

Package and Content Management



The following sections provide information about Novell® ZENworks® Linux Management - Dell Edition Package and Content Management features and procedures:

- ◆ [Chapter 17, “Package and Content Management Overview,” on page 175](#)
- ◆ [Chapter 18, “Using RPM and File Bundles,” on page 179](#)
- ◆ [Chapter 19, “Using Catalogs,” on page 229](#)
- ◆ [Chapter 20, “Using Dell Update Package Bundles,” on page 243](#)
- ◆ [Chapter 21, “Replicating Content in the ZENworks Management Zone,” on page 251](#)
- ◆ [Chapter 22, “Mirroring Software,” on page 253](#)
- ◆ [Chapter 23, “Creating RPM Packages From Tarballs,” on page 265](#)

Package and Content Management Overview

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Novell® ZENworks® Linux Management - Dell Edition lets you install packages or files using either a bundle or a catalog. Content included in a bundle that is directly assigned is considered mandatory; the software or files are installed on all assigned devices. A catalog is a collection of RPM bundles or Dell Update Package bundles; content included in a catalog is usually considered optional.

ZENworks Linux Management also provides content replication to replicate content (packages, Dell Update Packages, bundles, and catalogs) from one server to other servers in your system.

The content replication feature in ZENworks Linux Management lets you replicate content from the primary ZENworks server to secondary servers in a single ZENworks Management Zone.

The mirroring feature (zlmirror, a command line utility) lets you replicate content between Management Zones or from remote servers. You use mirroring to obtain Dell Update Packages (DUPs) from the Dell FTP site or from a CD obtained from Dell.

The following sections contain additional information:

- ♦ [Section 17.1, “Understanding RPM and File Bundles,” on page 175](#)
- ♦ [Section 17.2, “Understanding Catalogs,” on page 176](#)
- ♦ [Section 17.3, “Understanding Dell Update Package Bundles,” on page 176](#)
- ♦ [Section 17.4, “Understanding the zlman Utility,” on page 176](#)
- ♦ [Section 17.5, “Replicating Content in the ZENworks Management Zone,” on page 177](#)
- ♦ [Section 17.6, “Mirroring Software,” on page 177](#)

17.1 Understanding RPM and File Bundles

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.

ZENworks Linux Management uses Red Hat Package Manager (RPM). RPM is a powerful package management system capable of installing, uninstalling, verifying, querying, and updating computer software packages on different devices.

ZENworks Linux Management supports the RPM format.

Software included in a bundle that is directly assigned is considered mandatory; the software is installed on all devices assigned to the bundle (the bundle is directly assigned to devices, device groups, or device folders).

A file bundle lets you create a bundle containing one or more files of any type and distribute them to assigned devices. For example, you can include configuration files or data files in file bundles. A file bundle is useful to distribute any files that are not part of an RPM package.

When you create a bundle using the Create New Bundle Wizard, you are given the choice of creating an RPM package bundle, a preboot bundle, or a file bundle. A preboot bundle performs operations before the operating system boots. If you are familiar with ZENworks Desktop Management, preboot bundles are similar to imaging operations. For more information, see [Part VI, “Preboot Services,” on page 267](#).

You can also create bundle groups to collect several bundles to ease administration and to provide easier assigning and scheduling of the bundles in the bundle group.

For more information and step-by-step instructions, see [Chapter 18, “Using RPM and File Bundles,” on page 179](#).

17.2 Understanding Catalogs

A catalog is a collection of bundles; bundles included in a catalog are usually considered optional. You can use catalogs to deploy and install optional or dependent packages to assigned devices. If you deploy optional packages to devices by using a catalog, users can choose whether to deploy and install the software packages included in the bundles inside the catalog. Users use the ZENworks Linux Management Software Installer, Software Updater, and Software Remover applets to manage the software on managed devices. For more information, see [Section 6.3, “Using the Software Updater, Installer, and Remover from Users’ Managed Devices,” on page 50](#).

You can also use bundles in a catalog to provide dependent packages for a primary package contained in a bundle or in another catalog. For example, suppose you want to include Java Runtime in a catalog and, optionally, hide the catalog from the user interface. If a package contained in a bundle or in another catalog needs Java Runtime (it is listed as a dependency for the primary package), the package containing Java Runtime becomes mandatory and is deployed and installed on all devices that the primary package is deployed and installed on.

For more information and step-by-step instructions, see [Chapter 19, “Using Catalogs,” on page 229](#).

17.3 Understanding Dell Update Package Bundles

ZENworks Linux Management - Dell Edition lets you mirror Dell Update Packages (DUPs) from the Dell FTP site or from a CD obtained from Dell support to your ZENworks server. Dell Update Packages let you update and configure hardware and system settings (including BIOS, DRAC, RAID, BMC, and FRMW configurations) on Dell PowerEdge servers.

For more information and step-by-step instructions, see [Chapter 20, “Using Dell Update Package Bundles,” on page 243](#).

17.4 Understanding the zlman Utility

The zlman utility is the command-line interface to ZENworks Linux Management. If you need to create and configure a large number of bundles or catalogs, or if you want to automate the process using scripts, you can use zlman.

The zlman utility lets you create and modify bundles, including adding packages to bundles and creating patch bundles. You can also use zlman to create and modify catalogs, including adding bundles to catalogs.

For more information, see [zlman](http://www.novell.com/documentation/zenworks7/zlmref/zlman.html) (<http://www.novell.com/documentation/zenworks7/zlmref/zlman.html>).

17.5 Replicating Content in the ZENworks Management Zone

ZENworks Linux Management uses a hierarchical organization to simplify device management. At the top level, a ZENworks Management Zone provides an autonomous unit of ZENworks Servers and managed devices (workstations and servers). The ZENworks Servers manage the devices.

Each ZENworks Management Zone has one primary server, and optionally, one or more secondary servers to help distribute workload.

All RPM packages and Dell Update Packages must reside on the primary server. ZENworks Linux Management uses content replication to replicate packages to each secondary server in your Management Zone.

For more information, see [Chapter 21, “Replicating Content in the ZENworks Management Zone,” on page 251](#).

17.6 Mirroring Software

ZENworks Linux Management lets you connect to a remote server and copy software catalogs, bundles, or packages from the remote server to your server using a few simple commands.

Depending on your needs, you might have more than one ZENworks Management Zone in your system. To replicate content across Management Zones, you must use `zlmirror`.

You also use mirroring to obtain Dell Update Packages from the Dell FTP site or from a CD obtained from Dell support.

For more information, see [Chapter 22, “Mirroring Software,” on page 253](#).

Using Novell® ZENworks® Linux Management, you can install software using either a bundle or a catalog.

Software included in a bundle that is directly assigned is considered mandatory; the software is installed on all assigned devices (the bundle is directly assigned to devices, the device group, or the device folder).

A catalog is a collection of RPM bundles, Dell Update Package bundles, or bundle groups; bundles included in a catalog are usually considered optional. For more information about catalogs, see [Chapter 19, “Using Catalogs,” on page 229](#).

The `zlm` utility is the command line interface to ZENworks Linux Management. If you need to create and configure a large number of bundles or catalogs, or if you want to automate the process using scripts, you can use `zlm`. For more information, see [zlm](http://www.novell.com/documentation/zenworks7/zlmref/zlm.html) (<http://www.novell.com/documentation/zenworks7/zlmref/zlm.html>).

The following sections contain additional information:

- ◆ [Section 18.1, “Understanding Bundles,” on page 179](#)
- ◆ [Section 18.2, “Creating RPM Bundles,” on page 180](#)
- ◆ [Section 18.3, “Creating File Bundles,” on page 191](#)
- ◆ [Section 18.4, “Assigning Bundles,” on page 201](#)
- ◆ [Section 18.5, “Editing Bundles,” on page 205](#)
- ◆ [Section 18.6, “Adding Bundles to Catalogs,” on page 209](#)
- ◆ [Section 18.7, “Creating Folders,” on page 209](#)
- ◆ [Section 18.8, “Creating Bundle Groups,” on page 210](#)
- ◆ [Section 18.9, “Adding Bundles to Existing Groups,” on page 216](#)
- ◆ [Section 18.10, “Uninstalling Bundles from Devices,” on page 216](#)
- ◆ [Section 18.11, “Deleting Bundles, Bundle Groups, and Folders,” on page 219](#)
- ◆ [Section 18.12, “Renaming, Copying, or Moving Bundles,” on page 220](#)
- ◆ [Section 18.13, “Deploying a Different Version of a Bundle,” on page 221](#)
- ◆ [Section 18.14, “Using a Remote Execute Policy to Remove Bundles and Packages from Devices,” on page 221](#)
- ◆ [Section 18.15, “Generating Bundle Reports,” on page 225](#)
- ◆ [Section 18.16, “Cleaning Orphaned Files from the Package Repository,” on page 226](#)

18.1 Understanding Bundles

ZENworks Linux Management lets you create the following types of bundles:

- ◆ [Section 18.1.1, “RPM Bundles,” on page 180](#)
- ◆ [Section 18.1.2, “Preboot Bundles,” on page 180](#)

- ◆ [Section 18.1.3, “File Bundles,” on page 180](#)

Dell Update Package bundles are discussed in [Chapter 20, “Using Dell Update Package Bundles,” on page 243](#).

18.1.1 RPM Bundles

An RPM bundle is a grouping of one or more software packages. ZENworks Linux Management ships all software in this format. Bundles contain one or more files that are installed to particular locations on a system, plus information about the bundle, such as version, description, what applications must also be present for it to be installed, and more.

ZENworks Linux Management supports the RPM format.

For step-by-step instructions, see [Section 18.2, “Creating RPM Bundles,” on page 180](#).

18.1.2 Preboot Bundles

A preboot bundle performs operations before the operating system boots. If you are familiar with ZENworks Desktop Management, preboot bundles are similar to imaging operations.

For more information about preboot bundles, see [Part VI, “Preboot Services,” on page 267](#).

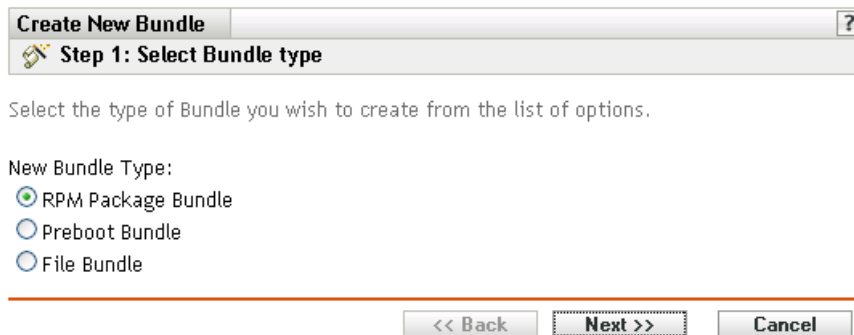
18.1.3 File Bundles

A file bundle lets you create a bundle containing one or more files of any type and distribute them to assigned devices. For example, you can include configuration files or data files in file bundles. A file bundle is useful to distribute any files that are not part of an RPM package.

For step-by-step instructions, see [Section 18.3, “Creating File Bundles,” on page 191](#).

18.2 Creating RPM Bundles

- 1 In the ZENworks Control Center, click the *Bundles* tab.
- 2 In the *Bundle* list, click *New*, then click *Bundle* to display the Select Bundle Type page.



- 3 Select *RPM package bundle* (the default option), then click *Next* to display the Name and Description page.

For information about the other bundle types, see [Part VI, “Preboot Services,” on page 267](#) and [Section 18.3, “Creating File Bundles,” on page 191](#).

Create New Bundle ?

Step 2: Name and Description

Enter a name, display name, location, and description for this new Bundle.

Name:

Display Name:

Folder:

Description:

<< Back Next >> Cancel

4 Fill in the fields:

- ♦ **Name:** (Required) Provide a unique name for the RPM bundle. The name you provide displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management.

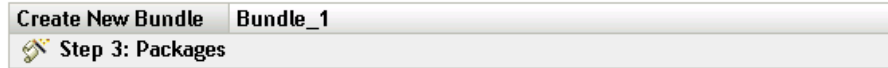
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,” on page 475](#).

- ♦ **Display name:** Provide a name that displays for users in the ZENworks Linux Management Update Client (installed on managed devices during the ZENworks Agent installation) when they update software. The display name can be the same name that you provided in the *Name* field; however, you can choose to make the name more intuitive for users.
- ♦ **Folder:** Type the name or browse to the folder that this bundle will be created in. Folders display in the ZENworks Control Center. The default folder is `/Bundles`.
- ♦ **Description:** Provide a short description of the bundle's contents. This description displays in the ZENworks Control Center and in the ZENworks Linux Management Updater applet, which is the user interface for updating software.

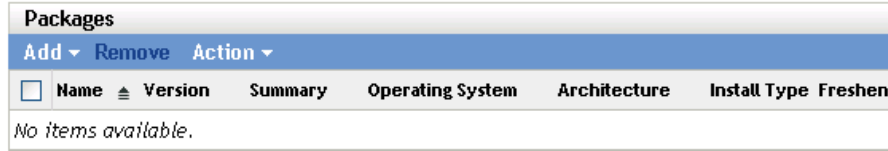
5 Click *Next* to display the Packages page.

Use the Packages page to upload RPM packages to the bundle or to import RPM packages contained in the ZENworks Linux Management package repository. The packages that you upload to a bundle must already exist on the local device on which you are running the ZENworks Control Center. During the bundle-creation process, packages are copied to the

ZENworks Server and placed in the package repository (/var/opt/novell/zenworks/pkg-repo).



Add the RPMs that will be included in this Bundle.

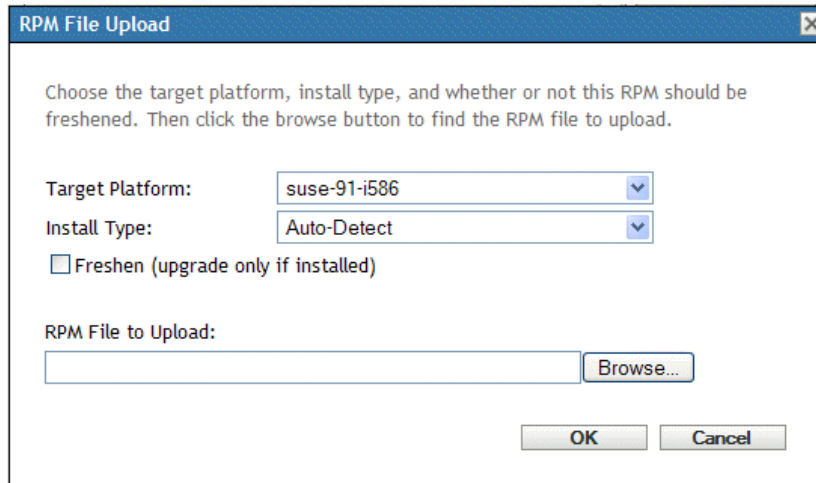


- 6 Add the RPM packages to include in the bundle using the *Upload RPM* and the *Import from Repository* options.

You can use either the *Upload RMP* option or the *Import from Repository* option, or you can use both options, depending on your needs.

After you upload or import packages into the list, you can view the details of a selected package by clicking the underlined link in the *Name* column. You can remove a selected package from the list by using the *Remove* option.

- 6a (Optional) Click *Add > Upload RPM* to open the RPM File Upload dialog box, then fill in the fields:



Target platform: Select the desired platform from the *Target platform* drop-down list.

The target platform is the platform of the devices that the package will be installed on. ZENworks Linux Management does not auto-detect the target platform by examining the RPM packages because RPM packages are not limited to working on only one platform; RPM packages can be created to work on multiple platforms. For this reason, the administrator must select the platform of the target devices.

NOTE: Bundles can be installed on any platform; bundles are not platform-specific. The packages contained in bundles are platform-specific and can be installed only on devices supporting the specified platform.

You can, however, create a bundle containing several packages that apply to various Linux platforms. When the bundle is assigned to a group of devices or to a folder that contains devices running on different platforms, each managed device gets the appropriate packages installed.

For example, you could create a bundle containing two packages: PackageA and PackageB. PackageA applies to suse-93-i586, rhel-3es-i386, and sles-9-i586. PackageB applies to rhel-3es-i386 only. If you assign the bundle to a folder containing three devices, with each device running one of these platforms, the bundle will be installed on all three devices; however, PackageA will be installed on all three devices and PackageB will be installed only on the device running rhel-3es-i386.

For this reason, the ZENworks Control Center might indicate that a bundle is effective for a device even if one or several packages contained in the bundle was not installed.

If you want a bundle to be platform-specific, you must use a script and have the script verify the target platform before deploying and installing the bundle.

Install type: Use the Install type drop-down list to choose from the following installation options:

- ♦ **Auto-detect:** Automatically detects whether the bundle is already installed on assigned devices and either installs the bundle or updates an existing bundle, if necessary. Basically, the *Auto-detect* option determines whether the *Update* or the *Install* option functionality (explained below) is best, and then performs that operation. Any kernel packages are installed using the *Install* option functionality; other packages are installed using the *Update* option functionality. This is the default option and should be used in most situations.
- ♦ **Update:** Updates the packages on assigned devices if the packages in the bundle are newer than what is installed on the devices. If the packages are not installed on the assigned devices, ZENworks Linux Management installs them. With the *Update* option, you don't need to worry whether a package is already installed because the package is either updated (if needed) or installed on the device. Parallel installation of a package is not possible with the *Update* option.
- ♦ **Install:** Installs the bundle on all assigned devices. If previous versions of the packages exist on the devices, ZENworks Linux Management does not update the existing packages. As a result, packages can be installed multiple times (parallel installations), which might cause overlap issues. This option is rarely used; you should use the default option, *Auto-detect*, under most circumstances. You should use this option almost exclusively to install kernel packages.

Freshen (upgrade only if installed): Use this option to transact a package only if a previous version of the package is already installed on the device. You can use the *Freshen* option in conjunction with the *Auto-detect*, *Update*, or *Install* options.

RPM file to upload: Browse to and select the RPM packages that you want to add to the bundle. The RPM packages must be located on the local device on which you are running the ZENworks Control Center. Click *OK* to upload the packages to the ZENworks Linux Management server. The package repository is the `/var/opt/novell/zenworks/pkg-repo` directory on the ZENworks Server.

- 6b** (Optional) Click *Add > Import from repository* to open the Package Import dialog box, then select the packages to import. You can use the Search options on the right side of the Package Import dialog box to locate packages.

6c Select an install type from the drop-down list:

- ♦ **Auto-detect:** Automatically detects whether the bundle is already installed on assigned devices and either installs the bundle or updates an existing bundle, if necessary. Basically, the *Auto-detect* option determines whether the *Update* or the *Install* option functionality (explained below) is best, and then performs that operation. Any kernel packages are installed using the *Install* option functionality; other packages are installed using the *Update* option functionality. This is the default option and should be used in most situations.
- ♦ **Update:** Updates the packages on assigned devices if the packages in the bundle are newer than what is installed on the devices. If the packages are not installed on the assigned devices, ZENworks Linux Management installs them. With the *Update* option, you don't need to worry whether a package is already installed because the package is either updated (if needed) or installed on the device. Parallel installation of a package is not possible with the *Update* option.
- ♦ **Install:** Installs the bundle on all assigned devices. If previous versions of the packages exist on the devices, ZENworks Linux Management does not update the existing packages. As a result, packages can be installed multiple times (parallel installations), which might cause overlap issues. This option is rarely used; you should use the default option, *Auto-detect*, under most circumstances. You should use this option almost exclusively to install kernel packages.

6d (Optional) Select the *Freshen* option.

