Novell
ZENworks₀ Linux Management

7.0

INSTALLATION GUIDE

Novell₀

Legal Notices

Online Documentation: To access the online documentation for this and other Novell products, and to get updates, see www.novell.com/documentation.

Novell Trademarks

Evolution is a trademark of Novell, Inc.

Novell is a registered trademark of Novell, Inc. in the United States and other countries.

SUSE is a registered trademark of SUSE LINUX AG, a Novell business.

ZENworks is a registered trademark of Novell, Inc. in the United States and other countries.

Third-Party Materials

All third-party trademarks are the property of their respective owners.

Contents

About This Guide

This *Novell ZENworks 7 Linux Management Installation Guide* includes information to help you successfully set up a ZENworks® system. The information in this guide is organized as follows:

- Chapter 1, "Introduction," on page 9 introduces you to the capabilities of ZENworks Linux Management and provide a high-level overview of the ZENworks system architecture and administration.

- Chapter 2, "System Requirements," on page 15 lists the hardware and software required for a ZENworks system.

- Chapter 3, "Installation," on page 19 gives instructions for installing a new ZENworks 7 system.

- Chapter 4, "Upgrade," on page 33 gives instructions for upgrading from a ZENworks 6.6.*x* system.

- Chapter 5, "Administration: A Quick Tutorial," on page 39 introduces the concepts and tasks you should be familiar with to successfully manage your system.

- Chapter 6, "Security," on page 49 presents considerations for securing your ZENworks system.

Documentation Conventions

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

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

When a single pathname can be written with a backslash for some platforms or a forward slash for other platforms, the pathname is presented with a backslash. Users of platforms that require a forward slash, such as Linux* or 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 the Novell Documentation Feedback site (http://www.novell.com/documentation/feedback.html) and enter your comments there.

Documentation Updates

For the most recent, updated version of the *ZENworks 7 Linux Management Installation Guide*, visit the Novell ZENworks 7 documentation site (http://www.novell.com/documentation/zenworks7).

Additional Documentation

ZENworks 7 Linux 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 7 Linux Management Administration Guide*

In addition, the other capabilities included in the ZENworks 7 suite have extensive documentation for your use. For a full list of this documentation, see the Novell ZENworks 7 documentation site (http://www.novell.com/documentation/zenworks7).

1 Introduction

Novell ® ZENworks® 7 Linux Management provides comprehensive management of Linux servers and workstations, collectively referred to as devices. Using ZENworks Linux Management, you can:

- Manage your devices' software packages, including dependency resolution, SUSE® patch support, and previous version rollback.
- Manage your devices' configuration and application settings through the use of policies.
- Automate the application of images and scripted installs using YAST autoinstall and Red Hat* kickstart.
- Remotely manage devices using a secure and fast interface.
- Collect hardware and software inventory, as well as generate inventory reports.

The following sections further introduce you to the capabilities of ZENworks Linux Management and provide a high-level overview of the ZENworks system architecture and administration.

For a list and explanation of the ZENworks terms introduced in this overview, see .

Management Capabilities

The ZENworks Linux Management capabilities are divided as follows:

Software Package Management

ZENworks Linux Management lets you install, remove, and roll back software on your Linux devices. This is done through the use of bundles, a bundle being a collection of one or more software (RPM) packages. ZENworks automatically resolves dependencies for any software packages it is installing.

When you assign a bundle to a device, it is automatically installed on the device. If you want to give the device's user the choice of whether or not to install a software package, you can use catalogs. A catalog is simply a group of bundles that appears in the ZENworks Linux Management Software Update client on the device; the user must initiate installation of any of the bundles in the catalog.

Policy-Based Device Management

ZENworks provides a number of policies to help you manage the Novell Linux Desktop, the Evolution™ e-mail client, Firefox* Web browser, Epiphany Web browser, and several other software applications.

Policies enable you to provide consistent operating system and application configuration settings for your devices. You can lock the configuration settings so that users cannot change them.

Automated Install and Imaging

ZENworks Linux Management includes a service called Preboot Services which enables you to perform tasks on devices before their operating systems boot up. Using Preboot Services you can automatically or manually do the following to a Linux device when it boots up:

- Run scripted installations on the device, such as AutoYaST and kickstart.
- Run ZENworks scripts on the device.
- Make an image of the device's hard drives and other storage devices.
- Restore an image to the device.
- Apply an existing image to multiple devices.
- Update the device's BIOS.

To accomplish these tasks automatically, you simply need to have PXE (Preboot Execution Environment) enabled on your devices, and have prebootable tasks configured and assigned to the devices (configuration is done through the using the ZENworks Control Center, discussed later). Then, the devices can automatically implement these tasks when they boot. Or, to manually implement the tasks, you can configure devices to require user intervention during bootup.

Remote Management

ZENworks Linux Management provides the ability to remotely manage workstations using a graphical Web interface directly from the ZENworks Control Center.

Inventory Collection

ZENworks can gather extensive software and hardware inventory for all managed devices, and enables you to create and export custom reports.

System Architecture

The ZENworks system architecture consists of two main components, ZENworks Servers and managed devices. These components organized into management domains referred to as ZENworks Management Zones.
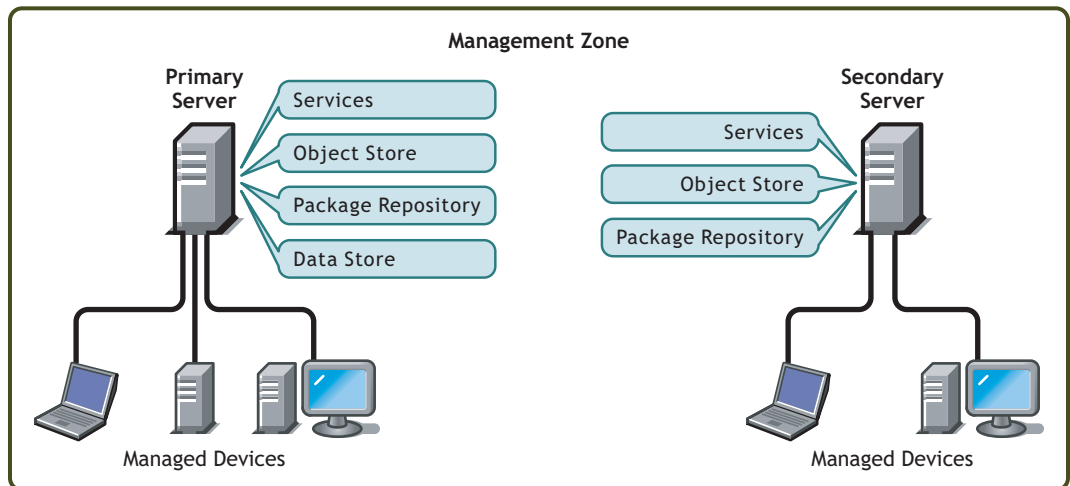
ZENworks Server

The ZENworks Server is the backbone of the ZENworks system. The first ZENworks Server installed is called the ZENworks Primary Server. The primary server contains the following ZENworks components:

- **ZENworks services:** The ZENworks software that provides package management, policy enforcement, inventory collection, imaging, and so forth. The main services are ZENworks Server, ZENworks Loader, ZENworks Imaging Service, ZENworks Preboot Policy Daemon, ZENworks Server Management, and ZENworks Management Daemon.

- **ZENworks Object Store:** The Object Store is the information repository for devices, groups, policies, bundles, and other ZENworks objects defined within the system. The Object Store, which is version 8.7.3 of Novell eDirectory™, is set up and configured during installation. The information in the Object Store is managed through the ZENworks Control Center.

- **Package repository:** The package repository contains the RPM packages that are available for delivery to managed devices within the system.

- **ZENworks Data Store:** The Data Store contains information about the software packages available for delivery, the hardware and software inventory lists collected from devices, and the actions scheduled to take place within the system.

  The Data Store can reside on the ZENworks Primary Server or it can reside on a remote server. All ZENworks Servers require access to the Data Store. For accessibility and reliability purposes, you might want to consider locating the Data Store on a server cluster.

  The Data Store must be either a PostgreSQL or Oracle* database. You can install the PostgreSQL database that is included with ZENworks Linux Management or you can use an existing Oracle 9i database or PostgreSQL database.

Depending on the number and location of the devices you want to manage with ZENworks, you might need additional ZENworks Servers, referred to as ZENworks Secondary Servers. Secondary servers contain the services, package repository, and Object Store, but not the Data Store. Basically, secondary servers are mirrors of the primary server.

The ZENworks services and Object Store are added to a secondary server during installation and configuration of the ZENworks software. Packages are automatically replicated from the primary server to all secondary servers based upon a schedule you can control (see "Replicating Content in the ZENworks Management Zone" in "Package Management" in the *Novell ZENworks 7 Linux*

Management Administration Guide). Like the primary server, a secondary server must have access to the Data Store, whether the Data Store is located on the primary server or on another server.

Managed Device

A managed device is a server or workstation that you want to manage using ZENworks. The ZENworks Agent must be installed on each device. The ZENworks Agent communicates with the ZENworks Server to enable delivery of software packages, enforcement of configuration policies, inventorying of hardware and software, and remote management of the device.

ZENworks Management Zone

A ZENworks Management Zone consists of one ZENworks Primary Server and one or more managed devices. In addition, the Management Zone can include one or more ZENworks Secondary Servers if required. The ZENworks Servers in the zone work together to manage the devices in the zone.

If necessary, you can have more than one ZENworks Management Zone. There are two main reasons for having multiple zones: 1) you have managed devices that are separated from your ZENworks Servers by a slow WAN link, or 2) you need to have autonomous zones for administrative purposes. These reasons are discussed in more detail in "Installing a ZENworks Secondary Server" on page 25.

