

Package Management

IV

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

- ♦ Chapter 15, “Package Management Overview,” on page 149
- ♦ Chapter 16, “Using RPM Bundles,” on page 153
- ♦ Chapter 17, “Using Catalogs,” on page 187
- ♦ Chapter 18, “Replicating Content in the ZENworks Management Zone,” on page 197
- ♦ Chapter 19, “Mirroring Software,” on page 199
- ♦ Chapter 20, “Creating RPM Packages From Tarballs,” on page 207

Novell® ZENworks® Linux Management lets you 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. A catalog is a collection of RPM bundles; software bundles included in a catalog are usually considered optional.

ZENworks Linux Management also provides content replication and mirroring to replicate content (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 (zlmmirror) lets you replicate content between Management Zones or from remote servers.

The following sections contain additional information:

- ♦ [Section 15.1, “Understanding RPM Bundles,” on page 149](#)
- ♦ [Section 15.2, “Understanding Catalogs,” on page 150](#)
- ♦ [Section 15.3, “Understanding the zlman Utility,” on page 150](#)
- ♦ [Section 15.4, “Replicating Content in the ZENworks Management Zone,” on page 150](#)
- ♦ [Section 15.5, “Mirroring Software,” on page 150](#)

15.1 Understanding RPM 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).

When you create a bundle using the Create New Bundle Wizard, you are given the choice of creating an RPM package bundle or a preboot 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 V, “Preboot Services,” on page 209](#).

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 16, “Using RPM Bundles,” on page 153](#).

15.2 Understanding Catalogs

A catalog is a collection of bundles; software 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 Update Manager to manage the software on managed devices. To access the ZENworks Linux Management Update Manager from the device, click *System*, then click *Software Update*.

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 17, “Using Catalogs,” on page 187](#).

15.3 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).

15.4 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 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 18, “Replicating Content in the ZENworks Management Zone,” on page 197](#).

15.5 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`.

For more information, see [Chapter 19, “Mirroring Software,” on page 199](#).

Using RPM Bundles

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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 or bundle groups; software bundles included in a catalog are usually considered optional. For more information about catalogs, see [Chapter 17, “Using Catalogs,” on page 187](#).

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 16.1, “Understanding Bundles,” on page 153](#)
- ◆ [Section 16.2, “Creating RPM Bundles,” on page 154](#)
- ◆ [Section 16.3, “Assigning Bundles,” on page 164](#)
- ◆ [Section 16.4, “Editing Bundles,” on page 167](#)
- ◆ [Section 16.5, “Adding Bundles to Catalogs,” on page 171](#)
- ◆ [Section 16.6, “Creating Folders,” on page 171](#)
- ◆ [Section 16.7, “Creating Bundle Groups,” on page 172](#)
- ◆ [Section 16.8, “Adding Bundles to Existing Groups,” on page 178](#)
- ◆ [Section 16.9, “Deleting Bundles, Bundle Groups, and Folders,” on page 178](#)
- ◆ [Section 16.10, “Renaming, Copying, or Moving Bundles,” on page 179](#)
- ◆ [Section 16.11, “Deploying a Different Version of a Bundle,” on page 180](#)
- ◆ [Section 16.12, “Using a Remote Execute Policy to Remove Bundles and Packages from Devices,” on page 181](#)
- ◆ [Section 16.13, “Generating Bundle Reports,” on page 185](#)

16.1 Understanding Bundles

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

- ◆ [Section 16.1.1, “RPM Bundles,” on page 154](#)
- ◆ [Section 16.1.2, “Preboot Bundles,” on page 154](#)

16.1.1 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.

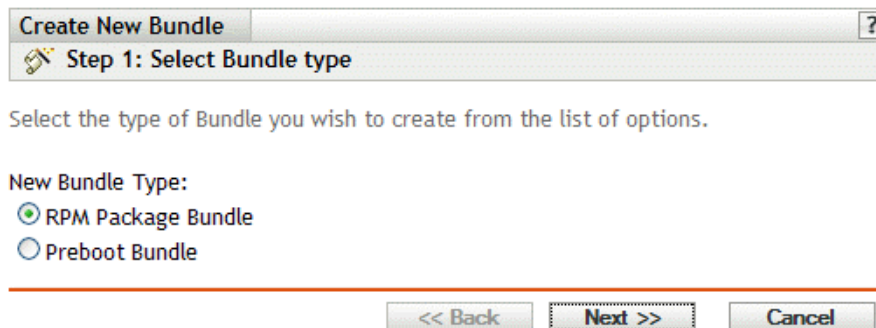
ZENworks Linux Management supports only the RPM format.

16.1.2 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 V, “Preboot Services,” on page 209](#).

16.2 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.



The screenshot shows a dialog box titled "Create New Bundle" with a question mark icon in the top right corner. Below the title bar, it says "Step 1: Select Bundle type" with a small icon of a wrench and screwdriver. The main text reads: "Select the type of Bundle you wish to create from the list of options." Below this, under the heading "New Bundle Type:", there are two radio button options: "RPM Package Bundle" (which is selected with a green dot) and "Preboot Bundle" (which is unselected with a blue dot). At the bottom of the dialog, there are three buttons: "<< Back", "Next >>" (which is highlighted with a dashed border), and "Cancel".

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

For more information about preboot bundles, see [Part V, “Preboot Services,”](#) on page 209.

The screenshot shows a dialog box titled "Create New Bundle" with a question mark icon in the top right corner. Below the title bar is a subtitle "Step 2: Name and Description" with a wrench icon. The main area contains the instruction "Enter a name, display name, location, and description for this new Bundle." followed by four input fields: "Name:" (a single-line text box), "Display Name:" (a single-line text box), "Folder:" (a text box containing "/Bundles" with a browse button icon to its right), and "Description:" (a multi-line text area). At the bottom of the dialog are three buttons: "<< Back", "Next >>", and "Cancel".

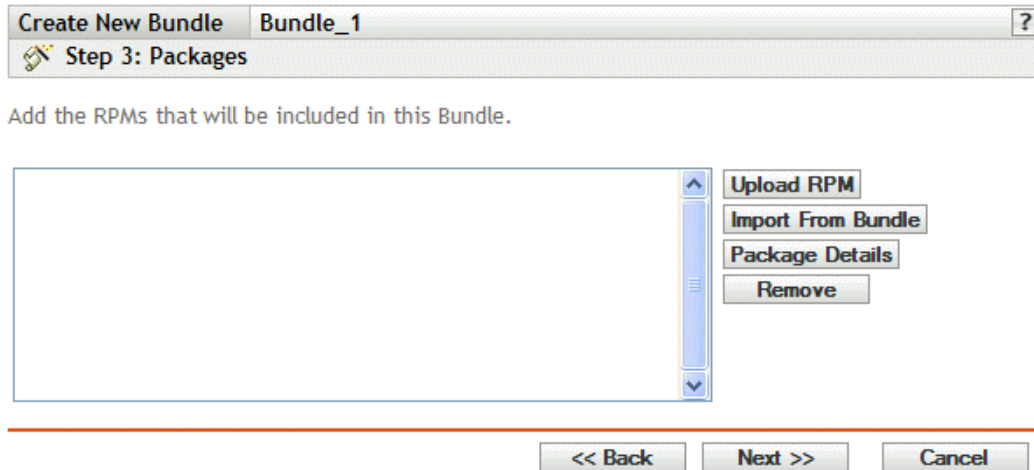
4 Fill in the fields:

- ♦ **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.
- ♦ **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 Update Manager, which is the user interface for updating software.

