

ZENworks® 2017Update 2

ZENworks Linux Package Management Reference

February 2018

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About This Guide

This *ZENworks Configuration Management Linux Package Management Reference* includes conceptual and task based information that makes it easy to manage the required software packages for Linux managed devices through the graphical user interface or the command line utility

The information in this guide is organized as follows:

- ♦ Part I, "Linux Package Management Overview," on page 9
- ♦ Part II, "Subscriptions," on page 17
- ♦ Part III, "Bundles for Linux Devices," on page 43
- ♦ Part IV, "External Services," on page 67
- ♦ Part V, "Package Management Features on Managed Devices," on page 71
- ♦ Part VI, "Reports," on page 81
- ♦ Part VII, "Appendixes," on page 85

Audience

This guide is intended for ZENworks administrators.

Feedback

We want to hear your comments and suggestions about this manual and the other documentation included with this product. Please use the User Comments feature at the bottom of each page of the online documentation.

Additional Documentation

ZENworks is supported by other documentation (in both PDF and HTML formats) that you can use to learn about and implement the product. For additional documentation, see the [ZENworks documentation Web site \(http://www.novell.com/documentation/zenworks2017\)](http://www.novell.com/documentation/zenworks2017)

Linux Package Management Overview

ZENworks Configuration Management provides an integrated Linux Package Management system that helps you to easily manage the required software packages for Linux managed devices through a graphical user interface or a command line utility.

Linux Management makes it easy to adopt and extend Linux within your existing environment. It uses policy-driven automation to deploy, manage, and maintain Linux resources. The automated and intelligent policies allow you to provide centralized control across the life cycle of Linux systems for desktop lockdown, imaging, remote management, inventory management, and software management. The result is a comprehensive Linux management solution that eliminates IT effort by dramatically reducing the required overhead needed to manage Linux systems.

For more information, see the following section:

- ◆ [Chapter 1, “Understanding Linux Package Management,” on page 11.](#)

1 Understanding Linux Package Management

This chapter helps you to understand the different ways to patch your Linux devices and the different capabilities provided by Linux Package Management.

- ♦ “Using ZENworks Functionality to Patch Linux Devices” on page 11
- ♦ “Using Linux Package Management” on page 12
- ♦ “Understanding RPM Packages” on page 13
- ♦ “Understanding the Repositories” on page 13
- ♦ “Patching the Client Systems” on page 14
- ♦ “Registering with the Novell Customer Center” on page 14

Using ZENworks Functionality to Patch Linux Devices

ZENworks provides two different ways to patch your Linux devices:

- ♦ “Patch Management” on page 11
- ♦ “Linux Package Management” on page 11

Patch Management

Patch Management is a fully integrated feature of ZENworks that provides an agent-based patch, a vulnerability patch, and a compliance management solution.

Patch Management provides the following capabilities:

- ♦ It uses signatures to determine the required patches and reports them back for easy reporting.
- ♦ It implements mandatory baselines for certain patches to always be present on a device.
- ♦ It patches only the SLES and RHEL distributions.

For more information, see the [ZENworks 2017 Patch Management Reference](#).

Linux Package Management

Linux Package Management is intended to handle the package management functionality of ZENworks Configuration Management for Linux devices (servers and desktops).

Linux Package Management provides the following capabilities:

- ♦ It provides single point management for patching, installing, and updating packages for large number of Linux devices at an enterprise level.
- ♦ It mirrors updates and packages from the NU, RHN, RCE, and YUM repositories for patches and packages as ZENworks bundles. You can assign these bundles to Linux managed devices for package management.

- ♦ It supports the download of delta RPMs on the managed devices whenever the delta RPMs are available and applicable, thereby reducing the bandwidth required when patching.
- ♦ It allows you to choose the catalogs, packages, and bundles that you want to mirror.
- ♦ It allows you to patch OES servers.

Using Linux Package Management

Linux Package Management in ZENworks Configuration Management provides the following functionalities:

- ♦ [“Managing and Resolving Package Dependencies” on page 12](#)
- ♦ [“Downloading the Delta RPM Packages to your Devices” on page 12](#)
- ♦ [“Setting Up a Subscription to the Repositories and Replicating Content to ZENworks Primary Servers” on page 12](#)

Managing and Resolving Package Dependencies

A package is a file that contains software metadata and all the files of the software. You can download the required packages or package updates from a remote repository by using subscriptions, and install them on your Linux devices by using the bundles created from subscriptions.

Packages can also depend on the functionality of other packages. Linux Package Management helps manage and resolve these dependencies automatically. You can use Linux bundles to store package updates and Linux Dependency bundles to provide dependent packages.

For more information on these bundles, see the [Chapter 6, “Using Bundles for Linux Devices,” on page 45](#).

Downloading the Delta RPM Packages to your Devices

ZENworks also lets you download delta RPM packages to your devices. Delta RPM packages contain the difference between an old and a new version of an RPM package. Applying a delta RPM on an older version of an RPM results in a new version of the RPM. It is not necessary to have a copy of the old RPM because a delta RPM can also work with an installed RPM. The delta RPM packages are smaller in size compared to the complete RPMs, which is an advantage when downloading package updates.

Setting Up a Subscription to the Repositories and Replicating Content to ZENworks Primary Servers

The Subscriptions feature in ZENworks makes it easy to set up a subscription to the repositories such as Novell Update (NU), Red Carpet Enterprise (RCE), or to other external repositories such as Yellowdog Updater Modified (YUM, which is also called RPM-MD), so you can replicate content to the ZENworks Primary Servers. You can create Linux bundles or Linux Dependency bundles from these subscriptions and assign them to devices.

Understanding RPM Packages

In Linux Package Management, an RPM (RPM Package Manager) is used to manage software packages. You can use this package format to distribute the software packages either in the precompiled binary form or the source code form. The RPM packages are usually targeted at particular distributions. An RPM package file is identified with a `.rpm` extension.

You can install an RPM package either from an RPM file located on the local file system or from remote HTTP or FTP locations.

Each RPM package shares a list of binaries and libraries. These binaries and libraries might be required by other RPM packages during installation; if so, this creates a dependency. The RPM system cannot determine the packages that resolve such dependencies, so the ZENworks Management Daemon automatically searches for the packages in the repositories and downloads them to resolve the dependencies.

For example, if you request to install package A that depends on package B, and package B depends on package C, the ZENworks Management Daemon automatically finds the dependent packages B and C from the available repositories and installs them along with the requested package A.

The RPM Package Manager uses the following dependencies:

Requires: Lists packages and files that are required by the current package.

Provides: Lists packages and files that are provided by the current package.

Conflicts: Lists the packages that conflict with the current package.

Obsoletes: Lists the packages that the current package obsoletes.

You can download and install packages by using the `rpm --install package_name` and `rpm --upgrade package_name` commands. If you use these commands, you must manually find the package dependencies and install them.

Understanding the Repositories

An RPM repository, also known as a repo, is a storage location from which you can retrieve the software packages and install them on your device. You can also maintain these repositories on Internet servers.

For example, many Linux distributions use Advanced Package Management tools like YUM, Zypper, or YaST to download and install the RPM packages from the repositories.

The following sections explain the different types of repositories and the distributions they are used in:

- ◆ [“NU Repository” on page 14](#)
- ◆ [“RCE Repository” on page 14](#)
- ◆ [“Red Hat Network” on page 14](#)
- ◆ [“YUM or RPM-MD Repository” on page 14](#)
- ◆ [“ZENworks Linux Management Repository” on page 14](#)

NU Repository

The NU repository is a collection of YUM repositories. The NU repository hosts RPM packages and patches. It also contains several metadata files that contain all the required information about the packages and patches. This repository updates the distributions that are supported in ZENworks. For more information, see “[Linux Managed Device Requirements](#)” in the *ZENworks 2017 Update 2 System Requirements*.

The NU repository is available at the [Novell update \(https://nu.novell.com/repo\)](https://nu.novell.com/repo). This server requires authentication with your Novell account name and password.

RCE Repository

The RCE repository contains metadata files that contain the packages and patches along with their information. This repository updates the distributions that are supported in ZENworks. For more information, see “[Linux Managed Device Requirements](#)” in the *ZENworks 2017 Update 2 System Requirements*.

This repository is available at [Red Carpet Enterprise \(https://update.novell.com/data\)](https://update.novell.com/data). This server requires authentication with your Novell account name and password.

Red Hat Network

The Red Hat Network (RHN) repository contains metadata files that contain packages and patches. This repository updates the distributions that are supported in ZENworks. For more information, see “[Linux Managed Device Requirements](#)” in the *ZENworks 2017 Update 2 System Requirements*:

YUM or RPM-MD Repository

The YUM repository, also referred to as the RPM-MD repository, is a collection of packages and metadata containing information about packages and patches. The metadata is hosted in the RPM-MD format that is used by the package management functionality.

ZENworks Linux Management Repository

You can use the ZENworks Linux Management repository to replicate content from the ZENworks 7.x Linux Management Server to the ZENworks Configuration Management Server.

Patching the Client Systems

The best way to obtain updates is to periodically replicate the updates to the ZENworks Configuration Management server, and then assign the replicated bundle to the managed devices, which saves the Internet bandwidth.

Registering with the Novell Customer Center

Novell Customer Center is an online tool that makes it easier for you to manage your business and technical interactions with Novell. From one location, you can do the following:

- ◆ Review the status of supported Novell products, subscriptions, and services

- ◆ Obtain support
- ◆ Get Linux updates and patches

ZENworks Configuration Management Server registers the zone with Novell Customer Center. The registration supplies the name and operating system information about each of the SUSE Linux devices (servers /agent) in the zone to Novell Customer Center so that from Novell Customer Center you can see the SUSE (servers/desktop) that are installed for licensing purposes.

For more information about Novell Customer Center, see the [Novell Customer Center documentation \(http://www.novell.com/documentation/ncc/index.html\)](http://www.novell.com/documentation/ncc/index.html).

ZENworks Configuration Management helps you to register all SUSE Linux Enterprise Server (SLES) 10, SUSE Linux Enterprise Desktop (SLED) 10, SLES 11, and SLED 11 managed devices into Novell Customer Center at the same time. By integrating Novell Customer Center with the ZENworks Configuration Management server, you do not need to individually register each managed device with Novell Customer Center.

You can register with Novell Customer Center in any of the following ways:

- ◆ “[Registering through ZENworks Control Center](#)” on page 15
- ◆ “[Registering through the zman Command](#)” on page 15
- ◆ “[Configuring the Novell Customer Center Proxy Settings](#)” on page 16

Registering through ZENworks Control Center

- 1 Log in to ZENworks Control Center, then click the **Configuration** tab.
- 2 In **Management Zone Settings**, click **Infrastructure Management > Novell Customer Center** to display the Novell Customer Center page.
- 3 Configure the following settings to register the Linux devices and upload their basic hardware inventory information to Novell Customer Center:
 - ◆ In the **Register** field, select a server that you want to register with Novell Customer Center. The drop-down list displays the Primary Servers in the Management Zone.
 - ◆ Select the **Enable link-up with Novell Customer Center** option to enable the server to periodically transmit information about itself and its devices to Novell Customer Center.
 - ◆ The **Recurring** scheduling option lets you repeat the event at a specified interval. For more information on the Recurring schedule type, see Schedule Types in the [ZENworks Primary Server and Satellite Reference](#).
- 4 Click **Apply**, then click **OK**.

Registering through the zman Command

You can use the following command to register your device with Novell Customer Center:

```
zman ncc-register e-mail_address registration_key Primary_Server_path --
nccConfigXML --reRegister
```

email: The e-mail address to register the Primary Server with the Novell Customer Center Server.

registration-key: The registration key to register the Primary Server with the Novell Customer Center Server.

Primary Server path: The path of the Primary Server to register with the Novell Customer Center Server.

-i, --nccConfigXML= ncc-config.xml: The XML file that contains registration information such as the product, version, architecture, and release.

-r, --reRegister: Reregister the Primary Server with the Novell Customer Center Server.

Examples

To register the local Primary Server with the Novell Customer Center Server, run the following command:

```
zman ncc-register email reg-key
```

To register a specific Primary Server with the Novell Customer Center Server, run the following command:

```
zman ncc-register email reg-key server_path
```

To reregister the local Primary Server with the Novell Customer Center Server, run the following command:

```
zman ncc-register email reg-key --reRegister
```

To reregister a specific Primary Server with the Novell Customer Center Server, run the following command:

```
zman ncc-register email reg-key server_path --reRegister
```

Configuring the Novell Customer Center Proxy Settings

You can use the `lpm-server.properties` file to configure a proxy for both Novell Customer Center and for subscriptions.

If you do not want to use proxy settings for Novell Customer Center, set the value of the `useNCCViaProxy` key to `False`. This is the default setting.

If you want to use Novell Customer Center via a proxy, set the value of the `useNCCViaProxy` key to `True`.

If you want to use the same proxy for both subscriptions and Novell Customer Center, use subscription proxy key strings. If you want to use a separate proxy for Novell Customer Center, use `ncc-proxy` key strings.

The `lpm-server.properties` file is stored in the following locations:

On Windows: `%ZENWORKS_HOME%\conf\lpm-server.properties`

On Linux: `/etc/opt/novell/zenworks/lpm-server.properties`

Subscriptions

The Subscriptions feature in ZENworks Configuration Management makes it easy to set up a subscription to repositories such as Novell Update, Red Carpet Enterprise, or other external repositories, and replicate content to the ZENworks Primary Servers. The managed devices can obtain the updates directly from the ZENworks Server instead of obtaining them from the remote repositories. ZENworks Configuration Management provides an easy-to-use graphical user interface to create these subscriptions. You can also specify a schedule to run the subscription replication.