Information is not automatically shared between ZENworks Management Zones. However, you can use the zlmmirror utility to copy software catalogs, bundles or packages from one Zone's primary server to another zone's primary server. The zlmmirror utility can also be used to pull catalogs, bundles, and packages from the following servers: YaST Online Updates, Red Hat Network, Red Carpet® Enterprise™, or ZENworks 6.x Linux Management.

System Administration

The ZENworks system is administered at the Management Zone level through the ZENworks Control Center, a task-based Web browser console.

The ZENworks Control Center is installed all ZENworks Servers in the Management Zone. You can perform all management tasks on the primary server and most management tasks on the secondary servers. The one management exception on secondary servers is the manipulation (adding, deleting, modifying) of RPM packages in a bundle. This task is not supported because the primary server is the source server for RPM packages, meaning that packages are replicated from the primary server to secondary servers on a regularly scheduled basis. Manipulating an RPM package on a secondary server rather than on the primary server would result in the modified package being replaced (or removed) the next time the secondary server's packages were updated from the primary server.

If you use Novell iManager to administer other Novell products in your network environment, you can enable the ZENworks Control Center to be launched from iManager. For details, see "ZENworks Control Center" in "General Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

In addition to the ZENworks Control Center, you can use a command line utility, zlman, to manage the objects in your ZENworks system. For example, you can add packages to bundles, associate policies with devices, register devices, and assign administrator rights. The main advantage to using the command line utility is the ability to create scripts for handling repetitive or mass operations.

Like the ZENworks Control Center, the zlman utility is installed on all ZENworks Servers. It has the same management restriction as the ZENworks Control Center, meaning that you should not use it to manipulate RPM packages on secondary servers. For more information about zlman, see "Command Line Administration Utilities" in "General Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

ZENworks Terms

This section contains explanations of the ZENworks Linux Management terms used in this overview. For a complete listing of all ZENworks Linux Management terms, see the *Novell ZENworks 7 Glossary*.

Term	Description
bundle	ZENworks Linux Management has two types of bundles: RPM package bundles and Preboot bundles. An RPM package bundle is collection of software (RPM) packages. A Preboot bundle is a collection of scripts or images that are applied to a device at bootup.
catalog	A collection of RPM package bundles and Preboot bundles. Catalogs can contain one Preboot bundle and one or more RPM bundles. Whereas bundles assigned to a device are automatically installed, bundles included in a catalog are optional; the device's user must manually initiate the installation of the bundle.
managed device	A Linux server or workstation that has the ZENworks Agent installed and is registered in the ZENworks Management Zone.
policy	A set of information that defines the operating system and application configuration settings for a managed device.
software package	A collection of software installation files. ZENworks Linux Management only supports RPM packages.

Term	Description
ZENworks Agent	The software installed on a Linux server or workstation that enables it to be managed by a ZENworks Server. The ZENworks Agent consists of multiple components that support software package delivery, policy enforcement, imaging, remote management, and so forth.
ZENworks Control Center	The ZENworks Control Center is the Web-based administrative console used to manage the ZENworks system.
ZENworks Data Store or Data Store	The Data Store contains information about the software packages available for delivery, the hardware and software inventory lists collected from devices, and the actions scheduled to take place within the system. The Data Store can reside on the ZENworks Primary Server or it can reside on a remote server. All ZENworks Servers require access to the Data Store.
ZENworks Management Zone or Management Zone	A ZENworks system is divided into one or more ZENworks Management Zones. Each Management Zone consists of at least one ZENworks Server and the devices managed by that server. During installation of a zone's first ZENworks Server, you give the zone a name for identification purposes. For more information, see "ZENworks Management Zone" on page 12.
ZENworks Primary Server or primary server	Each ZENworks Management Zone has one ZENworks Primary Server. The primary server is the first server installed and contains the ZENworks services, ZENworks Object Store, and software packages. Optionally, it might also contain the ZENworks Data Store. The primary server is the only ZENworks Server that has the Object Store, which means that all ZENworks system administration must occur on the primary server. Each Managed Device is managed by a single server (either primary or secondary).
ZENworks Object Store or Object Store	The Object Store is the information repository for devices, groups, policies, bundles, and other ZENworks objects defined within the system. The Object Store, which is version 8.7.3 of Novell eDirectory, is set up and configured during installation. The information in the Object Store is managed through the ZENworks Control Center.
ZENworks Secondary Server or secondary server	Each ZENworks Management Zone has one ZENworks Primary Server. All other ZENworks Servers installed in the zone are called ZENworks Secondary Servers. A secondary server has the ZENworks services, the Object Store, and the software packages.
zlman	A command line interface that lets you manage your ZENworks system. The zlman utility is useful for automating tasks (through scripts) and performing mass management tasks that might be tedious to perform in the ZENworks Control Center.

2 System Requirements

The following sections provide the Novell® ZENworks® requirements for hardware and software:

ZENworks Server Requirements

The network server where you install the ZENworks Server software must meet the requirements listed in the table below.

Item	Requirement
Operating System	SUSE® LINUX Enterprise Server 9 Support Pack 1 (SP1) or higher on the 32-bit Intel (x86) architecture.
Hardware	- Processor: Pentium* III (minimum) - RAM: 256 MB minimum; 512 MB recommended - Disk Space: 500 MB minimum; 4 GB recommended. Depending on the number of packages you have to distribute, this number can vary greatly.
Hostname Resolution	The server must resolve device hostnames using a method such as DNS.
IP Address	The server must have a static IP address or a permanently leased DHCP address.
TCP Ports	The server must allow traffic on TCP ports 80, 443, 524, 1299, 2544, 5506, 10389, and 10636. The server cannot run other services on port 80. If Apache or another service is binding to port 80, remove the service.

Database Requirements

If you choose to use a database for the ZENworks Data Store other than the PostgreSQL database included with ZENworks Linux Management, the database must meet the following requirements.

Item	Requirement
Database Version	◆ PostgreSQL 7.4.7 or higher (but less than version 8; version 8 is not supported) ◆ Oracle 9i SP2 or higher
Default Character Set	UTF-8 required
Default Time Zone	UTC required
TCP ports	The server must allow ZENworks Agent and ZENworks Server communication on the database port.

Managed Device Requirements

ZENworks can manage any workstations and servers that meet the requirements listed in the table below.

Item	Requirement
Operating System	◆ SUSE LINUX Enterprise Server 9 SP1 (or higher) on the following architectures: 32-bit Intel (x86), 64-bit AMD* Opteron*, 64-bit Intel Xeon* EMT ◆ Novell Open Enterprise Server on 32-bit Intel (x86) ◆ Novell Linux Desktop SP1 (or higher) on the following architectures: 32-bit Intel (x86), 64-bit AMD Opteron, 64-bit Intel Xeon EMT To ensure successful enforcement of the NLD GNOME policy, you need Novell Linux Desktop 9 with Support Pack 2 with GNOME. ◆ SUSE 9.3 Pro on the following architectures: 32-bit Intel (x86), 64-bit AMD Opteron, 64-bit Intel Xeon EMT ◆ RHEL3 AS/ES/WS on the 32-bit Intel (x86) architecture ◆ RHEL4 AS/ES/WS on the 32-bit Intel (x86) architecture

Item	Requirement
Hardware	The following are minimum hardware requirements. Use these requirements or the hardware requirements provided with your operating system, whichever is greater. For example, NLD recommends Pentium III or higher, so use those requirements rather than the ones listed below.
	◆ Processor: Pentium II 266 MHZ, 64-bit AMD Opteron, or 64-bit Intel Xeon EMT
	◆ RAM: 128 MB minimum; 256 MB recommended
	◆ Disk Space: 800 MB minimum
	◆ Display resolution: 800x600
TCP Ports	The device must allow ZENworks Agent and ZENworks Server communication on TCP ports 443 and 2544.

Administration Workstation Requirements

Make sure the workstation (or server) where you run the ZENworks Control Center to administer your system meets the requirements listed below.

Item	Requirement
Web Browser	◆ Firefox 1.0 or higher
	◆ Mozilla* 1.7 or higher
	◆ Internet Explorer 6.0 SP1 or higher (all Windows* platforms except Windows XP)
	◆ Internet Explorer 6.0 SP2 or higher (Windows XP)
Java* 1.4 Web Browser plug-ins	Required to use the Remote Management functionality in the ZENworks Control Center. For information about installing the browser plug-ins on Firefox and Mozilla, see the Java Runtime Engine information at Mozdev.org (http://plugindoc.mozdev.org/linux.html). For information about installing the browser plug-ins on Internet Explorer, visit Java.com (http://www.java.com).
Hardware	◆ Processor: Pentium III, 64-bit AMD Opteron, or 64-bit Intel Xeon EMT
	◆ RAM: 512 MB minimum
	◆ Disk space: 500 MB minimum
	◆ Display resolution: 1024 x 768

3 Installation

The following sections provide instructions for installing the Novell® ZENworks® Server and ZENworks Agent software components. Complete the tasks in the order listed:

1. If you intend to use an existing PostgreSQL or Oracle database installation for your ZENworks data store rather than have ZENworks install a new PostgreSQL database, you need to set up the database correctly. See "Preparing the Database for the ZENworks Data Store" on page 19.

2. If desired, verify the signatures on the RPM packages. All packages are signed by Novell. You can verify the package signatures to ensure that the packages have not been tampered with. See "Verifying the RPM Package Signatures" on page 21.

3. Install your first ZENworks Server and create your ZENworks Management Zone. The first ZENworks Server you install is called the primary server. See "Installing the ZENworks Primary Server" on page 21.

4. Install additional ZENworks Servers as needed. Any ZENworks Servers you install after the first one are called secondary servers. See "Installing a ZENworks Secondary Server" on page 25.

5. Install the ZENworks Agents on devices (servers and workstations) you want to manage, and register the devices in your Management Zone. See "Setting Up Managed Devices" on page 29.

If you are unfamiliar with any of the ZENworks components or terminology in the above task list, please review "System Architecture" on page 10.