The *Freshen* option transacts a package only if a previous version of the package is already installed on the device. You can use the *Freshen* option in conjunction with the *Auto-Detect*, *Update*, or *Install* options.

7 Click *Next* to display the Scriptable Actions page.

The Scriptable Actions page lets you configure the script engine that you want to use and the scripts you want to execute.

New Delete		
<input type="checkbox"/>	Scriptable Action	Executable Type Summary
No items selected, click add to select items		

As part of the process of distributing a bundle, ZENworks Linux Management can launch scriptable actions that will be executed before and after the bundle is distributed, installed, and uninstalled. For example, you can get data files from a Web server before installing an application that uses them, run applications, and so forth.

NOTE: You can configure multiple scripts for each bundle. Repeat the configuration process as many times as desired, choosing different options from the *Scriptable Action* and *Executable Type* drop-down lists, explained below.

8 Click *New* to display the New Scriptable Action dialog box.

The dialog box titled "New Scriptable Action" contains the following fields and options:

- Scriptable Action:** A dropdown menu with "Pre-Distribution" selected.
- Executable type:** A dropdown menu with "Script" selected.
- Maximum waiting time:** Three radio button options: "Do not wait", "Wait till the program completes the execution" (which is selected), and "Wait for" followed by a text input field and the unit "sec".
- Script to run:** A dropdown menu with "Specify a file" selected.
- Script file name: *** A text input field with the example "(e.g. /usr/local/xyz.pl)".
- Script parameters:** A text input field with the example "(e.g. abc efg)".
- Script engine: *** A text input field with the example "(e.g. /usr/local/bin/perl)".
- Script engine parameters:** A text input field with the example "(e.g. -c abc -s efg)".

At the bottom right of the dialog are "OK" and "Cancel" buttons.

9 Fill in the fields:

9a Scriptable Action: Select one of the following actions:

- ♦ **Pre-distribution/post-distribution:** Lets you perform tasks that must be done before or after a bundle is deployed to assigned devices. Deploying a bundle means that the packages or files inside the bundle are downloaded from the ZENworks server to the assigned devices. The packages and files are not yet available for use.
- ♦ **Pre-installation/post-installation:** Lets you perform tasks that must be done before or after a bundle is installed. Installing a bundle means that the software packages and files are installed to assigned devices and available for use.
- ♦ **Pre-uninstallation/post-installation:** Lets you perform tasks that must be done before a bundle is uninstalled. Uninstalling a bundle means that the software packages and files are uninstalled on assigned devices and no longer available for use.

9b Executable type: Select one of the following actions:

- ♦ **Script:** Specify a shell script that executes on assigned devices.
- ♦ **Binary:** Specify an executable program that runs on assigned devices.
- ♦ **Java:** Specify a Java executable class that launches on assigned devices.

9c Maximum waiting time: Select one of the following options:

- ♦ **Do not wait:** Specify that the ZENworks Management Daemon (ZMD) does not block while the script completes.

- ♦ **Wait until the program completes the execution:** Specify that ZMD blocks until the script completes.
- ♦ **Wait for _ sec:** Specify that ZMD blocks until the script completes and the specified number of seconds expires.

9d (Conditional) If you chose *Script* in **Step 9b**, fill in the fields:

- ♦ **Script to run:** Choose an option from the drop-down list:
 - ♦ **Specify a file:** Lets you specify a file that is already on the device on which you are running the ZENworks Control Center. If you choose this option, fill in the remaining fields in the dialog box, as described below.
 - ♦ **Define your own script:** Lets you type a script in the ZENworks Control Center. If you choose this option, a text box displays where you type your script. This script is delivered to the assigned devices as part of the bundle and is executed in the standard device shell environment. With this option, there are no additional options to configure.
- ♦ **Script filename:** (Required) Specify the path to the script file on the target device, for example, `/usr/local/xyz.pl`.
- ♦ **Script parameters:** Specify any additional parameters you want to place on the command line after the script filename is specified. This results in parameters being passed to your executable script.
- ♦ **Script engine:** (Required) Specify the interpreter that launches to run your script, for example, `/usr/local/bin/perl`.
- ♦ **Script engine parameters:** Specify any parameters you want included on the command line when the script engine launches.

9e (Conditional) If you chose *Binary* in **Step 9b**, fill in the fields:

- ♦ **Executable filename:** (Required) Specify the path to the executable file. This file must already exist on the device on which you are running the ZENworks Control Center.
- ♦ **Executable file parameters:** Specify any additional parameters you want to place on the command line when the executable file launches.

9f (Conditional) If you chose *Java* in **Step 9b**, fill in the fields:

- ♦ **Java program name:** (Required) Type the class path to the class file you want to launch, for example, `com.novell.TestProg`.
- ♦ **Program parameters:** Specify any additional parameters to pass to the Java class at execution time.
- ♦ **Java Runtime Executable (JRE):** (Required) Specify the path to the JRE* that launches the class, for example, `/usr/local/JRE/bin/java`. The JRE must be already installed on the assigned device.
- ♦ **JRE parameters:** Specify any parameters you want to pass to the JRE system, for example, `-cp/usr/lib/tools.jar`.

10 Click *Next* to display the Summary page, then review the information on the Summary page, making any changes to the bundle settings by using the *Back* button as necessary.

Depending on your needs, you can create the bundle now or you can configure additional options for this bundle.

- 11** Click *Finish* to create the bundle as configured per settings on the Summary page. If you click *Finish*, the bundle is created but it does not have devices assigned, a schedule, and so forth. At some point in the future, you need to configure additional options for the bundle by continuing with [Section 18.4, “Assigning Bundles,” on page 201](#).

or

Click *Next* to display the Bundle Assignment page to perform the following tasks:

- ◆ Specify assignments for this bundle
- ◆ Specify special flags, such as flags to specify to remove conflicting packages or trying a dry run to test a bundle's deployment
- ◆ Specify the deployment schedule for this bundle
- ◆ Specify the installation schedule for this bundle
- ◆ Specify groups for this bundle

Create New Bundle Bundle_1 ?

Step 7: Bundle Assignments

Specify the assignments for this bundle:

Add	Remove	Name	In Folder
No items selected, click add to select items			

<< Back Next >> Cancel

- 12** Assign the bundle to the devices that you want to distribute the bundle to.

- 12a** Click *Add* to browse for and select the appropriate Server or Workstation objects.

You can also select Folder or Group objects.

- 12b** Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a bundle to a Folder or Group object is the preferred method of assigning the bundle. Assigning the bundle to a large number of objects (for example, more than 250) might cause increased server utilization.

- 12c** Click *OK*.

13 Click *Next* to display the Special Flags page.

Create New Bundle bundle_1 ?

Step 7: Special Flags

Specify whether conflicting packages should be overwritten. Selecting Dry Run pretends to install as a test to see if there would be any issues. Check the log file for results. Selecting "Deploy Separately" will allow you to set a schedule for deploying at a more convenient time than during installation or updating (this will cause a second schedule page to be shown)

Remove conflicting packages
 Attempt a dry run
 Deploy separately from install (causes a second schedule page to be shown)

<< Back Next >> Cancel

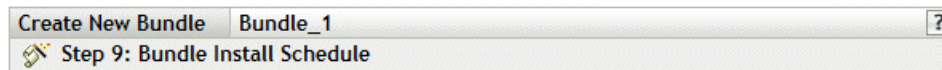
14 (Optional) Specify the following options:

- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages and files are uninstalled from devices before installing new packages and files. By default, this option is selected, so conflicting packages and files (previous versions of the same package, for example) are uninstalled before the current package or file is installed. If this option is not selected, packages and files are not installed if a conflict is detected.
- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the RPM bundle or files can be successfully deployed. If there are any issues that could prevent the RPM bundle or file bundle from being deployed, you can look at the log file to troubleshoot the bundle-creation process. The log file is located in /var/opt/novell/logs/zenworks.
A successful dry run ensures that the bundle can be successfully deployed or installed on assigned devices (packages are available, dependencies are met, etc.).
- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the installation schedule. If you select this box, subsequent steps let you set up an installation schedule and a deployment schedule. If you do not select this check box, the packages are deployed and installed on assigned devices according to the installation schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and install packages inside bundles at different times. You can, depending on your needs, schedule deployment and installation at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The packages and files are not yet installed and available for use. The installation schedule determines when the packages and files are installed on assigned devices so the packages will be available for use.

15 Click *Next* to display the Bundle Install Schedule page.



Select the schedule to apply to the bundle assignments:

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

16 Select a bundle-installment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

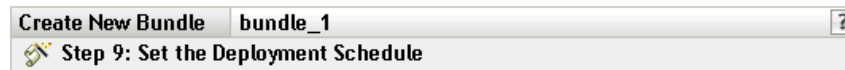
The settings you configure on this page determine when the bundle is installed on assigned devices.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

17 Click *Next*.

- 18 (Conditional) If you chose *Deploy separately from install* in [Step 14](#), select a bundle deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- 19 Select a bundle-deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle is deployed to assigned devices.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The software packages and files are not yet installed and available for use. The installation schedule determines when the software packages and files are installed to assigned devices so they are available for use.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

- 20 Click *Next* to display the Bundle Groups page.

Create New Bundle bunde_1 ?

Step 11: Bundle Groups

Specify the groups for this bundle:

Add	Remove	
<input type="checkbox"/>		Name
		In Folder

No items selected, click add to select items

<< Back Next >> Cancel

- 21 (Optional) Click *Add* to open the Select Groups dialog box, then click the underlined links in the Name column to select the desired bundle groups and display their names in the Selected list box.

Using bundle groups eases administration efforts by letting you group several bundles so you can use common assignments, schedules, and so forth, rather than configuring these settings for each bundle you create.

- 22 Click *Next* to display the Summary page.
- 23 Review the information on the Summary page, making any changes to the bundle settings by using the *Back* button as necessary. Click *Finish* to create the bundle as configured per settings on the Summary page.
- 24 Click *OK*.

18.3 Creating File Bundles

- 1 In the ZENworks Control Center, click the *Bundles* tab.
- 2 In the Bundle list, click *New*, then click *Bundle* to display the Select Bundle Type page.

Create New Bundle ?

Step 1: Select Bundle type

Select the type of Bundle you wish to create from the list of options.

New Bundle Type:

RPM Package Bundle

Preboot Bundle

File Bundle

<< Back Next >> Cancel

- 3 Select *File bundle*, then click *Next* to display the Name and Description page.

For more information about the other two bundle types, see [Section 18.2, “Creating RPM Bundles,”](#) on page 180 and [Part VI, “Preboot Services,”](#) on page 267.

Create New Bundle ?

Step 2: Name and Description

Enter a name, display name, location, and description for this new Bundle.

Name:

Display Name:

Folder:

Description:

<< Back Next >> Cancel

4 Fill in the fields:

- ♦ **Name:** (Required) Provide a unique name for the file bundle. The name you provide displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management.
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,”](#) on page 475.
- ♦ **Display name:** Provide a name that displays for users when they update software. The display name can be the same name that you provided in the *Name* field; however, you can choose to make the name more intuitive for users.
- ♦ **Folder:** Type the name or browse to the folder that this bundle will be created in. Folders display in the ZENworks Control Center. The default folder is `/Bundles`.
- ♦ **Description:** Provide a short description of the bundle's contents. This description displays in the ZENworks Control Center interface and in the ZENworks Linux Management Updater applet, which is the user interface for updating software.

- 5 Click *Next* to display the Files page to add the files to include in this bundle.

Create New Bundle bundle_1 ?

Step 3: Files

Add the files that will be included in this Bundle.

Files

Add Remove

<input type="checkbox"/>	File Name	Size	Target Platforms	Destination	Permissions	Unpack
No items available.						

<< Back Next >> Cancel

- 6 Add the files to include in the bundle using the *Upload* and the *Import from bundle* options.

The files that you upload to a bundle must already exist on the local device on which you are running the ZENworks Control Center. You can use either the *Upload* option or the *Import from bundle* option, or you can use both options, depending on your needs.

After you upload or import files into the list, you can remove a selected package from the list by using the *Remove* option.

- 6a (Optional) Click *Add > Upload* to open the File Upload dialog box, then fill in the fields:

File Upload

Choose the target platforms, etc... Then click the browse button to find the file to upload.

Destination

Permissions 644

Unpack

Target Platforms sles-8-i386

File to Upload:

Browse...

OK Cancel

Destination: Specify the full path of the destination where the files will be deployed on the assigned devices.

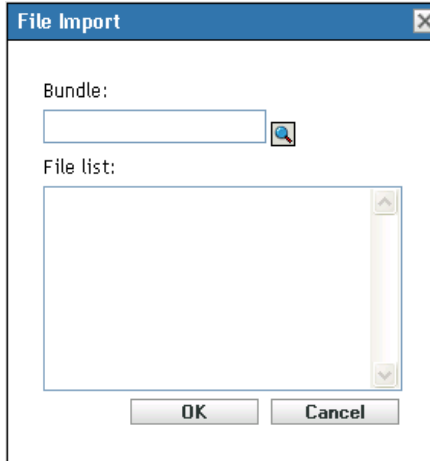
Permissions: Specify the UNIX file permissions to be applied to the files after deployment. A reasonable standard for file permissions is 644. This option is not applicable for compressed files.

Unpack: Select *Unpack* to indicate that the files are compressed and should be decompressed and extracted on the assigned devices. If you select *Unpack*, the *Permissions* option is not applicable.

Target platform: Select the desired platform from the *Target platform* drop-down list.

File to upload: Browse to and select the files that you want to add to the bundle. The files must be located on the local device on which you are running the ZENworks Control Center. Click *OK* to upload the files to the ZENworks Linux Management server.

- 6b** (Optional) Click *Add > Import from bundle* to open the File Import dialog box, fill in the fields, then click *OK*.



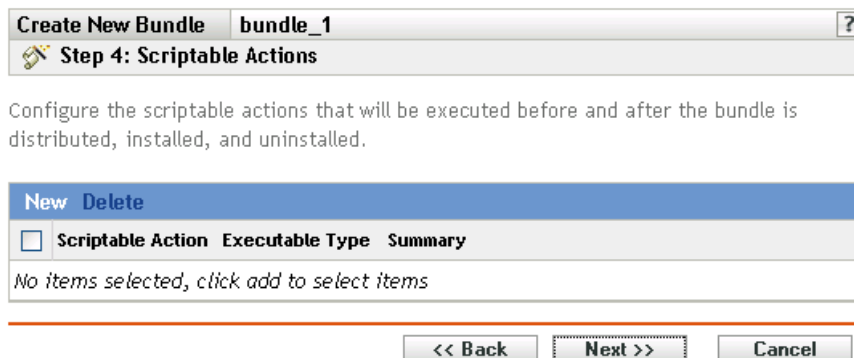
The ZENworks Server contains all of the files that are included in bundles defined within your Management Zone. The package repository is the `/var/opt/novell/zenworks/pkg-repo` directory on the ZENworks Server. When you add a file or RPM package to a bundle, the file or package is automatically uploaded to the package repository.

Bundle: Browse to and select the bundle you want to import packages from.

Files: Select the files to import.

- 7** Click *Next* to display the Scriptable Actions page.

The Scriptable Actions page lets you configure the script engine that you want to use and the scripts you want to execute.



As part of the process of distributing a bundle, ZENworks Linux Management can launch scriptable actions that will be executed before and after the bundle is distributed, installed, and uninstalled. For example, you can get data files from a Web server before installing an application that uses them, run applications, and so forth.

NOTE: You can configure multiple scripts for each bundle. Repeat the configuration process as many times as desired, choosing different options from the Scriptable Action and Executable Type drop-down lists, explained below.

- 8 Click New to display the New Scriptable Action dialog box.

The screenshot shows the 'New Scriptable Action' dialog box with the following configuration:

- Scriptable Action: Pre-Distribution
- Executable type: Script
- Maximum waiting time: Wait till the program completes the execution
- Script to run: Specify a file
- Script file name: * (e.g. /usr/local/xyz.pl)
- Script parameters: (e.g. abc efg)
- Script engine: * (e.g. /usr/local/bin/perl)
- Script engine parameters: (e.g. -c abc -s efg)

- 9 Fill in the fields:

9a Scriptable Action: Select one of the following actions:

- ♦ **Pre-distribution/post-distribution:** Lets you perform tasks that must be done before or after a bundle is deployed to assigned devices. Deploying a bundle means that the packages or files inside the bundle are downloaded from the ZENworks server to the assigned devices. The packages and files are not yet available for use.
- ♦ **Pre-installation/post-installation:** Lets you perform tasks that must be done before or after a bundle is installed. Installing a bundle means that the software packages and files are installed to assigned devices and available for use.
- ♦ **Pre-uninstallation/post-installation:** Lets you perform tasks that must be done before a bundle is uninstalled. Uninstalling a bundle means that the software packages and files are uninstalled on assigned devices and no longer available for use.

9b Executable type: Select one of the following actions:

- ♦ **Script:** Specify a shell script that executes on assigned devices.
- ♦ **Binary:** Specify an executable program that runs on assigned devices.

- ♦ **Java:** Specify a Java executable class that launches on assigned devices.

9c Maximum waiting time: Select one of the following options:

- ♦ **Do not wait:** Specify that the ZENworks Management Daemon (ZMD) does not block while the script completes.
- ♦ **Wait until the program completes the execution:** Specify that ZMD blocks until the script completes.
- ♦ **Wait for _ sec:** Specify that ZMD blocks until the script completes and the specified number of seconds expires.

9d (Conditional) If you chose *Script* in **Step 9b**, fill in the fields:

- ♦ **Script to run:** Choose an option from the drop-down list:
 - ♦ **Specify a file:** Lets you specify a file that is already on the device on which you are running the ZENworks Control Center. If you choose this option, fill in the remaining fields on the dialog box, as described below.
 - ♦ **Define your own script:** Lets you type a script in the ZENworks Control Center. If you choose this option, a text box displays where you type your script. This script is delivered to the assigned devices as part of the bundle and is executed in the standard device shell environment. With this option, there are no additional options to configure.
- ♦ **Script filename:** (Required) Specify the path to the script file on the target device, for example, `/usr/local/xyz.pl`.
- ♦ **Script parameters:** Specify any additional parameters you want to place on the command line after the script filename is specified. This results in parameters being passed to your executable script.
- ♦ **Script engine:** (Required) Specify the interpreter that launches to run your script, for example, `/usr/local/bin/perl`.
- ♦ **Script engine parameters:** Specify any parameters you want included on the command line when the script engine launches.

9e (Conditional) If you chose *Binary* in **Step 9b**, fill in the fields:

- ♦ **Executable filename:** (Required) Specify the path to the executable file. This file must already exist on the device on which you are running the ZENworks Control Center.
- ♦ **Executable file parameters:** Specify any additional parameters you want to place on the command line when the executable file launches.

9f (Conditional) If you chose *Java* in **Step 9b**, fill in the fields:

- ♦ **Java program name:** (Required) Type the class path to the class file you want to launch, for example, `com.novell.TestProg`.
- ♦ **Program parameters:** Specify any additional parameters to pass to the Java class at execution time.
- ♦ **Java Runtime Executable (JRE):** (Required) Specify the path to the JRE that launches the class, for example, `/usr/local/JRE/bin/java`. The JRE must be already installed on the assigned device.
- ♦ **JRE parameters:** Specify any parameters you want to pass to the JRE system, for example, `-cp/usr/lib/tools.jar`.

- 10** Click *Next* to display the Summary page, then review the information on the Summary page, making any changes to the bundle settings by using the *Back* button as necessary.

Depending on your needs, you can create the bundle now or you can configure additional options for this bundle.