- ◆ [Chapter 2, “Introduction,” on page 19](#)
- ◆ [Chapter 3, “Creating Subscriptions,” on page 23](#)
- ◆ [Chapter 4, “Managing Subscriptions,” on page 31](#)
- ◆ [Chapter 5, “Verifying the Remote Server Certificate,” on page 41](#)

2 Introduction

ZENworks Configuration Management lets you use subscriptions to replicate content from NU, RCE, RHN, YUM or RPM-MD (authenticated and unauthenticated), ZENworks Linux Management, and Static repositories.

Subscriptions help you to obtain most of the software you want to distribute to managed devices. You can create subscriptions to:

- ♦ Select the targets for which to replicate the content and create bundles.
- ♦ Replicate content and create Linux bundles to deploy the software to managed devices.
- ♦ Replicate content and create Linux Dependency bundles to make the software packages available to the managed devices to resolve package dependencies.
- ♦ Download the source RPMs from remote repositories and create monolithic Linux bundles.
- ♦ Replicate patches from remote update repositories to create Patch bundles. If you want to replicate only the patches of a selected category, you can use category-based filters.

This section provides information about the various subscription types and the different subscription settings.

- ♦ [“Understanding the Subscription Types” on page 19](#)
- ♦ [“Configuring the Subscription Settings” on page 20](#)
- ♦ [“Proxy Settings for Subscriptions” on page 21](#)

Understanding the Subscription Types

The following types of subscriptions are available in Linux Package Management:

Novell Subscription: Allows you to select subscriptions that you are entitled to download from Novell Customer Center based on your credentials. By using this subscription, you can replicate updates for SUSE Linux Enterprise 10 Service Pack 1 or later distributions, all SUSE Linux Enterprise 11 distributions, and OES2 distributions. You can create bundles in your Management Zone with the replicated content.

RCE Subscription: Allows you to select subscriptions that you are entitled to download from Novell Customer Center based on your credentials. By using this subscription, you can replicate updates for SUSE Linux Enterprise 10. You can also create bundles in your Management Zone with the replicated content.

RHN Subscription: Allows you to replicate content from the Red Hat network for Red Hat Enterprise Linux distributions.

RPM-MD Subscription: Allows you to replicate subscriptions and packages from both authenticated and unauthenticated RPM-MD (YUM) repositories.

Static Subscription: Allows you to replicate content from the file system located on your local server and create bundles. You must have a static replication source available in the file system. You can create the static replication source by using the static replication option from any other subscription type.

SUSE Subscription: Allows you to download subscriptions that are available in the SUSE repository from SUSE Customer Center and replicate them to the local server in your Management Zone.

ZENworks Subscription: Allows you to subscribe to a remote ZENworks zone by registering using a subscriber registration key shared by the remote zone. Once registered, you can replicate bundles and policies shared by the remote zone to your zone.

ZLM Subscription: Allows you to select subscriptions that you are entitled to download from the ZENworks Linux Management server based on your credentials. You can use these subscriptions to create bundles in your Management Zone.

Configuring the Subscription Settings

To download the package updates from a remote repository, you can configure the settings on the Subscription Settings page in ZENworks Control Center.

- 1 Log in to ZENworks Control Center.
- 2 Click **Configuration > Infrastructure Management > Subscription Settings**.

You can configure the following subscription settings on the Subscription Settings page:

- ◆ [Subscription Replication Settings](#)
- ◆ [Subscription Performance Settings](#)
- ◆ [Proxy Settings for Subscriptions](#)

Subscription Replication Settings

- ◆ **Throttling Rate (KBps):** Specify the rate at which you want to download the updates. If no value is specified, the replication uses the entire available bandwidth.

For example, if you specify the throttling rate as 100, the package updates are downloaded from the remote repository at a rate of 100 kilobytes per second

- ◆ **Session Connection Timeout (secs):** Specify the time after which you want to attempt reconnection to the remote repository, in case of a connection failure. The default value is 120 seconds.

Subscription Performance Settings

- ◆ **Maximum Replication Sessions:** Specify how many subscription sessions can be run or replicated simultaneously. The default value is 2, and the maximum value is 5.
- ◆ **Subscription Cache:** Select whether to enable or disable the subscription cache. The default value is **Enabled**.

If this setting is enabled, the metadata information is read from the cache instead of downloading it from the repository which greatly reduces the response time when browsing for catalogs on the remote repository.

Proxy Settings for Subscriptions

If you have configured your network to use a proxy server, you must configure the proxy server subscriptions.

- 1 Use a text editor to open the `lpm-server.properties` file. This file is located in `/etc/opt/novell/zenworks/` directory on Linux and in the `Novell\ZENworks\conf` directory on Windows.
- 2 Edit the file as follows:
 - ◆ Set the value of `subscription-proxyaddress` to the IP address of the proxy server.
 - ◆ Set the value of `subscription-proxyport` to the port number of the proxy server.
 - ◆ Set the value of `subscription-proxyuser` to the name of the proxy user.
 - ◆ Set the value of `subscription-proxy-password` in the `lpm-server.properties` file by using the `zman srpp` command.
 - ◆ Set the value of `subscription-useNTLM` to true if the proxy server uses an NTLM realm. By default, the value is false.
- 3 Save the file.

When you run a subscription, the subscription automatically uses these settings.

3 Creating Subscriptions

You can select the platforms and update categories you want to subscribe to and then schedule the subscription to check for updates regularly. Additionally, Linux subscription management integrates with the bundle change management features of ZENworks Configuration Management. This allows you to have new software from the subscriptions sources to be created as a sandbox where the changes can be tested before being published in the production environment.

- ♦ “Prerequisites for Creating Subscriptions” on page 23
- ♦ “Creating Subscriptions by Using ZENworks Control Center” on page 24
- ♦ “Creating a Red Hat Subscription by Using nu.novell.com” on page 27
- ♦ “Creating Subscriptions by Using the zman Command Line Utility” on page 28

Prerequisites for Creating Subscriptions

You must first create the credentials before you can use them to create subscriptions. Credentials are used to authenticate to the repositories.

For more information on how to create credentials, see “Using the Credential Vault” in the *ZENworks Control Center Reference*.

The following table describes how to obtain the username, password, and other prerequisites for each subscription:

Subscription Types	Prerequisites
Novell Subscription, RCE Subscription	<p>You can obtain the username and password (to use as credentials) from the following location in the Novell Customer Center:</p> <p>NCC >Software > Mirror Credentials</p> <p>For more information on how to register with Novell Customer Center, see the Novell Customer Center documentation (http://www.novell.com/documentation/ncc/).</p>
SUSE Subscription	<p>You can obtain the username and password (to use as credentials) from the following location in the SUSE Customer Center:</p> <p>Organization > Organization Credentials</p> <p>You can use only Organization Credentials. Individual device credentials will not work.</p>

Subscription Types	Prerequisites
ZLM Subscription	<p>You must obtain the IP address or the DNS name of the ZENworks Linux Management Server from which you want to replicate content. You must also obtain the deviceid and secret values of a device that is registered to the ZENworks Linux Management Server. By using these as credentials, you can replicate only the content that the device is entitled to.</p> <p>On SUSE Linux Enterprise 10 devices or SUSE Linux Enterprise 11 devices, you can obtain the value of deviceid and secret from the <code>/etc/zmd/deviceid</code> and <code>/etc/zmd/secret</code> files respectively, or from the <code>/etc/opt/novell/zenworks/zmd/deviceid</code> and <code>/etc/opt/novell/zenworks/zmd/secret</code> files on any other registered devices.</p>
ZENworks Subscription	You must obtain the IP Address or DNS name of one of the Sharing servers of the Sharing/Remote zone and a valid subscriber registration key from the Remote zone. You can contact the Remote zone administrator for details.
YUM (RPM-MD)	Obtain the URL of an available YUM (RPM-MD) repository. If the repository is authenticated, you must obtain the username and password to access the repository URL.
RHN Subscription	<ol style="list-style-type: none"> 1. From an RHEL device, obtain the <code>systemid</code> file that is located in <code>/etc/sysconfig/rhn/</code>. 2. Use the <code>systemid</code> file as a credential to authenticate to the RHN repository.

Creating Subscriptions by Using ZENworks Control Center

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 In the **Subscriptions** list, click **New**, then click **Subscription** to display the Select Subscription Type page.
- 3 Select the subscription type that you want to create, then click **Next** to display the Define Details page.
- 4 Fill in the fields displayed. This may vary according to the selected subscription type:

Subscription Name: Specify a unique name for the subscription.

Folder: Type the name or browse to the folder that this subscription will be created in. By default, the subscription will be created in the `/Subscriptions` folder.

Download to Folder: Browse to and select the destination folder where you want to download the subscriptions. The default folder is `/Bundles`.

NOTE: The specified folder is not applicable when you choose to create a Static Subscription. Irrespective of the folder you specify, the subscriptions are downloaded to the following folders:

- ♦ **On Windows:** `%ZENWORKS_HOME%\work\cache\pkg-repo\Static_Subscriptions`
- ♦ **On Linux:** `/var/opt/novell/zenworks/cache/pkg-repo/Static_Subscriptions`

Description: Provide a short description for the subscription. This description is displayed on the subscription's Summary page.

- 5 Click **Next** to display the Define Remote Server Details page.

Depending on the type of subscription you select, the following table describes the tasks you must perform on the Remote Server Details page:

Subscription Type	Task	Additional Details
Novell Subscription	<ol style="list-style-type: none"> 1. In the Remote Server URL field, specify the URL of the NU repository you want to access. 2. Browse to and select the remote server credential from the Credential Lookup dialog box. 	<p>By default, the Remote Server URL field displays <code>https://nu.novell.com/repo</code>.</p> <p>For more information, see “Prerequisites for Creating Subscriptions” on page 23.</p>
SUSE Subscription	<ol style="list-style-type: none"> 1. In the Remote Server URL field, specify the URL of the SUSE customer center REST API to find out the list of repositories for organizations. 2. Browse to and select the remote server credential from the Credential Lookup dialog box. 	<p>By default, the Remote Server URL field displays:</p> <p><code>https://scc.suse.com/connect/organizations/repositories</code></p>
RCE Subscription	<ol style="list-style-type: none"> 1. In the Remote Server URL field, specify the URL of the RCE repository you want to access. 2. Browse to and select the remote server credential from the Credential Lookup dialog box. 	<p>By default, the Remote Server URL field displays <code>https://update.novell.com/data</code>.</p>
RHN Subscription	<ol style="list-style-type: none"> 1. In the Remote Server URL field, specify the URL of the RHN repository you want to access. 2. Browse to and select the systemid file from the Upload Content dialog box. 	<p>By default, the Remote Server URL field displays <code>https://xmlrpc.rhn.redhat.com/XMLRPC</code>.</p>
RPM-MD Subscription	<ol style="list-style-type: none"> 1. In the Remote Server URL field, specify the URL of the RPM-MD (YUM) repository you want to access. 2. Browse to and select the remote server credential from the Credential Lookup dialog box. 3. Select a platform from the drop-down list to download the subscriptions. 	<p>The following platforms are available:</p> <ul style="list-style-type: none"> ◆ SLES 10 ◆ SLED 10 ◆ SLES 11 ◆ SLED 11 ◆ RHEL 4 ◆ RHEL 5
Static Subscription	<ol style="list-style-type: none"> 1. Specify the location of the file system from which to download the content. 2. Click Add Source to display the Select Source dialog box. The Select Source dialog box displays all the available sources that are enabled for static replication. 3. Select the source from which to download the content, then click OK. 	<p>If you are replicating content from a ZENworks Server, by default the static source location is <code>/var/opt/novell/zenworks/cache/pkg-repo/Static_Subscriptions</code> on Linux and <code>%ZENWORKS_HOME%\work\cache\pkg-repo\Static_Subscriptions</code> on Windows. However, if you have copied the static source to a specific location, you must specify that path to import the content.</p>

Subscription Type	Task	Additional Details
ZLM Subscription	<ol style="list-style-type: none"> 1. Specify the ZENworks Linux Management server's IP address from which you want to download the subscriptions as <code>https://ZLM_Server_Address</code>. 2. Browse to and select the remote server credential from the Credential Lookup dialog box. 	<p>Before you can download the catalogs from the ZENworks Linux Management Server to your managed device, you must first assign the catalogs to the managed device.</p> <p>Any managed device to which you want to download the subscriptions from the ZENworks Linux Management Server must be registered to the ZENworks Linux Management Server. The managed device must use its deviceid and secret as its username and password to gain access to the ZENworks Linux Management Server.</p>
ZENworks Subscription	<ol style="list-style-type: none"> 1. Click Register with a Zone and provide the address of the Sharing zone. 2. Provide the Subscriber key shared by the Sharing zone administrator and click Connect. You can view the certificate by clicking the View link. 3. Click Register. 4. Click Next to complete the wizard with default settings. 	<p>For more details about creating and managing ZENworks Subscriptions, see ZENworks Subscribe and Share Reference.</p>

- 6 Click **Next** to display the Certificate Details page, if the remote server certificate is not trusted. When you trust the remote server certificate, the certificate is stored in the database. When you try to connect to the same remote server, you won't be prompted for the certificate again.
- 7 Click **Next** to display the Select Catalogs and Categories for Download page. Based on your credentials, the Select catalogs and categories for download page lists the catalogs that you are entitled to download. By default, all the catalogs are selected.
- 8 Select the catalogs that you want to replicate.
- 9 For each of the selected catalogs, click the **Catalog Name** link to display the Edit Catalog dialog box, then select the targets to download. By default, all the targets of a catalog are selected.
- 10 Deselect the targets and the categories that you do not want to download.

NOTE: The categories are not applicable for RHN and ZLM subscriptions.