Preparing the Database for the ZENworks Data Store

ZENworks Linux Management requires either a PostgreSQL or Oracle database for the ZENworks Data Store. During installation of the ZENworks Primary Server, you are asked whether you want the installation program to create a new PostgreSQL database on the primary server or use an existing PostgreSQL or Oracle database located on either the primary server or another network server.

If you want to create a new PostgreSQL database on the primary server, you can skip the remainder of this section and continue with "Installing the ZENworks Primary Server" on page 21.

If you plan to use an existing PostgreSQL or Oracle database, you need to complete the tasks in the following sections before you install your primary server.

- "Creating the Database" on page 20
- "Installing the Oracle Database Drivers" on page 20
- "Gathering the Database Information" on page 20

Creating the Database

You need to create a new database instance to use for the ZENworks Data Store. If necessary, refer to your database documentation for instructions. Keep the following in mind when you create the database instance:

 * The database version and host server must meet the requirements listed in "Database Requirements" on page 16.

 * The default character set must be UTF-8.

 * The default time zone must be UTC.

 * For PostgreSQL, you can name the database as desired.

 * For Oracle, the SID (System Identifier) can be whatever you want; however, the SID and the service name must be the same.

 * The database must require user and password authentication for access.

After you create the database, you don't need to perform any configuration. The ZENworks installation program creates the required database tables and configures the database to support ZENworks data.

Installing the Oracle Database Drivers

This section applies only if you are using an Oracle database for your ZENworks Data Store. If not, skip to the next section, Gathering the Database Information.

ZENworks Servers require an Oracle client to communicate with the Oracle database. You need to install the following RPMs on the primary server and any secondary servers:

 * oracle-instantclient-basic-*version_number*.i386.rpm

 * oracle-instantclient-jdbc-*version_number*.i386.rpm

 * oracle-instantclient-sqlplus-*version_number*.i386.rpm

You can obtain these drivers directly from the Oracle Web site (http://www.oracle.com/technology/tech/oci/instantclient/instantclient.html).

You should download the newest version of the drivers. On the Oracle web page under the Platform Downloads section, click the Linux x86 download link. Follow the prompts to download the appropriate files.

Gathering the Database Information

You must be ready to provide the following information during installation of the primary server:

 * The IP address or DNS hostname of the server where the database resides.

 * The port that the PostgreSQL or Oracle database server is listening on. The default PostgreSQL port is 5432. The default Oracle port is 1521.

 * The name of the PostgreSQL database or the SID (System Identifier) of the Oracle database.

 * The user name for an administrative account for the database.

 * The password for the administrative account.

Verifying the RPM Package Signatures

All RPM packages on the *Novell ZENworks 7 Linux Management* CD are signed by Novell. To ensure that the RPM packages have not been tampered with, you can verify the RPM package signatures.

1 At a Linux machine, mount the *Novell ZENworks 7 Linux Management* CD using the following command:.

mount *device mountpoint*

For example:

```
mount /dev/cdrom /zlm7
```

If you are using an ISO image rather than a physical CD, copy the ISO to a temporary folder on the Linux machine, then mount the image using the following command:

mount -o loop */tempfolderpath/isoimagename.iso mountpoint*

Replace *tempfolderpath* with the path to the temporary folder and replace *mountpoint* with the path to the file system location you want to mount the image. The path specified by *mountpoint* must already exist.

For example:

```
mount -o loop /zlm7/ZEN7_LinuxMgmt.iso /zlm7/install
```

2 At the command line, change to the mountpoint.

3 Import the public key using the following command:

rpm --import ./zlm7-publickey

4 Verify the RPM packages using the following command:

rpm -K *RPM_file*

For example:

```
rpm -K mount_point/data/packages/zlm-7-runtime/zles-9-i586/novell-
zenworks-server-7.0.0-1.i4=586.rpm
```

Rather than verifying packages individually, you can use the following script to verify all of the RPM packages on the *Novell ZENworks 7 Linux Management* CD:

```
for i in `find mount_point/data/packages -name *.rpm` ;
do rpm -K $i ;
done
```

Installing the ZENworks Primary Server

The first ZENworks Server you install is the ZENworks Primary Server. The primary server becomes the administration point for all ZENworks Servers and managed devices within the Management Zone. For more information, see "System Architecture" on page 10.

To install your primary server, complete the tasks in the following sections:

- ◆ "What the Installation Program Does" on page 22
- ◆ "Installing the ZENworks Server Software" on page 22
- ◆ "Supplying Your Product License Code" on page 24

What the Installation Program Does

During installation of the primary server, the ZENworks installation program does the following:

 ◆ Creates the ZENworks Management Zone. You are prompted for a unique name for the zone. This name must be different from any other Management Zone names in your environment. If you are using Novell eDirectory™ in your environment, the Management Zone name must also be different from any eDirectory tree names.

 ◆ Creates a password for the default ZENworks Administrator account. You are prompted to supply the password.

 ◆ Creates the ZENworks Data Store. You are prompted to create a new PostgreSQL database or use an existing PostgreSQL or Oracle database. For more information, see "Preparing the Database for the ZENworks Data Store" on page 19.

 ◆ Creates the ZENworks Object Store and installs the ZENworks Control Center.

 ◆ Installs and starts the ZENworks services.

Installing the ZENworks Server Software

To install the primary server:

1 Make sure the server meets the requirements. See "ZENworks Server Requirements" on page 15.

2 If you plan to use an existing database for the ZENworks Data Store, make sure you've prepared the database. See "Preparing the Database for the ZENworks Data Store" on page 19.

3 At the Linux server, mount the *Novell ZENworks 7 Linux Management* CD using the following command:.

```
mount device mountpoint
```

For example:

```
mount /dev/cdrom /zlm7
```

If you are using an ISO image rather than a physical CD, copy the ISO to a temporary folder on the Linux server, then mount the image using the following command:

```
mount -o loop /tempfolderpath/isoimagename.iso mountpoint
```

Replace *tempfolderpath* with the path to the temporary folder and replace *mountpoint* with the path to the file system location you want to mount the image. The path specified by *mountpoint* must already exist.

For example:

```
mount -o loop /zlm7/ZEN7_LinuxMgmt.iso /zlm7/install
```

4 Log in as root, then start the installation program from the mountpoint by running the following command:

```
./zlm-install
```

5 When prompted to install ZENworks, enter Y to continue.

6 Review the Software License Agreement, pressing Page Down to scroll down the page, then enter Y to accept the agreement.

Installation of the software begins. There are ten software components to install. Installation progress is displayed for each component.

7 When installation of the software is complete, enter Y to run zlm-config and configure the ZENworks Primary Server and Management Zone.

8 Provide the appropriate responses to the following prompts:

- ◆ **Is this the first server in your system?:** Enter Y for Yes.

- ◆ **Enter a unique Management Zone name:** Enter the name you want to use for your ZENworks Management Zone. For example, Novell_Boston. The name cannot be the same as any other ZENworks Management Zone in your network environment. If you use Novell eDirectory, it cannot be the same name as your eDirectory tree name.

- ◆ **Enter an Administrator password:** Enter the password you want assigned to the default ZENworks Administrator account.

- ◆ **Repeat the Administrator password:** Re-enter the password.

- ◆ **Do you want ZENworks to install and set up a local PostgreSQL database for you?:** If you want to use a new PostgreSQL database for the ZENworks Data Store and have it located on the primary server, enter Y for Yes. If you want to use an existing PostgreSQL or Oracle database, either on the primary server or on a remote server, enter N for No.

9 If you chose to use an existing database, continue with Step 10.

or

If you chose to install and set up a local PostgreSQL database, skip to Step 11.

10 Provide the appropriate responses to the following prompts to configure access to an existing database:

- ◆ **IP address or hostname of the *database* server:** Enter the IP address or DNS hostname of the server hosting the database.

- ◆ **Port *database* is listening on:** Enter the listening port being used by the database server. The default PostgreSQL listening port is 5432. The default Oracle listening port is 1521.

- ◆ **Database name/SID:** For a PostgreSQL database, enter the name of the database. For an Oracle database, enter the SID (System Identifier).

- ◆ **Database user name:** Enter the user name for an administrative account that provides full access to the database.

- ◆ **Database user password:** Enter the account password.

11 When configuration of the ZENworks Server components is complete, you should verify the installation. To do so:

11a Confirm that the ZENworks services are running by using the following command:

/opt/novell/zenworks/bin/zlm-config --status

The screen output should show that all services are running.

```
log dir: /var/opt/novell/log/zenworks
Novell eDirectory is running
Novell ZENworks Server is running
Novell ZENworks Loader is running
Novell ZENworks Imaging Service is running
Novell ZENworks Preboot Policy Daemon is running
Novell ZENworks Server Management is running
Novell ZENworks Management Daemon is running
```

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

/etc/init.d/*servicename* start

Replace *servicename* with the name of the service that needs to be started.

Service	Service Name
Novell eDirectory	ndsd
Novell ZENworks Server	novell-zenserver
Novell ZENworks Loader	novell-zenloader
Novell ZENworks Imaging Service	novell-pbserv
Novell ZENworks Preboot Policy Daemon	novell-zmgprebootpolicy
Novell ZENworks Server Management	novell-zented
Novell ZENworks Management Daemon	novell-zmd

For example, if the Novell ZENworks Management Daemon is not running, use the following command to start it:

```
/etc/init.d/novell-zmd start
```

For additional information about the ZENworks services, see "General Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

11b (Conditional) If you are using the PostgreSQL database, confirm that it is running by using the following command at the database server:

/etc/init.d/postgresql status

11c Access the ZENworks Control Center using a Web browser that meets the requirements listed in "Administration Workstation Requirements" on page 17. Use the following URL to access the Control Center:

https://*ZENworks_Primary_Server_Address*

Replace *ZENworks_Primary_Server_Address* with the IP address or DNS name of the primary server.