- 11** Click *Finish* to create the bundle as configured per settings on the Summary page. If you click *Finish*, the bundle is created but it does not have devices assigned, a schedule, and so forth. At some point in the future, you need to configure additional options for the bundle by continuing with [Section 18.4, “Assigning Bundles,” on page 201](#).

or

Click *Next* to display the Bundle Assignment page to perform the following tasks:

- ◆ Specify assignments for this bundle
- ◆ Specify special flags, such as flags to specify to remove conflicting packages or trying a dry run to test a bundle's deployment
- ◆ Specify the deployment schedule for this bundle
- ◆ Specify the installation schedule for this bundle
- ◆ Specify groups for this bundle

Specify the assignments for this bundle:

Add	Remove	Name	In Folder
No items selected, click add to select items			

<< Back Next >> Cancel

- 12** Assign the bundle to the devices that you want to distribute the bundle to.

- 12a** Click *Add* to browse for and select the appropriate Server or Workstation objects.

You can also select Folder or Group objects.

- 12b** Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a bundle to a Folder or Group object is the preferred method of assigning the bundle. Assigning the bundle to a large number of objects (for example, more than 250) might cause increased server utilization.

- 12c** Click *OK*.

13 Click *Next* to display the Special Flags page.

Create New Bundle bundle_1 ?

Step 7: Special Flags

Specify whether conflicting packages should be overwritten. Selecting Dry Run pretends to install as a test to see if there would be any issues. Check the log file for results. Selecting "Deploy Separately" will allow you to set a schedule for deploying at a more convenient time than during installation or updating (this will cause a second schedule page to be shown)

Remove conflicting packages
 Attempt a dry run
 Deploy separately from install (causes a second schedule page to be shown)

<< Back Next >> Cancel

14 (Optional) Specify the following options:

- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages and files are uninstalled from devices before installing new packages and files. By default, this option is selected, so conflicting packages and files (previous versions of the same package, for example) are uninstalled before the current package or file is installed. If this option is not selected, packages and files are not installed if a conflict is detected.
- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the RPM bundle or files can be successfully deployed. If there are any issues that could prevent the RPM bundle or file bundle from being deployed, you can look at the log file to troubleshoot the bundle-creation process. The log file is located in /var/opt/novell/logs/zenworks.

A successful dry run ensures that the bundle can be successfully deployed or installed on assigned devices (packages are available, dependencies are met, etc.).
- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the installation schedule. If you select this box, subsequent steps let you set up an installation schedule and a deployment schedule. If you do not select this check box, the packages and files are deployed and installed on assigned devices according to the installation schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and install packages and files inside bundles at different times. You can, depending on your needs, schedule deployment and installation at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The packages and files are not yet installed and available for use. The installation schedule determines when the packages and files are installed on assigned devices so the packages will be available for use.

15 Click *Next* to display the Bundle Install Schedule page.



Select the schedule to apply to the bundle assignments:

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

16 Select a bundle-installment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

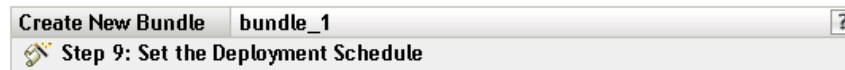
The settings you configure on this page determine when the bundle is installed on assigned devices.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

17 Click *Next*.

- 18 (Conditional) If you chose *Deploy separately from install* in **Step 14**, select a bundle deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- 19 Select a bundle-deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle is deployed to assigned devices.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The software packages and files are not yet installed and available for use. The installation schedule determines when the software packages and files are installed to assigned devices so they are available for use.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

20 Click *Next* to display the Bundle Groups page.

Create New Bundle bunde_1 ?

Step 11: Bundle Groups

Specify the groups for this bundle:

Add	Remove	Name	In Folder
No items selected, click add to select items			

<< Back Next >> Cancel

21 (Optional) Click *Add* to open the Select Groups dialog box, then click the underlined links in the *Name* column to select the desired bundle groups and display their names in the Selected list box.

Using bundle groups eases administration efforts by letting you group several bundles so you can use common assignments, schedules, and so forth, rather than configuring these settings for each bundle you create.

22 Click *Next* to display the Summary page.

23 Review the information on the Summary page, making any changes to the bundle settings by using the *Back* button as necessary. Click *Finish* to create the bundle as configured per settings on the Summary page.

24 Click *OK*.

18.4 Assigning Bundles

When you create RPM bundles, file bundles, or bundle groups, you have the choice of assigning the object as part of the creation process or you can create the object without assigning it.

If you created the object without assigning it, the object was created without assigning devices to it, specifying deployment and installation schedules, setting special flags, and so forth. Before the

object can be deployed and installed on assigned devices, you must complete the following steps. If you assigned the object during its creation, you have already performed the following procedure.

- 1 In the ZENworks Control Center, click the *Bundles* tab, select the desired bundle or bundle group in the *Bundles* list by clicking the box next to its name, click *Action*, then click *Assign Bundle* to display the Devices to be Assigned page.

Assign Bundle ?

Step 1: Devices to be Assigned

Select the devices to be assigned to the previously selected bundles.

Add	Remove	Name	In Folder
No items selected, click add to select items			

<< Back Next >> Cancel

- 2 Assign the bundle or bundle group to the devices that you want to distribute the bundle or bundle group to.
 - 2a Click *Add* to browse for and select the appropriate Server or Workstation objects. You can also select Folder or Group objects.
 - 2b Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a bundle to a Folder or Group object is the preferred method of assigning the bundle. Assigning the bundle to a large number of objects (for example, more than 250) might cause increased server utilization.
 - 2c Click *OK*.
- 3 Click *Next* to display the Special Flags page.

Create New Bundle bundle_1 ?

Step 7: Special Flags

Specify whether conflicting packages should be overwritten. Selecting Dry Run pretends to install as a test to see if there would be any issues. Check the log file for results. Selecting "Deploy Separately" will allow you to set a schedule for deploying at a more convenient time than during installation or updating (this will cause a second schedule page to be shown)

Remove conflicting packages
 Attempt a dry run
 Deploy separately from install (causes a second schedule page to be shown)

<< Back Next >> Cancel

- 4 (Optional) Specify the following options:
 - ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages and files are uninstalled from devices before installing new packages and files. By default, this

option is selected, so conflicting packages and files (previous versions of the same package, for example) are uninstalled before the current package or file is installed. If this option is not selected, packages and files are not installed if a conflict is detected.

- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the RPM bundle or files can be successfully deployed. If there are any issues that could prevent the RPM bundle or file bundle from being deployed, you can look at the log file to troubleshoot the bundle-creation process. The log file is located in `/var/opt/novell/logs/zenworks`.

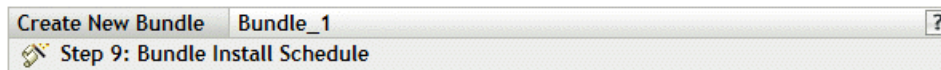
A successful dry run ensures that the bundle can be successfully deployed or installed on assigned devices (packages are available, dependencies are met, etc.).

- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the installation schedule. If you select this box, subsequent steps let you set up an installation schedule and a deployment schedule. If you do not select this check box, the packages and files are deployed and installed on assigned devices according to the installation schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and install packages and files inside bundles at different times. You can, depending on your needs, schedule deployment and installation at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The packages and files are not yet installed and available for use. The installation schedule determines when the packages and files are installed on assigned devices so the packages will be available for use.

- 5 Click *Next* to display the Set the Install Schedule page.



Select the schedule to apply to the bundle assignments:

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- 6 Select a installment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle or bundle group is installed on assigned devices.

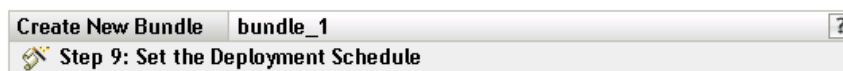
The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.

Schedule Type	Description
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

7 Click *Next*.

8 (Conditional) If you chose *Deploy separately from install* in [Step 4](#), select a deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

9 Select a deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle or bundle group is deployed to assigned devices.

The deployment schedule determines when the packages and files inside the bundle or bundle group are downloaded from the server to the assigned devices. The software packages and files are not yet installed and available for use. The installation schedule determines when the software packages and files are installed to assigned devices so they are available for use.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
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Schedule Type	Description
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

- 10** (Conditional) If you are assigning an RPM or file bundle, click *Next* to display the Bundle Groups page.

Create New Bundle bunde_1 ?

Step 11: Bundle Groups

Specify the groups for this bundle:

Add	Remove	Name	In Folder
<input type="checkbox"/>			

No items selected, click add to select items

<< Back Next >> Cancel

- 11** (Optional) Click *Add* to open the Select Groups dialog box, then click the underlined links in the *Name* column to select the desired bundle groups and display their names in the Selected list box.

Using bundle groups eases administration efforts by letting you group several bundles so you can use common assignments, schedules, and so forth, rather than configuring these settings for each bundle you create.

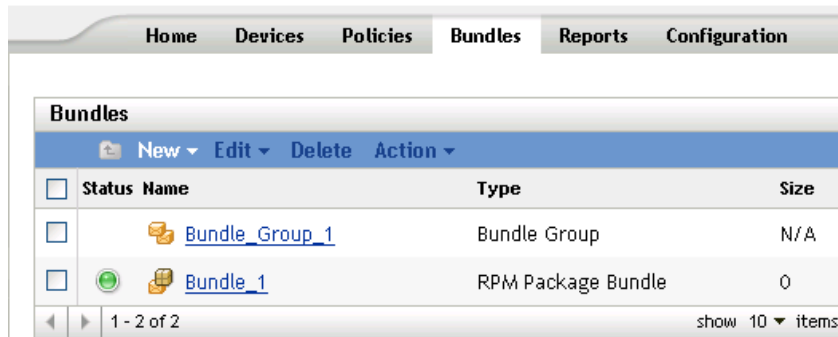
- 12** Click *Next* to display the Summary page.
- 13** Review the information on the Summary page, making any changes to the settings by using the *Back* button as necessary. Click *Finish* to create the bundle as configured per settings on the Summary page.
- 14** Click *OK*.

18.5 Editing Bundles

You can edit an existing bundle to change its description, add or remove assignments, add or remove the bundle from existing catalogs or bundle groups, add or remove packages from the bundle, deploy a different version of the bundle, and more.

To edit a bundle:

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



- 2 Click the bundle's name to display the Summary page, then make the desired configuration changes as explained below.

Use the Summary page to view detailed information about the selected bundle. This page provides general information about the bundle, lists the individual devices that are assigned to the bundle, displays an event log, shows upcoming events, and lists the catalogs or groups that the bundle belongs to.

You can also use this page to edit the bundle group's description, add or remove assignments for the bundle, and change other configuration settings, as described below.

- 2a** Review the information in the *General* section, then make the desired configuration changes (you can edit only the *Description* in this section).

Size: Displays the number of packages that make up the bundle.

Version: Displays the bundle's version number. You can have multiple versions of the same bundle. If you click the *Details* tab on this page and make any configuration changes, the version number increments.

Number of errors not acknowledged: An error is anything that causes the deployment or installation of the bundle to fail. The number displayed indicates the number of unacknowledged errors, which display in the *Event Log* section below.

Number of warnings not acknowledged: A warning is anything that does not cause the deployment or installation of the bundle to fail, but indicates minor problems with the packages or bundle. The number displayed indicates the number of unacknowledged warnings, which display in the Event Log section below.

GUID: Lists the selected object's GUID (global unique identifier), a randomly generated string that provides a unique identifier for the bundle. You cannot edit the object's GUID.

Description: Displays the selected object's description, if one was provided when the bundle was created. The description provides a short description of the bundle's contents. This description displays in the ZENworks Control Center interface and in the user interface.

Click *Edit* to change the bundle group's description, if necessary.

- 2b** Review the information in the *Assignments* section, then make the desired configuration changes.

The *Assignments* section lists the devices that are assigned to the selected bundle. You can click the device name to view information about each device that is directly assigned to the bundle, including its schedule and other options.

You can also use the following options:

Advanced: Click *Advanced* to display the Edit Assignments page, which includes a list of the devices that are assigned to the selected bundle, the folder that contains each device, each device's deployment and installation schedule, and whether the *Allow remove* and *Dry run* options are enabled. You can use the Edit Assignments page to edit certain settings, such as the deployment and installation schedules as well as the *Allow remove* and *Dry run* options.

Add: Click *Add* to launch the Assign Bundle Wizard to select the devices to be assigned to the selected bundle. For more information, see [Section 18.4, "Assigning Bundles," on page 201](#).

Remove: Select the device by clicking the check box next to the appropriate device name, then click *Remove* to remove the device's assignment from this bundle.

2c Review the information in the *Event Log* section, then make the desired changes.

The *Event Log* section lists all unacknowledged errors and warnings.

The *Status* column displays an icon indicating each item's status. Position the mouse pointer over each icon to display a short message describing the status of the item.

To acknowledge an error or warning, click its name in the *Event* column, then click *Acknowledged* in the Message Detail Information dialog box that displays. You can also click *Advanced*, select the check box next to the appropriate event, then click *Acknowledge* (a check mark displays on the right side of the *Date* column to indicate that the item has been acknowledged).

2d Review the information in the *Upcoming Events* section.

The *Upcoming Events* section lists events scheduled for the selected bundle. You can click the calendar icon to display a calendar to view events for the desired date. You can also use the arrows to view events for the previous or next day, week, or month. Click *Refresh* to see upcoming events for the selected bundle.

2e Review the information in the *Catalogs/Groups* sections, then make the desired configuration changes.

The *Catalogs/Groups* sections list the catalogs and groups that contain the selected bundle.

You can also use the following options:

Advanced: Click *Advanced* to display the Edit Catalogs/Groups page to display a list of the catalogs and groups that contain the selected bundle. You can click *Add* to open the Select Groups dialog box to add the selected bundle to existing catalogs or groups. You can also remove a bundle or group by clicking the check box next to the *Name* column, then clicking *Remove* to remove the bundle from that catalog or group.

Add: Click *Add* to open the Select Groups dialog box, then click the blue arrow in the *Select* column to select the desired catalog or group and display its name in the *Selected* list box.

Remove: Select the device by clicking the check box next to the appropriate catalog or bundle name, then click *Remove* to remove the selected bundle from the catalog or group.

3 Click the *Details* tab, then make the desired configuration changes.

Use the Details page to view detailed information about the selected bundle, such as the bundle's version number, name and display name, folder, description, a list of the individual RPM packages that make up the bundle, and the distribution/installation/uninstallation scripts that the bundle will use.

You can also use the options on this page to deploy a different version of the selected bundle to assigned devices, delete a particular version of the bundle, add or remove packages from the bundle, and change the script engine and scripts that you want to use for the bundle.

3a Review the information in the *RPM Package Bundle Settings* section, then make the desired configuration changes.

Version: Displays the selected bundle's version number. You can have multiple versions of the same bundle. If you make any configuration changes on this page (changing the display name or description, adding a package to or removing a package from the bundle, or adding or modifying a script), the version number increments. You can use the *Version* drop-down list to view the details of each version of the selected bundle. Text below the *Version* box informs you which version of the bundle is deployed on assigned devices.

Deploy: Lets you deploy a different version of the currently deployed bundle. Use the *Version* drop-down list to select the desired version number, then click *Deploy*.

Only one version of a bundle can be deployed at any given time. For example, suppose a bundle has multiple versions: 1, 2, and 3. If version 1 is currently deployed, all associated devices have version 1 of the bundle deployed. If you then make version 3 the deployed version, all devices with version 1 deployed and still associated to that bundle will be automatically upgraded to version 3.

Delete: Lets you delete a version of the currently deployed bundle. Use the *Version* drop-down list to select the desired version number, then click *Delete*.

Copy: Lets you copy a version of the selected bundle. Use the *Version* drop-down list to select the desired version number, then click *Copy*. You can then alter the settings of the copied version to create a new version of the bundle.

Name: Displays the unique name of the RPM bundle that was provided when the bundle was created. The name displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management.

Display name: Displays the name that displays for users when they update software. The display name, which can be more intuitive for users, was provided when the bundle was created. You can edit the display name.

Description: Displays a short description of the bundle's contents. This description displays in the ZENworks Control Center interface and in the ZENworks Linux Management Update Client, which is the user interface. You can edit the description.

Packages: The *Packages* section displays the RPM packages contained in the selected bundle. Use the *Packages* section to upload RPM packages to the bundle, to import RPM packages contained in the ZENworks Linux Management package repository, or to remove packages from a bundle. The packages that you upload to a bundle must already exist on the local device on which you are running the ZENworks Control Center, or you can import packages from the package repository.

You can use the following options if you want to add packages to or remove packages from the selected bundle:

- ♦ **Upload RPM:** Click *Add > Upload RPM* to open the RPM File Upload dialog box. For more information, see [Step 6a on page 182](#).

- ♦ **Import from repository:** Click *Add > Import from repository* to open the Package Import dialog box. For more information, see [Step 6b on page 183](#).
- ♦ **Remove:** Click *Remove* to remove the selected package from the bundle, as needed.

NOTE: To view details about each package, click the desired package in the *Name* column.

Scriptable Actions: As part of the process of distributing a bundle, ZENworks Linux Management can launch scriptable actions that will be executed before and after the bundle is distributed, installed, and uninstalled. For example, you can get data files from a Web server before installing an application that uses them, run applications, and so forth.

Each action displays the script engine that was specified when the bundle was created. To create a new action, click *New* to display the Scriptable Action dialog box. For detailed instructions, see [Step 9 on page 185](#).

- 4 Click *Apply* to save any changes you have made.

18.6 Adding Bundles to Catalogs

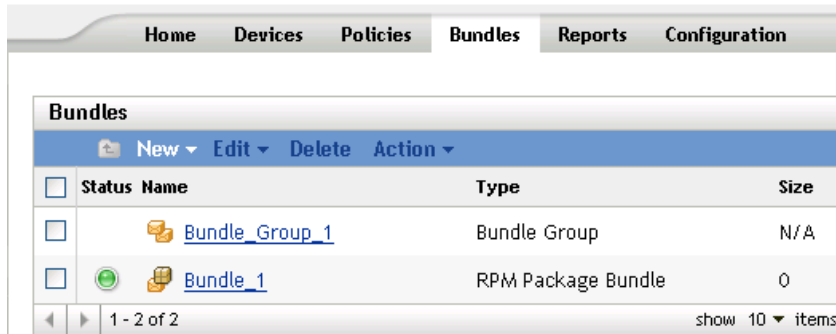
Instructions to add bundles to existing catalogs are included in the [Using Catalogs](#) section. For more information, see [Section 19.4, “Adding Bundles to Catalogs,” on page 239](#).

18.7 Creating Folders

A folder is an organization object that displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management. A folder can contain various objects, including subfolders, Bundle, Bundle Group, and Catalog objects.

To create a folder:

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



- 2 Click *New*, then click *Folder* to display the New Folder dialog box.

The screenshot shows a 'New Folder' dialog box with the following fields and controls:

- Name: ***: An empty text input field.
- Folder: ***: A text input field containing the path `/Bundles`, followed by a browse button (magnifying glass icon).
- Description:**: A large, empty text area for entering a description.
- Footer:** A note stating "Fields marked with a blue asterisk are required." and two buttons: **OK** and **Cancel**.

- 3 Fill in the fields:

- ♦ **Name:** Provide a unique name for your folder. This is a required field.
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,” on page 475.](#)
- ♦ **Folder:** Type the name or browse to the folder that contains this folder in the ZENworks Control Center interface.
- ♦ **Description:** Provide a short description of the folder's contents.