5 Click *Next* to display the Packages page.

Use the Packages page to add RPM packages to the bundle or to import RPM packages contained in an existing bundle. The packages that you add 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). You can also import packages from an existing RPM bundle.

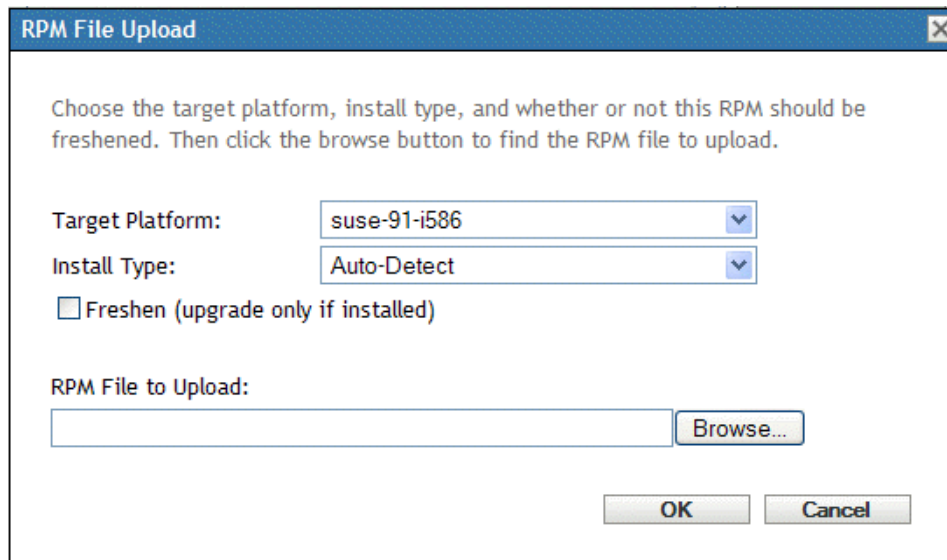


- 6 Add the RPM packages to include in the bundle using the *Upload RPM* and the *Import from Bundle* options.

You can use either the *Upload RPM* option or the *Import from Bundle* 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 using the *Package Details* option. You can remove a selected package from the list by using the *Remove* option.

- 6a** (Optional) Click the *Upload RPM* button 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, nld-9-i586, and sles-9-i586. PackageB applies to nld-9-i586 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 nld-9-i586.

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.

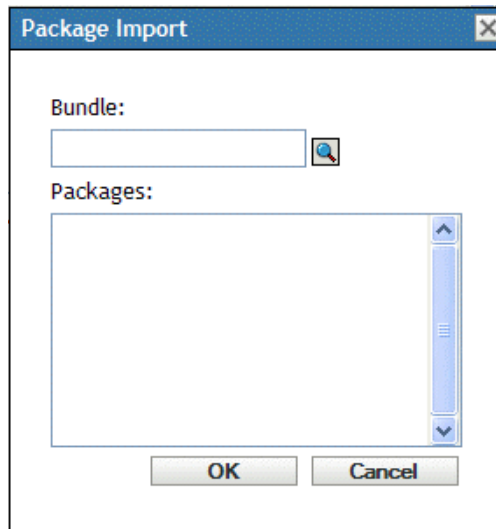
Install type: Use the Install type drop-down list to choose from the following installation options:

- ♦ **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.

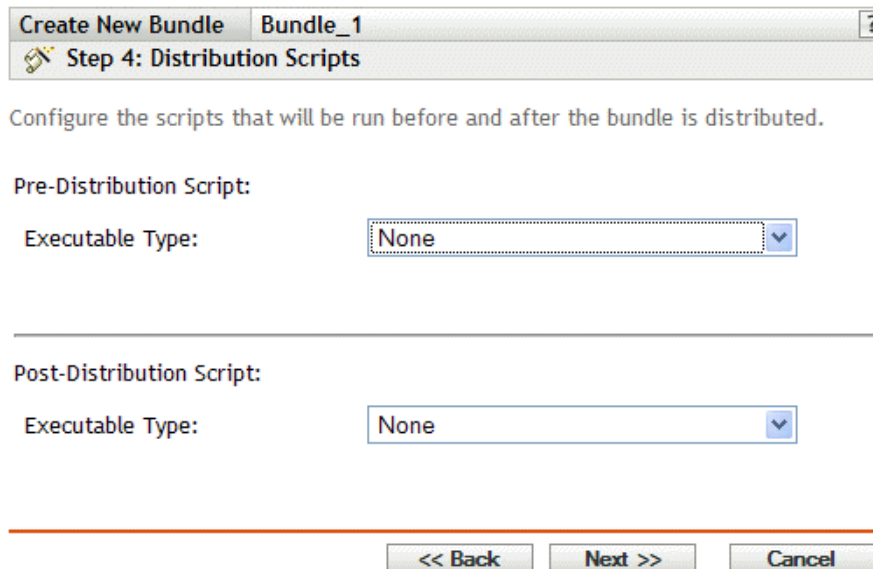
- 6b** (Optional) Click the *Import from Bundle* button to open the Package Import dialog box, fill in the fields, then click *OK*.



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

Packages: Select the packages to import.

- 7** Click *Next* to display the Distribution Scripts page.



- 8** Select a script engine from one or both of the *Executable type* drop-down lists, as needed.
- As part of the process of distributing a bundle, ZENworks Linux Management can launch a script engine to execute a “before distribution” script and an “after distribution” script. Distribution scripts let you perform tasks that must be done before or after a bundle is distributed. For example, you can log in to other servers or trees, provide dynamic mappings, run applications, and so forth.

Select one of the following script engines from the *Executable type* drop-down list:

- ♦ Script
- ♦ Binary
- ♦ Java
- ♦ None

Depending on the type of distribution script you select, different fields display to specify the filename and various parameters.

- 9 Click *Next* to display the Installation Scripts page.

Create New Bundle Bundle_1 ?

