop Management Support Pack 2. The content varies little from the upgrade chapter for Support Pack 1.
"What's New in ZENworks 6.5 Desktop Management Support Pack 2" on page 198.	Added this section to provide information about changes included in ZENworks 6.5 Desktop Management Support Pack 2.

June 17, 2005

Updates were made to the following sections. The changes are explained below.

Location	Change
Chapter 2, “Platform Support for the Desktop Management Infrastructure,” on page 25	Added a paragraph to disclaim support for ZENworks use on the VMWare platform.
Chapter 7, “Preparing the Administration Workstation or Server,” on page 53.	Added this chapter to provide information for the administrator to preparing the administrative workstation or server for administering ZENworks Desktop Management. As of Support Pack 2, this information was consolidated into another section. See “Preparing the Workstation or Server Where You Will Install or Administer ZENworks” on page 31.
“Prerequisites for Using the Agent Distributor” on page 102.	Clarified the last bullet point in this section to make it clear that the workstation clock time is dependent on the server it logs into, and that the server where workstation running the Agent Distributor logs in and the server where the target workstation logs in must be synchronized within a 10-minute range.
“Prerequisites for Using the Agent Distributor” on page 107.	Clarified the last bullet point in this section to make it clear that the workstation clock time is dependent on the server it logs into, and that the server where workstation running the Agent Distributor logs in and the server where the target workstation logs in must be synchronized within a 10-minute range.
“Support Added for Recognition of the Fourth Component of an OS Version” on page 194.	New section added with SP1.
“Upgrading the ZENworks for Desktops 3.2 SP3 Inventory Database” on page 218 > “Manually Migrating the Database Objects” on page 219.	Added three new steps to ensure that the values of the Inventory database object options are correct.
“Upgrading the ZENworks for Desktops 4.x Inventory Database” on page 246 > “Manually Migrating the Database Objects” on page 247.	Added three new steps to ensure that the values of the Inventory database object options are correct.

February 11, 2005 (Support Pack 1)

Updates were made to the following sections when ZENworks 6.5 Desktop Management Support Pack 1 was released. The changes are explained below.

Location	Change
"Configuring ZENworks 6.5 Workstation Imaging in a ZENworks Support Pack for a Novell Cluster Services Environment" on page 385.	Added this section to explain the procedure for getting ZENworks 6.5 Workstation Imaging working in a Novell Clustering Services environment after installing Support Pack 1.
"Importing a Certificate on the Windows Workstation" on page 145.	Deleted the formerly-documented procedure for installing a certificate on a Windows workstation. These steps were only for installing for a User Account. Instead, a URL is listed that provides instructions for importing the certificate for use in a User Account, a Computer Account, or a Service Account.
"Installing in a Novell Cluster Services Environment" on page 367.	Updated the appendix with information related to installing Workstation Inventory in the Novell Cluster Services environment.
"Installing the Citrix ICA and Microsoft RDP Clients to Workstations" on page 259.	Added this section to explain how to install the Microsoft RDP client to workstations.
"Interoperability with ZENworks for Desktops 4.x" on page 317.	Updated this section with many changes for Support Pack 1. Specific SP1 changes are noted in the chapter.
""Overview" on page 367".	Clarified the fourth paragraph to indicate that Workstation Inventory in Support Pack 1 is now supported in a clustering environment.
Preparing ZENworks for the Windows Environment.	Added a note in "Expected Network Setup" on page 148 to indicate that the version of DirXML shipping with ZENworks 6.5 is compatible only with eDirectory 8.7.3, not with eDirectory 8.8.
"Terminal Server Requirements" on page 123.	Added information to the table listing requirements for Citrix* Secure Access Manager.
"Upgrading to ZENworks 6.5 Desktop Management Support Pack 1" on page 275.	Added this chapter to explain how to upgrade to ZENworks 6.5 Desktop Management Support Pack 1.

Location	Change
"Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Microsoft Domain" on page 102.	Retitled this section and added content to clarify that the directions are intended for users who are using the Agent Distributor to push the Desktop Management Agent to workstations that are members of a Microsoft domain or Active Directory.
"Using the Desktop Management Agent Distributor to Deploy the Agent to Workstations in a Windows Workgroup" on page 107.	Added this section to clarify the Agent Distributor functionality added in Support Pack 1 to push the Desktop Management Agent to workstations in a Windows workgroup by using IP addresses.
"What's New in ZENworks 6.5 Desktop Management Support Pack 1" on page 193.	Added this section to provide information about changes included in ZENworks 6.5 Desktop Management Support Pack 1.

October 25, 2004

Updates were made to the following sections. The changes are explained below.

Location	Change
Appendix B, "Installing in a Novell Cluster Services Environment," on page 367.	Added a new sentence to the introduction explaining that installing the ZENworks 6.5 Middle Tier Server in a Novell Cluster Services environment is not supported.
"Configuring a Test Lab" on page 151.	Added a bullet in the requirements list to show the ZENworks Middle Tier Server installed on a separate server (SRV-03) from Password Synchronization (SRV-02) when running ZENworks 6.5 Desktop Management in a Windows-only environment. These two components cannot be installed on the same server.
"Installing the ZENworks Middle Tier Server" on page 171.	Clarified the prerequisites for installing the ZENworks Middle Tier Server in a Windows-only environment. The Middle Tier Server must not be installed on the same server with DirXML Password Synchronization. For this reason, the first paragraph of this section has changed to indicate the Middle Tier Server being installed on its own server.