- 11 (Optional) Specify a local name for the catalog in the **Local Catalog Name** field.
- 12 Click **OK** to return to the Select catalogs and categories for download page.
- 13 Click **Next** to display the Schedule Download page.
- 14 Select a schedule from the drop-down list to assign to the subscription. The available schedule types are No Schedule, Date Specific, and Recurring. For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

- 15 In the **Subscription Server** field, type the name or browse for and select the server to which you want to replicate the catalogs.
- 16 Click **Next** to display the Summary page.

Review the information, making any changes to the settings by using the **Back** button as necessary.
- 17 (Conditional) Select the **Define Additional Properties** check box to display the subscription's Summary page after the wizard finishes.

You can use the various tabs on the Summary page to edit the subscription information.

For example, you can edit the description of the subscription and the base URL of the Remote Server, apply various options, and schedule the subscription.

For more information on these additional properties, see [“Editing Subscriptions” on page 32](#).
- 18 Click **Finish** to create the subscription.

Creating a Red Hat Subscription by Using nu.novell.com

To create a Red Hat Subscription by using nu.novell.com in ZENworks:

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Credential Vault panel, create a credential that can download Red Hat patches from the Novell Update server (nu.novell.com).

For more information on the Credential Vault, see [“Using the Credential Vault”](#) in the *ZENworks Control Center Reference*.
- 3 Click the **Subscriptions** tab.
- 4 In the **Subscriptions** list, click **New**, then click **Subscription** to display the Select Subscription Type page.
- 5 Select the **RPM-MD Subscription**, then click **Next** to display the Define Details page.
- 6 Specify the name of the subscription and provide a short description, then click **Next** to display the Define Remote Server Details page.
- 7 In the Remote Server URL field, specify one of the following URLs according to the distribution for which you want to download the patches:
 - ♦ **RHEL 4 Server 32-bit**: [https://nu.novell.com/repo/\\$RCE/RES4/i386](https://nu.novell.com/repo/$RCE/RES4/i386)
 - ♦ **RHEL 4 Server 64-bit**: [https://nu.novell.com/repo/\\$RCE/RES4/x86_64](https://nu.novell.com/repo/$RCE/RES4/x86_64)
 - ♦ **RHEL 5 Server 32-bit**: [https://nu.novell.com/repo/\\$RCE/RES5/i386](https://nu.novell.com/repo/$RCE/RES5/i386)
 - ♦ **RHEL 5 Server 64-bit**: [https://nu.novell.com/repo/\\$RCE/RES5/x86_64](https://nu.novell.com/repo/$RCE/RES5/x86_64)
- 8 In the **Remote Server Credentials** field, select the credential that can download Red Hat patches.
- 9 From the drop-down list, select the platform to download the subscriptions, then click **Next**.
- 10 Click **Next** to display the Certificate Details page, if the remote server certificate is not trusted.

When you trust the remote server certificate, the certificate is stored in the database. When you try to connect to the same remote server, you won't be prompted for the certificate again.
- 11 Click **Next** to display the Select Catalogs and Categories for Download page.

Based on your credentials, the Select Catalogs and Categories for Download page lists the catalogs that you are entitled to download.

- 12 Select the RPM-MD catalogs that you want to replicate.
- 13 For each of the selected catalogs, click the **Catalog Name** link to display the Edit Catalog dialog box, then select the targets to download.
By default, all the targets of a catalog are selected.
- 14 Deselect the targets and the categories that you do not want to download.
The categories are not applicable for RHN and ZLM subscriptions.
- 15 (Optional) Specify a local name for the catalog in the **Local Catalog Name** field.
- 16 Click **OK** to return to the Select Catalogs and Categories for Download page.
- 17 Click **Next** to display the Schedule Download page.
- 18 Select a schedule to assign to the subscription from the drop-down list. The available schedule types are No Schedule, Date Specific, and Recurring.
For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).
- 19 In the **Subscription Server** field, type the name or browse for and select the server to which you want to replicate the catalogs.
- 20 Click **Next** to display the Summary page.
Review the information, making any changes to the settings by using the **Back** button as necessary.
- 21 (Conditional) Select the **Define Additional Properties** check box to display the subscription's Summary page after the wizard finishes.
You can use the various tabs on the Summary page to edit the subscription information.
For example, you can edit the description of the subscription and the base URL of the Remote Server, apply various options, and schedule the subscription.
For more information on these additional properties, see ["Editing Subscriptions" on page 32](#).
- 22 Click **Finish** to create the subscription.

Creating Subscriptions by Using the zman Command Line Utility

ZENworks Configuration Management allows you to create different [types of subscriptions](#). Each subscription has its own set of data and configuration settings. Because it is difficult to pass the data as arguments in the command line, the zman utility requires XML files as an input to create subscriptions. To use the zman command line utility to create a subscription, you must have a subscription of the same type already created through ZENworks Control Center and export it to XML. You then use the exported XML file as a template to create subscriptions with zman.

For example, you can export a Novell Subscription already created through ZENworks Control Center in to an XML file, then use it to create another Novell Subscription with zman.

- 1 Create a subscription in ZENworks Control Center.

For example, create a Novell Subscription called NU that accesses the [Novell Updates \(https://nu.novell.com/repo\)](https://nu.novell.com/repo) repository.

For more information on how to create subscriptions by using ZENworks Control Center, see ["Creating Subscriptions by Using ZENworks Control Center" on page 24](#).

- 2 Export the subscription created in [Step 1](#) to an XML file by using the following command:

```
zman subscription-export subscription_name subscription_data.xml
```

For example, export the NU subscription to NU.xml by using `zman subscription-export NU NU.xml`.

If you want to create the subscription with new data, continue with [Step 3](#). If you want to create the subscription with the same data as the NU subscription, skip to [Step 4](#).

- 3** To create a subscription with new data, modify the XML file according to your requirements.

For example, change the value of `<Base>` from `https://nu.novell.com/repo` to the URL of the repository you want to access in the `<RemoteServer>` section of the XML file as shown below:

```
<RemoteServer>
<Base>https://nu.novell.com/repo</Base>
<CredentialName>>/Credentials/NU</CredentialName>
</RemoteServer>
```

- 4** To create a new subscription, with the same data as the template, use the following command:

```
zman subscription-create new_subscription_name subscription_xml_filename.xml
```

For example, to create NU1 subscription, run the `zman subscription-create NU1 NU.xml` command.

4 Managing Subscriptions

The Subscriptions feature allows you to effectively manage the software content in your ZENworks system.

- ♦ “Creating Folders” on page 31
- ♦ “Renaming, Copying, or Moving Subscriptions” on page 32
- ♦ “Editing Subscriptions” on page 32
- ♦ “Replicating Content” on page 35
- ♦ “Enabling or Disabling Subscriptions” on page 38
- ♦ “Deleting Subscriptions and Subscription Folders” on page 39

Creating Folders

A folder is an organization object that is displayed in ZENworks Control Center. You can use folders to structure your subscriptions in a manageable hierarchy for your ZENworks system. For example, you might want a folder for each type of subscription (Novell Subscription, RCE Subscription, RHN Subscription, and so forth).

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Click **New > Folder**.

The New Folder dialog box is displayed.

- 3 Fill in the fields:

Name: Provide a unique name for the folder.

Ensure that the name adheres to the naming conventions; not all characters are supported. For more information on naming conventions, see “[Naming Conventions in ZENworks Control Center](#)” in the *ZENworks Control Center Reference*.

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**.

Renaming, Copying, or Moving Subscriptions

Depending on the type of object you select to edit, you can rename, copy, or move the object. For example, if you select a Subscription object, you can rename, copy, and move the subscription. If you select a Subscription folder, you can rename or move the folder, but not copy it. If an option is dimmed, that option is not available for the selected object type.

Some actions cannot be performed on multiple objects. For example, if you select multiple objects, the **Rename** option is not available from the **Edit** menu.

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 In the Subscriptions list, select the check box next to the subscription's name or folder, then click **Edit**.
- 3 Select an option:

Rename: Click **Rename**, provide a new name for the folder, then click **OK**.

Copy: Click **Copy**, provide a new name for the copy, then click **OK**.

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

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

Editing Subscriptions

You can edit an existing subscription to add additional properties, to change its description, add or remove the subscription from a subscription folder, add or remove packages from the bundle, and more.

You can use ZENworks Control Center or the zman command line utility to edit subscriptions. The following procedure explains how to edit a subscription by using ZENworks Control Center. If you prefer the zman command line utility, see "[Subscription Commands](#)" in the *ZENworks Command Line Utilities Reference*.

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Click the subscription name you want to edit to display the Summary page.

Use the Summary page to view detailed information about the selected subscription. This page provides general information about the subscription, the remote server URL and its credentials, the options that can be additionally set for a subscription, and the schedule information such as the replication schedule and status, the last replication date, and the URL of the subscription server.

You can also use this page to edit the subscription's description, enable or disable the subscription, and change other configuration settings as described.

- 3 Make the configuration changes:

- 3a Review the information in the General section, then make the desired changes. You can edit only the **Description**, **Download to Folder**, and **Enabled** fields.

Name: Displays the name of the subscription.

Type: Displays the type of subscription.

Created By: Displays who created the subscription.

GUID: Displays the subscription's GUID (global unique identifier), which is a randomly generated string that provides a unique identifier for the subscription.

Description: Displays the subscription's description if it was provided when the subscription was created. The description appears only in ZENworks Control Center.

Click **Edit** to change the description, as necessary.

Enabled: Displays **Yes** if the subscription is enabled, or displays **No** if the subscription is disabled.

Click the link next to the field to enable or disable the subscription, as necessary.

Download To Folder: Displays the folder to which to download the subscriptions. To change the folder, browse to and select a different folder.

NOTE: The specified folder is not applicable when you choose to create a Static Subscription. Irrespective of the folder you specify, the subscriptions are downloaded to the following folders:

- ♦ **On Windows:** %ZENWORKS_HOME%\work\cache\pkg-repo\Static_Subscriptions
- ♦ **On Linux:** /var/opt/novell/zenworks/cache/pkg-repo/Static_Subscriptions

Subscription Logs: Click the **View Log** link to display any warning or error messages for the subscription.

- 3b** Review the information in the Remote Server section, then make the desired configuration changes:

Base URL: Displays the URL of the repository that you want to access and the server credentials that you provided while configuring the remote server for the subscription.

Click **Edit** to provide a different URL.

Server Credentials: Displays the server credentials that you provided while configuring the remote server for the subscription. To change the credential, browse to and select a different credential.

- 3c** Select the common options, Kernel Package Install type options and the bundle options that you want to additionally set for the subscription:

Common Options: The following common options are available for the subscription.

- ♦ **Dry Run:** Select this option to perform a test to determine if the content can be successfully downloaded. A successful dry run ensures that the content can be successfully downloaded to the server and the bundle can be successfully created.
- ♦ **Force Replication:** Select this option to re-download the packages from the repository if they are corrupted on the ZENworks Server.
- ♦ **Create Sandbox:** Select this option to replicate the bundle as a sandbox version. A sandbox version of a bundle enables you to test it on your device before you actually replicate it.
- ♦ **RollBack Installation of Bundles on Failure:** Select this option to revert the transaction to its original state (before the bundles were installed). For more information on the rollback feature, see ["Rolling Back to a Previously Installed Software Configuration State" on page 75](#).

Kernel Package Install type options: The following Kernel Package install type options are available for the subscription. The selected option will be set for Kernel Packages during replication.

- ♦ **Install:** Select this option to set the install type option for Kernel Packages as **Install**.
- ♦ **Upgrade:** Select this option to set the install type option for Kernel Packages as **Upgrade**.

Bundle Options: The following bundle options are available for the subscription.

- ♦ **Static Replication:** Select this option to perform a static replication to download the package updates from the remote repository to the file system on your local server. On Linux, the default location to download the content from is `/var/opt/novell/zenworks/cache/package-repo/Static-Subscription`, and on Windows, the default location is `%ZENWORKS_HOME%\work\cache\pkg-repo\Static_Subscriptions`.
 - ♦ **Monolithic Bundle:** This option is selected by default for RCE, YUM, and Static repositories. Monolithic bundles are applicable only for NU, SUSE, RCE, YUM, and Static repositories.

If you are replicating from a ZLM repository that has multiple bundles, selecting this option creates the same number of bundles as are in the ZLM catalog. If you are replicating content from a repository other than a ZLM repository, selecting this option creates a bundle per catalog.
 - ♦ **Source RPMs:** Select this option to download the source RPMs, if they are available in the remote repository, to the monolithic bundle.
 - ♦ **Patches:** Select this option to download patches to the local file system. Patches are applicable only for NU, SUSE, RCE, and YUM.

A monolithic bundle is replicated along with patches. However, the monolithic bundle is skipped if all categories are not selected or the bundle filter is configured.
 - ♦ **Retain Bundle GUID:** This option is applicable only for ZLM Subscriptions and Static subscriptions created with the ZENworks Linux Management static source.

Select this option to prevent the bundle from being reinstalled on managed devices that are migrated from ZENworks Linux Management to ZENworks Configuration Management.
- ♦ **Create Linux Bundle:** This option is selected by default for NU, SUSE, and RCE repositories. Select this option to create a Linux bundle on the ZENworks server.
 - ♦ **Monolithic Bundle:** This option is applicable only for NU, SUSE, RCE, YUM, and Static repositories and is selected by default.

If you are replicating from a ZLM repository that has multiple bundles, selecting this option creates the same number of Linux bundles as are in the ZLM catalog. If you are replicating from a repository other than a ZLM repository, selecting this option creates a single Linux bundle.
 - ♦ **Source RPMs:** Select this option to download the source RPMs to the bundle.
 - ♦ **Patches:** This option is applicable only for NU, SUSE, RCE, YUM, and Static repositories and is selected by default for the NU, SUSE, and RCE repositories. Select this option to create patch bundles and download the patches to these bundles.