The ZENworks Control Center requires an https:// connection; requests to http:// are redirected to https://.

When prompted for login credentials, use the Administrator user with the password you provided during the installation.

After you are in the Control Center, you can click the Devices tab, then click the Servers folder to view your ZENworks Primary Server.

12 Continue with the next section, Supplying Your Product License Code.

Supplying Your Product License Code

Your ZENworks system is installed with a 90-day evaluation license. For your system to continue to work after 90 days, you need to supply your product license. To do so:

1 Access the ZENworks Control Center using the following URL:

```
https://ZENworks_Primary_Server_Address
```

Replace *ZENworks_Primary_Server_Address* with the IP address or DNS name of the primary server.

2 Click the Configuration tab.

The Licensing section is located in the lower-right corner of the Configuration page. The section displays the number of days remaining on the evaluation license.

3 Click Change to display the Product Activation box, provide your product license code, then click OK.

4 To install a secondary server, continue with the next section, Installing a ZENworks Secondary Server.

or

To set up devices to be managed, skip to "Setting Up Managed Devices" on page 29.

Installing a ZENworks Secondary Server

Your ZENworks Management Zone has only one primary server. Any ZENworks Servers that you install after the primary server are called ZENworks Secondary Servers. A secondary server performs all of the same functions as the primary server. Complete the tasks in the following sections to install a secondary server:

- ◆ "Determining If a Secondary Server is Needed" on page 25
- ◆ "Installing the ZENworks Server Software" on page 26
- ◆ "Defining a Content Replication Schedule" on page 28

Determining If a Secondary Server is Needed

There are two main factors that determine whether or not you need secondary servers in your system:

- ◆ **Number of devices:** The number of devices you intend to manage is one of the major factors in determining the number of ZENworks Servers you need. How many management tasks you'll be regularly performing on these devices is another contributing factor.

  The Novell Super Lab is continually performing tests to benchmark performance. For the latest performance benchmarks and load recommendations, see the ZENworks Linux Management Web site (http://www.novell.com/products/zenworks/linuxmanagement/index.html).

- ◆ **Network speed:** The ZENworks system has three key communication paths that should not be impeded by slow WAN links: 1) the ZENworks Primary Server to a ZENworks Secondary Server, 2) any ZENworks Servers to the ZENworks Data Store, and 3) any managed device to its ZENworks Server.

  In general, this means that to achieve the best performance, you should do the following:

  - ◆ Make sure that each managed device resides in the same local area network as its ZENworks Server. For example, if you have devices in a Los Angeles office and devices in a London offices and the two offices have a slow WAN link, you should have ZENworks Servers in both offices.

◆ Make sure that all secondary servers reside in the same local area network as the primary server. The primary server replicates software packages and images to each secondary server in its Management Zone on a regularly scheduled basis. If there is a large amount of data to transfer, this process can consume extensive bandwidth.

◆ Make sure that ZENworks Servers reside in the same local area network as the ZENworks Data Store. The servers consistently access the Data Store for ZENworks information.

Overall, you achieve best performance if all ZENworks Servers and managed devices within the same Management Zone are located on the same LAN or have fast WAN links. To facilitate consistency between different Management Zones, you can mirror the software packages between primary servers in the different zones (see "Mirroring Software" in "Package Management" in the *Novell ZENworks 7 Linux Management Administration Guide*).

Installing the ZENworks Server Software

To install a secondary server:

1 Make sure the server meets the requirements. See "ZENworks Server Requirements" on page 15.

2 Make sure the secondary server's system clock is synchronized with the primary server's system clock.

System clock synchronization is required to ensure correct operation of the ZENworks system. If the two servers are not synchronized, the installation fails.

3 At the Linux server, mount the *Novell ZENworks 7 Linux Management* CD using the following command:.

mount *device mountpoint*

For example:

```
mount /dev/cdrom /zlm7
```

If you are using an ISO image rather than a physical CD, copy the ISO to a temporary folder on the Linux server, then mount the image using the following command:

:**mount -o loop */tempfolderpath/isoimagename.iso mountpoint***

Replace *tempfolderpath* with the path to the temporary folder and replace *mountpoint* with the path to the file system location you want to mount the image. The path specified by *mountpoint* must already exist.

For example:

```
mount -o loop /zlm7/ZEN7_LinuxMgmt.iso /zlm7/install
```

4 Log in as root, then start the installation program from the mountpoint by running the following command:

./**zlm-install**

5 When prompted to install ZENworks, enter Y to continue.

6 Review the Software License Agreement, pressing Page Down to scroll down the page, then enter Y to accept the agreement.

Installation of the software begins. There are ten software components to install. Installation progress is displayed for each component.

7 When installation of the software is complete, enter Y to run zlm-config and configure the ZENworks Secondary Server.

8 Provide the appropriate responses to the following prompts:

- ◆ **Is this the first server in your system?:** Enter N for No.

- ◆ **IP address or DNS name of the primary server:** Enter the IP address or DNS name of the primary server.

- ◆ **Is the system clock synchronized with the primary server?:** The secondary server's system clock must be synchronized with the primary server's system clock to ensure correct operation of the system. If the two servers are not synchronized, the installation fails.

- ◆ **Administrator Password:** Enter the password for the ZENworks Administrator account.

- ◆ **Would you like to continue with installation into the Management Zone?:** The installation program displays the name of the ZENworks Management Zone in which the secondary server will be installed. Enter Y to continue.

The zlm-config utility adds the server to the ZENworks system as a ZENworks Secondary Server and then configures the ZENworks Server software components.

9 When configuration of the ZENworks Server software components is complete, you should verify the installation. To do so:

9a Confirm that the ZENworks services are running by using the following command:

/opt/novell/zenworks/bin/zlm-config --status

The screen output should show that all services are running.

```
log dir: /var/opt/novell/log/zenworks
Novell eDirectory is running
Novell ZENworks Server is running
Novell ZENworks Loader is running
Novell ZENworks Imaging Service is running
Novell ZENworks Preboot Policy Daemon is running
Novell ZENworks Server Management is running
Novell ZENworks Management Daemon is running
```

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

/etc/init.d/*servicename* start

Replace *servicename* with the name of the service that needs to be started.

Service	Service Name
Novell eDirectory	ndsd
Novell ZENworks Server	novell-zenserver
Novell ZENworks Loader	novell-zenloader
Novell ZENworks Imaging Service	novell-pbserv
Novell ZENworks Preboot Policy Daemon	novell-zmgprebootpolicy
Novell ZENworks Server Management	novell-zented
Novell ZENworks Management Daemon	novell-zmd

For example, if the Novell ZENworks Management Daemon is not running, use the following command to start it:

```
/etc/init.d/novell-zmd start
```

For additional information about the ZENworks services, see "General Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

9b Access the ZENworks Control Center using the following URL:

https://*ZENworks_Primary_Server_Address*

Replace *ZENworks_Primary_Server_Address* with the IP address or DNS name of the primary server.

After you are in the Control Center, you can click the Devices tab, then click the Servers folder to view your ZENworks Secondary Server.

10 Repeat the steps in this section to set up additional secondary servers.

or

Continue with the next section, Defining a Content Replication Schedule.

Defining a Content Replication Schedule

When you define an RPM package for delivery to managed devices within you system, the RPM package is physically added to the package repository on the primary server. To ensure that RPM packages are available on each ZENworks Server, you need to establish a schedule for replicating the RPM packages from your primary server to your secondary servers. By default, no schedule is defined, which means that no replication can take place until you define the schedule.

1 Access the ZENworks Control Center using the following URL:

https://*ZENworks_Primary_Server_Address*

Replace *ZENworks_Primary_Server_Address* with the IP address or DNS name of the primary server.

2 Click the Configuration tab.

3 In the Management Zone Settings list, click Content Replication Schedule to display the Content Replication Schedule page.

The Content Replication Schedule page determines how often RPM bundles are replicated from the primary server to all secondary servers in the Management Zone. During replication of a bundle, only a new packages and updates to existing packages are sent.

4 Select a schedule type from the drop-down list.

The following schedules are available:

Schedule Type	Description
No Schedule	Use this option to indicate no schedule. The content is not replicated to the secondary servers.
Date Specific	Select one or more dates on which to replicate the content to secondary servers and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to replicate content to secondary servers and set other restrictions that might apply.
Monthly	Select the day of the month on which to replicate content to secondary servers and set other restrictions that might apply.

5 Click OK.

6 To set up devices to be managed, continue with the next section, Setting Up Managed Devices.

Setting Up Managed Devices

Before a workstation or server can be managed by ZENworks, it must have the ZENworks Agent installed and be registered in the Management Zone. The following sections provide setup instructions:

- ◆ "Creating a ZENworks Agent ISO Image or CD" on page 29
- ◆ "Installing the ZENworks Agent and Registering the Device" on page 30
- ◆ "Automating Installation of the ZENworks Agent" on page 31

Creating a ZENworks Agent ISO Image or CD

The ZENworks Agent is installed using the same program (zlm-install) as the ZENworks Server. You can install from the *Novell ZENworks 7 Linux Management* CD, or you can create a ZENworks Agent ISO image or CD.

To create a ZENworks Agent ISO image or CD:

1 At a Linux machine, mount the *Novell ZENworks 7 Linux Management* CD using the following command:

mount *device mountpoint*

For example:

mount /dev/cdrom /zlm7

If you are using an ISO image rather than a physical CD, copy the ISO to a temporary folder on the Linux machine, then mount the image using the following command:

mount -o loop /*tempfolderpath*/*isoimagename*.iso *mountpoint*

Replace *tempfolderpath* with the path to the temporary folder and replace *mountpoint* with the path to the file system location where you want to mount the image. The path specified by *mountpoint* must already exist.