Step 5: Installation Scripts

Configure the scripts that will be run before and after the bundle is installed.

Pre-Installation Script:

Executable Type: None

Post-Installation Script:

Executable Type: None

<< Back Next >> Cancel

- 10 Select a script engine from one or both of the *Executable type* drop-down lists, as needed.

As part of the process of distributing a bundle, ZENworks Linux Management can launch a script engine to execute a “before installation” script and an “after installation” script. Installation scripts let you perform tasks that must be done before or after a bundle is installed. For example, you can log in to other servers or trees, provide dynamic mappings, run applications, and so forth.

Select one of the following script engines from the *Executable type* drop-down list:

- ♦ Script
- ♦ Binary
- ♦ Java
- ♦ None

Depending on the type of distribution script you select, different fields display to specify the filename and various parameters.

- 11 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.

- 12** 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 16.3, “Assigning Bundles,” on page 164](#).

or

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

- ◆ Specify assignments for this bundle
- ◆ Specify the deployment schedule for this bundle
- ◆ Specify the installation schedule 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 groups for this bundle

Create New Bundle Bundle_1 ?

Step 7: Bundle Assignments

Specify the assignments for this bundle:

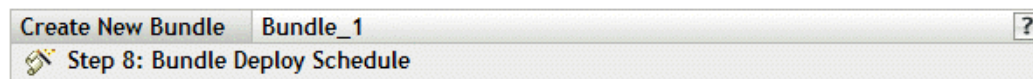
Add	Remove
<input type="checkbox"/>	Name In Folder

No items selected, click add to select items

<< Back Next >> Cancel

- 13** Assign the bundle to the devices that you want to distribute the bundle to.
- 13a** Click *Add* to browse for and select the appropriate Server or Workstation objects.
You can also select Folder or Group objects.
- 13b** 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.
- 13c** Click *OK*.

- 14 Click *Next* to display the Bundle Deploy 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

- 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 next page in this wizard, Bundle Install Schedule, lets you configure when the software packages in the bundle are actually installed on assigned devices.

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

- 17 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.

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

Create New Bundle bunde_1 ?

Step 10: 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.

☐ Remove conflicting packages

☐ Attempt a dry run

<< Back Next >> Cancel

19 (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 will not be 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 can be successfully deployed. If there are any issues that could prevent the RPM 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.).

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
<input type="checkbox"/>			

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*.

16.3 Assigning Bundles

When you assign bundles, you specify device assignments, deployment and installation schedules, special flags, and groups for an existing bundle.

In [Step 12](#) under [Section 16.2, “Creating RPM Bundles,” on page 154](#), you were given the choice of clicking *Finish* or *Next*.

If you clicked *Finish*, the bundle was created without assigning devices to it, specifying deployment and installation schedules, setting special flags, or specifying groups for the bundle. Before the bundle can be deployed and installed on assigned devices, you must complete the following steps. If you clicked *Next*, you have already performed the following procedure as part of the bundle-creation process.

- 1 In the ZENworks Control Center, click the *Bundles* tab, select the desired bundle in the Bundles list by checking the box next to its name, click *Action*, then click *Assign Bundle* to display the Bundle Assignments page.

Assign Bundle ?

Step 1: Devices to be Assigned

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

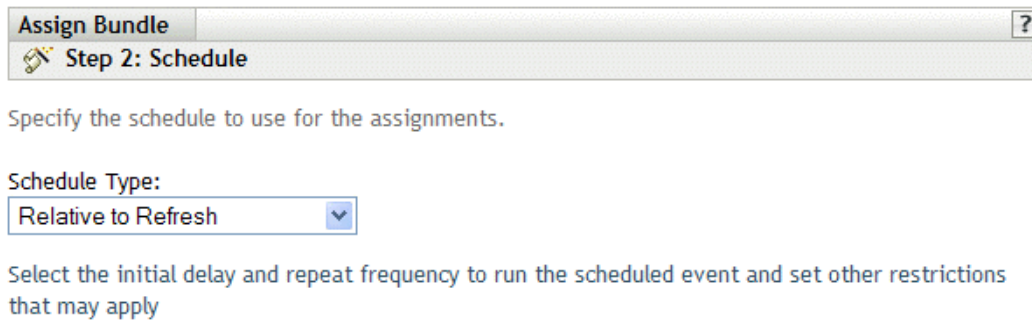
Add	Remove	Name	In Folder
<input type="checkbox"/>			

No items selected, click add to select items

<< Back Next >> Cancel

- 2 Assign the bundle to the devices that you want to distribute the bundle 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 Schedule page.



Assign Bundle ?

Step 2: Schedule

Specify the schedule to use for 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

- 4 Select the schedule to apply to the assignments, 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 assigned to devices. The next page in this wizard, Install Schedule, lets you configure when the software packages in the bundle are actually 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 assign the bundle 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 bundle to devices and set other restrictions that might apply.
Event	Select the event that triggers the assignment of the bundle.
Monthly	Select the day of the month on which to assign the bundle to devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle is assigned, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle's assignment is repeated and specify a time period when you do not want the bundle assigned to help minimize network traffic during that time.

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



RPM Package Bundles can specify a second schedule for installation.

Schedule Type:

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

- 6 Select a bundle-install 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 deployed to help minimize network traffic during that time.

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

Assign Bundle ?

Step 4: 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.

☒ Remove conflicting packages
☐ Attempt a dry run

<< Back Next >> Cancel

8 (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 will not be 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 can be successfully deployed. If there are any issues that could prevent the RPM 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.).

9 Click *Next* to display the Finish page.

10 Review the information on the Finish 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 Finish page.

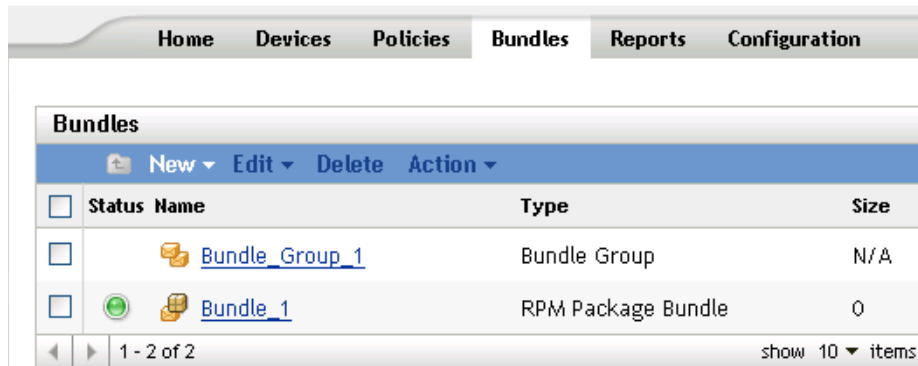
11 Click *OK*.