A monolithic bundle is replicated along with patches. However, the monolithic bundle is skipped if all categories are not selected or if the bundle filter is configured.

NOTE: Patch replication might not work for all YUM repositories. YUM, as an open format allows defining of repository patch metadata in different formats. As a result, the format of repositories published by different vendors for different distributions, varies. Subscription replication might not be able to handle all formats, because there is no consistent formatted patch metadata.

- ♦ **Create Category based Bundle Groups:** Select this option to create different bundle groups for the replicated bundles based on their categories.
- ♦ **Retain Bundle GUID:** This option is applicable only for ZLM subscriptions and Static subscriptions created with the ZENworks Linux Management static source.
Select this option to prevent the bundle from being reinstalled on managed devices that are migrated from ZENworks Linux Management to ZENworks Configuration Management.
- ♦ **Create Linux Dependency Bundle:** Select this option to create a Linux Dependency bundle on your ZENworks server.
If you are replicating from a ZLM repository that has multiple bundles, selecting this option creates the same number of Linux dependency bundles as are in the ZLM catalog. If you are replicating from a repository other than a ZLM repository, selecting this option creates a single Linux dependency bundle.
- ♦ **Publish Packages:** Select this option to allow the user on the ZENworks agent to directly install the packages on the agent by using the `zac` command. If you do not select this option, the packages are used for dependency resolution in other Linux bundles.

3d Review the information in the Schedule section, then make the desired configuration changes:

Status: Displays the subscription status.

Click **Run Now** to begin the subscription immediately.

Last Replication: Displays the date on which the content was last replicated.

Subscription Server: Displays the complete path of the ZENworks Primary Server to which you are downloading the content. To change the server, browse to and select a different server.

Replication Schedule: Displays the schedule type that you set up while creating the subscription. Select a different schedule type from the drop-down list or edit the existing one, as necessary.

For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

3e Click **Apply** to save any changes.

Replicating Content

- ♦ [“Starting a Replication” on page 35](#)
- ♦ [“Canceling a Replication” on page 36](#)
- ♦ [“Suspending a Replication” on page 37](#)
- ♦ [“Resuming a Suspended Replication” on page 38](#)

Starting a Replication

You can start a replication in one of the following ways:

- ♦ [“Using ZENworks Control Center to Start a Replication” on page 36](#)
- ♦ [“Using the `zman` Command to Start the Replication” on page 36](#)

Using ZENworks Control Center to Start a Replication

To immediately start the replication:

- 1 Log in to ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to the subscription that you want to run.
- 3 Click **Quick Tasks** in the menu, then click **Run Now**.

To schedule the replication:

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Click the subscription link in the **Name** column to display the subscription's Summary page.
- 3 In the Schedule pane, select a schedule type to start the replication. The available schedule types are No Schedule, Date Specific, and Recurring.

If you select **No Schedule**, then click **Run Now**, the replication starts immediately.

For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

For details about replication for ZENworks Subscriptions, see [ZENworks Subscribe and Share Reference](#)

Using the zman Command to Start the Replication

You can use the following command to begin the replication:

```
zman subscription-replicate subscription_name destination_folder_path options
```

For more information on this command, see “[Subscription Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

Canceling a Replication

You can cancel a replication that is in an **InProgress** or **Suspended** state. When you cancel a replication, the **Status** column for the subscription displays **Canceled** on the Subscription page.

The packages that are already downloaded to the cache are automatically deleted when you cancel the replication.

If you cancel a replication when a bundle creation is in progress, the replication is canceled only after the bundle is created.

You can cancel a replication in any of the following ways:

- ♦ [Using the Action Menu to Cancel a Replication](#)
- ♦ [Editing the Subscription to Cancel a Replication](#)
- ♦ [Using the zman command to Cancel a Replication](#)

Using the Action Menu to Cancel a Replication

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to the subscription that you want to cancel.
- 3 Click **Action > Cancel**.

Editing the Subscription to Cancel a Replication

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 In the Subscriptions list, click the subscription link of the subscription that you want to cancel.
The Subscription's Summary page is displayed.
- 3 If the replication status is **In Progress** or **Suspended**, click the **View Log** link in the General pane.
The Subscription Log Details dialog box is displayed.
- 4 Click **Cancel Replication** to cancel the replication.

Using the zman command to Cancel a Replication

To cancel a replication, run the following command:

```
zman subscription-replication-status subscription_name --cancel
```

For more information on this command, see “[Subscription Commands](#)” in the *ZENworks Command Line Utilities Reference*.

Suspending a Replication

You can suspend a replication to temporarily stop the replication that is in progress. The packages that are already downloaded to the cache are not deleted when you suspend the replication.

You can suspend a replication that is in an **InProgress** state. When you suspend a replication, the **Status** column for the suspended subscription displays **Suspended** on the Subscription page.

If you suspend a replication when a bundle creation is in progress, the replication is suspended only after the bundle is created.

You can suspend a replication in any of the following ways:

- ♦ “[Using the Action Menu to Suspend a Replication](#)” on page 37
- ♦ “[Editing the Subscription to Suspend a Replication](#)” on page 37
- ♦ “[Using the zman Command to Suspend a Replication](#)” on page 38

Using the Action Menu to Suspend a Replication

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to the subscription that you want to suspend.
- 3 Click **Action > Suspend**.

Editing the Subscription to Suspend a Replication

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 In the Subscriptions list, click the subscription that you want to suspend.
The Subscription's Summary page is displayed.
- 3 If the replication status is **In Progress**, click the **View Log** link in the General pane.
The Subscription Log Details dialog box is displayed.
- 4 Click **Suspend Replication** to suspend the replication.

Using the zman Command to Suspend a Replication

To suspend a replication, run the following command:

```
zman subscription-replication-status subscription_name --suspend
```

For more information on this command, see “[Subscription Commands](#)” in the [ZENworks Command Line Utilities Reference](#)

Resuming a Suspended Replication

When you resume a replication, it proceeds from where it was stopped. If a schedule is attached to the subscription, the replication resumes based on the specified schedule.

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to a suspended replication that you want to resume.
- 3 Click **Quick Tasks > Run Now**.

To resume a replication, you can also use the **Run Now** link in the Schedule pane on the subscription’s Summary page

Enabling or Disabling Subscriptions

When you create a subscription in ZENworks Configuration Management, the subscription is enabled by default. You can, however, disable the subscriptions. If you disable a subscription, you cannot use it to replicate content until you enable it again.

- ♦ “[Disabling Subscriptions](#)” on page 38
- ♦ “[Enabling the Disabled Subscriptions](#)” on page 38

Disabling Subscriptions

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to the subscriptions that you want to disable.
- 3 Click **Action > Disable Subscription**.

In the Subscriptions list, the status for the selected subscriptions the **Enabled** column is changed to **No**.

Enabling the Disabled Subscriptions

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 Select the check box next to the subscriptions that you want to enable.
- 3 Click **Action > Enable Subscription**.

In the Subscriptions list, the status for the selected subscriptions in the **Enabled** column is changed to **Yes**.

Deleting Subscriptions and Subscription Folders

If you delete a subscription, the subscription is removed and is not displayed on the Subscriptions page in ZENworks Control Center.

If you delete a folder that contains subscriptions, both the folder and its subscriptions are removed and are not displayed on the Subscriptions page in ZENworks Control Center.

To delete a subscription or a subscription folder:

- 1 In ZENworks Control Center, click **Subscribe and Share**.
- 2 In the Subscriptions list, select the check box next to the objects that you want to delete.
- 3 Click **Delete**.

The Delete Subscriptions dialog box is displayed.

- 4 If you want to delete the bundles created by the subscription, select the **Delete the bundles created by the subscriptions** check box.
- 5 Click **OK**.

5 Verifying the Remote Server Certificate

The Subscriptions feature allows you to import the remote server certificate in your ZENworks system.

- ♦ [“Importing the Untrusted Certificates by Using ZENworks Control Center” on page 41](#)
- ♦ [“Importing the Untrusted Certificates by Using the zman Command Line Utility” on page 42](#)
- ♦ [“Update the Existing Remote Server Certificate” on page 42](#)

Importing the Untrusted Certificates by Using ZENworks Control Center

While you are creating a subscription, if the connection to the remote server uses a secure connection but the remote server certificate is not trusted, you must use the remote server SSL certificate.

To import the untrusted certificate:

- 1 In ZENworks Control Center, click **Configuration** > **Subscriptions**.
- 2 In the **Subscriptions** list, click **New**, then click **Subscription** to display the Select Subscription Type page.
- 3 Select the subscription type that you want to create, then click **Next** to display the Define Details page.
- 4 Specify the subscription details, then click **Next**.
- 5 On the Define the Remote Server details page, specify a secure URL (HTTPS) that you want to access, then click **Next**.

If the remote server certificate is not trusted, then the Certificate Details page is displayed.

NU and RCE subscriptions do not prompt you to trust the certificate details because the certificate is stored in the database.

After you upgrade ZENworks, if the remote server certificate is not trusted for the RPM-MD, RHN, and ZLM subscriptions, subscription replication might fail.

- 6 If the Certificate Details page prompts you to trust the certificate, select to trust it, then click **Next**.

The Select Catalogs and Categories for Download page lists the catalogs that you are entitled to download. By default, all the catalogs are selected.

- 7 Click **Next** to display the Schedule Download page.

- 8 Select a schedule type from the drop-down list to assign to the subscription. The available schedule types are No Schedule, Date Specific, and Recurring.

For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

- 9 Click **Next** to display the Summary page.
- 10 Review the information, then make any changes to the settings by using the **Back** button, as necessary.
- 11 Click **Finish** to create the subscription.

Importing the Untrusted Certificates by Using the zman Command Line Utility

- 1 To import the certificate while creating a subscription, run the following command:

```
zman src <subscription-name> <subscription-data.xml> --certFilePath=<remote-server-cert.cer>
```

Update the Existing Remote Server Certificate

If the remote server's certificate is modified, you can add the modifications to the certificate that is in your system.

- 1 In ZENworks Control Center, click **Configuration > Subscriptions**.
- 2 Click the subscription for which you want to update the existing trusted certificate of the remote repository.
The Summary page is displayed.
- 3 In the Remote Server panel, click the **Update Certificate** link in **Base URL**.
The Certificate Details page is displayed if the remote server certificate is not trusted and needs to be updated.
- 4 Click **Yes** to accept the new certificate.



Bundles for Linux Devices

ZENworks Configuration Management lets you efficiently deliver RPM-based software. Additionally, because Linux uses the bundle management framework in ZENworks Configuration Management, you can now perform additional configuration tasks, deploy additional files and directories, and execute scripts.

This section contains the following information:

- ◆ [Chapter 6, “Using Bundles for Linux Devices,” on page 45](#)
- ◆ [Chapter 7, “Actions,” on page 55](#)

6 Using Bundles for Linux Devices

A bundle consists of all the files, configuration settings, installation instructions, and other information required to deploy and manage the application or files and perform various management tasks on a device.

The Linux Package Management features lets you create the Linux bundles and the Linux Dependency bundles by using Subscriptions, by using the bundle wizard in ZENworks Control Center, or by using the `zman` command line utility.

The following sections contain instructions on how to create the Linux bundles from Subscriptions in ZENworks Control Center:

- ♦ [“Package and Bundle Flags” on page 45](#)
- ♦ [“Creating Linux Bundles” on page 46](#)
- ♦ [“Creating Linux Dependency Bundles” on page 48](#)
- ♦ [“Creating and Managing YUM Services for Bundles on Linux Devices” on page 51](#)
- ♦ [“Managing Bundles for Linux Devices” on page 53](#)

Package and Bundle Flags

When you install or remove a Linux RPM Application bundle on a device, the nature of the package install or removal depends on various package and bundle flags.

Some of the important flags are described below:

Freshen: Packages for which this flag is set to true are installed or upgraded only if a lower version of the package is already installed on the device. If the flag is set to false, the packages are installed along with their dependent packages while installing the bundle.

If the version of the package that is installed on the device is later than the version of the package in the bundle, the installation of the package in the bundle is skipped during bundle installation.

Install Type: The Install Type flag allows Auto, Upgrade, or Install operations on a package in a bundle. The default value while creating Linux bundles is Auto. When the Install Type is set to Auto or Upgrade, the package is installed or upgraded. This operation is similar to the operation performed when you run the `rpm --upgrade --force` or `rpm -U --force` commands. When the Install Type is set to Install, the package installation operation is similar to the operation performed when you run the `rpm --install --force` or `rpm -i --force` commands. With `rpm -i`, multiple versions of the same package can be installed simultaneously. However, if there are conflicting packages, the `rpm -i` command displays an error, but ZENworks agent forcibly installs the package, similar to the `rpm -i --force` command.

When multiple versions of the package with conflicting files are installed, the RPM indicates that multiple versions are installed, but only the files of the package that was last installed are available on the device. Therefore, it is not advisable to set the Install Type to Install unless you are sure that multiple versions of the package can coexist. For example, two different versions of kernel packages or two different versions of Java packages can coexist with each other.

For most of the packages, multiple versions of the same package cannot coexist.

NOTE: For replicating packages by using subscriptions, the Install Type for kernel packages is set to Install by default.

Allow Removal of Conflicting Packages: This option is selected by default for the Install RPMs action. It allows the ZENworks agent to automatically remove any conflicting packages during the installation. If you do not select this check box, the conflicting packages are not removed, and the package installation fails.

Ignore Dependencies: If this flag is set to true, the RPMs are installed without checking for dependencies. This means that the dependent packages are not installed during package installation. This option is useful if you have already installed the dependent RPMs of a package before installing the package. For example, you can install the dependent packages by using the tar zip archive.