For example:

mount -o loop /zlm7/ZEN7_LinuxMgmt.iso /zlm7/install

2 Log in as root, then start the Create Client ISO program from the mountpoint using the following command:

./zlm-create-client-iso *isoimagename*

replace *isoimagename* with the path and ISO filename. For example:

zlm-create-client-iso /zlm7agent/ZENworks7-Agent.iso

The list of possible distributions is displayed. You can make separate ISOs for each distribution, or you can combine one or more distributions in one ISO.

3 Enter the number of the distribution you want added to the ISO. If desired, after the distribution is added, repeat this process to add other distributions to the ISO.

4 Enter 5 to make the ISO image and exit.

5 (Optional) Burn the ISO image to a CD.

Installing the ZENworks Agent and Registering the Device

The following instructions explain how to manually install the ZENworks Agent. You should follow the instructions on at least one device to become familiar with the installation and registration process. However, before installing the ZENworks Agent on a large number of devices, you should review the following sections:

- ◆ "Organizing Devices: Folders and Groups" on page 39 and "Creating Registration Keys and Rules" on page 41. The first section explains how to best use folders and groups to minimize your management overhead. The second section explains how to use registration keys and rules to automatically assign a device to a folder and groups when the device is registered.

- ◆ "Automating Installation of the ZENworks Agent" on page 31. You can automate the installation of the ZENworks Agent through the use of a script and a response file.

To manually install the ZENworks Agent and register it in the Management Zone:

1 Make sure the device meets the requirements. See "Managed Device Requirements" on page 16.

2 At the Linux device, mount the media you are using for the install: the *Novell ZENworks 7 Linux Management* CD, the ZENworks Agent CD, or the ISO image.

To mount a CD, use the following command:

mount *device mountpoint*

For example:

```
mount /dev/cdrom /zlm7
```

If you are using an ISO image rather than a physical CD, copy the ISO to a temporary folder on the Linux device, then mount the image using the following command:

mount -o loop */tempfolderpath/isoimagename.iso mountpoint*

Replace *tempfolderpath* with the path to the temporary folder and replace *mountpoint* with the path to the file system location you want to mount the image. The path specified by *mountpoint* must already exist.

For example:

```
mount -o loop /zlm7/ZENworks_Agent.iso /zlm/install
```

3 Log in as root, then start the installation program from the mountpoint using the following command:

./zlm-install -a

4 When prompted to install ZENworks, enter Y to continue.

5 Review the Software License Agreement, pressing Page Down to scroll down the page, then enter Y to accept the agreement.

Installation of the ZENworks Agent software begins.

6 After the ZENworks Agent software installation is complete, provide the appropriate responses to the following prompts to register the device:

- ◆ **Registration Server Address:** Enter the IP address or DNS name of the ZENworks Server that you want to manage this device. This can be the primary server or a secondary server, and should be the server that has best network access to the device.

If you leave this field blank, the device is not registered. You can register the device at a later time using the rug command line interface:

`/opt/novell/zenworks/bin/rug sa https://`*`ZEN_Server_address`*

- ◆ **(Optional) Registration Server Key:** You can leave this field blank. ZENworks has two default registration rules, one for servers and one for workstations. If you leave this field blank, ZENworks uses one of the two default registration rules to register the device. The rules cause the device to be added to either the /Servers folder or the /Workstations folder with the device's hostname used for its device name.

  Before installing the ZENworks Agent on a large number of devices and registering them, you should create registration keys and rules that enable you to place devices in specific folders and groups. Using folders and groups reduces the effort required to manage a large number of devices. Registration keys and rules, as well as folders and groups, are discussed in Chapter 5, "Administration: A Quick Tutorial," on page 39.

7 After installation is complete, confirm that the ZENworks Agent is running by using the following command:

`/etc/init.d/novell-zmd status`

8 Confirm that the device has been added to the ZENworks Object Store by accessing the ZENworks Control Center:

`https://`*`ZENworks_Primary_Server_Address`*

Replace *ZENworks_Primary_Server_Address* with the IP address or DNS name of the primary server.

After you are in the Control Center, you can click the Devices tab, then click the Servers folder or Workstation folder to view the device.

Automating Installation of the ZENworks Agent

You can automate the installation of the ZENworks Agent. The level of automation depends on what you want to accomplish. You can simply create a response file that enables users to manually run the install without being prompted for information. Or, you can create the response file and add the installation commands to a script so that users aren't even required to run the install.

To automate installation of the ZENworks Agent:

1 Create the response file. To do so:

1a At the Linux device, mount the media you are using for the install: the *Novell ZENworks 7 Linux Management* CD, the ZENworks Agent CD, or the ISO image.

For mount instructions, see Step 2 under "Installing the ZENworks Agent and Registering the Device" on page 30.

1b Run the ZENworks Agent installation program on a device using the following command:

`./zlm-install -a -r `*`path_to_response_file.txt`*

Replace *response_file.txt* with a filename you want. For example:

`./zlm-install -a -r /zlm7-agent/zenworks-agent.txt`

1c Follow the prompts to install the ZENworks Agent on the device.

Your answers to the prompts are stored in the response file.

2 Perform the scripted installation on a device using the following command:

./**zlm-install -a -s *path_to_response_file.txt***

3 If desired, place the above command in a script (for example, a login script).

Make sure the installation program and files are available to the device. For example, copy the installation files to a network location, mount the CD as a network drive, or copy the files to the device's local drive.

What's Next

After you complete the setup of your ZENworks Servers and a few managed devices, you should become familiar with general ZENworks administration concepts and tasks. Chapter 5, "Administration: A Quick Tutorial," on page 39 introduces these concepts and tasks while helping you understand the ZENworks approach to successfully managing workstations and servers.

In particular, the tutorial explains how you can use folders and groups to minimize your management overhead and why you should create folders and groups before you register the devices in your system. It also provides brief instructions for delivering software packages, creating policies, collecting inventory, performing tasks prior to a device booting to its operating system, and monitoring events that occur within the system.

4 Upgrade

Novell® ZENworks® 7 Linux Management introduces an expanded architecture with a large number of new features not available in previous ZENworks Linux Management versions.

Because of the expanded architecture, there is limited upgrade support for ZENworks 6.6.*x* Linux Management systems. If you are using PostgreSQL for your ZENworks 6.6.*x* database and will also use it for your ZENworks 7 Data Store, you can create a new ZENworks 7 system and then migrate your ZENworks 6.6.*x* administrative users and software package repository to ZENworks 7.

There is no supported upgrade path for versions of ZENworks Linux Management prior to version 6.6 or for Ximian Red Carpet versions. There is also no supported upgrade path if you are using Oracle as your ZENworks 6.6.*x* database or ZENworks 7 Data Store.

To upgrade ZENworks 6.6.*x* to ZENworks 7, complete the following process:

1. Understand the possibilities for ZENworks 6.6.*x* and ZENworks 7 coexistence during migration. See "Coexistence During an Upgrade" on page 33.

2. Install your ZENworks 7 system. See "Installing ZENworks 7 Linux Management" on page 34.

3. Migrate selected ZENworks 6.6.*x* data to the ZENworks 7 Data Store. See "Migrating ZENworks 6.6.x Data" on page 34.

4. Upgrade existing ZENworks 6.6.*x* devices to ZENworks 7. See "Upgrading Managed Devices" on page 37.

Coexistence During an Upgrade

ZENworks 7 Servers cannot manage ZENworks 6.6.*x* devices. As you migrate to ZENworks 7, you should maintain at least one ZENworks 6.6.*x* Server until you've upgraded all ZENworks 6.6.*x* devices to ZENworks 7. For information about the platforms that ZENworks 7 supports as managed devices, see "Managed Device Requirements" on page 16.

ZENworks 7 Servers and ZENworks 6.6.*x* Servers can manage ZENworks 7 devices because the ZENworks 7 Agent can communicate with both server versions. However, management of a ZENworks 7 device by a ZENworks 6.6.*x* Server is limited to obtaining software packages from the server. ZENworks 6.6.x transactions are not recognized by the ZENworks 7 Agent.

In general, even though you can use the ZENworks 7 Agent with ZENworks 6.6.*x* Servers, we recommend that your managed devices continue to use the ZENworks 6.6.*x* Red Carpet® Daemon with your ZENworks 6.6.*x* Servers until you've set up your ZENworks 7 Servers. Then, when your ZENworks 7 Servers are ready, upgrade your managed devices to the ZENworks 7 Agent.

Installing ZENworks 7 Linux Management

Install your ZENworks 7 system according to the instructions provided in Chapter 3, "Installation," on page 19. After you've created your system, you should refer to Chapter 5, "Administration: A Quick Tutorial," on page 39 to learn about the new management features of ZENworks 7.

Migrating ZENworks 6.6.*x* Data

After you've created a ZENworks 7 system, you can migrate ZENworks 6.6.*x* data from a ZENworks 6.6.*x* Server to your ZENworks 7 Data Store. Only a subset of the ZENworks 6.6.*x* data is migrated.

Data that is migrated:	Data that is not migrated:
◆ Administrator accounts	◆ Activations
◆ Channels (to catalogs)	◆ Transactions
◆ Packages and package sets (to bundles)	◆ Logs
◆ Package history and dependency information	◆ Organizations
	◆ Device inventory

The password for a migrated account is reset to the account username. For example, a ZENworks 6.6.x account with username *richard* and password *fortuna* is reset in ZENworks 7 to username *richard* and password *richard*.

The platforms supported as managed devices have changed from ZENworks 6.6.*x* to ZENworks 7. The data migration process does not migrate packages that have an unsupported platform as their target installation platform.

To migrate the data from a ZENworks 6.6.*x* database:

1 Dump the ZENworks 6.6 database information to a plain-text file.

The migration process requires that the ZENworks 6.6.*x* database and ZENworks 7 database be located on the same server. Dumping the ZENworks 6.6.*x* database information to a file enables you to then re-create the ZENworks 6.6.*x* database on the ZENworks 7 Server. To dump the data:

1a Log in to the ZENworks 6.6.*x* Server as root.