16.4 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.



Status	Name	Type	Size
<input type="checkbox"/>	 Bundle_Group_1	Bundle Group	N/A
<input type="checkbox"/>	 Bundle_1	RPM Package Bundle	0

- 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: 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 to display 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 16.3, "Assigning Bundles," on page 164](#).

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.

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

The Catalogs/Groups section lists 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 and installation 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*.

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.

Folder: Displays the name of the folder that contains this bundle in the ZENworks Control Center interface.

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 add RPM packages to the bundle, to import RPM packages contained in a bundle, or to remove packages from a bundle. The packages that you add 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 an existing RPM bundle.

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

- ♦ **Upload RPM:** Click the *Upload RPM* button to open the RPM File Upload dialog box. For more information, see [Step 6a on page 156](#).
- ♦ **Import from bundle:** Click the *Import from bundle* button to open the Package Import dialog box. For more information, see [Step 6b on page 158](#).
- ♦ **Remove:** Click *Remove* to remove the selected package from the bundle, as needed.

NOTE: To view details about each package, select it and then click *Package Details*.

Scripts: As part of the process of distributing or installing a bundle, ZENworks Linux Management can also launch a script engine to execute scripts that let you perform tasks that must be done before or after a bundle is distributed or installed. For example, you can log in to other servers or trees, provide dynamic mappings, run applications, and so forth.

Each *Executable type* box displays the script engine that was specified when the bundle was created. You can use any of the script drop-down lists to change the script engine that you want to use and to change the scripts you want executed.

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

16.5 Adding Bundles to Catalogs

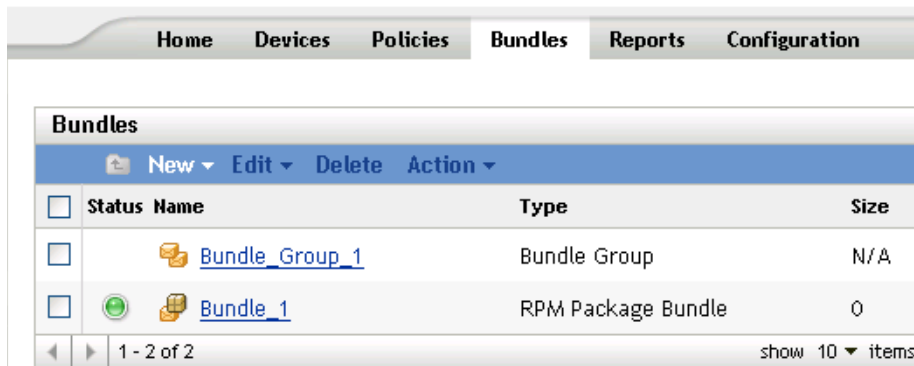
Instructions to add bundles to existing catalogs are included in the [Using Catalogs](#) section. For more information, see [Section 17.4, “Adding Bundles to Catalogs,” on page 192](#).

16.6 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.



The screenshot shows the ZENworks Control Center interface with the 'Bundles' tab selected. The interface includes a navigation bar with tabs: Home, Devices, Policies, Bundles, Reports, and Configuration. Below the navigation bar is a 'Bundles' section with a table. The table has columns for Status, Name, Type, and Size. There are two items listed: 'Bundle_Group_1' (Bundle Group) and 'Bundle_1' (RPM Package Bundle). The table also includes a 'New' button and a 'Delete' button. The bottom of the table shows '1 - 2 of 2' and 'show 10 items'.

Status	Name	Type	Size
<input type="checkbox"/>	 Bundle_Group_1	Bundle Group	N/A
<input type="checkbox"/>	 Bundle_1	RPM Package Bundle	0

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



The image shows a 'New Folder' dialog box with a blue title bar and a close button. It contains three input fields: 'Name: *' with an empty text box, 'Folder: *' with a text box containing '/Bundles' and a browse button, and 'Description:' with a large empty text area. Below the fields is a note: 'Fields marked with a blue asterisk are required.' At the bottom are 'OK' and 'Cancel' buttons.

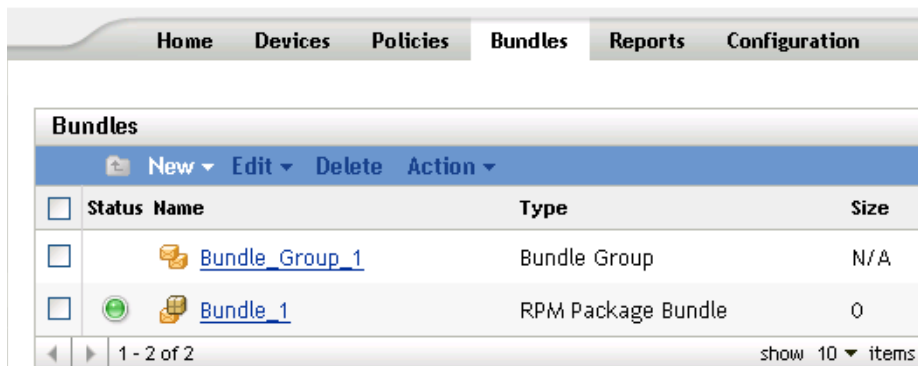
- 3 Fill in the fields:
 - ♦ **Name:** Provide a unique name for your folder. This is a required field.
 - ♦ **Folder:** Type the name or browse to the folder that contains this folder in the ZENworks Control Center interface.
 - ♦ **Description:** Provide a short description of the folder's contents.
- 4 Click *OK*.

16.7 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.

Create New Group ?

Step 1: Basic Information

Group Name: *

Folder: *

Description:

Fields marked with a blue asterisk are required.

<< Back

Next >>

Cancel

- 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.
- ♦ **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 Manager, 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 for this bundle group.

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 16.3, “Assigning Bundles,” on page 164](#).

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
- ♦ Specify the schedule to apply the bundle-group assignments
- ♦ Specify the schedule to install the bundles on assigned devices
- ♦ Set special flags, such as flags to remove conflicting packages and attempt a dry run of the package installation

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 Schedule page.
- 10 Select the schedule to apply to the assignments, 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 group is assigned to devices. The next page in this wizard, Install Schedule, lets you configure when the software packages in the bundle are actually installed.

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 assign the bundle group 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 bundle group to devices and set other restrictions that might apply.
Event	Select the event that triggers the assignment of the bundle group.
Monthly	Select the day of the month on which to assign the bundle group to devices and set other restrictions that might apply.

Schedule Type	Description
Relative to Refresh	Schedule when the bundle group is assigned, either immediately after the device refreshes or a specified amount of time after the device refreshes. You can also specify whether the bundle group's assignment is repeated and specify a time period when you do not want the bundle assigned to help minimize network traffic during that time.