NOTE: You cannot choose to remove the conflicting packages and to ignore dependencies at the same time. This is because dependency resolution is necessary to effectively allow the removal of conflicting packages and the dependency resolution is not done while ignoring dependencies.

Creating Linux Bundles

You can use Linux bundles to install, upgrade, or remove RPM packages, install or remove files, or perform various management actions such as running scripts, editing files, or launching applications on the device. The various Linux bundles types can be created by using the zman utility or from ZENworks Control Center. You can also create Linux bundles with RPM packages from Subscriptions by downloading packages and patches from remote repositories.

You can create Linux bundles in any of the following ways:

- ◆ [“Using ZENworks Control Center to Create a Bundle” on page 46](#)
- ◆ [“Mirroring Content from Repositories to Create a Bundle” on page 47](#)
- ◆ [“Using the zman Command to Create a Bundle” on page 47](#)
- ◆ [“Adding Additional Targets to Packages in an Existing Linux Bundle” on page 48](#)

Using ZENworks Control Center to Create a Bundle

- 1 In ZENworks Control Center, click the **Bundles** tab to display the Bundles panel.
- 2 Click **New > Bundle** to display the Create New Bundle Wizard.
- 3 Select **Linux Bundle**, then click **Next**.
- 4 Select the desired bundle category:

Empty bundle: A bundle with no initial tasks. This bundle category is useful to quickly create a bundle without performing all tasks in the Create New Bundle Wizard. After you create the empty bundle, you can edit its details to add actions, and so forth, at a later time.

Create/Delete Directory: A bundle that creates or deletes a directory. This bundle is created with the Create/Delete Directory action. You can add other actions to this bundle or edit the already existing action.

For more information on how to add or edit actions, see [Chapter 7, “Actions,” on page 55](#).

Install Directory: A bundle that installs a directory.

Install Files: A bundle that installs the files in the bundle.

RPM Application: A bundle with the Install RPMs action to install RPM packages on the device.

- 5 On the Define Details page, specify a name for the bundle, then click **Next**.
As you complete the wizard, if you need more information about any fields or options, click the Help button located in the upper right corner of ZENworks Control Center.
- 6 If you need to add actions to the bundle, continue with [Chapter 7, “Actions,” on page 55](#).

Mirroring Content from Repositories to Create a Bundle

You can create a Linux bundle if you are mirroring content from the NU, RCE, YUM, and Static repositories.

- 1 In ZENworks Control Center, create a NU, RCE, RPM-MD or Static subscription.
For more information on how to create subscriptions, see [“Creating Subscriptions by Using ZENworks Control Center” on page 24](#).
- 2 Click the subscription name link on the Subscriptions page.
The Subscription’s Summary page is displayed.
- 3 In the Options panel, select **Create Linux Bundle** in the Bundle Options group.
The **Monolithic Bundle** option is selected by default. If you are replicating from a ZLM repository that has multiple bundles, selecting this option creates the same number of Linux bundles as are in the ZLM catalog. If you are replicating from a repository other than a ZLM repository, selecting this option creates a single Linux bundle.
- 4 Select **Source RPMs** to download the source RPMs, if they are available, in to the bundle.
- 5 If you want to create patch bundles, select the **Patches** option to create patch bundles and download the patches to these bundles. This option is selected by default for the NU and RCE repositories.
- 6 Select **Create Category based Bundle Groups** to create different bundle groups for the replicated bundles based on their categories.
- 7 Click the **Run Now** link in the Schedule pane or from the **Quick Tasks** menu on the Subscriptions page to begin the replication immediately.
or
Schedule when you want to replicate.
For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

If the replication is successful, the Linux bundle is created in a folder on the ZENworks server. The folder name is the catalog name that you chose to download while creating the subscription. You can see this folder in [ZENworks Control Center > Bundles](#).

Using the zman Command to Create a Bundle

- 1 Run the `zman bundle-create bundle_name path_of_bundle_xml_file` command.
You can obtain the sample bundle XML files from the following locations on the server:
`/opt/novell/zenworks/share/zman/samples/linuxbundles/Empty_LinuxBundle.xml`
On Windows: `%ZENWORKS_HOME%\share\zman\samples\linuxbundles/Empty_LinuxBundle.xml`
- 2 Add packages to the Linux bundles:
 1. Create an action XML file for the local RPM packages by running the `zman linux-export-actions` command.

When you create the action XML file for Linux bundles, the action type argument should be `Install RPM`.

2. Add the packages to the bundle by running the `zman bundle-add-actions` command. The action XML file that was created should be used as an argument with this command.

For more information on the commands, see “[Bundle Commands](#)” in the *ZENworks Command Line Utilities Reference*.

Adding Additional Targets to Packages in an Existing Linux Bundle

You can add a package with multiple targets to a Linux bundle. To add actions:

- 1 In ZENworks Control Center, click the **Bundles** tab.
- 2 In the **Name** column, click a Linux bundle to display its **Summary** tab.
- 3 Click the **Actions** tab.
- 4 Click **Install > Add > Install RPM(s)**.
- 5 Select the packages whose target you want to change from default **All** to target, then select the target which you want to associate with the selected packages, then click **OK**.
- 6 Click **Apply** to save the created actions to the Linux bundle.

Creating Linux Dependency Bundles

You can create Linux Dependency bundles to store the dependency packages in order to resolve package dependencies on the managed device.

Linux Dependency bundles cannot be installed on a device by using the `zac bundle-install` command. However, on the agent, you can install packages from a Linux Dependency bundle by using the `zac install` command if the Publish Package flag is set to true for those packages. The agent command to list the packages of a bundle does not list any package for the Linux Dependency bundles unless the Publish Package flag is set to true for the package.

NOTE: You cannot assign any schedules while assigning Linux Dependency bundles to devices.

You can create Linux Dependency Bundles in any of the following ways:

- ♦ “[Mirroring Content From Repositories to Create Bundle](#)” on page 48
- ♦ “[Using ZENworks Control Center to Create a Bundle](#)” on page 49
- ♦ “[Using the zman Command to Create a Bundle](#)” on page 50
- ♦ “[Adding Packages to an Existing Linux Dependency Bundle](#)” on page 51

Mirroring Content From Repositories to Create Bundle

- 1 In ZENworks Control Center, create a subscription.
For more information on how to create subscriptions, see “[Creating Subscriptions by Using ZENworks Control Center](#)” on page 24.
- 2 Click the subscription name link on the Subscriptions page.
The Subscription’s Summary page is displayed.

- 3 In the Options panel, select **Create Linux Dependency Bundle** in the Bundle Options group.
If you are replicating from a ZLM repository that has multiple bundles, selecting this option creates the same number of Linux Dependency bundles as are in the ZLM catalog. If you are replicating from a repository other than a ZLM repository, selecting this option creates a single Linux dependency bundle.
- 4 Select the **Publish Packages** option to allow the user on the ZENworks agent to directly install the packages on the agent by using the `zac` command. If you do not select this option, the packages are used for dependency resolution in other Linux bundles.
- 5 Click the **Run Now** link in the Schedule pane or from the **Quick Tasks** menu on the Subscriptions page to begin the replication immediately.

or

Schedule when you want to replicate.

For more information on schedules, see *Schedule Types* in the [ZENworks Primary Server and Satellite Reference](#).

If the replication is successful, the Linux Dependency bundle is created in a folder on the ZENworks server. The folder name is the catalog name that you chose to download while creating the subscription. You can see this folder in **ZENworks Control Center > Bundles**.

You can also create Linux Dependency bundles from the **Bundles** tab in ZENworks Control Center or by using the `zman` command line utility.

For more information on how to create Linux Dependency bundles from the **Bundles** tab in ZENworks control Center, see the [ZENworks Software Distribution Reference](#). For more information on how to create Linux Dependency bundles by using the `zman` command line utility, see “[Bundle Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

Using ZENworks Control Center to Create a Bundle

- 1 In ZENworks Control Center, click the **Bundles** tab to display the Bundles panel.
- 2 Click **New > Bundle** to display the Create New Bundle Wizard.
- 3 Select **Linux Dependency Bundle**.
- 4 On the Define Details page, specify a name for the bundles, then click **Next**.
As you complete the wizard, if you need more information about any fields or options, click the Help button located in the upper right corner of ZENworks Control Center.
- 5 On the Select .rpm Files page, perform any of the following tasks:

Task	Steps
Add a file	<ol style="list-style-type: none"> 1. Click Add to display the Upload Files dialog box. 2. Click Add, then select the files that you want to upload. 3. Click OK. <p>The Status field displays the status of the RPM files that you are uploading.</p>

Task	Steps
Edit a file	<ol style="list-style-type: none"> 1. Select the check box next to the files that you want to edit. 2. Click Edit. 3. Select Set Publish Packages if you do not want certain packages to be automatically installed on the agent. Select Set Publish Packages if you want to manually install the packages on the agent by using the <code>zac</code> command. If you select this option, the Publish Packages column displays Yes for the selected package. Select Unset Publish Packages to install the packages on the agent while resolving dependencies only. The packages for which this option is selected are not visible on the agent. If you select this option, the Publish Packages column displays No for the selected package. By default, the Publish Packages column displays No.
Remove a file	<ol style="list-style-type: none"> 1. Select the check box next to the files that you want to remove, then click Remove.
Select Targets	<ol style="list-style-type: none"> 1. Select the packages whose target(s) you want to change from default All to target(s), then select the target(s) which you want to associate with the selected packages. 2. Click Apply to associate the selected target with the selected packages.

6 Click **Next** to display the Summary page.

7 If you want to perform other configuration tasks after the bundle has been created, select the **Define Additional Properties** check box.

For example, you can make assignments to the bundle in the **Relationships** tab, view actions in the **Actions** tab, and so on.

Select the **Create As Sandbox** check box to deploy the bundle as a sandbox version. A sandbox version of a bundle enables you to test it on your device before actually deploying it.

8 Review the configuration, then click one of the following:

- ◆ **Back:** Lets you make changes after reviewing the summary.
- ◆ **Finish:** Creates the Linux Dependency bundle according to the configured settings listed on this Summary page.

Using the `zman` Command to Create a Bundle

1 Run the `zman bundle-create bundle_name path_of_bundle_xml_file` command.

You can obtain the sample bundle XML files from the following locations on the server:

```
/opt/novell/zenworks/share/zman/samples/linuxbundles/  
Empty_DependencyBundle.xml
```

2 Add packages to the Linux bundles:

1. Create an action XML file for the local RPM packages by running the `zman linux-export-actions` command.

While creating the action XML file for Linux Dependency bundles, the action type argument should be `Distribute RPM`.

2. Add the packages to the bundle by running the `zman bundle-add-actions` command. The action XML file that was created should be used as an argument with this command.

For more information on these commands, see “[Bundle Commands](#)” in the *ZENworks Command Line Utilities Reference*.

Adding Packages to an Existing Linux Dependency Bundle

- 1 In ZENworks Control Center, click the **Bundles** tab.
- 2 In the **Name** column, click a Linux Dependency bundle to display its **Summary** tab.
- 3 Click the **Packages** tab.
- 4 Click **Add**, then select whether you want to upload an RPM or import the file from a repository.
- 5 Select the packages whose target you want to change from default **All** to targets, then select the targets that you want to be associated with the selected packages.
- 6 Click **Apply** to add the selected target.
- 7 Click **Apply** to save the created actions to the Linux Dependency bundle.
- 8 Click the **View** link under **Targets** to view the action created with packages selected with a specified target.

Creating and Managing YUM Services for Bundles on Linux Devices

The RPM packages in the ZENworks package repository are published in a format that can be used only by the ZENworks Agent. In other Linux distributions, some package management tools like YaST, Zypper, and YUM cannot understand this package repository format of the ZENworks Server, so they cannot access the necessary packages. In order to make the ZENworks published packages available to these package management tools, you can export the packages in a bundle to a YUM repository and publish the YUM repository on any ZENworks Server. You can then add the YUM repository to YaST, Zypper, or YUM, or to any tool that understands the format of the YUM repository, and make use of the packages on the ZENworks Server.

You can also create a YUM service for bundle groups. Each bundle in the group is created as a patch in the exported YUM service.

NOTE:

- ♦ If you create a YUM repository from a bundle, this new YUM repository will contain only packages.
- ♦ If you create a YUM repository from a bundle group, this new YUM repository will contain both packages and patches, with each patch corresponding to a member bundle of the bundle group.
- ♦ YUM repositories created by ZENworks do not support patterns.

You can create a YUM service for a published version (not a sandbox version) of a Linux bundle or a Linux Dependency bundle.

- ♦ [“Creating a YUM Service” on page 51](#)
- ♦ [“Editing a YUM Service” on page 52](#)
- ♦ [“Removing a YUM Service” on page 53](#)

Creating a YUM Service

- 1 In ZENworks Control Center, click **Bundles** in the left pane to display the Bundles panel.
- 2 In the **Name** column, click a Linux bundle or a Linux Dependency bundle to display its **Summary** tab.

- 3 In the General panel, click **Create** next to the **YUM Service** field.
This opens the Bundle YUM Service Wizard.
- 4 In the Primary Servers panel, click **Add**.
- 5 In the dialog box, browse for and select the servers on which you want to host the YUM service, then click **OK**.
- 6 Click **Finish** to create the YUM service on the bundle.
The bundle's Summary page is displayed.
The **YUM Service** field displays the relative path of the YUM repository.

The YUM service does not exist until the first YUM service is hosted on a Primary Server.