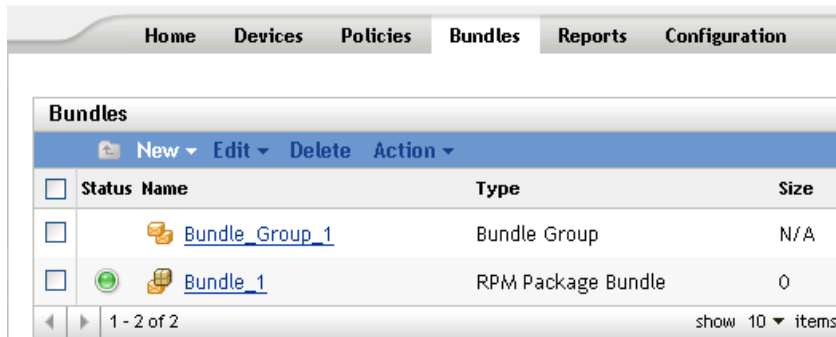
- 4 Click *OK*.

18.8 Creating Bundle Groups

A bundle group lets you group bundles to ease administration and to provide easier assigning and scheduling of the bundles in the bundle group.

To create a bundle group:

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



- 2 Click *New*, then click *Bundle Group* to display the Basic Information page.

The screenshot shows the 'Create New Group' dialog box in the ZENworks Control Center. The dialog has a title bar 'Create New Group' with a help icon. Below the title bar is a sub-header 'Step 1: Basic Information'. There are three main input fields: 'Group Name: *' with a text box, 'Folder: *' with a text box containing '/Bundles' and a browse button, and 'Description:' with a large text area. At the bottom of the dialog, there are three buttons: '<< Back', 'Next >>', and 'Cancel'. Below the dialog, there is a note: 'Fields marked with a blue asterisk are required.'

- 3 Fill in the fields:

- ♦ **Group name:** (Required) Provide a unique name for your bundle group. The name you provide displays in the ZENworks Control Center interface (the administrative tool for ZENworks Linux Management) and in the user interface.
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,” on page 475.](#)
- ♦ **Folder:** (Required) Type the name or browse to the folder that contains this bundle group.
- ♦ **Description:** Provide a short description of the bundle group's contents. This description displays in the ZENworks Control Center interface and in the ZENworks Linux Management Update Client, which is the user interface for updating software.

- 4 Click *Next* to display the Summary page.

Review the information on the Summary page, making any changes to the bundle-group settings by using the *Back* button as necessary.

Depending on your needs, you can create the bundle group now or you can specify members, assignments, and schedules for this bundle group and configure other options.

- 5 Click *Finish* to create the bundle group as configured per settings on the Summary page. If you click *Finish*, the bundle group is created but it does not have members, devices assigned, a schedule, and so forth. At some point in the future, you need to configure additional options for the bundle group by continuing with [Section 18.4, “Assigning Bundles,” on page 201](#).

or

Click *Next* to display the Add Group Members page to perform the following tasks:

- ◆ Specify members for this bundle group
- ◆ Specify assignments for this bundle group
- ◆ Set special flags, such as flags to remove conflicting packages and attempt a dry run of the package installation
- ◆ Specify the schedule to install or deploy the bundles

Create New Group Group_1 ?
Step 3: Add Group Members

Specify the members for this group:

Add Remove	
<input type="checkbox"/> Name	In Folder
No items selected, click add to select items	

<< Back Next >> Cancel

- 6 Specify the bundles to include in this bundle group.
 - 6a Click *Add* to browse for and select the appropriate bundle objects.
 - 6b Click the underlined link in the *Name* column to select the desired bundles and display their names in the *Selected* list box.
 - 6c Click *OK*.
- 7 Click *Next* to display the Add Assignments page.

Create New Group Group_1 ?
Step 4: Add Assignments

Specify the assignments for this group:

Add Remove	
<input type="checkbox"/> Name	In Folder
No items selected, click add to select items	

<< Back Next >> Cancel

8 Assign the bundle group to the devices that you want to distribute the bundle group to.

8a Click *Add* to browse for and select the appropriate device objects.

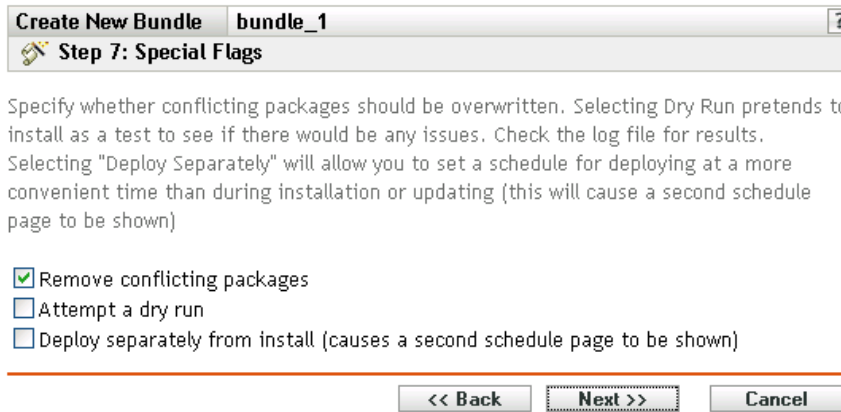
You can also select Folder or Group objects.

8b Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a bundle to a Folder or Group object is the preferred method of assigning the bundle. Assigning the bundle to a large number of objects (for example, more than 250) might cause increased server utilization.

8c Click *OK*.

9 Click *Next* to display the Special Flags page.



10 (Optional) Specify the following options:

- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages and files are uninstalled from devices before installing new packages and files. By default, this option is selected, so conflicting packages and files (previous versions of the same package, for example) are uninstalled before the current package or file is installed. If this option is not selected, packages and files are not installed if a conflict is detected.

- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the RPM bundle or files can be successfully deployed. If there are any issues that could prevent the RPM bundle or file bundle from being deployed, you can look at the log file to troubleshoot the bundle-creation process. The log file is located in /var/opt/novell/logs/zenworks.

A successful dry run ensures that the bundle can be successfully deployed or installed on assigned devices (packages are available, dependencies are met, etc.).

- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the installation schedule. If you select this box, subsequent steps let you set up an installation schedule and a deployment schedule. If you do not select this check box, the packages and files are deployed and installed on assigned devices according to the installation schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and install packages and files inside bundles at different times. You can, depending on your needs, schedule deployment and installation at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The packages and files are not yet installed and available for use. The installation schedule determines when the packages and files are installed on assigned devices so the packages will be available for use.

- Click *Next* to display the Set the Install Schedule page.



Select the schedule to apply to the bundle assignments:

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- Select a bundle-installment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

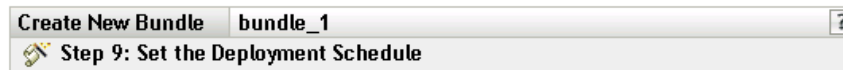
The settings you configure on this page determine when the bundle is installed on assigned devices.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

- Click *Next*.

- 14** (Conditional) If you chose *Deploy separately from install* in **Step 14**, select a bundle deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- 15** Select a bundle-deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle is deployed to assigned devices.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The software packages and files are not yet installed and available for use. The installation schedule determines when the software packages and files are installed to assigned devices so they are available for use.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

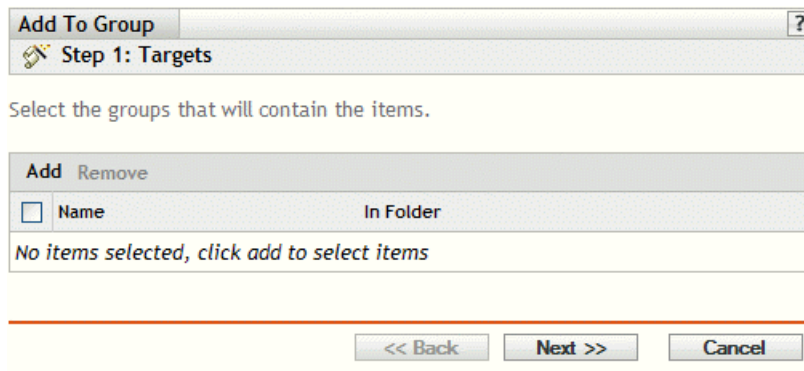
Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

- 16** Click *Next* to display the Summary page, then review the information, making any changes to the bundle settings by using the *Back* button as necessary.
- 17** Click *Finish*.
- 18** Click *OK*.

18.9 Adding Bundles to Existing Groups

Using bundle groups eases administration efforts by letting you group several bundles so you can use common assignments, schedules, and so forth, rather than configuring these settings for each bundle you create.

- 1 In the ZENworks Control Center, click the *Bundles* tab, select the desired bundle in the Bundles list by clicking the box next to its name, click *Action*, then click *Add to Group* to display the Targets page.



- 2 Click *Add* to open the Select Groups dialog box, click the desired groups to add them to the Selected list, then click *OK* to display the selected groups in the list on the Targets page.
- 3 Click *Next* to display the Finish page.
- 4 Review the information on the Finish page, making any changes to the settings by using the *Back* button as necessary, then click *Finish* to add the bundle to the group.

18.10 Uninstalling Bundles from Devices

Use the Uninstall Bundle Wizard to schedule when software contained in a bundle is uninstalled from devices that are no longer assigned to the bundle.

If you remove a bundle's assignments, the previously assigned devices are no longer assigned to the bundle; however, the software in the bundle remains on those devices. Likewise, if you delete a bundle by clicking the *Bundles* tab, checking the box next to a bundle's name, and then clicking *Delete*, the software is not removed from assigned devices.

The Uninstall Bundle Wizard lets you choose whether or not to uninstall the software on those previously assigned devices. If you specify that you want to remove the software, you can specify a schedule to uninstall the software.

NOTE: You can use the Uninstall Bundle Wizard to uninstall only RPM and File bundles. You can remove the assignments from preboot, Dell Update Package (DUP), and patch bundles, but they cannot be uninstalled by using the Uninstall Bundle Wizard.

You can remove bundles from devices using either the *Bundles* tab or the *Devices* tab in the ZENworks Control Center. If you want to remove the software contained in a bundle from one or more devices, you should use the *Bundles* tab. If you want to remove one or more bundles from a specific device, you should use the *Devices* tab.

The following sections contain more information:

- ◆ [Section 18.10.1, “Using the Bundles Page to Remove Bundles from Devices,”](#) on page 217
- ◆ [Section 18.10.2, “Using the Devices Page to Remove Bundles from Devices,”](#) on page 218

18.10.1 Using the Bundles Page to Remove Bundles from Devices

To remove the software contained in a bundle from one or more devices, you should launch the Uninstall Bundle Wizard from the Bundles page.

- 1 From the ZENworks Control Center, click the *Bundles* tab.
- 2 In the *Bundles* list, click the underlined link for the desired bundle to display its Summary page.
- 3 In the *Assignments* section, select the box next to the device's name from which you want to remove the bundle, then click *Remove* to launch the Uninstall Bundle Wizard.

Uninstall Bundle Wizard

Step 1: Schedule Removal

This wizard allows you to schedule when the bundles will be removed from the devices that are no longer assigned to those bundles.

Do you wish to uninstall existing bundle files?

No

Yes

<< Back Next >> Cancel

- 4 Specify a removal option:
 - ◆ **No:** Although the device is removed from the *Assignments* section and the bundle is no longer assigned to the device, the software remains installed on the previously assigned device.
 - ◆ **Yes:** The software is uninstalled from previously assigned devices according to the schedule you specify in the next step of this wizard.
- 5 (Conditional) If you chose Yes in [Step 4](#), click *Next* to display the Schedule page.

Uninstall Bundle Wizard

Step 2: Schedule

Specify the schedule for removing the assignments.

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

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

The settings you configure on this page determine when the assignments are removed from previously assigned devices.

The following schedules are available. Click the link in the left column for more information about each schedule type.

Schedule Type	Description
Date Specific	Select one or more dates on which to remove assignments and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to remove assignments and set other restrictions that might apply.
Event	Select the event that triggers the removal of assignments.
Relative to Refresh	Schedule when the assignments are removed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the assignment removal is repeated and specify a time period when you do not want the assignments removed to help minimize network traffic during that time.

- Click *Next* to display the Finish page, make any changes by using the *Back* button as necessary, then click *Finish* to complete the assignment removal.

18.10.2 Using the Devices Page to Remove Bundles from Devices

- In the ZENworks Control Center, click the *Devices* tab, then click the *Servers* link to display a list of servers or server groups in your ZENworks Linux Management system.

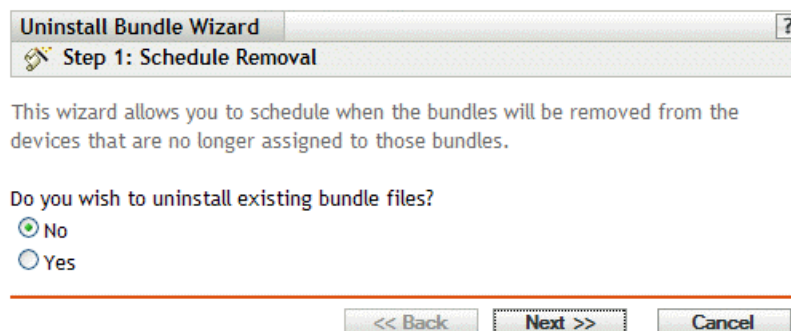
or

In the ZENworks Control Center, click the *Devices* tab, then click the *Workstations* link to display a list of workstations and workstation groups in your ZENworks Linux Management system.

- Click the underlined link for the server, server group, workstation, or workstation group that you want to remove a bundle from.

If you clicked a server or workstation group, skip to [Step 4](#).

- In the *Effective Bundles* section on the Summary page, click *Advanced* to display all bundles assigned to this device.
- Select the box next to the desired bundle, then click *Remove* to launch the Uninstall Bundle Wizard.



5 Specify a removal option:

- ♦ **No:** Although the device is removed from the Assignments section and the bundle is no longer assigned to the device, the software remains installed on previously assigned devices.
- ♦ **Yes:** The software is uninstalled from previously assigned devices according to the schedule you specify in the next step of this wizard.

6 Click *Next* to display the Schedule page.

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

The settings you configure on this page determine when the assignments are removed from previously assigned devices.

The following schedules are available. Click the link in the left column for more information about each schedule type.

Schedule Type	Description
Date Specific	Select one or more dates on which to remove assignments and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to remove assignments and set other restrictions that might apply.
Event	Select the event that triggers the removal of assignments.
Relative to Refresh	Schedule when the assignments are removed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the assignment removal is repeated and specify a time period when you do not want the assignments removed to help minimize network traffic during that time.

8 Click *Next* to display the Finish page, make any changes by using the *Back* button as necessary, then click *Finish* to complete the assignment removal.

18.11 Deleting Bundles, Bundle Groups, and Folders

Before you delete bundles, bundle groups, and folders from the ZENworks Control Center, review the following information before performing the procedure in this section to ensure that you obtain the desired results.

Deleting Bundles: Depending on your needs, you can delete a bundle from your ZENworks Linux Management system, remove a bundle's assignments from devices, or use the Uninstall Bundle Wizard to remove the software from assigned devices.

If you delete a bundle from your ZENworks Linux Management system, the bundle does not display on the Bundles or Devices pages in the ZENworks Control Center; however, the software contained in that bundle remains on the previously assigned devices.

If you remove a bundle's assignments, the previously assigned devices are no longer assigned to the bundle; however, the software in the bundle remains on those devices.

Deleting Bundle Groups: The results of deleting a bundle group is similar to that of deleting a bundle.

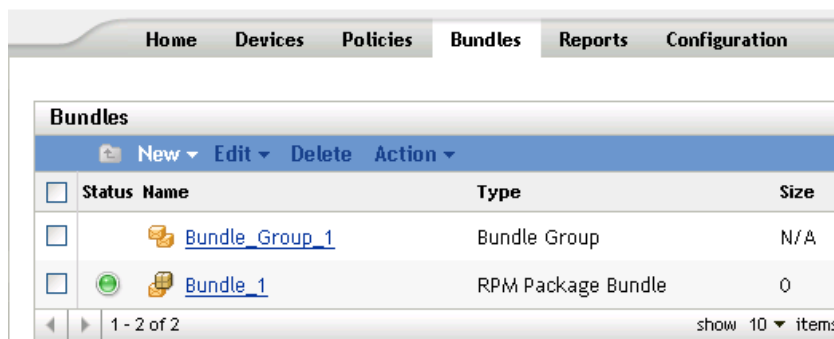
If you delete a bundle group from your ZENworks Linux Management system, the bundle group does not display on the Bundles page in the ZENworks Control Center and the bundle group's assignments are removed. However, the individual bundles contained in the group are not removed from the ZENworks Control Center and still display on the Bundles page. As with bundles, when you delete a bundle group from the ZENworks Control Center, the software contained in that bundle group remains on the previously assigned devices.

Deleting Folders: If you delete a folder that contains bundles from your ZENworks Linux Management system, both the folder and its bundles are removed from the ZENworks Control Center. However, the software contained in those bundles remain on the previously assigned devices.

Using the Uninstall Bundle Wizard: If you use the Uninstall Bundle Wizard, you can choose whether or not to uninstall the software on previously assigned devices. If you specify that you want to remove the software, you can specify a schedule to uninstall the software. For more information, see [Section 18.10, “Uninstalling Bundles from Devices,” on page 216](#).

To delete a bundle, bundle group, or folder:

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



- 2 In the *Bundles* list, select the box next to the desired item's name, then click *Delete*.

If the item you are deleting is a folder, you are prompted whether or not to delete the folder and its contents.

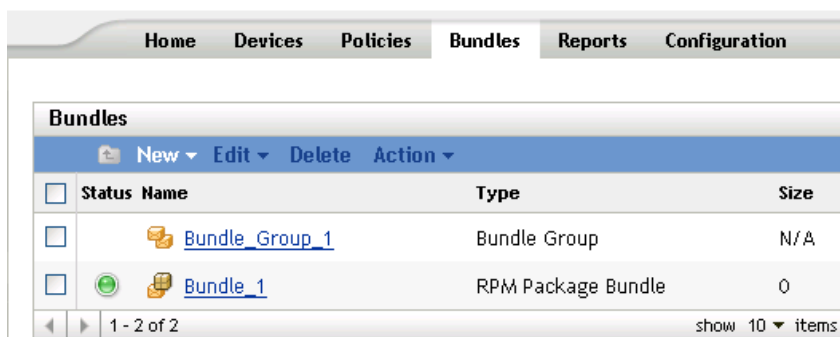
18.12 Renaming, Copying, or Moving Bundles

Use the *Edit* drop-down list on the Bundles page to edit an existing object. To access the *Edit* drop-down list, you must select an object by clicking the check box next to the object's name in the list.

Depending on the type of object you select, you can rename, copy, or move the selected object. For example, if you select a Bundle object, you can rename, copy, and move the bundle. If you select a Bundle Group object, you can rename or move the Bundle Group object, but not copy it. If the option is dimmed, that option is not available for the selected object type.

Some actions cannot be performed on multiple objects. For example, if more than one check box is selected, the *Rename* option is not available from the *Edit* menu.

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



- 2 In the *Bundles* list, select the box next to the bundle's name, click *Edit*, then click an option.

- ♦ **Rename:** Click *Rename*, type a new name for the bundle, then click *OK*.

IMPORTANT: Do not rename patch bundles.

- ♦ **Copy:** Click *Copy*, type a new name for the copy, then click *OK*.

The copy option is useful to create a new bundle that is similar to an existing bundle. You can copy a bundle and then edit the new bundle's settings.

- ♦ **Move:** Click *Move*, choose a destination folder for the selected objects, then click *OK*.

If you rename or move a bundle, its assignments are still in place and ZENworks Linux Management does not redistribute the catalog to devices because of the name or location change.