1b Run the following command:

```
pg_dump -R -c -f rcserver.dump rcserver -U rcadmin
```

- ◆ pg_dump: The command to extract a PostgreSQL database into a file.

- ◆ -R: Stops pg_dump from outputting a script that requires reconnections to the database when it is restored.

- ◆ -c: Issues commands to clean database objects prior to issuing the commands for creating them.

- ◆ -f rcserver.dump: Specifies the filename of the text file to be created.

- ◆ rcserver: Specifies the name of the ZENworks 6.6.*x* database.

- ◆ -U rcadmin: Specifies the name of the ZENworks 6.6.*x* administrator account.

2 Copy the file from the ZENworks 6.6.*x* Server to the ZENworks 7 Server.

3 Log in as root on the ZENworks 7 Server and open a shell session.

4 Use the following command to display the password for your ZENworks 7 database:

```
cat /etc/opt/novell/zenworks/serversecret
```

You get a password similar to this: e3db269e090c4401ad43c7a31fw61f6e. You need to enter this password twice during the migration process. Either record it on a piece of paper or copy it to the clipboard.

5 Create a new ZENworks 6.6.*x* database on the ZENworks 7 Server. To do so:

5a Enter the following command to log in to PostgreSQL as the super user:

```
su postgres
```

5b Enter the following command to create the database:

```
createdb -U zenadmin zlm661
```

5c When prompted for a password, enter the password you recorded in .

5d After the database is created, press CTRL+D to exit the database.

6 Configure PostgreSQL to know about the new ZENworks 6.6.*x* database. To do so:

6a Open the /var/lib/pgsql/data/pg_hba.conf file in a text editor.

The file will look similar to the following:

```
--- begin file ---

### zlm datamodel configured ###

local    all         postgres                          ident    sameuser

local    zenworks    zenadmin                 md5
host     zenworks    zenadmin    0.0.0.0 0.0.0.0 md5

local    template1 all                        md5
host     template1 all          0.0.0.0 0.0.0.0 md5

-- end file ---
```

6b Define the ZENworks 6.6.*x* database in the configuration file by adding the *italicized* lines shown below.

```
--- begin file ---

### zlm datamodel configured ###

local    all         postgres                          ident    sameuser

local    zenworks    zenadmin                 md5
host     zenworks    zenadmin    0.0.0.0 0.0.0.0 md5

local    zlm661      zenadmin                 md5
host     zlm661      zenadmin    0.0.0.0 0.0.0.0 md5

local    template1 all                        md5
host     template1 all          0.0.0.0 0.0.0.0 md5

-- end file ---
```

6c Save the modified file, then restart the PostgreSQL database by using the following command:

/etc/init.d/postgresql restart

Wait several minutes to make sure the PostgreSQL database is completely up and running.

7 Dump the ZENworks 6.6.*x* data from the rcserver.dump file into the new ZENworks 6.6.*x* database. To do so:

7a Enter the following command:

psql - Uzenadmin zlm661 <rcserver.dump

7b When prompted for a password, enter the password you recorded in Step 4.

The information from the rcserver.dump file is added to the ZENworks 6.6.*x* database. During the process, you might see some warning messages; ignore these messages.

8 Migrate the data from the ZENworks 6.6.*x* database to the ZENworks 7 database. To do so:

8a Make sure that zlm-upgrade is in your path. You can use the following command to check:

which zlm-upgrade

If the utility is in your path, you see the following displayed:

/opt/novell/zenworks/bin/zlm-upgrade

If not, add it to your path using the following command:

export PATH=$PATH:/opt/novell/zenworks/bin

8b Migrate the data using the following command:

zlm-upgrade zlm661 zenadmin *package_repository password*

Replace *package_repository* with the path to the package repository on the ZENworks 6.6.*x* Server. Replace *password* with the password you recorded in Step 4.

After the migration starts, it might take quite a while depending on the number of channels and packages being migrated. Do not interrupt the process. You receive a "Done" message when the migration is complete.

You should be aware of the following regarding the migrated data:

- ◆ The password for a migrated account is reset to the account username. For example, a ZENworks 6.6.*x* account with username *richard* and password *fortuna* is reset in ZENworks 7 to username *richard* and password *richard*.

- ◆ The platforms supported as managed devices have changed from ZENworks 6.6.*x* to ZENworks 7. The data migration process does not migrate packages that have an unsupported platform as their target installation platform.

9 After the migration is complete, restart the ZENworks 7 services by using the following command:

/opt/novell/zenworks/bin/zlm-config --restart

10 (Optional) If desired, you can remove the ZENworks 6.6.*x* database. To do so:

10a Enter the following command to log in to postgres as the super user:

su postgres

10b Enter the following command to remove the database:

dropdb -U zenadmin zlm661

10c When prompted for a password, enter the password you recorded in Step 4.

10d After the database is removed, press CTRL+D to exit.

10e Edit the pg_hba.conf file to remove the lines added in Step 6b, then save the modified file.

10f Restart postgres:

/etc/init.d/postgresql restart

Upgrading Managed Devices

After you've migrated your ZENworks 6.6.*x* data to the ZENworks 7 Data Store, you are ready to upgrade the ZENworks 6.6.*x* Red Carpet Daemon (rcd) to the ZENworks 7 Agent on your managed devices.

In order to upgrade the Red Carpet Daemon (rcd) to the ZENworks 7 Agent (zmd), you can create a ZENworks 6.6.*x* transaction to install the ZENworks Agent.

The following steps provide high-level instructions for creating the transaction. The instructions assume that you know how to use the ZENworks 6.6.*x* Web administrative interface to complete the individual steps. If you need help, please refer to the *Novell ZENworks 6.6.1 Linux Management Administration Guide* (http://www.novell.com/documentation/zlm).

To create the transaction:

1 Using the ZENworks 6.6.*x* Web administrative interface, create a new group (for example, ZLM7Upgrade) that contains all the servers and workstations you want to upgrade.

2 (Conditional) If you implemented activation keys by groups, add the new group to an appropriate activation key.

3 Create a new channel (for example, ZLM7Agent) and add the ZENworks Agent packages.

The packages are located on the *Novell ZENworks 7 Linux Management* CD in the /data/ packages directory. For each platform, you need to add packages from several /data/packages subdirectories.

For example, if you are updating workstations running the Novell Linux Desktop 9 platform, you would add all of the packages (*.rpm) from the following directories:

- ◆ /data/packages/nld-9-i586/nld-9-i586
- ◆ /data/packages/zlm-7-client/nld-9-i586
- ◆ /data/packages/zlm-7-runtime/nld-9-i586

Additionally, when adding the packages, you would specify nld-9-i586 as the target.

You can use the ZENworks 6.6.*x* Web administrative interface to add the packages, or you can use the rcman command line interface. The rcman command syntax for adding packages to a channel is:

rcman -U=*username* -P=*password* --targets=*target_platforms channel packages*

To add the Novell Linux Desktop 9 packages listed above, use the following commands, replacing *username* and *password* with the appropriate administrator name and password:

```
cd /data/packages/nld-9-i586/nld-9-i586
rcman -U=username -P=password --targets=nld-9-i586 ZLM7Agent
*.rpm

cd /data/packages/zlm-7-client/nld-9-i586
rcman -U=username -P=password --targets=nld-9-i586 ZLM7Agent
*.rpm

cd /data/packages/zlm-7-runtime/nld-9-i586
rcman -U=username -P=password --targets=nld-9-i586 ZLM7Agent
*.rpm
```

4 Create a new transaction, adding the ZLM7Agent channel and the ZLM7Upgrade group to the transaction.

5 Create the following post-transaction script for the transaction.

The post-transaction script provides the ZENworks 7 registration information for the device, disables the Red Carpet Daemon (rcd) as the initial script, stops the daemon, and starts the ZENworks Agent (zmd).

```
----- begin script ---

#!/bin/bash

echo "https://server.com" >/etc/opt/novell/zenworks/zmd/initial-service
echo "key" >>/etc/opt/novell/zenworks/zmd/initial-service

# if you are in rhel, uncomment next line to disable rcd as init script
# chkconfig --levels 2345 rcd off
# If you are in sles, uncomment the next line to diable rcd as init script
#chkconfig -d rcd

/etc/init.d/rcd stop && /etc/init.d/novell-zmd start

---- end script ----
```

Replace *https://server.com* with the address of the ZENworks 7 Server. If you want to use a key to register the device, replace *key* with the name of the registration key.

6 Run the transaction when you are ready to upgrade the devices.

What's Next

After you complete the setup of your ZENworks Servers and a few managed devices, you should become familiar with general ZENworks administration concepts and tasks. Chapter 5, "Administration: A Quick Tutorial," on page 39 introduces these concepts and tasks while helping you understand the ZENworks approach to successfully managing workstations and servers.

In particular, the tutorial explains how you can use folders and groups to minimize your management overhead and why you should create folders and groups before you register the devices in your system. It also provides brief instructions for delivering software packages, creating policies, collecting inventory, performing tasks prior to a device booting to its operating system, and monitoring events that occur within the system.

5 Administration: A Quick Tutorial

Novell® ZENworks® Linux Management is designed to let you efficiently manage a large number of Linux devices (servers and workstations) with as little configuration effort as possible.

To help you get started managing with ZENworks, this tutorial provides a brief overview of the major tasks you can perform. The first three sections help you set up a management structure based on best practices and register devices in your system. You should cover these three sections first, in the order presented:

- "Organizing Devices: Folders and Groups" on page 39
- "Creating Registration Keys and Rules" on page 41
- "Setting Up ZENworks Administrator Accounts" on page 42

The remaining sections provide concepts you should be familiar with to successfully manage your devices. You can work on these sections in any order you'd like.