NOTE: If you are unable to use **https** for the YUM repository created by ZENworks, see TID 7007928 in the [Novell Support Knowledgebase \(http://www.novell.com/support/php/search.do?cmd=displayKC&docType=kc&externalId=7007928&sliceId=2&docTypeID=DT_TID_1_1&dialogID=207211650&statId=0%200%20207215049\)](http://www.novell.com/support/php/search.do?cmd=displayKC&docType=kc&externalId=7007928&sliceId=2&docTypeID=DT_TID_1_1&dialogID=207211650&statId=0%200%20207215049)

Editing a YUM Service

You can edit a YUM service to add additional Primary Servers on which you want to host the YUM service or remove the Primary Servers on which you do not want the YUM service.

- 1 In ZENworks Control Center, click **Bundles** in the left pane to display the Bundles panel.
- 2 In the **Name** column, click a Linux bundle or a Linux Dependency bundle to display its **Summary** tab.
- 3 In the General panel, click **Edit** next to the **YUM Service** field.
You can add or remove Primary Servers.
- 4 In the Bundle YUM Service wizard that is displayed, add or remove the Primary Servers.

Tasks	Steps
Adding a Primary Server	<ol style="list-style-type: none"> 1. In the Primary Servers panel, click Add. 2. Browse for and select the servers on which you want to host the YUM service, then click OK. 3. Click Finish. 4. To remove a Primary Server on which you do not want the YUM service,
Removing a Primary Server	<ol style="list-style-type: none"> 1. In the Primary Servers panel, select the check box next to the Primary Servers that you want to remove. 2. Click Finish.

Removing a YUM Service

Removing a YUM service from a bundle removes it from all the Primary Servers on which the service is hosted.

- 1 In ZENworks Control Center, click **Bundles** in the left pane to display the Bundles panel.
- 2 In the **Name** column, click a Linux bundle or a Linux Dependency bundle to display its **Summary** tab.
- 3 In the General panel, click **Remove** next to the **YUM Service** field.

NOTE: Click the [Click here to Update YUM Service Now](#) link in **YUM Service Settings** to effectively remove the YUM service immediately, or the YUM service is removed when the next YUM Services Refresh Schedule is configured.

Managing Bundles for Linux Devices

You can effectively manage software and content in your Linux environment by managing bundles. You can also manage bundle groups and folders.

For more information on how to manage bundles, see the [ZENworks Software Distribution Reference](#).

7 Actions

The Actions panel displays the action sets available for the bundle. The action sets available for Linux Bundles are Distribute, Install, Launch, Repair, and Uninstall. The action set available for Linux Dependency Bundles is Distribute.

You can add an action to any of the available action sets. When you do so, that action is performed whenever the action set is applicable. For example, when you add an action to the Install action set, that action is performed whenever the bundle is installed.

You can add actions in any of the following ways:

- ♦ [“Adding Actions by Using ZENworks Control Center” on page 55](#)
- ♦ [“Adding Actions by Using the zman Command” on page 64](#)

Adding Actions by Using ZENworks Control Center

The following sections contain information about the actions you can configure by using ZENworks Control Center:

- ♦ [“Action - Create / Delete Directory” on page 56](#)
- ♦ [“Action - Display Message” on page 56](#)
- ♦ [“Action - Edit Text File” on page 57](#)
- ♦ [“Action - File Removal” on page 57](#)
- ♦ [“Action - Install Bundle” on page 57](#)
- ♦ [“Action - Install Directory” on page 57](#)
- ♦ [“Action - Install Files” on page 58](#)
- ♦ [“Action - Install RPMs” on page 60](#)
- ♦ [“Action - Launch Bundle” on page 62](#)
- ♦ [“Action - Launch Java Application” on page 62](#)
- ♦ [“Action - Launch Linux Executable” on page 62](#)
- ♦ [“Action - Prompt User” on page 63](#)
- ♦ [“Action - Reboot/Shutdown” on page 63](#)
- ♦ [“Action - Run Script” on page 63](#)
- ♦ [“Action - Start/Stop Service” on page 64](#)
- ♦ [“Action - Uninstall Bundle” on page 64](#)
- ♦ [“Action - Uninstall RPMs” on page 64](#)

Action - Create / Delete Directory

The Add Action - Create/Delete Directory dialog box lets you create or delete a directory on the managed device and define the specific requirements that a device must meet for the action to be executed on the device.

You can access this dialog box in any of the following ways in ZENworks Control Center:

- ♦ As part of the process of creating a Create/Delete Directory Linux bundle by using the Create/Delete Directory bundle category. For more information, see [“Using ZENworks Control Center to Create a Bundle” on page 46](#).
- ♦ Click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Create/Delete Directory**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.

- ♦ [“General Tab” on page 56](#)
- ♦ [“Requirements Tab” on page 56](#)

General Tab

The General page lets you specify the name, the action type, and the executable security level options.

- 1 Specify a name for the action in the **Action Name** field.
- 2 Select the action type:
 - Create directory:** Creates a directory on the managed device when the action is performed.
 - Delete directory:** Deletes a directory on the managed device when the action is performed.
- 3 Specify the complete path of the directory you want to create or delete on the managed device. This path must be resolved by the device on which the bundle is run.
- 4 Specify the executable security level options:
 - Run as logged in user:** The action is executed as the user logged in to the display :0 (zero) terminal. For example, if you select this option while creating a directory, the directory created is owned by the user logged in to display :0 at the time when the action is executed.
 - Run as root:** The action is executed as the `root` user.
- 5 Click **OK** to create the action.

Requirements Tab

You can specify the requirements that a device must meet for the action to be enforced on it. For information about the requirements, see [“Adding System Requirements for a Bundle” in the ZENworks Software Distribution Reference](#).

Action - Display Message

The Action - Display Message dialog box lets you specify a message to display on devices when the action is performed. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Edit Text File

The Add Action - Edit Text File dialog box lets you specify a file and configure the list of changes to be performed on the file. For more information on this action, see [ZENworks Software Distribution Reference](#).

Action - File Removal

The Add Action - File Removal dialog box lets you specify files or directories to remove from the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Install Bundle

The Add Action - Install Bundle dialog box lets you browse to and select the bundle to install on the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Install Directory

The Add Action - Install Directory dialog box lets you browse to and select the directory to install on the device. For more information on this action, see the [ZENworks 2017 Remote Management Reference](#).

You can access this dialog box in any of the following ways:

- ◆ As part of the process of creating a Install Directory Linux bundle by using the Install Directory bundle category. For more information, see [“Using ZENworks Control Center to Create a Bundle” on page 46](#).
- ◆ Click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Install Directory**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.


- ◆ [“General Tab” on page 57](#)
- ◆ [“Requirements Tab” on page 58](#)

General Tab

The General page lets you specify the directory to be installed and its destination path, the permissions for the directory, the ownership, and the option to copy the directory. You can also use this page to install the ZENworks File Upload plug-in, which lets you browse for directories.

Installing a file or directory uploads the file or directory to the ZENworks content repository before it is distributed to assigned devices. When you install a file or directory, the file or directory is cached on the managed device.

Installing an executable file does not launch or execute the file. To launch or execute the file, you must add a launch executable action (Launch Linux Executable) to the bundle.

- 1 In the **Source Directory** field, click  to browse to and select the directory you want to install on the device.
If you have not installed the ZENworks File Upload plug-in on this device, you must do so before you can browse to and upload directories to be installed.
- 2 Specify the destination directory on the device where you want to install the directory.

- 3 Configure the permissions and set the access for the directory that you have installed:
 - Mode:** Select this option and enter a three-digit octal number to specify the permissions for owner, group, and others.
 - Owner:** Select this option and set the access for **Owner**, **Group**, and **Others**.
- 4 Select to whom to provide the ownership:
 - Root:** Select this option to provide ownership to the `root` user.
 - User:** Select this option to provide ownership to a particular user. You can also specify the group of the user.
- 5 Select a copy option from the list:
 - Copy Always:** Copies the directory regardless of whether the files currently exist on the workstation.
 - Copy If Exists:** Copies the directory only if the directory currently exists on the workstation.
 - Copy If Does Not Exist:** Copies the directory only if the files do not currently exist on the workstation.
 - Copy If Newer:** Copies the directory only if the modified date and time of the file is newer than the existing directory's date and time, or if the files does not currently exist on the workstation.
 - Copy If Newer and Exists:** Copies the directory only if it already exists on the workstation and the existing directory has an older modification date or time.
 - Copy if Newer Version:** Copies the directory only if the internal version of the directory is newer than the existing directory's version (if version information is present).
 - Request Confirmation:** Prompts the user to verify if the directory should be copied.
 - Copy If Different:** Copies the directory if the creation date, creation time, or size is different than the existing directory's date, time, or size.
- 6 Click **OK** to create the action.

Requirements Tab

You can specify the requirements that a device must meet for the action to be executed on the device. For information about the requirements, see [“Adding System Requirements for a Bundle”](#) in the *ZENworks Software Distribution Reference*.

Action - Install Files

The Action - Install Files dialog box lets you specify the file to copy to the content server and from content server to the device, the destination directory and filename, and the copy options.

You can access this dialog box in any of the following ways:

- ♦ As part of the process of creating a Install Files Linux bundle by using the Install Files bundle category. For more information, see [“Using ZENworks Control Center to Create a Bundle”](#) on page 46.
- ♦ Click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Install Files**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.

- ♦ [“General Tab”](#) on page 59
- ♦ [“Requirements Tab”](#) on page 60

General Tab

The General page lets you specify the file to copy to the content server and from the content server to the device, the destination directory and filename, and the copy options.

- 1 Click **Add** to display the Select Files dialog box.
- 2 In the File panel, click **Add**, then click **Browse** to browse for and select the files you want to copy to the device.

If you want to select multiple files at a time, you must have installed the ZENworks File Upload plug-in on this device.

The **Packaging** column displays how the content is packaged before it is distributed to assigned devices.

If the **Do not compress or encrypt uploaded content** option in the Select Directory dialog box is not selected, the value of **Packaging** option is initially displayed as **Auto** as the content is in the process of being encrypted and compressed. After the content has been encrypted and compressed, the value of **Packaging** option changes to **Compressed, Encrypted**.

If the **Do not compress or encrypt uploaded content** option in the Select Directory dialog box is selected, the value of **Packaging** option is displayed as **None** because the content is neither compressed nor encrypted.

- 3 Specify the complete path of the destination directory where you want to install the files.
- 4 Specify the permissions to be applied to the files that you have installed:

Mode: Select this option and enter a three-digit octal number to specify the permissions for owner, group, and others. The standard file permission is 644.

Owner: Select this option, then select the check box next to the permissions you want for **Owner**, **Group**, and **Others**.

- 5 Select an option to provide the ownership:

Root: Select this option to provide ownership to the `root` user.

User: Select this option to provide ownership to a particular user. You can also specify the group of the user.

- 6 Select the **Unpack** option to indicate that files that are compressed in gzip, bzip2 or zip formats should be decompressed and extracted to the device where you want to install them
- 7 Select a copy option from the list:

Copy Always: Copies the directory regardless of whether the files currently exist on the workstation.

Copy If Exists: Copies the directory only if the directory currently exists on the workstation.

Copy If Does Not Exist: Copies the directory only if the files do not currently exist on the workstation.

Copy If Newer: Copies the directory only if the modified date and time of the file is newer than the existing directory's date and time, or if the files does not currently exist on the workstation.

Copy If Newer and Exists: Copies the directory only if it already exists on the workstation and the existing directory has an older modification date or time.

Request Confirmation: Prompts the user to verify if the directory should be copied.

Copy If Different: Copies the directory if the creation date, creation time, or size is different than the existing directory's date, time, or size.

- 8 Click **OK** to create the action.

Requirements Tab

You can specify the requirements that a device must meet for the action to be executed on the device. For information about the requirements, see [“Adding System Requirements for a Bundle”](#) in the *ZENworks Software Distribution Reference*.

Action - Install RPMs

The Action - Install RPMs dialog box lets you enable the install options and add packages. You can also specify parameters such as **Freshen** and **Install Type** for the files.

You can access this dialog box in any of the following ways:

- ◆ As part of the process of creating a Install RPMs bundle by using the RPM application bundle category. For more information, see [“Using ZENworks Control Center to Create a Bundle”](#) on page 46.
- ◆ Click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Install RPMs**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.

- ◆ [“General Tab”](#) on page 60
- ◆ [“Requirements Tab”](#) on page 62

General Tab

The General page lets you roll back the device to its original state, enable install options, and list the default property values for packages.

- 1 Select the **Rollback on Failure** option to roll back the device to its original state (before the package was installed). The software package will be uninstalled, leaving the server as if the package had never been installed, except for any changes that might have been made to the server in using the installed application.

By default, this option is not selected.

- 2 Select the **Enable Install Options** check box, then select the options you want:

Allow Removal of Conflicting Packages: This check box is selected by default. Leave this check box selected to allow the ZENworks agent to automatically remove any conflicting packages while installing the packages of the action. If you do not select this check box and if there are installed packages that conflict with the packages of the action, the conflicting packages are not removed, and the package installation for the action fails.

Ignore Dependencies: If you select this check box, the RPMs are installed without checking for dependencies. This means that the dependent packages are not installed while installing the package.

This option is useful if you have already installed the dependent RPMs of a package before installing the package.