18.13 Deploying a Different Version of a Bundle

You can have multiple versions of the same bundle, although only one version of a bundle can be deployed at any given time. If you make any configuration changes to an existing bundle (changing the display name or description, adding a package to or removing a package from the bundle, or adding or modifying a script), the version number increments.

Only one version of a bundle can be deployed at any given time. For example, suppose a bundle has multiple versions: 1, 2, and 3. If version 1 is currently deployed, all associated devices have version 1 of the bundle deployed. If you then make version 3 the deployed version, all devices with version 1 deployed and still associated to that bundle will be automatically upgraded to version 3.

For more information about editing bundles, which might cause version numbers to increment, see [Section 18.5, "Editing Bundles," on page 205](#). Note that only changes made on the Details page cause the version number to increment, as described in [Step 3 on page 207](#).

18.14 Using a Remote Execute Policy to Remove Bundles and Packages from Devices

If you remove a bundle's assignments, the previously assigned devices are no longer assigned to the bundle; however, the software in the bundle remains on those devices. Likewise, if you delete a

bundle by clicking the *Bundles* tab, selecting the box next to a bundle's name, then clicking *Delete*, the software is not removed from assigned devices.

To remove the bundles and software packages from devices, you can use the Uninstall Bundle Wizard, as explained in [Section 18.10, “Uninstalling Bundles from Devices,” on page 216](#) or you can configure a Remote Execute policy to run a script and then assign the policy to devices. You can remove a bundle, a package, or a list of packages.

You cannot remove a catalog by using a Remote Execute policy, but you can remove the bundles and packages contained in a catalog.

To configure a Remote Execute policy to remove bundles and packages from devices:

- 1** In the ZENworks Control Center, click the *Policies* tab.
- 2** In the *Policies* list, click *New*, then click *Policy* to display the Create New Policy page.
- 3** In the *Policy Type* list, click *Remote Execute Policy*, then click *Next* to display the Policy Name page.
- 4** Fill in the fields:
 - ♦ **Name:** (Required) Provide a unique name for the policy. The name you provide displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management.
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,” on page 475](#).
 - ♦ **Folder:** (Required) Type the name or browse to the folder that this bundle will be created in. Folders display in the ZENworks Control Center.
 - ♦ **Description:** Provide a short description of the policy. This description displays on the policy's Summary page in the ZENworks Control Center interface.

5 Click *Next*.

Executable Type: Script

Maximum Waiting Time: Do not wait
 Wait till the program completes the execution
 Wait For sec

Script to run: Specify a file

Script file name: *
(e.g. /usr/local/xyz.pl)

Script parameters:
(e.g. abc efg)

Script engine: *
(e.g. /usr/local/bin/perl)

Script engine parameters:
(e.g. -c abc -s efg)

Fields marked with a blue asterisk are required.

<< Back Next >> Cancel

- 6 Select *Script* from the *Executable type* drop-down list.
- 7 Specify the waiting time after starting the script.
- 8 Select *Specify your own script* from the *Script to run* drop-down list.
- 9 Type your script in the script box.

The following table provides example scripts that you can use, depend on your needs:

Sample Script	Description
<code>rug bundle-remove bundle1</code>	Removes <code>bundle1</code> from all devices that you assign the policy to.
<code>rug rm package1</code>	Removes <code>package1</code> from all devices that you assign the policy to.
<code>rug rm package1 package2 package3</code>	Removes <code>package1</code> , <code>package2</code> , and <code>package3</code> from all devices that you assign the policy to. Separate the package name with spaces.

NOTE: If you use `rug rm package_name` to remove a package that is contained in an installed bundle that contains other packages, only the specified package is removed from assigned devices. The other packages in the bundle are not removed.

If a bundle has multiple packages, when one or more package is removed, the bundle is still marked as installed in the ZENworks Control Center. Depending on the bundle's schedule, the server may re-install the package.

- 10 Click *Next* to display the Summary page.
- 11 Click *Finish* to create the policy as configured per settings on the Summary page. If you click *Finish*, the Remote Execute policy is created but it does not have devices assigned or a schedule. At some point in the future, you need to configure additional options for the policy by continuing with [Section 16.4, “Assigning Policies,” on page 154](#).

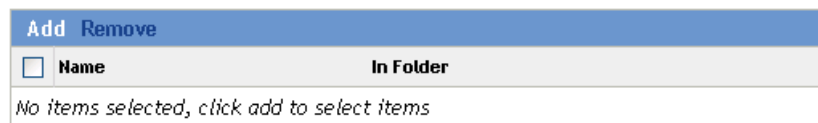
or

Click *Next* to display the Policy Assignments page to perform the following tasks:

- ◆ Specify assignments for this policy
- ◆ Specify the schedule for this policy
- ◆ Specify groups for this policy



Specify the assignments for this policy:



- 12 Assign the policy to the devices.
 - 12a Click *Add* to browse for and select the appropriate Server or Workstation objects.
You can also select Folder or Group objects.
 - 12b Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a policy to a Folder or Group object is the preferred method of assigning the policy. Assigning the policy to a large number of objects (for example, more than 250) might cause increased server utilization.
 - 12c Click *OK*.
- 13 Click *Next* to display the Policy Schedule page, select the schedule to apply to the assignments from the drop-down list, which vary, depending on the schedule type you select.

The settings you configure on this page determine when the policy is assigned to devices.

The following schedules are available. Click the link in the left column for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.

Schedule Type	Description
Date Specific	Select one or more dates on which to assign the policy to devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to assign the policy to devices and set other restrictions that might apply.
Monthly	Select the day of the month on which to assign the policy to devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the policy is assigned, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the policy's assignment is repeated and specify a time period when you do not want the policy assigned to help minimize network traffic during that time.

14 Click *Next* to display the Policy Groups page.



Specify the groups for this policy:



15 (Optional) Click *Add* to open the Select Groups dialog box, then click the underlined links in the *Name* column to select the desired policy groups and display their names in the *Selected* list box.

Using policy groups eases administration efforts by letting you group several policies so you can use common assignments, schedules, and so forth, rather than configuring these settings for each policy you create.

16 Click *Next* to display the Finish page.

17 Review the information on the Finish page, making any changes to the policy settings by using the *Back* button as necessary. Click *Finish* to create the policy as configured per settings on the Finish page.

18.15 Generating Bundle Reports

Reports let you create custom views for your ZENworks environment. Reports can contain details from a large volume of inventory, packaging, and other device information. You can create new reports, edit existing reports, delete reports, or generate one or multiple reports simultaneously. You can also create folders that let you organize and store reports based on your own criteria.

The following bundle reports are provided with ZENworks Linux Management - Dell Edition:

- ◆ **Bundle Reports:** This folder contains the following reports:
 - ◆ Bundle Delivery Failures
 - ◆ Bundle Delivery in the Past 24 Hours
 - ◆ Bundle Delivery Information Per Device
 - ◆ Last Bundle Delivery Per Device
- ◆ **Dell Reports:** This folder contains the following reports:
 - ◆ Devices Not Having Valid Dell Update Package Bundles <Template>
 - ◆ Devices Not Having Valid RPM Package Bundles <Template>
 - ◆ Installed Dell Applications Per All Devices
 - ◆ Installed Dell Applications Per PowerEdge Model
- ◆ **Device Reports:** This folder contains the following reports:
 - ◆ Device Errors in the Past 24 Hours
 - ◆ Device Errors in the Past Week
 - ◆ Devices Disk Usage
 - ◆ Devices Inactive for the Past 90 Days
 - ◆ Devices Registered in the Past 24 Hours
 - ◆ Devices Registered in the Past Week

For more information, see [Part X, “Reports,” on page 455](#).

18.16 Cleaning Orphaned Files from the Package Repository

The *Clean Orphaned Files* option lets you delete orphaned files from the temporary directory of the package repository (`/var/opt/novell/zenworks/pkg-repo/tmp`).

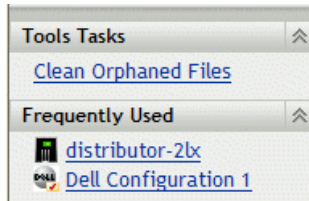
During the bundle creation process, when you use the *Upload RPM* option, the RPM packages are copied to a temporary directory. When you finish creating the bundle by clicking *Finish*, the packages are moved from this temporary directory to the package repository. If, for some reason, you do not complete the process of creating the bundle, those unused packages remain in the temporary directory until you delete them. For example, suppose your Internet connection goes down or you do not complete the bundle-creation process, files are not moved to the package repository and remain as orphans in the temporary directory on the server. To free space on your server, you can delete these orphaned files by using the *Clean Orphaned Files* option.

To clean orphaned files:

- 1 In the ZENworks Control Center, click the *Tools* tab.

- 2 Click *Clean Orphaned Files* in the *Tools Tasks* section in the upper left corner of the *Tools* page.

Figure 18-1 *Clean Orphaned Files link on the Tools page in the ZENworks Control Center*



- 3 Click *Clear*.

Using Novell® ZENworks® Linux Management - Dell Edition, you can install packages using either a catalog or a bundle. A catalog is a collection of RPM bundles or Dell Update Package bundles; bundles included in a catalog are usually considered optional. Packages included in a bundle that is directly assigned is considered mandatory; the packages are installed on all assigned devices (the bundle is directly assigned to devices, the device group, or the device folder). For more information about bundles, see [Chapter 18, “Using RPM and File Bundles,” on page 179](#) or [Chapter 20, “Using Dell Update Package Bundles,” on page 243](#).

The `zlman` utility is the command-line interface to ZENworks Linux Management. If you need to create and configure a large number of bundles or catalogs, or if you want to automate the process using scripts, you can use `zlman`. For more information, see [zlman \(http://www.novell.com/documentation/zenworks7/zlmanref/zlman.html\)](http://www.novell.com/documentation/zenworks7/zlmanref/zlman.html).

The following sections contain additional information:

- ♦ [Section 19.1, “Understanding Catalogs,” on page 229](#)
- ♦ [Section 19.2, “Creating Catalogs,” on page 229](#)
- ♦ [Section 19.3, “Assigning Catalogs,” on page 235](#)
- ♦ [Section 19.4, “Adding Bundles to Catalogs,” on page 239](#)
- ♦ [Section 19.5, “Renaming or Moving Catalogs,” on page 240](#)
- ♦ [Section 19.6, “Deleting Catalogs,” on page 240](#)
- ♦ [Section 19.7, “Creating Folders,” on page 241](#)

19.1 Understanding Catalogs

A catalog is a collection of bundles; bundles included in a catalog are usually considered optional. You can use catalogs to deploy and install optional or dependent packages to assigned devices. If you deploy optional packages to devices using a catalog, users can choose whether to deploy and install the software packages included in the bundles inside the catalog. Users use the ZENworks Linux Management Installer, Updater, or Remover programs to manage the software on managed devices. For more information, see [Section 6.3, “Using the Software Updater, Installer, and Remover from Users’ Managed Devices,” on page 50](#).

You can also use bundles in a catalog to provide dependent packages for a primary package contained in a bundle or in another catalog. For example, suppose you want to include Java Runtime in a catalog and, optionally, hide the catalog from the user interface. If a package contained in a bundle or in another catalog needs Java Runtime (it is listed as a dependency for the primary package), the package containing Java Runtime becomes mandatory and is deployed and installed on all devices that the primary package is deployed and installed on.

19.2 Creating Catalogs

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

2 In the *Bundle* list, click *New*, then click *Catalog* to display the Catalog Name page.

Specify the name, description, and display name for the new catalog:

Catalog Name: *

Display Name: *

Folder: *
/Bundles

Description:

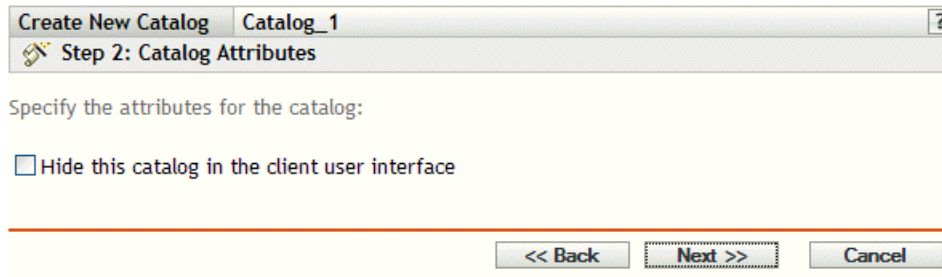
Fields marked with a blue asterisk are required.

<< Back Next >> Cancel

3 Fill in the fields:

- ◆ **Catalog name:** (Required) Provide a unique name for your catalog. The name you provide displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management.
For more information, see [Appendix B, “Naming Conventions in the ZENworks Control Center,” on page 475.](#)
- ◆ **Display name:** (Required) Provide a name that displays for users when they install, update, or remove software. The display name can be the same name that you provided in the *Name* box; however, you can choose to make the name more intuitive for users. In the next step in this wizard, Catalog Attributes, you can specify to hide this catalog from users.
- ◆ **Folder:** (Required) Type or browse to the folder that contains this catalog in the ZENworks Control Center interface.
- ◆ **Description:** Provide a short description of the catalog's contents. This description displays in the ZENworks Control Center interface and in the user interface. In the next step in this wizard, Catalog Attributes, you can specify to hide this catalog in the user interface.

- 4 Click *Next* to display the Catalog Attributes page.



- 5 (Optional) Select the *Hide this catalog in the client user interface* option to hide the catalog from users; the catalog displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management, but is hidden from users.

This option is useful if you have a bundle or catalog containing a primary package that has dependent packages that must already be installed on devices. You can hide the catalog containing these dependent packages from users. When the primary package in a bundle or catalog is deployed and installed, all dependent packages in the hidden catalog are also deployed and installed.

For example, suppose you have an anti-virus application that you want to deploy and install using a catalog. You could make this catalog visible to users. Suppose that you also need to install updated definition files on devices before the primary package in the bundle or catalog can be installed. You could hide the catalog containing the definition files from users. When the primary package in the bundle or in the visible catalog is deployed and installed, the dependent packages in the hidden catalog are also deployed and installed.

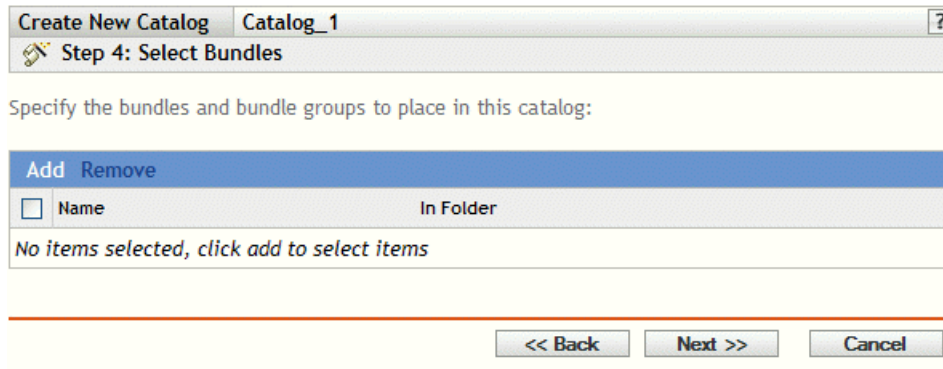
IMPORTANT: If you hide an optional catalog (none of the packages contains dependent packages) from the user interface, the catalog is never deployed and installed. For this reason, you should only hide catalogs that contain dependent packages. When the primary package contained in a bundle or catalog is deployed and installed, the dependent packages contained in the hidden catalog are also deployed and installed.

- 6 Click *Next* to display the Summary page, then review the information on the Summary page, making any changes to the bundle settings by using the *Back* button as necessary.
Depending on your needs, you can create the catalog now or you can configure additional settings for this catalog.
- 7 Click *Finish* to create the Catalog as configured per settings on the Summary page. If you click *Finish*, the catalog is created but it does not contain bundles, have any assignments, a schedule, and so forth. At some time in the future, you need to perform the steps under [Section 19.3, "Assigning Catalogs," on page 235](#).

or

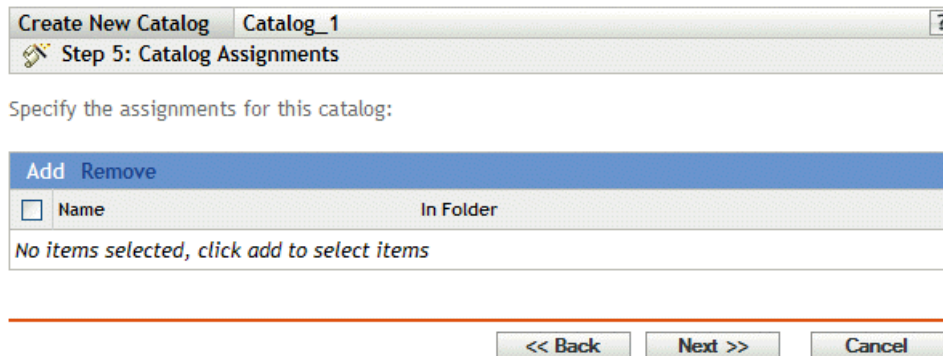
Click *Next* to display the Select Bundles page to perform the following tasks:

- ◆ Specify bundles and bundle groups to place in this catalog
- ◆ Specify the assignments for this catalog
- ◆ Specify special flags, such as flags to specify to remove conflicting packages or trying a dry run to test a bundle's deployment
- ◆ Specify the update and deployment schedules for this bundle



- 8 Specify bundles and bundle groups for this catalog.
 - 8a Click *Add* to display the Select Bundles dialog box, then browse for and select the bundles and bundle groups you want to assign to this catalog.

Click the underlined link in the *Name* column to select the bundles or bundle groups and to display their names in the *Selected* list box.
 - 8b Click *OK*.
- 9 Click *Next* to display the Catalog Assignments page.

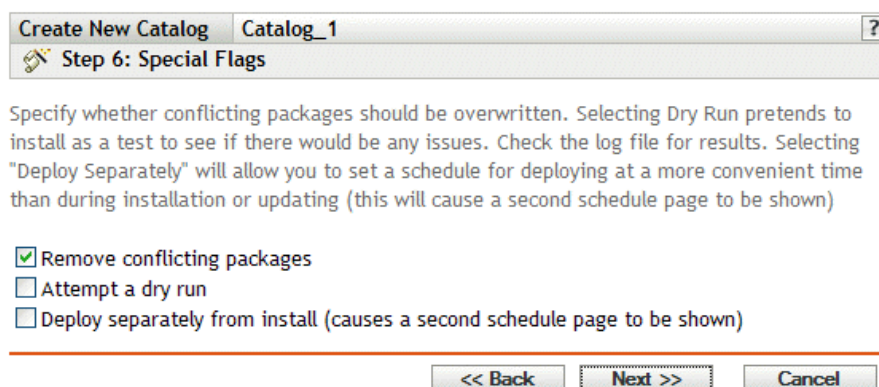


- 10 Assign this catalog to the devices that you want to distribute the catalog to.
 - 10a Click *Add* to display the Select Assignments dialog box.
 - 10b Click the blue arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

You can also select Folder or Group objects.

Assigning a catalog to a Folder or Group object is the preferred method of associating the catalog. Assigning the catalog to a large number of objects (for example, more than 250) might cause increased server utilization.
 - 10c Click *OK*.

11 Click *Next* to display the Special Flags page.



12 (Optional) Specify the following options:

- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages are uninstalled from devices before installing new packages. By default, this option is selected, so conflicting packages (previous versions of the same package, for example) are uninstalled before the current package is installed. If this option is not selected, packages are not installed if a conflict is detected.

- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the packages can be successfully deployed or updated. If there are any issues that could prevent the packages from being deployed or updated, you can look at the log file to troubleshoot the process. The log file is located in `/var/opt/novell/logs/zenworks`.