11 Click *Next* to display the Install Schedule page.

12 Select a bundle group-install schedule type from the drop-down list, which vary, depending on the schedule type you select.

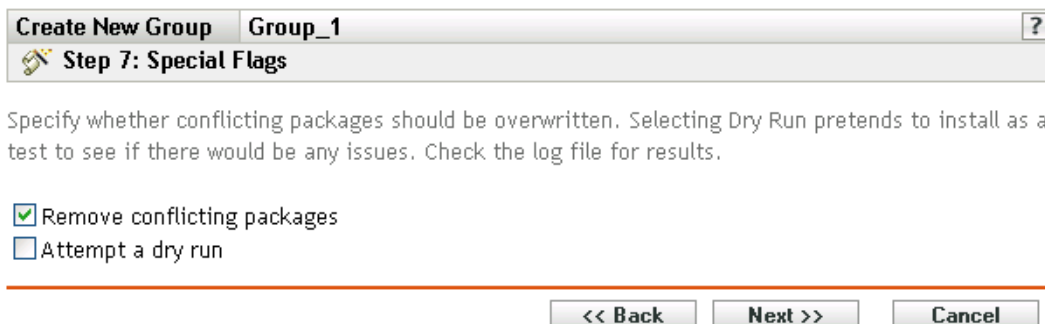
For more information on the various options, click the desired link in the Schedule Type column in the following table.

The settings you configure on this page determine when the bundles in the bundle group are 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 bundles in the bundle group 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 bundles in the bundle group on assigned devices and set other restrictions that might apply.
Event	Select the event that triggers the installation of the bundles in the bundle group.
Monthly	Select the day of the month on which to install the bundles in the bundle group on assigned devices and set other restrictions that might apply.
Relative to Refresh	Schedule when the bundle group 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 group's installation is repeated and specify a time period when you do not want the bundle group installed to help minimize network traffic during that time.

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



Create New Group Group_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.

☒ Remove conflicting packages
☐ Attempt a dry run

<< Back Next >> Cancel

- 14 (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 will not be 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 can be successfully deployed. If there are any issues that could prevent the RPM 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.).

- 15 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.
- 16 Click *Finish*.
- 17 Click *OK*.

16.8 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 checking the box next to its name, click *Action*, then click *Add to Group* to display the Targets page.

Add To Group ?

Step 1: Targets

Select the groups that will contain the items.

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

No items selected, click add to select items

<< Back Next >> Cancel

- 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.

16.9 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 or remove a bundle's assignments from 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

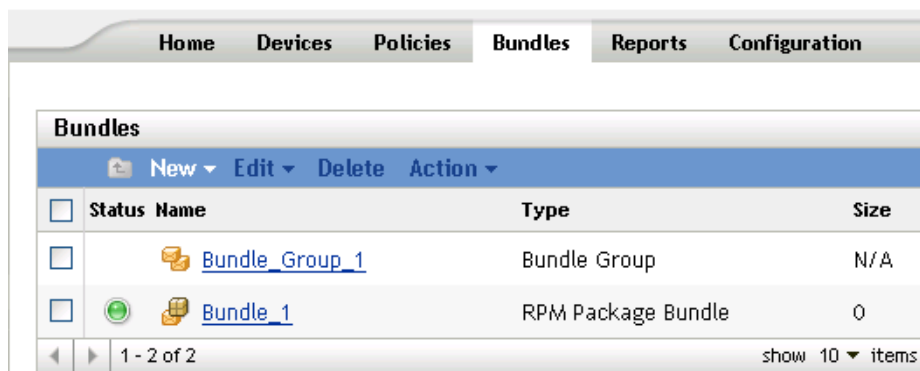
from the ZENworks Control Center and still display on the Bundles page. As with bundles, when you delete a bundle group from the ZENworks Control Center, the software contained in that bundle group remains on the previously assigned devices.

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.

Removing Packages from Devices: To remove RPM packages from devices, you can configure a Remote Execute policy to run a script. You can then assign the policy to devices. For more information, see [Section 16.12, “Using a Remote Execute Policy to Remove Bundles and Packages from Devices,”](#) on page 181.

To delete a bundle, bundle group, or folder:

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



- 2 In the Bundles list, check 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.

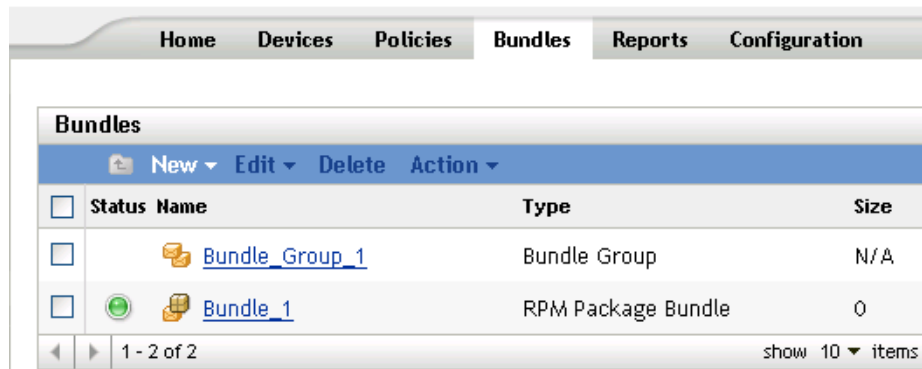
16.10 Renaming, Copying, or Moving Bundles

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, check 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*.
 - ♦ **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.

16.11 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 16.4, “Editing Bundles,” on page 167](#). Note that only changes made on the Details page cause the version number to increment, as described in [Step 3 on page 169](#).

The following section contains more information:

- ♦ [Section 16.11.1, “Bundle Version Deployment Behavior \(ZENworks Control Center vs. the zlman Utility\),” on page 181](#)

16.11.1 Bundle Version Deployment Behavior (ZENworks Control Center vs. the `z1man` Utility)

You can modify an existing bundle using either the ZENworks Control Center or the `z1man` utility, which causes the bundle's version number to increment. Depending on the method you use to modify a bundle, the deployment behavior of the new version varies.

If you use the ZENworks Control Center to modify a bundle, the version number increments but the new version of the bundle is not automatically deployed; you must manually deploy the new version, as described in [Step 3a on page 170](#).

If you use the `z1man` utility to modify a bundle, the version number increments and the new version of the bundle is automatically deployed; you do not have to manually deploy the edited bundle.

16.12 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, checking the box next to a bundle's name, and then clicking Delete, the software is not removed from assigned devices.

To remove the bundles and software packages from devices, 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.
 - ♦ **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*.

Create New Remote Execute Policy Remote_Execute ?