3 In the Packages panel, do any of the following tasks:

Task	Steps
Add a package	<ol style="list-style-type: none">1. Click Add.2. Select whether you want to upload an RPM or import the file from a repository. If you select Upload RPM, the Upload File dialog box is displayed. Click Browse to browse for and select the file to be uploaded to the packages list. If you select Import from Repository, the Package Import dialog box is displayed. Select the files that you want to import from the repository and add to the list.
Set an action	<ol style="list-style-type: none">1. Select the check box next to the files for which you want to set actions.2. Click Action.3. Select an action. The following actions are available: Set Freshen: Checks if the previous version of the package is installed to upgrade the package to the newer version. Selecting this action displays Yes in the Freshen column of the selected package. Unset Freshen: Installs the newer version of the package along with the dependent packages without checking for the older versions of the package. Selecting this action displays No in the Freshen column of the selected package. NOTE: If the version of the package that is installed on the device is later than the version of the package in the bundle, the installation of the package in the bundle is skipped during bundle installation. Set Auto Type: Installs or upgrades the package. This operation is similar to the operation performed when you run the <code>rpm --upgrade --force</code> or the <code>rpm -U --force</code> commands. Set Install Type: Installs the package. The package installation operation is similar to the operation performed when you run the <code>rpm --install --force</code> or <code>rpm -i --force</code> commands. With <code>rpm -i</code>, multiple versions of the same package can be installed simultaneously. However, if there are conflicting packages, the <code>rpm -i</code> command displays an error, but the ZENworks agent forcibly installs the package, similar to the <code>rpm -i --force</code> command. When multiple versions of the package with conflicting files are installed, the RPM indicates that multiple versions are installed, but only the files of the package that was last installed is available on the device. Therefore, it is not advisable to set the Install Type to Install unless you are sure that multiple versions of the package can coexist. For example, two different versions of kernel packages or two different versions of Java packages can coexist with each other. For most of the packages, multiple versions of the same package cannot coexist. Set Upgrade Type: Installs or upgrades the package. This operation is similar to the operation performed when you run the <code>rpm --upgrade --force</code> or the <code>rpm -U --force</code> commands. NOTE: The Has Delta column displays Yes if the subscription has downloaded the delta packages. Click Yes to view the delta RPM details.
Remove a package	<ol style="list-style-type: none">1. Select the check box next to the files that you want to remove, then click Remove.

Requirements Tab

You can specify the requirements that a device must meet for the action to be executed on the device. For information about the requirements, see “[Adding System Requirements for a Bundle](#)” in the [ZENworks Software Distribution Reference](#).

Action - Launch Bundle

The Action - Launch Bundle dialog box lets you specify the bundle to launch on the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Launch Java Application

The Action - Launch Java Application dialog box lets you configure a Java program to be executed on the managed device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Launch Linux Executable

The Action - Launch Linux Executable dialog box lets you specify the filename, parameters to run, security level, and environment variables that are required to launch the Linux executable.

To access this dialog box, click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Launch Linux Executable**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.

- ♦ “[General Tab](#)” on page 62
- ♦ “[Requirements Tab](#)” on page 63

General Tab

The General page lets you specify the filename, parameters, security level, and environment variables.

- 1 Specify the absolute filename of the Linux executable.
- 2 Specify the parameters that you want to run while launching the executable.
- 3 Click **Show Options** to specify the Linux executable’s security level.

You can choose any of the following options and configure the executable:

Run normal (as logged in user): If there is any user logged in to display :0, the executable is launched as that user.

Run as root: The executable is launched in the ZENworks Management Daemon context irrespective of whether the `root` user is logged in or not. However, if the application is a graphical application, a user must be logged in to display :0 to successfully launch the executable.

- 4 Specify the wait time before proceeding to the next action after launching the Linux executable.

No wait: Select this option to immediately perform the next action in the list.

When action is complete: Select this option to perform the next action in the list after the launch action finishes.

Wait for _ seconds: Select this option to proceed to the next action after the specified number of seconds.

Terminate action if wait period is exceeded: This check box is enabled only if you select the **Wait for _ seconds** option. Select this check box to terminate the action if the action is not performed after the wait time exceeds the specified number of seconds.

- 5 In the Environment Variables panel, do any of the following tasks:

Task	Steps
Add a variable	<ol style="list-style-type: none">1. Click Add to display the Add Environment Variable dialog box.2. Specify the name and value of the environment variable you want to add.3. Select the Add to existing data check box to append or prepend the environment variable to the existing data. Append: Adds the environment variable at the end of the existing data. Prepend: Adds the environment variable at the beginning of the existing data. Use Separator Character: Specify a character to separate the appended or prepended environment variable from the existing data.
Remove a variable	<ol style="list-style-type: none">1. Select the check box next to the environment variables you want to remove, then click Remove.
Edit a variable	<ol style="list-style-type: none">1. Select the environment variable you want to edit, then click Edit.2. In the Edit Environment Variable dialog box, specify the new value for the variable.

Requirements Tab

You can specify the requirements that a device must meet for the action to be executed on the device. For information about the requirements, see “[Adding System Requirements for a Bundle](#)” in the [ZENworks Software Distribution Reference](#).

Action - Prompt User

The Action - Prompt User dialog box lets you specify that a prompt displays on the device and lets you configure its settings. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Reboot/Shutdown

The Action - Reboot/Shutdown dialog box lets you specify the reboot or shutdown action for the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Run Script

The Action - Run Script dialog box lets you configure a script to be executed on the managed device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

NOTE: For Linux bundles, you can add Run Script actions in the **Distribute** action set. These Run Script actions are executed every time a bundle is installed, launched, or verified. While adding the Run Script actions in the **Distribute** action set, you should write scripts so that there are no errors even if the scripts are executed multiple times.

Action - Start/Stop Service

The Action - Start/Stop Service dialog box lets you specify the service that you want to start or stop. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Uninstall Bundle

The Action - Uninstall Bundle dialog box lets you select a bundle to remove from the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Action - Uninstall RPMs

The Action - Uninstall RPM dialog box lets you select the RPM packages that you want to remove from the device.

To access this dialog box, click the **Bundles** tab, then click a Linux bundle in the **Bundles** list. Click **Actions > Install > Add**, then select **Uninstall RPMs**.

The dialog box contains two tabs that allow you to specify options and requirements for the action.

- ♦ “General Tab” on page 64
- ♦ “Requirements Tab” on page 64

General Tab

The General page lets you select an RPM to be removed from the device.

- 1 In the Packages panel, click **Add** to display the RPM Details window.
- 2 Specify the details of the RPM that you want to remove, then click **OK** to list the RPM in the Packages panel.
- 3 Select **Remove Dependency Packages** to remove any dependent packages of the RPM, then click **OK**.

Requirements Tab

You can specify the requirements that a device must meet for the action to be executed on the device. For more information on this action, see the [ZENworks Software Distribution Reference](#).

Adding Actions by Using the zman Command

You can add actions to Linux bundles or Linux Dependency bundles by using the zman commands.

- 1 Create an XML file to export the package metadata by using the following command:

```
zman linux-export-actions (Action type) (Action XML file path) (content files location path) [...]
```


An XML file for the action and its corresponding contentInfo XML file are generated in the specified locations.

- 2 Add the exported content to the server by using the following command:

```
bundle-add-actions (baa) (bundle path) (action XML file) [...] [options]
```

By default, when you add an action, a sandbox version of the bundle is created. You can publish the bundle by using the `zman bundle-sandbox-publish path_to_the_bundle` command.

For more information on these commands, see the [ZENworks Command Line Utilities Reference](#).

IV External Services

You can subscribe to external services such as YUM and ZYpp to resolve dependencies and install or upgrade the required packages from the repositories in these services. You can add the required properties to the services and register the services. You can also view the list of registered services.

This section contains the following information:

- ◆ [Chapter 8, “Subscribing to External Services,” on page 69](#)

8

Subscribing to External Services

You can subscribe to external services by using either the `zac` command or by using the ZENworks Icon.

- ♦ [“Subscribing to the External Services” on page 69](#)
- ♦ [“Removing the External Services” on page 69](#)

Subscribing to the External Services

- ♦ [“Using the `zac` Command” on page 69](#)
- ♦ [“Using the ZENworks Icon” on page 69](#)

Using the `zac` Command

You can subscribe to external services by using the following command:

```
zac external-service-add --type service_type properties service_URL service_name
```

Examples:

To subscribe to an authenticated YUM repository, run the following command:

```
zac external-service-add --type YUM url_of_the_repository service_name -  
Dusername=username -Dpassword=password
```

To subscribe to a ZYpp service, run the following command:

```
zac external-service-add --type ZYPP url_of_the_service service_name
```

For more information, see [“External Service Commands”](#) in the [ZENworks Command Line Utilities Reference](#).

Using the ZENworks Icon

The ZENworks Agent provides information on how to register external services such as YUM, ZYpp, and Mount to resolve dependencies and to install or upgrade the required packages from the repositories in these services.

For more information on how to subscribe to external services by using ZENworks Icon, see [“External Services”](#) in the [ZENworks Agent Guide](#).

Removing the External Services

- ♦ [“Using the `zac` Command” on page 70](#)
- ♦ [“Using the ZENworks Icon” on page 70](#)

Using the `zac` Command

You can remove the external services that you have subscribed to by using the following command:

```
zac external-service-delete option
```

If you want to delete a specific external service, specify any of the following options:

- ◆ Index
- ◆ Name
- ◆ URL

If you want to delete all the external services to which you have subscribed to, then specify the `--all` option.

Using the ZENworks Icon

For more information on how to remove the registered external services by using ZENworks Icon, see “[External Services](#)” in the [ZENworks Agent Guide](#).

V Package Management Features on Managed Devices

This chapter provides information about the features and procedures of Linux Package Management on managed devices.

Review the following section:

- ♦ [Chapter 9, “Understanding the Package Management Features Available on a Managed Device,” on page 73](#)

9 Understanding the Package Management Features Available on a Managed Device

This section discusses how you can manage packages on a managed device by using the `zac` command.

- ◆ “Installing the Packages” on page 73
- ◆ “Upgrading the Packages” on page 74
- ◆ “Uninstalling the Packages” on page 75
- ◆ “Rolling Back to a Previously Installed Software Configuration State” on page 75
- ◆ “Adding or Removing Package Locks” on page 76
- ◆ “Adding and Removing Bundle Locks” on page 77
- ◆ “Displaying Package Information” on page 79
- ◆ “Displaying the Package Transaction History” on page 79
- ◆ “Performing a Distribution Upgrade” on page 79

Installing the Packages

You can install selective packages available from external repositories, or install the assigned packages by using Linux bundles or Linux Dependency bundles.

To install packages from the external repositories, you must have subscribed to those External Services. For more information on how to subscribe to External Services, see [Chapter 8, “Subscribing to External Services,”](#) on page 69.

To install packages by using Linux bundles or Linux Dependency bundles, you must create a Linux bundle with the Install RPM action or a Linux Dependency bundle with the Distribute RPM action, then assign the bundle to a managed device with a specific schedule. For more information on how to create these bundles, see [Chapter 6, “Using Bundles for Linux Devices,”](#) on page 45 and for more information on how to assign these bundles to the devices, see [ZENworks Software Distribution Reference](#).

- 1 Search for the packages that you want to install:
 - ◆ To search for the packages in the external services, use the `zac search --service service_name` command.
 - ◆ To search for the packages by using the Linux bundles or Linux dependency bundles, run the `zac search --bundle bundle_name` command.
- 2 Install the packages of the bundle:
 - ◆ To install all the packages from a bundle, run the `zac install -entire-bundle bundle_name` command.
 - ◆ To install selective packages of the bundle, run the `zac install package_name [package_name...] --bundle bundle_name` command.

- ♦ To install packages from the external services, run the `zac install package_name [package_name ...] --service service_name` command.

NOTE: Packages that are available in Linux Dependency bundles can be installed only if the **Publish Package** option (**ZENworks Control Center > Bundles > Click New > Select Linux Dependency Bundle > Click Next** until you go to **Step 3: Select .rpm File**) for the package is set to **True**. If this option is set to **False**, the package is used for dependency resolution.

- 3 (Optional) Test the installation of the package by performing a dry run of the package before actually installing it on the device by running the following command:

```
zac install package_name --dry-run
```

- 4 (Optional) Verify package installation by using the `zac search package_name` command. The status of the installed packages is displayed as `i`.

For more information on the commands, see the [ZENworks Command Line Utilities Reference](#).

Installing Patterns

ZENworks supports pattern install only when the ZYpp Source service of appropriate distribution is added to the agent either via the External Services policy or via the External Service on the agent.

To install patterns:

- 1 Search for the available patterns by using the `zac search --pattern` command.
- 2 Install the patterns by using the `zac install --pattern pattern_name` command.

NOTE: Only the mandatory packages part of the pattern is installed. On SLE 10 devices, even if the **Pattern** checkbox is not selected the packages corresponding to the patterns are installed.

Upgrading the Packages

You can upgrade packages from a bundle or an External Service.

To upgrade packages from the external services, you must have subscribed to the external services. For more information on how to subscribe to external services, see [Chapter 8, “Subscribing to External Services,” on page 69](#).

To install packages by using Linux bundles or Linux Dependency bundles, you must create a Linux bundle with the Install RPM action or a Linux Dependency bundle with the Distribute RPM action, then assign the bundle to a managed device with a specific schedule. For more information on how to create these bundles, see [Chapter 6, “Using Bundles for Linux Devices,” on page 45](#) and for more information on how to assign the bundles to the devices, see [ZENworks Software Distribution Reference](#).

- 1 List the available updates by using the `zac list-update` command. You can list the updates based on bundles or External Services that are available on the agent by using the `zac bundle-list` and `zac external-service-list` commands respectively.
- 2 Upgrade either all the available packages or packages from specific bundles or services.
 - ♦ To upgrade all the available packages, run the `zac update` command.

- ◆ To upgrade packages available from a specific bundle, run the `zac update bundle_name` command.
 - ◆ To upgrade packages available from a specific service, run the `zac update service_name` command. Click **Yes/Y** to confirm the upgrade.
- 3 Test the package upgrade by performing a dry run of the package before actually upgrading it by running the following command:

```
zac upgrade --dry-run
```

For more information on the commands, see the [ZENworks Command Line Utilities Reference](#).