- "Delivering Software Packages" on page 43
- "Defining and Locking Down Device Configuration Settings" on page 44
- "Using Preboot Services" on page 45
- "Collecting Software and Hardware Inventory" on page 45
- "Managing Remote Devices" on page 46
- "Monitoring Events" on page 46
- "Generating Reports" on page 47

The *Novell ZENworks 7 Linux Management Administration Guide* provides detailed information and instructions about the tasks listed above. Refer to it for additional information that can help you best utilize the administrative functions of ZENworks.

Organizing Devices: Folders and Groups

Using the ZENworks Control Center, you can manage devices by configuring settings and assignments directly on the device objects. However, this approach is not very efficient unless you have only a few devices to manage. To optimize management of a large number of devices, ZENworks lets you organize devices into folders and groups.

You can create folders and groups at any time. However, the best practice is to create the folders and groups you need before you register devices in your ZENworks Management Zone. This is because you can set up registration keys and rules that automatically add devices to the appropriate folders and groups when they register (see "Creating Registration Keys and Rules" on page 41).

The following sections explain folders and groups and how to create them:

- "Folders" on page 40

Folders

Your ZENworks Management Zone includes two default folders for devices: Servers and Workstations. You can create additional folders within each of these folders to further organize devices.

Folders let you control which ZENworks system configuration settings are applied to which devices, including how often a device refreshes its information from the ZENworks Object Store, what information a device includes in its log files, and whether or not a device can be managed remotely.

You can define the configuration settings at the ZENworks Management Zone, on folders, or on individual devices. Because configuration settings can be defined on folders, you can place similar devices in the same folder and then define the configuration settings on the folder. All devices in the folder inherit the folder configuration settings, which override any settings made at the Management Zone level.

For example, assume that you have 30 SUSE® LINUX Enterprise Servers in your environment and 10 Red Hat Enterprise Linux servers. You want to apply different system configuration settings to the two types of servers, so you create two folders (/Servers/SUSE and /Servers/RedHat) and place the appropriate servers in each folder. Because you have more SUSE servers than Red Hat servers, you configure the settings at the Management Zone level to accommodate the SUSE servers. Then, you configure the settings on the /Servers/RedHat folder to accommodate the Red Hat servers and override the settings on the Management Zone.

To create a folder:

1 In the ZENworks Control Center, click the Devices tab.

2 If you want to create a folder for servers, click the Servers folder.

or

If you want to create a folder for workstations, click the Workstations folder.

3 Click New > Folder to display the New Folder dialog box.

4 Type the name of the new folder, then click OK.

Groups

A group is a collection of devices that share similar requirements. The devices might require the same software packages, the same operating system or application configuration settings, or the same inventory collection schedule.

For example, of the 30 SUSE and 10 Red Hat servers mentioned in the Folders section, 10 SUSE servers and 5 Red Hat servers might be dedicated to the Accounting department. As such, they all require the same accounting software. Because groups can be assigned software packages, you could create an Accounting group, add the 15 servers to the group, and then assign the appropriate accounting software packages to the group.

The advantage to making an assignment to a group is that all devices contained in that group receive the assignment, yet you only need to make the assignment one time. In addition, a device can belong to any number of unique groups, and the assignments and associations from multiple groups are additive. For example, if you assign a device to group A and B, it inherits the software packages assigned to both groups.

To create a group:

1 In the ZENworks Control Center, click the Devices tab.

2 If you want to create a group for servers, click the Servers folder.

or

If you want to create a group for workstations, click the Workstations folder.

3 Click New > Server Group (or New > Workstation Group for workstations) to launch the Create New Group Wizard.

4 Follow the prompts to create the group and add devices to it. For information about what you need to supply at each step of the wizard, click the [?] icon.

Folders vs. Groups

As a general rule, you should manage system configuration settings through folders, and manage assignments (software packages, policies, etc.) through groups. This allows you to efficiently manage devices with similar configuration settings by placing them in the same folder and defining the configuration settings on the folder. However, all devices in the folder might not have the same software package or policy requirements. Therefore, you can organize the devices into groups and assign the appropriate bundles and policies to each group.

The most successful management strategy uses both folders and groups to create a hierarchy and organization that is easy to manage. A good folder organization enables you to import devices into a folder so they automatically inherit the correct system configuration settings. A good group organization makes it easy to assign bundles and policies to devices.

Creating Registration Keys and Rules

You can manually add devices to folders and groups, but this can be a burdensome task if you have a large number of devices or are consistently registering new devices. The best way to manage a large number of devices is to have them automatically added to the correct folders and groups when they register. To accomplish this, you can use registration keys, registration rules, or both.

Both registration keys and registration rules let you assign a name, folder, and group memberships to a device. However, there are differences between keys and rules that you should be aware of before choosing whether you want to use one or both methods for registration.

◆ **Registration Keys:** A registration key is an alphanumeric string that you manually define or randomly generate. During installation of the ZENworks Agent on a device, the registration key must be input manually or through a response file (see "Automating Installation of the ZENworks Agent" on page 31). When the device connects to a ZENworks Server for the first time, the device is given a name according to the defined naming scheme and then added to the folder and groups defined within the key.

You can create one or more registration keys to ensure that servers and workstations are placed in the desired folders and groups. For example, you might want to ensure that all of the Sales department's devices are added to the /Workstations/Sales folder but are divided into three different groups (SalesTeam1, SalesTeam2, SalesTeam3) depending on their team assignments. You could create three different registration keys and configure each one to add the Sales workstations to the /Workstations/Sales folder and the appropriate team group. As long as each device use the correct registration key, it is added to the appropriate folder and group.

◆ **Registration Rules:** If you don't want to enter a registration key during installation, or if you want devices to be automatically added to different folders and groups based on predefined criteria (for example, operating system type, CPU, or IP address), you can use registration rules.

ZENworks includes a default registration rule for servers and another one for workstations. If a device registers without a key, the default registration rules are applied to determine the folder and group assignments. The two default rules cause all servers to be added to the / Servers folder and all workstations to the /Workstations folder. The device hostname is used for its name. You cannot delete these two default rules, but you can modify the naming scheme and the folder and groups to which the servers and workstations are added.

The two default rules are designed to ensure that no server or workstation registration fails. You can define additional rules that enable you to filter devices as they register and add them to different folders and groups. If, as recommended in "Folders vs. Groups" on page 41, you've established folders for devices with similar configuration settings and groups for devices with similar assignments, newly registered devices automatically receive the appropriate configuration settings and assignments.

To create registration keys or rules:

1 In the ZENworks Control Center, click the Configuration tab.

2 To create a new registration key, in the Registration Keys section, click New > Registration to start the Create New Registration Key wizard.

or

To create a new registration rule, in the Default Registration Rules section, click New to start the Create New Default Rule wizard.

3 Follow the prompts to create the key or rule. For information about what you need to supply at each step of the wizard, click the [?] icon.

For more detailed information about registering devices, see "Device Registration" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Setting Up ZENworks Administrator Accounts

During installation, a default Administrator account is created. This account provides rights to administer all of your ZENworks system.

You can create additional administrator accounts that provide full access to your ZENworks system. You can also create accounts that limit administrative rights to specific folders (device folders, policy folders, bundle folders, and report folders).

To limit administrator rights, you assign an account rights at the folder level. The root folders are /Bundles, /Devices, /Policies, and /Reports. Rights assigned at a root folder are effective in all subfolders (for example, /Bundles/Workstations) unless specifically overridden at the subfolder level.

Depending on the administrative functions you want an administrator to be able to perform, you can give an account one of the following levels of rights:

◆ **All:** Provides create, delete, and modify rights to all objects within the folder.

◆ **Modify:** Provides rights to edit existing objects only.

◆ **View:** Provides rights to view object information.

For example, if you want an administrator to be able to view bundles that are located in the / Bundles folder and create, delete, or modify bundles in the /Bundles/Workstations folder, you would assign the administrator View rights to the /Bundles folder and All rights to the /Bundles/ Workstation folder.

To create an administrator account:

1 In the ZENworks Control Center, click the Configuration tab.

2 In the Administrators list, click New to display the Add New Administrator dialog box.

3 Provide a username and password for the account, then click OK to add the account to the Administrators list.

The administrator can change the password the first time he or she logs in by clicking the key icon located next to the Logout link in the upper-right corner of the ZENworks Control Center.

The newly created administrator account is granted View rights to all objects in the Management Zone. To grant additional rights, or to limit the administrator's rights to specific folders only, you need to modify the rights.

4 In the Administrators list, click the administrator account to display the account details.

5 Modify the assigned rights. For information about the options on the page, click Help or see "ZENworks Administrator Accounts" in "General Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

6 When you are finished modifying the rights, click Apply to save the changes.

Delivering Software Packages

Software packages are delivered to devices through the use of RPM bundles and catalogs.

An RPM bundle is a grouping of one or more software packages. Bundles contain one or more files that are installed to particular locations on a device, plus information about the bundle, such as version, description, what applications must also be present for it to be installed, and more. A catalog is a group of bundles.

The fundamental difference between RPM bundles and catalogs is that the software in bundles is automatically installed, but users can choose whether or not to install the software included in catalogs. Catalogs are displayed in the ZENworks Linux Management Update Client, which is part of the ZENworks Agent.

You can define both the deployment schedule and the installation schedule for a bundle. The deployment schedule determines when the bundle's software packages are copied to the device. The installation schedule determines when the packages are installed on the device.

You can also create bundle groups. A bundle group is simply a group of bundles, similar to a catalog. However, installation of bundles in groups is automatic, just like installation of individual bundles.

Bundles

To create a bundle:

1 In the ZENworks Control Center, click the Bundles tab.

2 In the Bundle list, click New > Bundle to display the Create New Bundle Wizard.

3 Select RPM Package Bundle (the default option), then click Next.

4 Follow the prompts to create the bundle and assign it to devices. For information about what you need to supply at each step of the wizard, click the [?] icon.