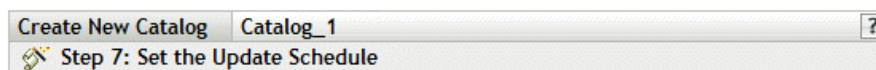
A successful dry run ensures that the catalog can be successfully deployed or updated on assigned devices (packages are available, dependencies are met, etc.).

- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the update schedule. If you select this box, subsequent steps let you set up a deployment schedule and an update schedule. If you do not select this check box, the packages are deployed and updated on assigned devices according to the update schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and update packages inside catalogs at different times. You can, depending on your needs, schedule deployment and update at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages inside the catalog are downloaded from the server to the assigned devices. The packages are not yet installed and available for use. The update schedule determines when the packages already installed on assigned devices are updated, if necessary.

- 13 Click *Next* to display the Set the Update Schedule page.



Specify the schedule for when updates should occur

Schedule Type:

- 14 Select an update schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

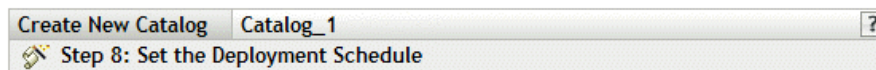
For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the packages inside the catalog are updated on assigned devices.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

- 15 Click *Next*.
- 16 (Conditional) If you chose *Deploy separately from install* in [Step 12](#), select a bundle deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

- 17 Select a deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the packages inside the catalog are deployed to assigned devices.

The deployment schedule determines when the packages inside the catalog are downloaded from the server to the assigned devices. The packages are not yet installed and available for use. The update schedule determines when the packages already installed on assigned devices are updated.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

18 Click *Next* to display the Finish page, review the information on the Finish page, make any changes to the settings by using the *Back* button as necessary, then click *Finish* to create the item as configured per settings on the Finish page.

19 Click *OK*.

19.3 Assigning Catalogs

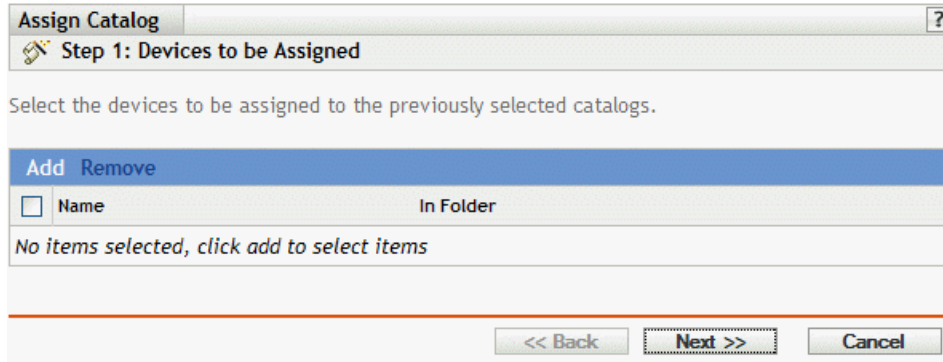
When you assign bundles, you specify device assignments, special flags, and deployment or update schedules for an existing catalog.

In [Step 7](#) under [Section 19.2, "Creating Catalogs,"](#) on [page 229](#), you were given the choice of clicking *Finish* or *Next*.

If you clicked *Finish*, the catalog was created without assigning devices to it, setting special flags, or specifying deployment or update schedules for the catalog. Before the catalog can be deployed or

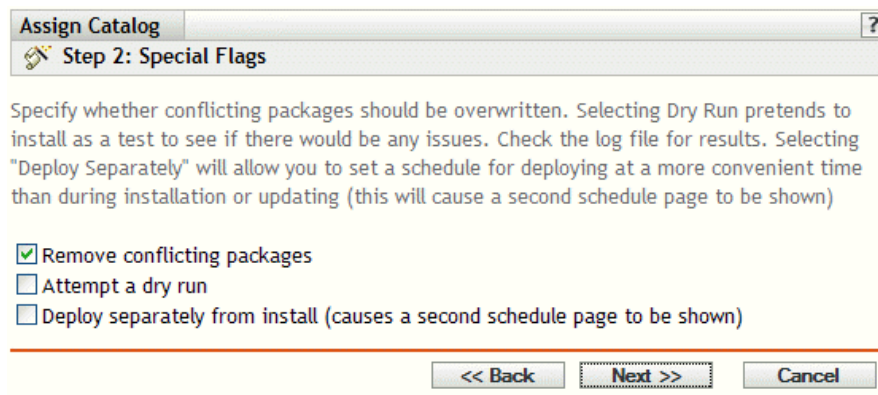
updated on assigned devices, you must complete the following steps. If you clicked *Next*, you have already performed the following procedure as part of the catalog-creation process.

- 1 In the ZENworks Control Center, click the *Bundles* tab, select the desired catalog in the *Bundles* list by clicking the box next to its name, click *Action*, then click *Assign Catalog* to display the Devices To Be Assigned page.



- 2 Assign the catalog to the devices that you want to distribute the catalog to.
 - 2a Click *Add* to browse for and select the appropriate device objects.
You can also select Folder or Group objects.
 - 2b Click the down-arrow next to *Servers* or *Workstations* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a catalog to a Folder or Group object is the preferred method of assigning the catalog. Assigning the catalog to a large number of objects (for example, more than 250) might cause increased server utilization.
 - 2c Click *OK*.
- 3 Click *Next* to display the Special Flags page.



- 4 (Optional) Specify the following options:
 - ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages are uninstalled from devices before installing new packages. By default, this option is selected, so conflicting packages (previous versions of the same package, for example) are

uninstalled before the current package is installed. If this option is not selected, packages are not installed if a conflict is detected.

- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the packages can be successfully deployed or updated. If there are any issues that could prevent the packages from being deployed or updated, you can look at the log file to troubleshoot the process. The log file is located in `/var/opt/novell/logs/zenworks`.

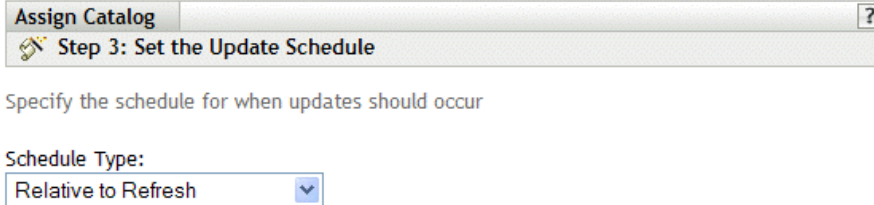
A successful dry run ensures that the catalog can be successfully deployed or updated on assigned devices (packages are available, dependencies are met, etc.).

- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the update schedule. If you select this box, subsequent steps let you set up a deployment schedule and an update schedule. If you do not select this check box, the packages are deployed and updated on assigned devices according to the update schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and update packages inside catalogs at different times. You can, depending on your needs, schedule deployment and update at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages inside the catalog are downloaded from the server to the assigned devices. The packages are not yet installed and available for use. The update schedule determines when the packages already installed on assigned devices are updated, if necessary.

- 5 Click *Next* to display the Set the Update Schedule page.



- 6 Select an update schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the packages inside the catalog are updated on assigned devices.

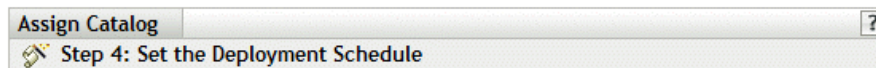
The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.

Schedule Type	Description
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

7 Click *Next*.

8 (Conditional) If you chose *Deploy separately from install* in [Step 12](#), select a bundle deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

9 Select a deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the packages inside the catalog are deployed to assigned devices.

The deployment schedule determines when the packages inside the catalog are downloaded from the server to the assigned devices. The packages are not yet installed and available for use. The update schedule determines when the packages already installed on assigned devices are updated.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

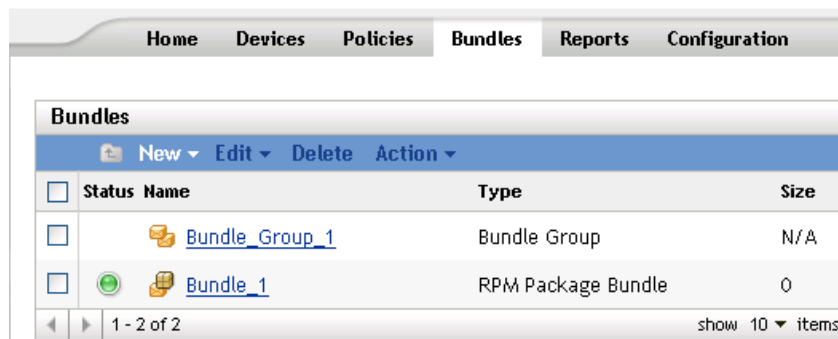
Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.

Schedule Type	Description
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

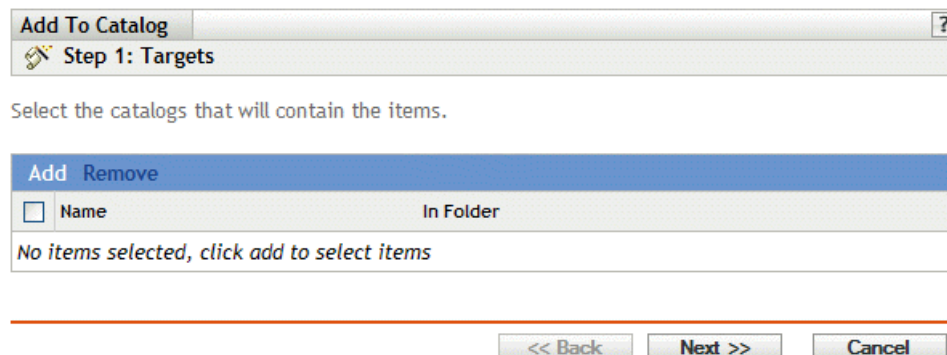
- 10 Click *Next* to display the Finish page, review the information on the Finish page, make any changes to the settings by using the *Back* button as necessary, then click *Finish* to assign the catalog as configured per settings on the Finish page.
- 11 Click *OK*.

19.4 Adding Bundles to Catalogs

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



- 2 In the *Bundles* list, select the box next to the bundle's name, click *Action*, then click *Add to Catalog* to display the Targets page.



- 3 Select the catalog to contain the selected bundles.
 - 3a Click *Add* to open the Select Catalogs dialog box, then click the desired catalogs to add them to the *Selected* list.
 - 3b Click *OK* to display the selected catalogs in the list on the Targets page.

- 4 Click *Next* to display the Finish page, review the information on the Finish page, make any changes to the settings by using the *Back* button as necessary, then click *Finish* to add the bundle to the catalog.

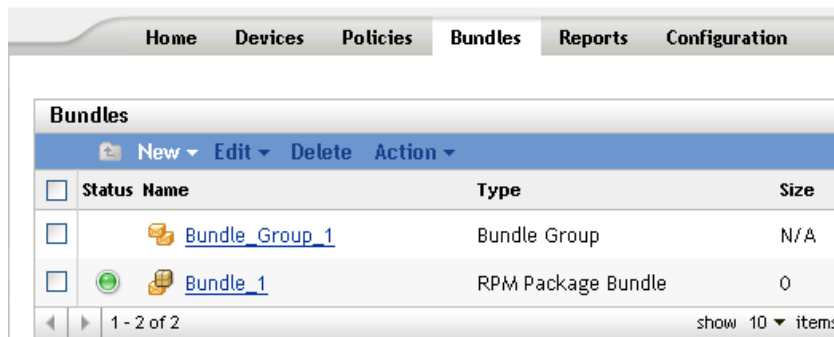
19.5 Renaming or Moving Catalogs

Use the *Edit* drop-down list on the Bundles page to edit an existing object. To access the *Edit* drop-down list, you must select an object by clicking the check box next to the object's name in the list.

Depending on the type of object you select, you can rename, copy, or move the selected object. For example, if you select a catalog object, you can rename and move the catalog, but you cannot copy it. If you select a bundle object, you can rename, copy, or move the object. If the option is dimmed, that option is not available for the selected object type.

Some actions cannot be performed on multiple objects. For example, if more than one check box is selected, the *Rename* option is not available from the Edit menu.

- 1 From the ZENworks Control Center, click the *Bundles* tab.



- 2 In the *Bundles* list, select the box next to the catalog's name, click *Edit*, then click an option.

- ♦ **Rename:** Click *Rename*, type a new name for the catalog, then click *OK*.
- ♦ **Move:** Click *Move*, choose a destination folder for the selected objects, then click *OK*.

If you rename or move a catalog, its assignments are still in place and ZENworks Linux Management does not redistribute the catalog to devices because of the name or location change.

19.6 Deleting Catalogs

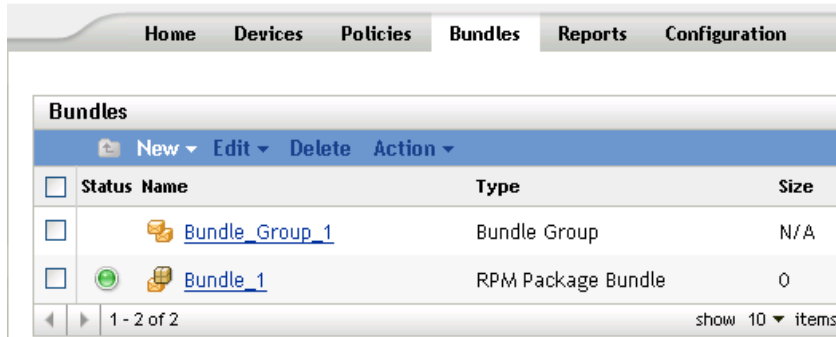
If you delete a catalog from your ZENworks Linux Management system, the catalog does not display on the Bundles or Devices pages in the ZENworks Control Center; however, the software contained in that catalog remains on the previously assigned devices.

If you remove a catalog's assignments, the previously assigned devices are no longer assigned to the catalog; however, the software in the catalog remains on those devices.

To remove the software contained in catalogs from devices, see [Section 18.14, “Using a Remote Execute Policy to Remove Bundles and Packages from Devices,”](#) on page 221.

To delete a catalog from the ZENworks Control Center:

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



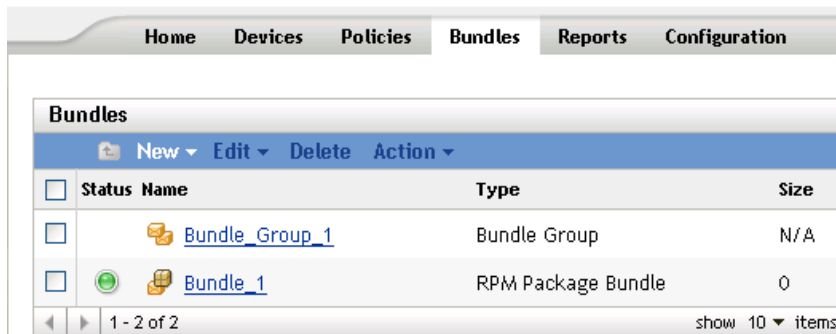
- 2 In the *Bundles* list, check the box next to the catalog's name, then click *Delete* to remove the catalog from the ZENworks Control Center.
- 3 Click *OK* on the warning window that displays.

19.7 Creating Folders

A folder is an organization object that displays in the ZENworks Control Center interface, which is the administrative tool for ZENworks Linux Management. A folder can contain various objects, including subfolders, Bundle, Bundle Group, Catalog, Device, and Device Group objects.

To create a folder:

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



- 2 Click *New*, then click *Folder* to display the New Folder dialog box.

The image shows a 'New Folder' dialog box with the following fields and controls:

- Name: ***: An empty text input field.
- Folder: ***: A text input field containing the path `/Bundles`, followed by a browse button (magnifying glass icon).
- Description:**: A large, empty text area for entering a description.
- A note at the bottom states: "Fields marked with a blue asterisk are required."
- Buttons for **OK** and **Cancel** are located at the bottom of the dialog.

- 3 Fill in the fields:

- ♦ **Name:** Provide a unique name for your folder. This is a required field.
For more information, see [Appendix B, "Naming Conventions in the ZENworks Control Center," on page 475.](#)
- ♦ **Folder:** Type the name or browse to the folder that contains this folder in the ZENworks Control Center interface.
- ♦ **Description:** Provide a short description of the folder's contents.

- 4 Click *OK*.

Using Dell Update Package Bundles

20

Novell® ZENworks® Linux Management - Dell Edition lets you mirror Dell Update Packages (DUPs) from the Dell FTP site or from a CD to your ZENworks server. Dell Update Packages let you update and configure hardware and system settings (including BIOS, DRAC, RAID, BMC, and FRMW configurations) on Dell PowerEdge servers.

IMPORTANT: Before you can use Dell Update Packages on your Dell servers, you must complete the steps in “[Enabling Dell PowerEdge Support](#)” in the *Novell ZENworks 7 Linux Management - Dell Edition Installation Guide*.

The following sections contain additional information:

- ♦ [Section 20.1, “Obtaining Dell Update Packages,” on page 243](#)
- ♦ [Section 20.2, “Assigning Dell Update Package Bundles,” on page 243](#)
- ♦ [Section 20.3, “Determining If Newer Dell Package Updates Are Available for PowerEdge Servers,” on page 247](#)
- ♦ [Section 20.4, “Deploying an Updated Version of a Dell Update Package Bundle,” on page 248](#)
- ♦ [Section 20.5, “Modifying the Contents of a Dell Update Package Bundle,” on page 249](#)

20.1 Obtaining Dell Update Packages

You mirror Dell Update Packages from the Dell FTP site to your ZENworks server. You can also mirror Dell Update Packages from a CD obtained from Dell support.

For complete instructions, see [Section 22.4, “Mirroring Dell Update Packages to Your ZENworks Server,” on page 259](#).

20.2 Assigning Dell Update Package Bundles

After the mirroring operation is complete, the Dell Update Packages are automatically bundled and display in the ZENworks Control Center on the Bundles page. To install them on PowerEdge servers in your ZENworks system, you must assign them to devices using the Assign Bundle Wizard in the ZENworks Control Center.

NOTE: If you assign the Dell Update Packages to devices using bundles, the packages are always installed. For this reason, it is possible to downrev your firmware using Dell Update Packages distributed via bundles.

If you assign the Dell Update Packages to devices using catalogs, the packages are installed only in an upgrade situation. It is not possible to downrev firmware using Dell Update Packages distributed via catalogs. For more information about catalogs, see [Chapter 19, “Using Catalogs,” on page 229](#).

To assign Dell Update Package bundles:

- 1 In the ZENworks Control Center, click the *Bundles* tab, then click the underlined link next to the folder that was created during the mirroring process to contain the Dell Update Packages.

If the particular Dell Update Package does not display in the *Bundles* list, click the right-arrow at the bottom of the list to display the next set of Dell Update Package bundles. By default, ten items display in the list. You can also click the down-arrow on the *show x items* option to display more items in the list.

- 2 Select the desired Dell Update Package bundle by checking the box next to its name, click Action, then click Assign Bundle to display the Devices to be Assigned page.

The screenshot shows a dialog box titled "Assign Bundle" with a question mark icon in the top right corner. Below the title bar is a sub-header "Step 1: Devices to be Assigned" with a wrench icon. The main text reads: "Select the devices to be assigned to the previously selected bundles." Below this is a table with two columns: "Name" and "In Folder". The "Name" column has a checkbox to its left. The table is currently empty, with the text "No items selected, click add to select items" below it. At the bottom of the dialog are three buttons: "<< Back", "Next >>" (which is highlighted with a dashed border), and "Cancel".