Step 3: Remote Execute Policy

Executable Type:

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

Script to run:

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, depending on your needs:

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

Sample Script	Description
<code>rug rm bundle1 --allow-removals</code>	<p>Removes bundle1 and all of its dependencies, even if they are not contained in the bundle.</p> <p>If you attempt to remove a bundle that has outside dependencies without using this flag, you receive the following error message: "Error: Could not remove the bundle because of RPM dependency chain. Removing this bundle will require ZMD to remove additional packages not contained in this bundle."</p>

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 14.4, "Assigning Policies," on page 128](#).

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

Create New Remote Execute Policy	Remote_Execute	?
 Step 5: Policy Assignments		

Specify the assignments for this policy:

Add	Remove				
<input type="checkbox"/>	<table border="1"> <thead> <tr> <th>Name</th> <th>In Folder</th> </tr> </thead> <tbody> <tr> <td colspan="2">No items selected, click add to select items</td> </tr> </tbody> </table>	Name	In Folder	No items selected, click add to select items	
Name	In Folder				
No items selected, click add to select items					

<< Back	Next >>	Cancel
---------	---------	--------

- 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.
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.

16.13 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:

- ♦ **Bundle Delivery Failure:** Lists bundle delivery failures per device.
- ♦ **Bundle Delivery in the Past 24 Hours:** Displays the previous day's bundle deliveries.
- ♦ **Bundle Delivery Information per Device:** Lists information consisting of error, warning, and success counts, as well as the last bundle delivery message and status.
- ♦ **Last Bundle Delivery per Device:** Displays the last bundle delivery that took place per device.

For more information, see [Part IX, “Reports,” on page 385](#).

Using Novell® ZENworks® Linux Management, you can install software using either a catalog or a bundle. A catalog is a collection of RPM bundles; software bundles included in a catalog are usually considered optional. 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). For more information about bundles, see [Chapter 16, “Using RPM Bundles,” on page 153](#).

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 17.1, “Understanding Catalogs,” on page 187](#)
- ♦ [Section 17.2, “Creating Catalogs,” on page 187](#)
- ♦ [Section 17.3, “Assigning Catalogs,” on page 191](#)
- ♦ [Section 17.4, “Adding Bundles to Catalogs,” on page 192](#)
- ♦ [Section 17.5, “Renaming or Moving Catalogs,” on page 193](#)
- ♦ [Section 17.6, “Deleting Catalogs,” on page 194](#)
- ♦ [Section 17.7, “Creating Folders,” on page 194](#)

17.1 Understanding Catalogs

A catalog is a collection of bundles; software 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 Update Manager to manage the software on managed devices. To access the ZENworks Linux Management Update Manager, from the device, click *System*, then click *Software Update*.

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.

17.2 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.

Create New Catalog

Step 1: Catalog Name

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

Catalog Name: *

Display Name: *

Folder: *

/Bundles

Description:

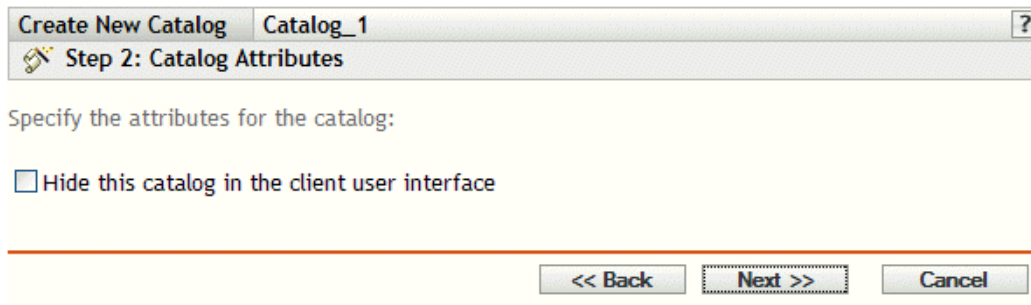
Fields marked with a blue asterisk are required.

<< 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.
- ♦ **Display name:** (Required) 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 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 in the ZENworks Linux Management Update Manager, which is the user interface for updating software.
- ♦ **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 users deploy and install the primary package in the bundle or in the visible catalog, 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 or have any assignments. At some time in the future, you need to perform the steps under [Section 17.3, “Assigning Catalogs,” on page 191](#).

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

Create New Catalog Catalog_1 ?

 Step 4: Select Bundles

Specify the bundles and bundle groups to place in this catalog:

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

<< Back Next >> Cancel

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.

Create New Catalog Catalog_1 ?

 Step 5: Catalog Assignments

Specify the assignments for this catalog:

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

<< Back Next >> Cancel

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 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.

12 Click *OK*.

17.3 Assigning Catalogs

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

In [Step 7](#) under [Section 17.2, “Creating Catalogs,” on page 187](#), you were given the choice of clicking *Finish* or *Next*.

If you clicked *Finish*, the catalog was created without assigning devices to it or setting special flags for the catalog. Before the catalog can be deployed and installed 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 checking the box next to its name, click *Action*, then click *Assign Catalog* to display the Devices To Be Assigned page.

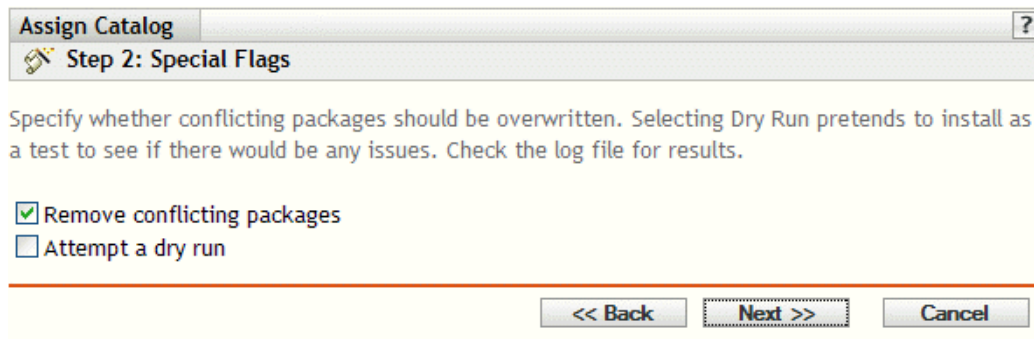
The screenshot shows a dialog box titled "Assign Catalog" with a question mark icon in the top right corner. Below the title bar is a section labeled "Step 1: Devices to be Assigned" with a wrench icon. The main area contains the instruction "Select the devices to be assigned to the previously selected catalogs." Below this is a table with two columns: "Name" and "In Folder". The "Name" column has a checkbox next to it. The table is currently empty, and a message below it says "No items selected, click add to select items". At the bottom of the dialog are three buttons: "<< Back", "Next >>" (which is highlighted with a dashed border), and "Cancel".