When assigning the bundle to devices, you can lessen your management overhead by assigning the bundle to groups of devices rather than to individual devices. For more information about device groups, see "Organizing Devices: Folders and Groups" on page 39.

For more detailed information about using bundles and bundle groups to deliver software to devices, see "Using RPM Bundles" in "Package Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Catalogs

To create a catalog:

1 In the ZENworks Control Center, click the Bundles tab.

2 In the Bundle list, click New > Catalog to display the Create New Catalog Wizard.

3 Follow the prompts to create the catalog, add bundles to it, and assign it to devices. For information about what you need to supply at each step of the wizard, click the [?] icon.

When assigning the catalog to devices, you can lessen your management overhead by assigning the catalog to groups of devices rather than to individual devices. For more information about device groups, see "Organizing Devices: Folders and Groups" on page 39.

For more detailed information about delivering software to devices, see "Using Catalogs" in "Package Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Defining and Locking Down Device Configuration Settings

Through the use of policies, you can control, and also lock down if desired, the configuration settings for the following applications:

- Epiphany Web browser
- Evolution e-mail client
- Firefox Web browser
- GNOME*
- Novell Linux Desktop

Additionally, you can create policies that run applications on a device, or perform modifications to a text-based configuration file using regular expressions.

You can apply individual policies to devices. You can also add policies to policy groups and apply the policy groups to devices.

Some policies are singular, meaning that only one instance of the policy can apply to the device. Other policies are plural, meaning that multiple instances can apply. Because a device inherits policy assignments from any groups or folders in which it is a member, conflicting assignments may occur. In this case, ZENworks determines the effective policies by first applying any device-assigned policies, then any group-assigned policies, and then any folder-assigned policies.

You can define the schedule for policies. The schedule determines when a policy is applied to a device.

To create a policy:

1 In the ZENworks Control Center, click the Policies tab.

2 In the Policies list, click New > Policy to display the Create New Policy Wizard.

3 Follow the prompts to create the policy and assign it to devices. For information about what you need to supply at each step of the wizard, click the [?] icon.

When assigning the policy to devices, you can lessen your management overhead by assigning the policy to groups of devices rather than to individual devices. For more information about device groups, see "Organizing Devices: Folders and Groups" on page 39.

For more detailed information about using policies and policy groups to control and lock down device settings, see "Policy Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Using Preboot Services

Preboot Services allows you to automatically or manually do any of the following to a device when it boots up:

- Run scripted installations on the device, such as AutoYaST and kickstart

- Run ZENworks scripts on the device

- Make an image of the device's hard drives and other storage devices

- Restore an image to the device

- Apply an existing image to multiple devices

To accomplish these tasks automatically using the ZENworks Control Center, you need to have PXE (Preboot Execution Environment) enabled on your devices, and have prebootable tasks configured and assigned to the devices. Then, the devices can automatically implement these tasks when they boot. For instructions, see "Preboot Services" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Collecting Software and Hardware Inventory

Hardware and software inventory is automatically collected from each device. The hardware inventory includes details such as operating system, RAM, BIOS version, network adaptors, CD-ROM manufacturer, and a host of additional information. The software inventory includes a complete list of all installed packages, as well as all ZENworks-install bundles.

To view a device's hardware and software inventory:

1 In the ZENworks Control Center, click the Devices tab.

2 Click the Servers or Workstations folder to open it.

3 Click a device to display the device's Summary page.

4 Click the Inventory tab.

You can also roll up device inventory to a ZENworks 7 inventory database. For more information about collecting software and hardware inventory, see "Hardware and Software Inventory" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Managing Remote Devices

Sometimes you need to physically perform a task on a remote workstation or server. To do so, ZENworks lets you remotely manage a device through the ZENworks Control Center. When remotely managing a device, there are three modes of operation: Remote Control, Remote View, and Remote Login.

- ◆ **Remote Control:** Lets you take control of the device's desktop and perform tasks as if you were physically located at the device.

- ◆ **Remote View:** Lets you observe the device's desktop and activity.

- ◆ **Remote Login:** Lets you log in to the device, opening a new graphical session without disturbing the user on the device. The user cannot view your Remote Login session.

To manage a remote device:

1 In the ZENworks Control Center, click the Devices tab.

2 Click the Servers or Workstations folder to open it.

3 Click a device to display the device's Summary page.

4 In the Workstation Tasks list or Servers Tasks list (located in the upper-left corner of the ZENworks Control Center), click Remote Control Workstation or Remote Control Server to open the Remote Management dialog box.

5 Select the remote management operation you want to perform: Remote Control, Remote View, or Remote Login, then click OK.

The remote session appears. If you receive an error message stating that additional plug-ins are required, see "Administration Workstation Requirements" on page 17.

For more information about managing remote devices, see "Remote Management" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Monitoring Events

The ZENworks system generates messages each time a management task is performed. For example, when the ZENworks Agent enforces a policy on a device, it generates an event message. Or, when the ZENworks Server is unable to register a new device, it generates an event message. Depending on the severity level (normal, warning, or critical) of the event and the item type (device, bundle, policy, etc.) for which the event was generated, the event can be displayed in various locations in the ZENworks Control Center.

The following sections provide a brief overview of event monitoring and message logging. For more information, see "Event Monitoring" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Hot List

The Hot List displays all events that generated an error (critical or warning). An error event remains in the list until you acknowledge it.

To access the Hot List:

1 In the ZENworks Control Center, click the Home tab.

Event Log

Each device, policy, and bundle has an Event Log that displays all of the event messages generated for the item, regardless of severity level (normal, warning, or critical).

The Event Log for a device displays all events that applied to the device. For example, if a bundle or policy is applied to the device, the Event Log displays a message for the event.

The Event Log for a bundle or policy displays all events that applied to the bundle or policy. For example, if a bundle is individually applied to four devices, four messages are displayed in the Event Log, one for each device.

To access an Event Log:

1 In the ZENworks Control Center, click the Devices tab, Bundles tab, or Policies tab, depending on whether you want to view events for a device, bundle, or policy.

2 Click the desired device, bundle, or policy to display its Summary page.

The Event Log is located near the bottom of the Summary page.

System Event Log

Each ZENworks Server has a System Event Log that displays all of the event messages generated for tasks performed by the server, regardless of the event's severity level (normal, warning, or critical). For example, it displays messages for all bundles that the server has applied to devices that it manages.

To access a System Event Log:

1 In the ZENworks Control Center, click the Devices tab, then click a ZENworks Server to display its Summary page.

The System Event Log is located near the bottom of the Summary page.

Message Logs

The events that are displayed in the ZENworks Control Center can also be logged to files on disk. The ZENworks Agent can log event messages (the ones that appear in a device's Event Log) to a file on the device's local disk; message logs for all managed devices can also be rolled up to a central log file on the ZENworks Server.

The ZENworks Server can log messages (the ones that appear in the server's System Event Log) to a file on the server's local disk.

For more information about message logs, see "Event Monitoring" in the *Novell ZENworks 7 Linux Management Administration Guide*.

Generating Reports

You can generate reports to display bundle and device information, such as the bundle delivery information for each device or the devices registered in the last 24 hours. The ZENworks Control Center provides several predefined reports and lets you create new reports. You can export the reports to XML, CVS, or HTML formats.

To generate a report:

1 In the ZENworks Control Center, click the Reports tab.

The Reports list includes two default folders: Bundle Reports and Device Reports. Each of these folders contains a set of predefined reports you can run. You can also run all of the reports in a folder by selecting the folder.

2 Select the Device Reports folder by clicking the box in front of it.

3 Click Generate to generate the six device reports.

You can print each of the reports. You can also export them to XML, CSV, and HTML formatted files.

For more information about reports, see "Reports" in the *Novell ZENworks 7 Linux Management Administration Guide*.

6 Security

The following sections provide information you should be aware of as you consider the security of your Novell® ZENworks® system.

Clear Text Passwords

The following files contain the ZENworks Data Store password in clear text. All of the files are located on the ZENworks Server and are accessible only as root.

/etc/opt/novell/zenworks/hibernate.cfg.xml
/etc/opt/novell/zenworks/tomcat/base/server.xml

Self-Signed Certificates

ZENworks Linux Management uses self-signed certificates. The certificates' private keys are of type RSA and the key size is 1024 bits. The certificates are created during installation through the use of the Java keytool utility, which is part of the JDK* 1.4 JSSE module.

ZENworks Agent

The ZENworks Agent, which is installed on all ZENworks Servers and all managed devices, runs as root. By default, remote services is enabled for the agent (allowing it to be controlled from another device). For remote services, the agent listens on port 2544. If you want to secure the ZENworks Agent so that it can only be controlled from the local device, use the **novell-zmd no-remote** command. If you want to change the listening port, use the **rug set remote-port *port_number*** command, then restart the agent (**novell-zmd restart**).

Database Connections

All connections to the ZENworks Object Store are secured through SSL. However, all connections from the ZENworks Server to the ZENworks Data Store are not secure because they use an unencrypted JDBC* connection. You might want to take precautions to ensure that the connections between all ZENworks Servers and the ZENworks Data Store are as secure as possible. For example, you might want to use a private network for all communications.

ZENworks administrator credentials are stored in the ZENworks Object Store. No administrator credentials are stored in the Data Store, which ensures that they are not passed as clear text.

Device Ports

The ZENworks Agent listens on ports 2544, 5950, and 5951. The ZENworks Server listers on ports 80, 443, 1229, 5506, 5432 (PostgreSQL), 5950, and 5951.

Denial-of-Service Attacks

ZENworks Linux Management software has no mechanism for protecting against Denial-of-Service attacks. If this is a concern, you must use a third-party solution to monitor network activity.

Root

The ZENworks Linux Management software, on both ZENworks Servers and managed devices, considers the root user to be a trusted user. No attempt is made to secure the ZENworks software or credentials used by the software from the root user.