- 3 Assign the bundle or bundle group to the devices that you want to distribute the bundle or bundle group to.

- 3a Click *Add* to browse for and select the appropriate Server objects.

You can also select Folder or Group objects.

- 3b Click the down-arrow next to *Servers* to expand the list, then click the underlined link in the *Name* column to select the desired objects and display their names in the *Selected* list box.

Assigning a bundle to a Folder or Group object is the preferred method of assigning the bundle. Assigning the bundle to a large number of objects (for example, more than 250) might cause increased server utilization.

- 3c Click *OK*.

- 4 Click *Next* to display the Special Flags page.

The screenshot shows a dialog box titled "Assign Bundle" with a question mark icon in the top right corner. Below the title bar is a sub-header "Step 2: Special Flags" with a wrench icon. The main text reads: "Specify whether conflicting packages should be overwritten. Selecting Dry Run pretends to install as a test to see if there would be any issues. Check the log file for results. Selecting 'Deploy Separately' will allow you to set a schedule for deploying at a more convenient time than during installation or updating (this will cause a second schedule page to be shown)". Below this text are three checkboxes: "Remove conflicting packages" (checked), "Attempt a dry run", and "Deploy separately from install (causes a second schedule page to be shown)". At the bottom of the dialog are three buttons: "<< Back", "Next >>" (which is highlighted with a dashed border), and "Cancel".

5 (Optional) Specify the following options:

- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages and files are uninstalled from devices before installing new packages and files. By default, this option is selected, so conflicting packages and files (previous versions of the same package, for example) are uninstalled before the current package or file is installed. If this option is not selected, packages and files are not installed if a conflict is detected.
- ♦ **Attempt a dry run:** Select this option to have ZENworks Linux Management perform a test to determine if the Dell Update Package bundle can be successfully deployed. If there are any issues that could prevent the bundle from being deployed, you can look at the log file to troubleshoot the process. The log file is located in `/var/opt/novell/logs/zenworks`.

A successful dry run ensures that the bundle can be successfully deployed or installed on assigned devices (packages are available, dependencies are met, etc.).

- ♦ **Deploy separately from install:** Select this option to specify an optional deployment schedule separate from the installation schedule. If you select this box, subsequent steps let you set up an installation schedule and a deployment schedule. If you do not select this check box, the packages and files are deployed and installed on assigned devices according to the installation schedule.

The *Deploy separately from install* option is not set by default. In most situations, there is no need to deploy and install packages and files inside bundles at different times. You can, depending on your needs, schedule deployment and installation at different times to conserve network bandwidth or to perform the actions at more convenient times for users.

The deployment schedule determines when the packages and files inside the bundle are downloaded from the server to the assigned devices. The packages and files are not yet installed and available for use. The installation schedule determines when the packages and files are installed on assigned devices so the packages will be available for use.

6 Click *Next* to display the Set the Install Schedule page.



Specify the schedule to use for installing the content on the selected devices

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

7 Select a installment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

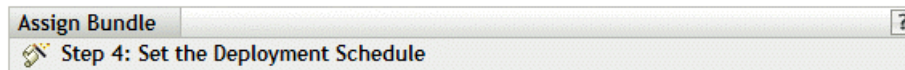
For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle or bundle group is installed on assigned devices.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.
Date Specific	Select one or more dates on which to install the bundle on assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to install the bundle on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundle.
Monthly	Select the day of the month on which to install the bundle on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is installed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's installation is repeated and specify a time period when you do not want the bundle installed to help minimize network traffic during that time.

- Click *Next*.
- (Conditional) If you chose *Deploy separately from install* in [Step 4](#), select a deployment schedule.



Specify the schedule to use when deploying separately from installation or updating

Schedule Type:

Relative to Refresh

Select the initial delay and repeat frequency to run the scheduled event and set other restrictions that may apply

- Select a deployment schedule type from the drop-down list, then select the desired options, which vary, depending on the schedule type you select.

For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundle or bundle group is deployed to assigned devices.

The deployment schedule determines when the packages and files inside the bundle or bundle group are downloaded from the server to the assigned devices. The software packages and files are not yet installed and available for use. The installation schedule determines when the software packages and files are installed to assigned devices so they are available for use.

The following schedules are available. Click the link in the left column in the table below for more information about each schedule type and its options.

Schedule Type	Description
No Schedule	Use this option to indicate no schedule; no action occurs.

Schedule Type	Description
Date Specific	Select one or more dates on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Day of the Week Specific	Select one or more days of the week on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the deployment of the bundle.
Monthly	Select the day of the month on which to deploy the bundle to assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is deployed, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's deployment is repeated and specify a time period when you do not want the bundle deployed to help minimize network traffic during that time.

- 11 Click *Next* to display the Finish page.
- 12 Review the information on the Finish page, making any changes to the settings by using the *Back* button as necessary. Click *Finish* to assign the bundle as configured per settings on the Summary page.
- 13 Click *OK*.

20.3 Determining If Newer Dell Package Updates Are Available for PowerEdge Servers

After you run a mirror session and obtain updated Dell Update Packages, it is easy to determine if a newer Dell Update Package is available for installation on Dell PowerEdge servers in your ZENworks system.

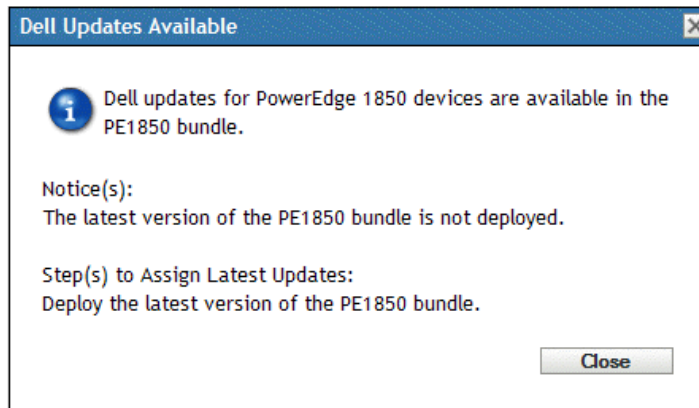
- 1 In the ZENworks Control Center, click the *Devices* tab, then click *Servers*.

Servers			
New Edit Delete Action			
Status	Name	Operating System	Type
<input type="checkbox"/>	rc-qa-814	sles-9-x86_64	ZENworks Primary Server
<input type="checkbox"/>	rc-qa-dell-1850-2	sles-9-i586	Server
<input type="checkbox"/>	rc-qa-dell-1850-2-b123d74b6b5245629c5ad34fee9d1c5e	sles-9-i586	Server Available

A link in the Dell Updates column indicates whether there is a Dell Update Package bundle available in the ZENworks package repository for each Dell PowerEdge server in the list. An update are available in the following situations:

- ♦ If a Dell Update Package exists in the ZENworks package repository but it is not assigned to that specific server model.
- ♦ If a specific Dell Update Package is already assigned to the device, but an updated package has been mirrored and is available in the ZENworks package repository.

- 2 Click the link to view the name of the Dell Update Package bundle appropriate for the device.



- 3 If the appropriate Dell Update Package bundle is not yet assigned to the device, continue with [Section 20.2, “Assigning Dell Update Package Bundles,”](#) on page 243.

or

If the appropriate Dell Update Package bundle is already assigned to the device, continue with [Section 20.4, “Deploying an Updated Version of a Dell Update Package Bundle,”](#) on page 248.

20.4 Deploying an Updated Version of a Dell Update Package Bundle

You can have multiple versions of the same Dell Update Package bundle, although only one version of a bundle can be deployed at any given time. If you perform a mirror session and obtain an update for a Dell Update Package, the Dell Update Package bundle’s version number increments; however, the mirroring process does not automatically deploy the updated version of the bundle.

Only one version of a bundle can be deployed at any given time. For example, suppose a bundle has multiple versions: 1, 2, and 3. If version 2 is currently deployed, all associated devices have version 2 of the bundle deployed. If you receive an update to this package via mirroring, a link on the *Devices > Servers* page in the ZENworks Control Center indicates that an update is available (as described in [Section 20.3, “Determining If Newer Dell Package Updates Are Available for PowerEdge Servers,”](#) on page 247). To update the bundle on devices, you must make version 3 the deployed version; all devices with version 2 deployed and still associated to that bundle will be automatically upgraded to version 3.

To deploy an updated version of a Dell Update Package bundle:

- 1 In the ZENworks Control Center, click the *Bundles* tab, then click the underlined link next to the folder that was created during the mirroring process to contain the Dell Update Packages.

If the particular Dell Update Package does not display in the *Bundles* list, click the right-arrow at the bottom of the list to display the next set of Dell Update Package bundles. By default, ten items display in the list. You can also click the down-arrow on the *show x items* option to display more items in the list.

- 2 Click the underlined link in the *Name* column to display the bundle’s Summary page.

- 3 Click the *Details* tab.

The screenshot shows a web interface for managing Dell Update Package Bundles. At the top, there's a header for 'PE1850' with two tabs: 'Summary' and 'Details'. The 'Details' tab is active. Below the tabs is a 'DUP Bundle Settings' window. It contains a 'Version' dropdown menu set to '3', with 'Deploy' and 'Copy' buttons. A note below the version says '(Version 3 is currently deployed)'. There are also input fields for 'Display Name' (containing 'PE1850') and 'Description' (which is empty).

- 4 Use the Version drop-down list to select the desired version number, then click Deploy.

20.5 Modifying the Contents of a Dell Update Package Bundle

You can copy a Dell Update Package bundle and then modify its contents. You can, however, only remove existing packages or replace an existing package with a newer version of that same package. You cannot add new packages to the bundle.

Be aware that if you modify the contents of a Dell Update Package bundle, it will no longer be a Certified Dell Update Package, which limits the level of technical support you can obtain for any problems you may encounter using that bundle. For this reason, use caution when modifying the contents of a Dell Update Package bundle.

To make a copy of an existing Dell Update Package bundle:

- 1 In the ZENworks Control Center, click the *Bundles* tab, click the underlined link next to the folder containing the Dell Update Packages that was created during the mirroring process.

If the particular Dell Update Package does not display in the Bundles list, click the right-arrow at the bottom of the list to display the next set of Dell Update Package bundles. By default, ten items display in the list. You can also click the down-arrow on the *show x items* option to display more items in the list.

- 2 Click the underlined link in the *Name* column to display the bundle's *Summary* page.

- 3 Click the *Details* tab.

The screenshot shows a window titled 'PE1850' with two tabs: 'Summary' and 'Details'. The 'Details' tab is active. Below the tabs is a 'DUP Bundle Settings' dialog box. Inside this dialog, there is a 'Version:' label followed by a dropdown menu showing '3'. To the right of the dropdown are two buttons: 'Deploy' and 'Copy'. Below the version dropdown, the text '(Version 3 is currently deployed)' is displayed. Underneath, there is a 'Display Name:' label followed by a text input field containing 'PE1850'. At the bottom, there is a 'Description:' label followed by a large, empty text area.

- 4 Use the Version drop-down list to select the desired version number, then click *Copy*.
- 5 Provide a new name for the copy of the bundle, then click *OK*.

To modify the contents of the copy of an existing Dell Update Package bundle:

- 1 In the ZENworks Control Center, click the *Bundles* tab.
- 2 Click the underlined link in the Name column for the copy of the Dell Update Package whose contents you want to modify.
- 3 Click the *Details* page.
- 4 (Conditional) To replace an existing package with a newer version of that same package, click *Add*, click *Import from Repository*, select the newer version of the package by clicking the check box next to its name, then click *OK*.
- 5 (Conditional) To remove an existing package, select the package by clicking the check box next to its name, then click *Remove*.

Replicating Content in the ZENworks Management Zone

21

Novell® ZENworks® Linux Management uses a hierarchical organization to simplify device management. At the top level, a ZENworks Management Zone provides an autonomous unit of ZENworks servers and managed devices (workstations and servers). The ZENworks servers manage the devices.

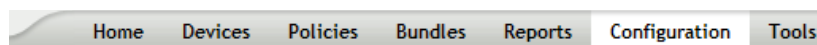
Each ZENworks Management Zone has one primary server, and optionally, one or more secondary servers to help distribute the workload.

All RPM packages, Dell Update Packages (DUPs), and files contained in file bundles must reside on the primary server. ZENworks Linux Management uses content replication to replicate packages to each secondary server in your system.

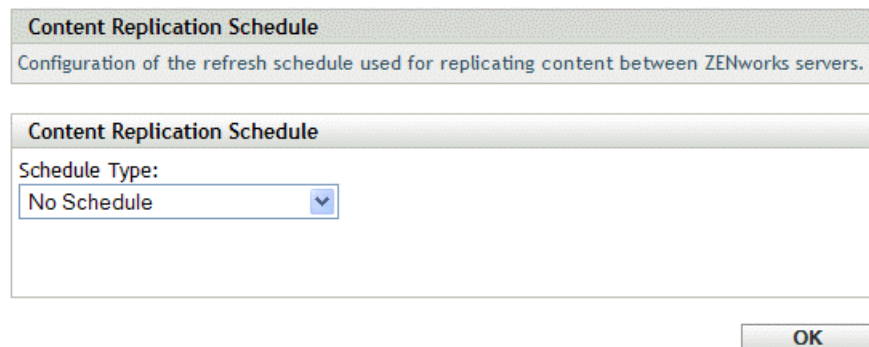
NOTE: Depending on your needs, you might have more than one ZENworks Management Zone in your system. The content replication procedure in this section helps you replicate content from the primary server to secondary servers in a particular Management Zone. To replicate content across Management Zones, you must use `zlmirror`. For more information, see [Chapter 22, “Mirroring Software,” on page 253](#).

To configure the content replication schedule:

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



- 2 Click *Content Replication Schedule* to display the Content Replication Schedule page.



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

The Content Replication Schedule determines how often bundles are replicated from the primary ZENworks 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.

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.

4 Click *Apply*.

Novell® ZENworks® Linux Management lets you connect to a remote server and copy software catalogs, bundles, or packages (including Dell Updated Packages) from the remote server to your server using a few simple commands.

Depending on your needs, you might have more than one ZENworks Management Zone in your system. The information in this section helps you mirror content across Management Zones or from remote servers. For information about replicating content from a ZENworks primary server to ZENworks secondary servers in a particular Management Zone, see [Chapter 21, “Replicating Content in the ZENworks Management Zone,”](#) on page 251.

You can mirror software using the `zlmirror` command line application. Software can be mirrored from the following servers:

- ♦ ZENworks Linux Management (from the servers in one ZENworks Management Zone to another Management Zone)
- ♦ Dell Update Packages (DUPs)
- ♦ YaST Online Updates
- ♦ Red Hat Network
- ♦ Red Carpet Enterprise or ZENworks 6.6.x Linux Management

NOTE: To mirror from a ZENworks 6.6.x Linux Management server to a ZENworks 7 Linux Management server, the 6.6.x server must also be a YaST Online Update (YOU) server.

Novell, Dell, SUSE®, and Red Hat each maintain servers of their respective types, enabling you to simply mirror the catalogs and bundles you are interested in without needing to maintain or update these repositories.

Mirroring is the preferred method of obtaining the majority of the software you distribute to managed devices.

The following sections contain additional information:

- ♦ [Section 22.1, “zlmirror,”](#) on page 253
- ♦ [Section 22.2, “Configuring a Software Mirror,”](#) on page 254
- ♦ [Section 22.3, “Distributing Catalogs from a Public ZENworks Linux Management Server,”](#) on page 258
- ♦ [Section 22.4, “Mirroring Dell Update Packages to Your ZENworks Server,”](#) on page 259
- ♦ [Section 22.5, “Deploying Red Hat Network Updates,”](#) on page 262

22.1 zlmirror

All of the software components necessary to use `zlmirror` are installed during the ZENworks Linux Management installation process.

The `zlmirror` executable is located in `/opt/novell/zenworks/bin/`. You can view help for `zlmirror` at any time by running the following command:

```
zlmirror --help
```

You can view the zlmirror man page (man zlmirror) on the ZENworks Server or you can view the [HTML version \(http://www.novell.com/documentation/zenworks7/reference/zlmirror.html\)](http://www.novell.com/documentation/zenworks7/reference/zlmirror.html) of the man page.

22.2 Configuring a Software Mirror

Configuring a software mirror consists of the following:

1. Creating a separate XML configuration file for each remote server you want to mirror.

See [Section 22.2.1, “Creating Configuration Files,” on page 254](#)

2. Testing and run the mirroring operation using zlmirror.

See [Section 22.2.2, “Testing and Performing the Mirroring Operation,” on page 258](#)

22.2.1 Creating Configuration Files

Run the following command to generate an empty configuration file:

```
zlmirror conf-generate filename.xml
```

This command generates a template configuration file named zlmirror-config.xml in the current directory.

You can also convert the configuration file from an earlier version of ZENworks Linux Management or Red Carpet, or create configuration files manually. Configuration files are specified using the -c flag:

```
zlmirror command -c filename.xml
```

If no configuration file is specified, the default configuration file location is /etc/opt/novell/zenworks/zlmirror.xml.

You can check the configuration file for errors and display the parsed configuration information by using the conf-validate (cv) *filename* command.

After you have a base configuration file created, the following tasks walk you through adding the necessary configuration information:

- ◆ [“Step 1: Servers” on page 254](#)
- ◆ [“Step 2: Catalog and Bundle Configuration” on page 256](#)

Step 1: Servers

You must provide details about a remote server containing the software you want to mirror, and a local server, which is your ZENworks Linux Management server receiving the mirrored software.

RemoteServer

```
<RemoteServer>  
  <Base>http://red-carpet.ximian.com/</Base>  
  <Type>rce</Type>  
  <User />
```

```
<Password />
</RemoteServer>
```

Configuration Element	Description
Base	<p>Path to the server you want to mirror, in the following format depending on Type:</p> <p>ZLM: <code>https://server</code></p> <p>DELL: <code>http://ftp.dell.com</code></p> <p>RCE: <code>https://server/path</code></p> <p>YAST: <code>http(s)://server/path</code> or <code>ftp://server/path</code></p> <p>RHN: <code>http(s)://server/path</code></p> <p>STATIC: <code>/path/on/filesystem</code></p>
Type	<p>Type of server you want to mirror:</p> <p>ZLM: ZENworks 7 Linux Management</p> <p>DELL: Dell Update Package FTP Server</p> <p>RCE: Red Carpet® Enterprise™, or ZENworks 6.x Linux Management</p> <p>YAST: YAST Online Updates</p> <p>RHN: Red Hat Network</p> <p>STATIC: Mirrors packages from a directory containing the output of a static mirror session and adds them to ZENworks</p>
User	<p>Name to use when connecting to the remote server. If no user is specified, zlmirror reads the identity from the following location depending on Type:</p> <p>ZLM: <code>/etc/opt/novell/zenworks/zmd/deviceid</code></p> <p>RCE: <code>/etc/ximian/mcookie</code></p> <p>YAST: <code>/etc/sysconfig/onlineupdate</code></p> <p>When connecting to an RHN server or a Dell server, leave this element empty.</p>
Password	<p>Password to use when connecting to the remote server. If no password is specified, zlmirror reads the password from the following location depending on Type:</p> <p>ZLM: <code>/etc/opt/novell/zenworks/zmd/secret</code></p> <p>RCE: <code>/etc/ximian/partneret</code></p> <p>YAST: <code>/etc/sysconfig/onlineupdate</code></p> <p>When connecting to an RHN server or Dell server, leave this element empty.</p>

Configuration Element	Description
Proxy	<p>The Proxy configuration element is optional and is used with an Internet Proxy. You can add the Proxy element anywhere in the RemoteServer section.</p> <p>If the Internet proxy requires authentication, the format looks like the following example:</p> <pre><Proxy>http://username:password@server:port</Proxy></pre> <p>If the Internet proxy does not require authentication, the format looks like the following example:</p> <pre><Proxy>https://server:port</Proxy></pre>

LocalServer

```
<LocalServer>
  <Base></Base>
  <Type>zlm</Type>
  <User>Administrator</User>
  <Password>password</Password>
</LocalServer>
```

Configuration Element	Description
Base	<p>If the Type element indicates STATIC mirroring, use the Base element to define the destination path where files will be stored (<code>/path/on/filesystem</code>, for example).</p> <p>If the Type element indicates ZLM mirroring, leave the Base element empty.</p>
Type	<p>Type of mirroring you want performed:</p> <p>ZLM: Mirrors catalogs and bundles directly to your ZENworks Linux Management server. After mirroring, mirrored catalogs and bundles are displayed in the ZENworks Control Center.</p> <p>STATIC: Mirrors packages to the file system of your ZENworks Linux Management server, but does not add them to ZENworks.</p>
User	<p>Name to use when connecting to your ZENworks Linux Management (local) server. The Administrator user should be specified if you want to use the default administrator account.</p>
Password	<p>Password for the account provided in User. If you are using the Administrator account, this is the password you specified during the server installation.</p>

Step 2: Catalog and Bundle Configuration

You must provide details about the catalogs and bundles you want mirrored to your server.