Location	Change
"Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on Multiple Servers" on page 332.	Reworded the section title from "Installation Scenarios That Provide Interoperability" to more accurately reflect the contents of the section.
"Interoperability Among ZENworks 6.5 Desktop Management, ZENworks 6.5 Server Management, and the Earlier ZENworks Versions Installed on a Single Server" on page 331.	Reworded the section title from "Installing ZENworks Inventory to Ensure Interoperability" to more accurately reflect the contents of the section.
"Interoperability in Inventory" on page 323.	Added a new bullet item in the prerequisites list: On the same server, the Workstation Inventory component of ZENworks 6.5 Desktop Management is interoperable only with the Server Inventory component of ZENworks 6.5 Server Management, and vice versa.
"ZENworks Middle Tier Server Limitations" on page 45.	Added a new bullet in the list indicating that installing the ZENworks 6.5 Middle Tier Server in a Novell Cluster Services environment is not supported.

October 4, 2004

Updates were made to the following sections. The changes are explained below.

Location	Change
"ZENworks Middle Tier Server Limitations" on page 45.	Added a new bullet in the list regarding the installation of the Apache Web Server and Novell NetStorage. This addition replicates information already found on the prerequisites page of the ZENworks 6.5 Middle Tier installation program.

August 25, 2004

Updates were made to the following sections. The changes are explained below.

Location	Change
"Configuring the Database Location Policy" on page 69.	Updated this section.
"Configuring DirXML Drivers" on page 159.	Updated Step 2 on page 159 to document the use of adshimdiscoverytool.exe to replace readdomainguid.exe, which was formerly shipped with ZENworks for Desktops 4.*x*. Updated Step 10 on page 161 to clarify the exact location of the driver on the Companion CD.
"Configuring the Workstation Inventory Policy" on page 71.	Updated this section.
"Creating an Administrator Active Directory Account for DirXML" on page 157.	Added a new step to clarify the process of creating an Administrator AD account for DirXML.
"Creating and Configuring the MSI Application Object" on page 98.	Added a new step to clarify the process of adding a new Application object.
"Customizing the Agent Login" on page 136.	Added a graphic and an important note to draw attention to the fact that adding a protocol (such as http: or https:) to an IP address of the ZENworks Middle Tier Server during in the Agent installation makes it impossible for the Agent to connect to the Middle Tier Server.
"Installing DirXML" on page 158.	Added an important note to alert users to the need for shutting down ZENworks services on the Windows server prior to installing DirXML. Corrected the name of the DirXML installation program in Step 3.
"Installing in a Novell Cluster Services Environment" on page 367.	Revised the fourth paragraph in the Overview to more clearly define the limitations of using ZENworks Remote Management and ZENworks Workstation Inventory in a clustering environment.
"Installing the Desktop Management Server" on page 164.	Modified Step 2 and added Step 3 and Step 4 to further clarify and document the Desktop Management Server installation process in a Windows-only environment.
"Manual Installation Procedure" on page 92.	Added an important note to draw attention to the fact that adding a protocol (such as http: or https:) to an IP address of the ZENworks Middle Tier Server during in the Agent installation makes it impossible for the Agent to connect to the Middle Tier Server.

Location	Change
"Performing the Full Installation (Including Schema Extension)" on page 58.	Modified Step 15 on page 66 to more accurately reflect the process of installation in ConsoleOne 1.3.6.
"Preparing the Workstation or Server Where You Will Install or Administer ZENworks" on page 31.	Added an additional item (see fourth bullet) to account for users who want to install ZENworks snap-ins on their local workstation. This requires ConsoleOne, and it is so noted.
"Reinstalling the Novell Application Launcher Plug-In" on page 117	Added an additional step required when removing the plug-in from a Windows NT workstation.
"Running the eDirectory Installation Program" on page 152.	Corrected the location (in Step 3) of the eDirectory 8.7.3 installation program (setup.exe) after it is unzipped on a Windows server.
"Setting Up a Workstation Import Policy" on page 69.	Corrected the procedure to set up a Workstation Import policy. Step 3 and Step 6 have been added. Step 4 has been modified.
"Software Requirements for Installing Workstation Inventory Only" on page 41.	Changed the TID number to be referred to for installing the patch (along with Novell Client 4.9 SP1a) on a Windows 2000 server or a Windows Server 2003.
"User Workstation Hardware Requirements" on page 51.	Clarified RAM requirements (128 MB recommended) when Workstation Imaging is utilized on the workstation.
"Using ZENworks Workstation Manager to Manage Local User Accounts" on page 124	Removed information about using the Windows Terminal Server Policy to configure a storage location for terminal user profiles. The Terminal Server Policy, which existed previously, was removed in ZENworks 6.5. The Windows Desktop Preferences policy should now be used to configure roaming profiles for terminal servers.

July 23, 2004

Updates were made to the following sections. The changes are explained below.

Location	Change
"Adding Properties to the MSI Application Object" on page 100.	Added a new property at the bottom of the properties table: IGNORE_3RDPARTY_GINA.
"Remote Management Installation Errors" on page 403.	Updated this section with new error messages.
"Upgrading ZENworks for Desktops 3.2 SP3 Servers" on page 204 > "Completing the Workstation Inventory Upgrade" on page 214.	Added the pre-upgrade consideration for the "Inventory Agent" on page 216: If you want to install or upgrade the ZENworks for Desktops 3.*x* agents through Workstation Imaging, ensure that the image is taken on a ZENworks 6.5 Desktop Management workstation that is unregistered.
"Upgrading ZENworks for Desktop 4.x Servers" on page 235 > "Upgrading Workstation Inventory" on page 243.	Added the pre-upgrade consideration for the "Inventory Agent" on page 244: If you want to install or upgrade the ZENworks for Desktops 4.*x* agents through Workstation Imaging, ensure that the image is taken on a ZENworks 6.5 Desktop Management workstation that is unregistered.
"Workstation Inventory Installation Errors" on page 406.	Updated this section with new error messages.