- 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.



The dialog box is titled "Assign Catalog" with a question mark icon. Below the title bar, it says "Step 2: Special Flags". 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." There are two checkboxes: "Remove conflicting packages" (checked) and "Attempt a dry run" (unchecked). At the bottom right, there are three buttons: "<< Back", "Next >>" (highlighted with a dashed border), and "Cancel".

- 4 (Optional) Specify the following options:

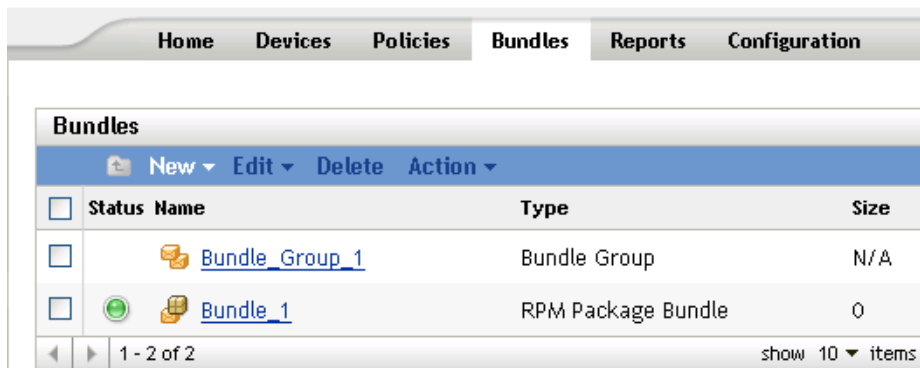
- ♦ **Remove conflicting packages:** Select this option to specify that conflicting packages are uninstalled from devices before installing new packages. By default, this option is selected, so conflicting packages (previous versions of the same package, for example) are uninstalled before the current package is installed. If this option is not selected, packages will not be 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 can be successfully deployed. If there are any issues that could prevent the RPM 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.).

- 5 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.
- 6 Click *OK*.

17.4 Adding Bundles to Catalogs

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



The screenshot shows the ZENworks Control Center interface with the "Bundles" tab selected. The top navigation bar includes "Home", "Devices", "Policies", "Bundles", "Reports", and "Configuration". Below the navigation bar, there is a "Bundles" section with a table. The table has columns for "Status", "Name", "Type", and "Size". There are two rows of data: "Bundle_Group_1" (Bundle Group, N/A) and "Bundle_1" (RPM Package Bundle, 0). The table also includes a "New" button, "Edit", "Delete", and "Action" dropdown. At the bottom, it shows "1 - 2 of 2" and "show 10 items".

Status	Name	Type	Size
	Bundle_Group_1	Bundle Group	N/A
	Bundle_1	RPM Package Bundle	0

- 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.

Add To Catalog ?

Step 1: Targets

Select the catalogs that will contain the items.

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

<< Back Next >> Cancel

- 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.

17.5 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.

Home

Devices





Policies




Bundles



Reports

Configuration

Bundles

 New  Edit  Delete  Action

<input type="checkbox"/>	Status	Name	Type	Size
<input type="checkbox"/>		 Bundle_Group_1	Bundle Group	N/A
<input type="checkbox"/>		 Bundle_1	RPM Package Bundle	0

  1 - 2 of 2 show 10 items

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.

17.6 Deleting Catalogs

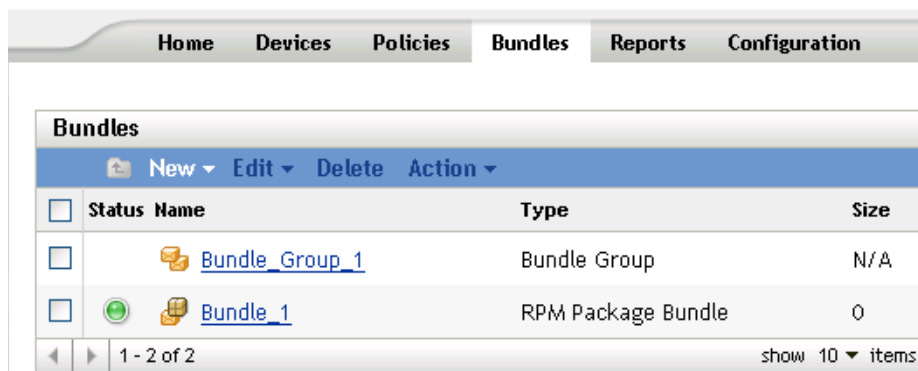
If you delete a catalog from your ZENworks Linux Management system, the catalog does not display on the Bundles or Devices pages in the ZENworks Control Center; however, the software contained in that catalog remains on the previously assigned devices.

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 16.12, “Using a Remote Execute Policy to Remove Bundles and Packages from Devices,”](#) on page 181.

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.

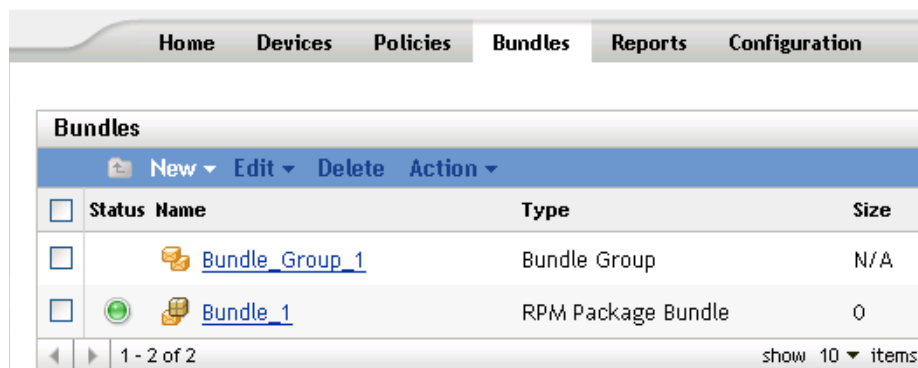
3 Click *OK* on the warning window that displays.

17.7 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 'New Folder' dialog box is shown with a blue title bar and a close button. It contains three fields: 'Name: *' with a text input field, 'Folder: *' with a text input field containing '/Bundles' and a browse button, and 'Description:' with a large text area. At the bottom, there is a note: '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.
- ♦ **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*.

Replicating Content in the ZENworks Management Zone

18

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.

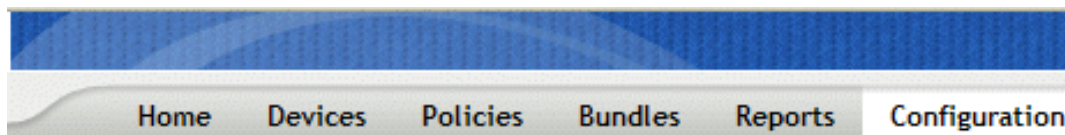
Each ZENworks Management Zone has one primary server, and optionally, one or more secondary servers to help distribute the workload.