Before you mirror the catalogs and bundles to your server, you can view the available catalogs and bundles on the remote server.

To view the available catalogs, run the following command:

```
zlmirror -c filename.xml slc
```

To view the available bundles, run the following command:

```
zlmirror -c filename.xml slb
```

CatalogConf

Each catalog you want to mirror must have a separate CatalogConf section:

```
<CatalogConf>  
  <Name>Red Carpet 2</Name>  
  <LocalName>Red Carpet 2</LocalName>  
  <Target>sles-9-i586</Target>  
  <Package>lib.*</Package>  
</CatalogConf>
```

Configuration Element	Description
Name	<p>Name of the catalog you want to mirror from this remote server.</p> <p>This is the only required parameter.</p>
Local Name	<p>Name of the catalog you want the mirrored software placed in. If no Local Name is specified, the catalog name from the remote server is used.</p>
Folder	<p>Specifies the eDirectory™ folder (for example, /folder1/folder2) where bundles and catalogs are created and updated. If not specified, the catalogs and bundles are created and updated in the /zlmirror folder.</p>
Target	<p>Restricts the mirroring operation on this catalog to packages and patches that support the specified target platforms. If no target is specified, packages for all platforms are mirrored.</p> <p>This element can be specified multiple times, and can contain either a target name or a regular expression string for wildcard matching of target names.</p> <p>If you have added custom target platforms (in the ZENworks Control Center, the <i>Configuration</i> tab > <i>Platforms</i> > <i>Add</i>), you cannot mirror packages or patches to these custom platforms.</p>
ExcludeTarget	<p>Same as Target, except packages and patches supporting the specified target platform(s) are excluded.</p> <p>ExcludeBundle is performed after Target, so platforms appearing in a Target and ExcludeTarget are ultimately excluded.</p>
Bundle	<p>Restricts the mirroring operation on this catalog to the specified bundles. If not specified, all bundles are mirrored.</p> <p>This option is valid only for ZENworks Linux Management and YAST remote servers. It can be specified multiple times and can contain either a bundle name or a regular expression string for wildcard matching of bundle names.</p>
ExcludeBundle	<p>Same as Bundle, except packages and patches contained in the specified bundles are excluded.</p> <p>This option is valid only for ZENworks Linux Management and YAST remote servers. It can be specified multiple times and can contain either a bundle name or a regular expression string for wildcard matching of bundle names.</p> <p>ExcludeBundle is performed after Bundle, so bundles appearing in a Bundle and ExcludeBundle are ultimately excluded.</p>

Configuration Element	Description
Package	<p>Restricts the mirroring operation on this catalog to the specified packages. If not specified, all packages are mirrored.</p> <p>This option is valid only for ZENworks Linux Management and YAST remote servers. It can be specified multiple times and can contain either a bundle name or a regular expression string for wildcard matching of bundle names.</p>
ExcludePackage	<p>Same as Package, except specified packages are excluded.</p> <p>This option is valid only for ZENworks Linux Management and YAST remote servers. It can be specified multiple times and can contain either a bundle name or a regular expression string for wildcard matching of bundle names.</p> <p>ExcludePackage is performed after Package, so packages appearing in a Package and ExcludePackage are ultimately excluded.</p>

22.2.2 Testing and Performing the Mirroring Operation

After you have created the configuration file for a remote server, run the following command to perform a dry run of the mirroring operation, and optionally add the verbose flag to see detailed messages:

```
zlmirror mirror -c filename.xml --dryrun --verbose
```

If this operation provides the intended results, run the mirror command without the dry run flag to complete the operation:

```
zlmirror mirror -c zlmirror-config.xml
```

If you mirror a bundle that contains multiple packages with multiple install type/freshen flags set, a unique version of the bundle is created for each install type/freshen combination.

For example, suppose you mirror a bundle that contains four packages assigned to one OS target. Of these four packages, one package has the install type flag set to false, the second package has the install flag set to true, the third package has the freshen flag set to false, and the fourth package has the freshen flag set to true. In this situation, four unique versions of the bundle are created.

The number of unique bundles created also depends on the number of OS targets. In the previous example, suppose the four packages, each with a different install type/freshen combination, have two OS targets. In this situation, a unique bundle is created for each install type/freshen combination and another unique bundle is created for each OS target. In this example, eight unique bundles are created.

The number of unique bundle versions created equals the number of unique install type/freshen combinations times the number of unique OS targets.

22.3 Distributing Catalogs from a Public ZENworks Linux Management Server

The following sections contain additional information:

- ◆ [Section 22.3.1, “Creating a Public ZENworks Linux Management Server,” on page 259](#)
- ◆ [Section 22.3.2, “Accessing a Public ZENworks Linux Management Server,” on page 259](#)

22.3.1 Creating a Public ZENworks Linux Management Server

- 1 Create a default registration rule on the ZENworks Linux Management Server that creates a device in a specified folder.

For more information, see [Part III, “Device Registration,” on page 75](#) and [Section 16.2, “Creating Folders,” on page 150](#).

- 2 Assign all catalogs that you want to make public to that folder.

For more information, see [Section 19.3, “Assigning Catalogs,” on page 235](#).

22.3.2 Accessing a Public ZENworks Linux Management Server

- 1 Create a zlmirror configuration file.

For more information, see [Section 22.2.1, “Creating Configuration Files,” on page 254](#).

- 2 Install the ZENworks Linux Management agent on a workstation and register against the public ZENworks Linux Management Server using no registration key (to use the default registration rule).

For more information, see [“Installing the ZENworks Agent and Registering the Device” in the *Novell ZENworks 7 Linux Management - Dell Edition Installation Guide*](#).

- 3 Copy the contents of the `deviceid` and `secret` file from that workstation (`/etc/opt/novell/zenworks/zmd`) to the `zlmirror.conf` file in the `<User>` and `<Password>` tags of the `<RemoteServer>` section.

- 4 Mirror using the configuration file you created in [Step 1](#) to [Step 3](#).

Only software assigned to the newly registered device is available for mirroring.

For more information, see [Section 22.2.2, “Testing and Performing the Mirroring Operation,” on page 258](#).

22.4 Mirroring Dell Update Packages to Your ZENworks Server

You can mirror Dell Update Packages from the Dell FTP site or from a CD obtained from Dell to your ZENworks server. Dell Update Packages let you update and configure hardware and system settings (including BIOS, DRAC, RAID, BMC, and FRMW configurations) on Dell PowerEdge servers.

IMPORTANT: Before you can use Dell Update Packages on your Dell servers, you must complete the steps in [“Enabling Dell PowerEdge Support” in the *Novell ZENworks 7 Linux Management - Dell Edition Installation Guide*](#).

If you plan to update Dell PowerEdge servers using Dell Update Packages, we recommend that you mirror the packages from the Dell FTP site before installing the ZENworks Agent on the managed PowerEdge servers. You can also mirror the packages after installing the ZENworks Agent on the managed PowerEdge servers but before registering them in the ZENworks Management Zone. Mirroring the Dell Update Packages prior to installing the ZENworks Agent or registering the servers in the Management Zone ensures that all Dell model numbers are loaded into the database, the standard reports are run as the servers register, and the Dell Update Packages exist in the

ZENworks package repository. For more information, see “Using Dell Update Package Bundles” in the *Novell ZENworks 7 Linux Management - Dell Edition Administration Guide*.

To mirror Dell Update Packages from a remote server or from a CD to your ZENworks server:

- 1 Run the following command to generate an empty configuration file:

```
/opt/novell/zenworks/bin/zlmmirror conf-generate filename.xml
```

This command generates a template configuration file in the current directory.

For more information, see [Section 22.2.1, “Creating Configuration Files,” on page 254](#).

- 2 Open the empty configuration file in a text editor.
- 3 In the <RemoteServer> section, edit the following configuration elements:

Configuration Element	Setting
<Base></Base>	<p>Path to the server you want to mirror:</p> <pre><Base>http://ftp.dell.com</Base></pre> <p>or</p> <p>Path to the mountpoint of the CD you want to mirror:</p> <pre><Base>file:///path/to/cd</Base></pre>
<Type></Type>	<p>Type of server you want to mirror:</p> <pre><Type>dell</Type></pre>

- 4 In the <LocalServer> section, edit the following configuration elements:

Configuration Element	Setting
<Type></Type>	<p>Type of mirroring you want performed:</p> <pre><Type>zlm</Type></pre> <p>Specifying zlm mirrors the Dell Update Packages directly to your ZENworks Linux Management server. After mirroring, the Dell Update Packages are displayed in the ZENworks Control Center.</p>
<User></User>	<p>Name to use when connecting to your ZENworks Linux Management (local) server:</p> <pre><User>Administrator</User></pre> <p>The Administrator user should be specified if you want to use the default administrator account.</p>
<Password></Password>	<p>Password for the account provided in User:</p> <pre><User>password</User></pre> <p>If you are using the Administrator account, this is the password you specified during the server installation.</p>

- 5 In the <Catalog> section, edit the following configuration elements:

Configuration Element	Setting
<Name></Name>	Name of the catalog you want to mirror from this remote server: <Name>catalog_name</Name>
<Folder></Folder>	Name of the folder where the Dell Update Packages are created and updated: <Folder>/folder_name</Folder> Specifies the eDirectory folder (for example, /Dell) where bundles and catalogs are created and updated. If not specified, the catalogs and bundles are created and updated in the /zlmirror folder.

Your edited zlmirror configuration file should look similar to the following example. If your configuration file is set up to mirror a CD, the <Base></Base> configuration element in the <RemoteServer> section contains <Base>file:///path/to/cd</Base> instead of <Base>http://ftp.dell.com</Base>.

```
<ZLMMirrorConf>
  <Session>
    <RemoteServer>
      <Base>http://ftp.dell.com</Base>
      <Proxy></Proxy>
      <Type>dell</Type>
      <User></User>
      <Password></Password>
    </RemoteServer>
    <LocalServer>
      <Type>zlm</Type>
      <Base></Base>
      <User>Administrator</User>
      <Password>password</Password>
    </LocalServer>
    <Catalog>
      <Name>catalog_name</Name>
      <LocalName></LocalName>
      <Folder>/folder_name</Folder>
      <Target></Target>
      <ExcludeTarget></ExcludeTarget>
      <Bundle></Bundle>
      <ExcludeBundle></ExcludeBundle>
    </Catalog>
  </Session>
</ZLMMirrorConf>
```

6 Save the file.

7 Mirror the Dell Update Packages by running the following command:

```
zlmirror m -c=filename.xml
```

where `filename.xml` is the name of the `zlmirror` configuration file you created in [Step 1 on page 260](#).

Depending on the speed of your connection, the Dell Update Packages take approximately 30 minutes to mirror from the Dell FTP site. After the mirroring operation is complete, the Dell Update Packages are automatically bundled and display in the ZENworks Control Center on the Bundles page. The first time you mirror Dell Update Packages, all available packages are mirrored; subsequent mirror sessions obtain upgraded packages only.

To determine if there are updated Dell Update Package bundles available for the servers in your system, in the ZENworks Control Center, click the *Devices* tab, then click *Servers*. A link in the *Dell Updates* column indicates whether there is a Dell Update Package bundle available in the ZENworks package repository for each Dell PowerEdge server in the list. You can click the link to view the name of the Dell Update Package bundle appropriate for the device.

If the Dell Update Package bundle is already installed on the device, but a newer version of the bundle is available, you can deploy the newer version. For more information, see [Section 20.4, “Deploying an Updated Version of a Dell Update Package Bundle,” on page 248](#).

If the Dell Update Package bundle is not assigned to the device, you assign devices as you would for any bundle. For more information, see [Section 20.2, “Assigning Dell Update Package Bundles,” on page 243](#).

If you assign the Dell Update Packages to devices using bundles, the packages are always installed. For this reason, it is possible to downrev your firmware using Dell Update Packages distributed via bundles.

If you assign the Dell Update Packages to devices using catalogs, the packages are installed only in an upgrade situation. It is not possible to downrev firmware using Dell Update Packages distributed via catalogs.

To create catalogs and assign devices, continue with [Section 19.1, “Understanding Catalogs,” on page 229](#).

During installation of the Dell Update Packages, if you get an error message stating that your system needs more contiguous RAM, reboot the system and retry the installation.

You should periodically run the `zlmirror` utility to obtain updated Dell Update Packages. You can automate the process by creating a cron job to perform the mirror session as often as needed (monthly, for example).

22.5 Deploying Red Hat Network Updates

When you use ZENworks Linux Management - Dell Edition to mirror a Red Hat distribution from the Red Hat Network, the mirroring process creates a single bundle containing all of the RPM packages. This bundle is not usually assigned directly to a managed device because it contains the entire Red Hat distribution and might contain RPM packages that conflict with each other.

Following are two scenarios for updating devices with RPM packages:

- ◆ [Section 22.5.1, “Providing All RPM Packages and Package Bundles through a Catalog \(Pulling\),” on page 263](#)
- ◆ [Section 22.5.2, “Delivering Specific RPM Packages \(Pushing\),” on page 263](#)

22.5.1 Providing All RPM Packages and Package Bundles through a Catalog (Pulling)

If you want to provide all RPM packages via a catalog, create a catalog and add the mirrored Red Hat Network bundle to it, then assign the catalog to the managed devices. This allows users to have access through the catalog to all of the RPM packages contained in the Red Hat Network bundle.

For more information on mirroring and catalogs, see [Section 22.2, “Configuring a Software Mirror,” on page 254](#) and [Section 19.2, “Creating Catalogs,” on page 229](#).

From a managed device, there are two ways that you can force deployment and installation of the updates included in the Red Hat Network bundles contained in a catalog:

- ♦ **Using the ZENworks Linux Management Update Manager:** From the managed device, click *System > Software Update*, then select the catalog and click *Mark for installation > Run now*.
- ♦ **Using rug:** On a managed device, start a console session and enter the following command:

```
/opt/novell/zenworks/bin/rug up
```

For more information, see [Section 4.4, “rug,” on page 42](#).

22.5.2 Delivering Specific RPM Packages (Pushing)

If you want to provide specific RPM packages, you can create a custom bundle by selecting the desired subset of RPM packages from the initial bundle that was created when mirroring the Red Hat Network. Or, you can create several custom bundles, each containing one or more RPM packages. It is best to test your custom bundles on a single device to verify that there are no conflicts within a bundle. If the test is successful, you can then assign the bundles to your managed devices.

To ensure that the packages contained in the custom bundle can meet all of their dependencies, you can create a catalog containing the mirrored Red Hat Network bundle and make it available to the desired managed devices. During the catalog creation process, you can hide this catalog from users. After you assign the custom bundle to devices, if a package requires other packages for dependency resolution, the device has access to the packages in the hidden catalog. For more information, see [Section 19.2, “Creating Catalogs,” on page 229](#).

Managed devices refresh on a schedule. Also, an administrator can trigger a device refresh through the ZENworks Control Center. When a device refreshes, it downloads the bundle automatically from the server and installs it.

The managed device requests one or more bundles from the server. In other words, the server does not actually push the bundle. However, the server can tell the managed device to refresh immediately. You can also modify the refresh interval centrally from the server for one or more managed devices. Otherwise, the client refreshes on its own schedule to look for a scheduled action.

From a managed device, you can use rug to force a refresh by entering the following command:

```
/opt/novell/zenworks/bin/rug refresh
```

For more information, see [Section 4.4, “rug,” on page 42](#).

Creating RPM Packages From Tarballs

23

Novell® ZENworks® Linux Management - Dell Edition uses Red Hat Package Manager (RPM). RPM is a powerful package management system capable of installing, uninstalling, verifying, querying, and updating computer software packages on different devices.

ZENworks Linux Management- Dell Edition supports the RPM format.

RPM Packages are traditionally created using a `.rpm` spec file. This is the native RPM method, and includes a number of steps, including building the software to be packaged from sources. This method is the most powerful and flexible because it can exercise all of the options available in RPM. However, it is also the most complex.

This section describes the simplest method to create a `.rpm` file. At the same time, it is also the least flexible.

The following sections contain additional information:

- ♦ [Section 23.1, “Alien Package Converter Overview,” on page 265](#)
- ♦ [Section 23.2, “Installing Alien Package Converter,” on page 265](#)
- ♦ [Section 23.3, “Example Usage,” on page 266](#)

23.1 Alien Package Converter Overview

The Alien package converter is a simple program to convert packages from one format to another format. However, converting package formats does not usually work very well; package dependencies and other metadata do not carry over from one distribution to another, much less across packaging systems.

For our purposes, however, it works nicely. The Alien package converter allows the transformation from a tarball to a `.rpm` file, which can then be added to a ZENworks Server for distribution.

Additional information and download information about Alien package converter can be found on the [Alien Package Converter page \(http://www.kitenet.net/programs/alien/\)](http://www.kitenet.net/programs/alien/).

23.2 Installing Alien Package Converter

- 1 Ensure that you Perl version 5.004 or later.
- 2 Download the Alien package converter utility from the [Alien Package Converter page \(http://www.kitenet.net/programs/alien/alien_8.53.tar.gz\)](http://www.kitenet.net/programs/alien/alien_8.53.tar.gz).
- 3 Unpack, make, and install the utility using the following commands:

```
$ tar zxvf alien_8.53.tar.gz
$ cd alien
$ perl Makefile.PL
$ make
```
- 4 Log in as `root` or use `sudo`:

```
$ sudo make install
```

23.3 Example Usage

The following example describes the procedure to deliver a file called `readme` to the `/usr/share/myapp` directory:

- 1 Enter the following commands to create the directory structure and create the `.tar` file:

```
$ mkdir -p usr/share/myapp
$ echo "Hello World" >usr/share/myapp/readme
$ tar zcvf helloworld.tgz usr
```

When the tarball is unpacked, it will create the `/usr/share/myapp` directory containing the `readme` file.

- 2 Use Alien package converter to make an RPM package of the tarball by entering the following command:

```
$ alien -r helloworld.tgz
```

The Alien package converter creates the `helloworld-1-2.noarch.rpm` package.

- 3 Verify that the package is valid and list its contents by entering the following commands:

```
$ rpm -qlp helloworld-1-2.noarch.rpm
/usr
/usr/share
/usr/share/myapp
/usr/share/myapp/README
```

The `alien` utility has other options, such as to set the version and description of the package. See “`man alien`” for more information.