All RPM packages must reside on the primary server. ZENworks Linux Management uses content replication to replicate packages to each secondary server in your system.

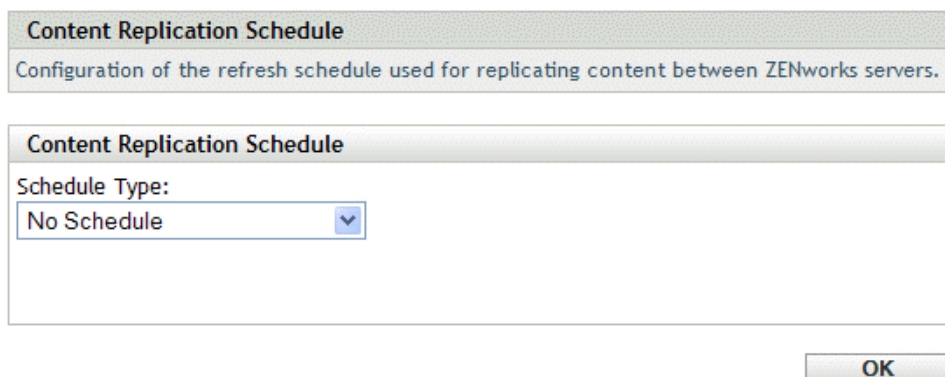
NOTE: Depending on your needs, you might have more than one ZENworks Management Zone in your system. The content replication procedure in this section helps you replicate content from the primary server to secondary servers in a particular Management Zone. To replicate content across Management Zones, you must use `zlmirror`. For more information, see [Chapter 19, “Mirroring Software,”](#) on page 199.

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.

A screenshot of the 'Content Replication Schedule' configuration page. The page has a light gray header with the title 'Content Replication Schedule' and a subtitle 'Configuration of the refresh schedule used for replicating content between ZENworks servers.' Below the header, there is a form with a 'Schedule Type:' label and a drop-down menu. The drop-down menu is currently set to 'No Schedule'. At the bottom right of the form, there is an 'OK' button.

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

The Content Replication Schedule determines how often RPM 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 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. For information about replicating content from a ZENworks primary server to ZENworks secondary servers in a particular Management Zone, see [Chapter 18, “Replicating Content in the ZENworks Management Zone,”](#) on page 197.

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)
- ♦ YaST Online Updates
- ♦ Red Hat Network
- ♦ Red Carpet Enterprise or ZENworks 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, 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.

ZENworks 7 Linux Management automatically looks for SUSE Linux Enterprise Server (SLES) Service Packs and creates Bundle Groups to contain them. Because of this new functionality, you can now mirror SLES Service Packs.

The following sections contain additional information:

- ♦ [Section 19.1, “zlmirror,”](#) on page 199
- ♦ [Section 19.2, “Configuring a Software Mirror,”](#) on page 200
- ♦ [Section 19.3, “Distributing Catalogs from a Public ZENworks Linux Management Server,”](#) on page 204
- ♦ [Section 19.4, “Deploying Red Hat Network Updates,”](#) on page 204

19.1 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 also view an HTML version of the zlmirror man page.

19.2 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 19.2.1, “Creating Configuration Files,” on page 200](#)

2. Testing and run the mirroring operation using zlmirror.

See [Section 19.2.2, “Testing and Performing the Mirroring Operation,” on page 203](#)

19.2.1 Creating Configuration Files

In this early access release, no default configuration file is supplied. Run the following command to generate an empty configuration file:

```
zlmirror conf-generate zlmirror-config.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 zlmirror-config.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 200](#)
- ♦ [“Step 2: Catalog and Bundle Configuration” on page 202](#)

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>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>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, 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/partnernet</code></p> <p>YAST: <code>/etc/sysconfig/onlineupdate</code></p> <p>When connecting to an RHN server, leave this element empty.</p>

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	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.
Password	Password for the account provided in User. If you are using the Administrator account, this is the password you specified during the server installation.

Step 2: Catalog and Bundle Configuration

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

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	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.
Folder	Specifies the eDirectory folder (for example, <code>/folder1/folder2</code>) where bundles and catalogs are created and updated. If not specified, the catalogs and bundles are created and updated in the <code>/zlmirror</code> folder.
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>

Configuration Element	Description
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>
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>

19.2.2 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 zlmirror-config.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
```

19.3 Distributing Catalogs from a Public ZENworks Linux Management Server

The following sections contain additional information:

- [Section 19.3.1, “Creating a Public ZENworks Linux Management Server,” on page 204](#)
- [Section 19.3.2, “Accessing a Public ZENworks Linux Management Server,” on page 204](#)

19.3.1 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 II, “Device Registration,” on page 47](#) and [Section 14.2, “Creating Folders,” on page 124](#).

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

For more information, see [Section 17.3, “Assigning Catalogs,” on page 191](#).

19.3.2 Accessing a Public ZENworks Linux Management Server

- 1 Create a `zlmirror.conf` file.

For more information, see [Section 19.2.1, “Creating Configuration Files,” on page 200](#).

- 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](#)” under “[Installation](#)” in the *Novell ZENworks 7 Linux Management 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](#).

For more information, see [Section 19.2.2, “Testing and Performing the Mirroring Operation,” on page 203](#).

19.4 Deploying Red Hat Network Updates

When you use ZENworks Linux Management 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, which will cause significant network traffic and the bundle might contain RPM packages that conflict with each other.

Following are two scenarios for updating devices with RPM packages:

- [Section 19.4.1, “Providing All RPM Packages and Package Bundles through a Catalog \(Pulling\),” on page 205](#)

- ♦ [Section 19.4.2, “Delivering Specific RPM Packages \(Pushing\),” on page 205](#)

19.4.1 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 19.2, “Configuring a Software Mirror,” on page 200](#) and [Section 17.2, “Creating Catalogs,” on page 187](#).

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 [“rug” on page 21](#).

19.4.2 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 17.2, “Creating Catalogs,” on page 187](#).

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 [“rug” on page 21](#).

Creating RPM Packages From Tarballs

20

Novell® 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 only 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 20.1, “Alien Package Converter Overview,” on page 207](#)
- ♦ [Section 20.2, “Installing Alien Package Converter,” on page 207](#)
- ♦ [Section 20.3, “Example Usage,” on page 208](#)

20.1 Alien Package Converter Overview

The Alien package converter is a simple program to convert packages from one format to another format. Note that, in general, converting package formats does not 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 will work 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/).

20.2 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
```

20.3 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, for example to set the version and description of the package. See “`man alien`” for more information.