Uninstalling the Packages

You can uninstall selected packages that are installed on the managed devices, uninstall a package by specifying a package name, package version, or all the packages within a bundle. Once a bundle is uninstalled, the `zac search` command should not display the status of the removed packages as i.

- ◆ To remove a package by specifying a package name, run the following command, then enter **yes/y** to confirm removal:

```
zac remove package_name
```

- ◆ To remove a package by specifying a package version, run the following command:

```
zac remove package_name-version
```

Enter **yes/y** to confirm removal.

For example, to remove a package named `zmd` with version `7.2.2-0.0.0`, run the following command:

```
zac remove zmd-7.2.2-0.0.0
```

- ◆ To remove all the packages within a bundle, run the following command:

```
zac remove --entirebundle bundle_name
```

Enter **yes/y** to confirm removal.

For more information on the commands, see the [ZENworks Command Line Utilities Reference](#).

Rolling Back to a Previously Installed Software Configuration State

The Rollback feature brings back the system to its previous state in case of any failure. The Rollback preference must be enabled to roll back package transactions to the time and date you specify. By default, this preference is disabled. To enable this preference, run the `zac set rollback true` command.

NOTE: If you clear the package history, you cannot roll back to the specified checkpoint.

If you want to roll back to a particular version of the package, that version of the package and its dependencies should be available as part of the service or the assigned bundle. If the version of the package or its dependencies is not available, the rollback fails.

To roll back to a previously installed software configuration state, run the following command:

```
zac rollback [options] [date | checkpoint]
```

For more information, see the [ZENworks Command Line Utilities Reference](#).

An Example Use Case

The following procedure is a use case that helps you to understand how to enable the rollback preference, install a package, and then roll back to the previously installed configuration state. The package is automatically uninstalled.

- 1 Enable the Rollback preference by executing the `zac set rollback true` command.
- 2 Create a checkpoint by using the `zac checkpoint-add checkpoint_name` command.
- 3 Install a package by executing the `zac install package_name` command. For more information on how to install a package, see [“Installing the Packages” on page 73](#).
- 4 Roll back to the previously installed configuration state by executing the `zac rollback` command.

or

If you have created a checkpoint in [Step 2](#), then execute the `zac rollback checkpoint_name` command.

For example: `zac rollback "02/20/2009 15:55:56 PM"`

The date and time you specify must be from the time you enable the Rollback preference to the current time. If you do not specify the date, the current date is used. Specify the date in the mm/dd/yyyy format.

The package installed in [Step 3](#) is uninstalled.

- 5 To ensure that the package is uninstalled, execute the `zac search` command and verify that the status of the package is blank.

Adding or Removing Package Locks

You can configure package locks on managed devices to prevent the removal or upgrade of packages on the managed devices.

You can perform this action either by using the ZENworks Icon or from the command line utility. This section describes how to perform this action by using the command line utility.

For more information on how to lock or unlock packages by using the ZENworks Icon, see the ZENworks Agent guide.

- ♦ [“Adding a Package Lock” on page 76](#)
- ♦ [“Removing a Package Lock” on page 77](#)

Adding a Package Lock

- 1 List all the packages installed on the managed device by entering the `zac search` command. From the list, select the package you want to lock.
- 2 Lock the package by using the `zac lock-add (name or pattern) [version]` command.

This command locks the specified packages. The packages that match the specified regular expression or string are not upgraded or removed. The package name can be specified individually, with wildcard patterns, or even with version number relations. The version number should be specified within single or double quotes.

Relational Operator	Functionality
=	Locks only the specific package version.
<	Locks all versions of the package older than the specified version, excluding the specified version.
>	Locks all versions of the package later than the specified version, excluding the specified version.
<=	Locks all versions of the package older than the specified version, as well as the specified version.
>=	Locks all versions of the package later than the specified version, as well as the specified version.

If you want to install a specific version of the package, the `zac lock-add` command first checks if the package version has been locked, then installs the package version only if it is not locked.

For example, assume that all the later versions of the package “X 1.7” have been locked by using the `zac lock-add X '>' 1.7` command. If you try to install the X 1.9 package by using the `zac install X (1.9)` command, the installation fails.

For more information on this command, see the [ZENworks Command Line Utilities Reference](#).

- 3 Ensure that the package is locked by using the `zac lock-list` command. This displays all the locked packages.

Removing a Package Lock

- 1 List all the packages that are locked on the managed device by using the `zac lock-list` command. This displays the package name and its lock number.
- 2 Select the package you want to unlock.
- 3 Unlock the package by using the `zac lock-delete lock_number` command.
For more information on this command, see the [ZENworks Command Line Utilities Reference](#).
- 4 Ensure that the package is locked by entering the `zac lock-list` command. This displays only the locked packages.

Adding and Removing Bundle Locks

You can configure bundle locks for Linux and Patch bundles on the managed devices to prevent them from being installed.

You can add or remove bundle locks either by using the ZENworks Icon or from the command line utility.

`--lock-install` option locks the bundle and prevents the installation of the bundle that is specified in the lock. The **Deny Install** column of `zac bundle-lock-list` command displays the value of the configured lock-install option.

This section describes how to add or remove bundle locks by using the command line utility.

For more information on how to lock or unlock packages by using the ZENworks Icon, see the [ZENworks Command Line Utilities Reference](#).

- ♦ “Adding a Bundle Lock” on page 78
- ♦ “Removing a Bundle Lock” on page 78
- ♦ “Impact of a Bundle Lock on Bundle Operations” on page 78

Adding a Bundle Lock

Bundle locks are applicable only for Install action set.

- 1 List all the bundles installed on the managed device by using the `zac bundle-list` command. From the list, select the bundle you want to lock.
- 2 Lock the bundle by using the `zac bundle-lock-add [options] bundle_name` command. The following regular expressions are supported:

Regular Expression	Functionality
<code>^abc</code>	Matches string starting with 'abc'.
<code>[abc]</code>	Matches string containing 'a', 'b', or 'c'.
<code>a*c</code>	Matches zero or more times 'a' followed by 'c', 'ac', 'aac', 'aaac', or 'c'.

For more information on this command, see the [ZENworks Command Line Utilities Reference](#).

- 3 Ensure that the bundle is locked by entering the `zac bundle-lock-list` command. This displays all the locked bundles except those that are locked on the server by the administrator.

Removing a Bundle Lock

- 1 List all the bundles that are locked on the managed device by using the `zac bundle-lock-list` command. This displays the bundle name and the bundle lock index.
- 2 Select the bundle that you want to unlock.
- 3 Remove the bundle lock by using the `zac bundle-lock-remove [options] bundle_index` command.

For more information on this command, see the [ZENworks Command Line Utilities Reference](#).

- 4 Ensure that the lock for the bundle is removed by entering the `zac bundle-lock-list` command. This displays only the locked bundles.

Impact of a Bundle Lock on Bundle Operations

Depending on the value of the configured lock-install option and the status of the bundle, the following table describes the impact of bundle operations when you add a bundle lock:

Bundle Operations	With lock-install	Without lock-install
Install	You cannot install or upgrade a new version of the bundle.	When you assign a bundle to an Agent, you can successfully install a bundle for the first time. You cannot upgrade to a new version of the bundle.

Bundle Operations	With lock-install	Without lock-install
Launch	If a bundle is already in the installed state when you add the bundle lock, then you can launch only the installed version of the bundle. If a bundle is not installed when you add the bundle lock, then you cannot launch the bundle.	If a bundle is already installed, you can launch the installed version of the bundle. If an earlier version of the bundle is already installed but a later version of the bundle is assigned, then you cannot launch the assigned new version of the bundle. If a bundle is not installed, then the assigned bundle is automatically installed before being launched.
Repair	If a bundle is already in the installed state when you add the bundle lock, then you can repair the installed version of the bundle. If a bundle is not installed when you add the bundle lock, then you cannot repair the bundle.	If a bundle is not installed, then you can install the bundle. If a version of the bundle is already installed, then only the installed version of the bundle is repaired.
Uninstall	You cannot uninstall a bundle.	You cannot uninstall a bundle.

Displaying Package Information

You can display information of the packages that are already installed and the information of the packages that are available for installation through External Services or bundles.

The following commands provide information on packages:

- ◆ `zac info`
- ◆ `zac what-requires`
- ◆ `zac what-provides`

For more information on the commands, see the [ZENworks Command Line Utilities Reference](#).

Displaying the Package Transaction History

You can list the history of the package transactions that are performed by ZENworks by using the `zac packagehistory` command. This command displays the package name, date, operation, version, and release.

NOTE: If you clear the package history, you cannot roll back to the specified checkpoint.

For more information on these commands, see the [ZENworks Command Line Utilities Reference](#).

Performing a Distribution Upgrade

You can perform a distribution upgrade to update all packages with a special resolver algorithm which takes care of package architecture change, package splits, pattern and product updates, etc.

Make sure that you have added the ZYpper service with the appropriate distribution on the managed device or assigned the ZENworks bundles to the managed device. For example, you can replicate SLES11-SP1 Pool catalog from Novell repositories and assign the bundle to the managed device.

To perform a distribution upgrade:

- 1 List the updates available for the managed device by running the `zac list-update` command. The higher version of the packages that are available for upgrade is displayed.
- 2 Install the updates by running the `zac dist-upgrade [options] [bundle name | service name] [...]` command.

If no arguments are provided, packages from all ZENworks bundles and External Services are considered for distribution upgrade.

For more information, see the [ZENworks Command Line Utilities Reference](#).

VI Reports

The following sections provide information on ZENworks Linux Management reporting features:

- ◆ [Chapter 10, “Reports,” on page 83](#)

10 Reports

Review the following sections to understand the predefined reports and how to view them:

- ♦ [“Predefined Reports” on page 83](#)

Predefined Reports

The following predefined reports are included for Linux Package Management:

- ♦ **Linux Subscription Session Details:** Displays the replication details of the Linux subscription replication session, such as the number of bundles, catalogs, and the packages that are downloaded in a particular session with each replication.
- ♦ **Linux Subscriptions:** Displays the Linux subscription details, the repository and replication details.

VII Appendixes

- ◆ [Appendix A, “Troubleshooting Linux Package Management,” on page 87](#)
- ◆ [Appendix B, “Upgrading from OES 2015 to OES 2015 SP1 using ZENworks 2017,” on page 91](#)
- ◆ [Appendix C, “Upgrading from SLES11 SP2 to SLES11 SP3 by using a ZENworks 2017,” on page 97](#)

A Troubleshooting Linux Package Management

The following sections provide solutions to the problems you might encounter while working with Linux Package Management:

- ♦ [“The zac bundle-list command displays the bundle status as Available even though the packages of the bundle are not installed” on page 87](#)
- ♦ [“Unable to access the YUM URL from YUM clients if you change the ZENworks Server port after creating the YUM Service” on page 87](#)
- ♦ [“Listing of the subscription channels by using the zman srcl command might result in the Java heap space exception” on page 87](#)
- ♦ [“Using zac bundle install command to install a bundle on a device also installs other bundles assigned to the device” on page 88](#)
- ♦ [“The actions listed in the Distribute action set of a bundle gets executed twice” on page 88](#)
- ♦ [“Unable to view the selected targets of packages on Internet Explorer 8” on page 89](#)

The zac bundle-list command displays the bundle status as Available even though the packages of the bundle are not installed

Source: ZENworks Configuration Management; Linux Package Management.

Possible Cause: This issue might occur if the Freshen flag is set for a package and the base version of the package is not installed.

Action: None.

Unable to access the YUM URL from YUM clients if you change the ZENworks Server port after creating the YUM Service

Source: ZENworks Configuration Management; Linux Package Management.

Action: On the YUM client, manually add the new HTTP port of the ZENworks Server to the YUM Service URL. The YUM Service URL is represented as `http://ZENworks_Server_IP_address:port/zenworks-yumrepo/yum_service_name`.

For example, if you have changed the HTTP port of the ZENworks Server to 81, modify the YUM Service URL to `http://ZENworks_Server_IP_address:81/zenworks-yumrepo/SLES11Updates`.

For more information on how to add the new HTTP port to the YUM client, see [Chapter 8, “Subscribing to External Services,” on page 69](#).

Listing of the subscription channels by using the zman srcl command might result in the Java heap space exception

Source: ZENworks Configuration Management; Linux Package Management.

Explanation: The following out-of-memory exception error might occur when you list the subscription channels by using the `zman srcl` command:

```
Exception in thread "Thread-1" java.lang.OutOfMemoryError: Java heap space
```

Action: Increase the `zman` memory size:

- 1 Open the `/opt/novell/zenworks/bin/zman` file in a text editor.
- 2 Search for the `MEM_OPTS` variable, then change its value to `-Xms64m -Xmx256m` OR `-Xms64m -Xmx512m`.
- 3 Save the `/opt/novell/zenworks/bin/zman` file.

Using `zac bundle install` command to install a bundle on a device also installs other bundles assigned to the device

Source: ZENworks Configuration Management; Linux Package Management.

Explanation: If you use the `zac bundle-install` command to install a bundle that contains characters such as underscore(`_`), dollar(`$`), hash(`#`), or exclamation(!) followed by an alphanumeric value in its name, all the assigned bundles whose name contains the character followed by the alphanumeric value are also installed on the device.

Example 1: Consider five bundles named `bundle_1`, `bundle_10`, `bundle_20`, `bundle_100`, and `bundle_200` are assigned to a device. Run the `zac bundle-install bundle_1` command to install `bundle_1` on the device. The bundles named `bundle_10` and `bundle_100` are also installed on the device.

Example 2: Consider four bundles named `bundle#abc`, `bundle#abcd`, `bundle#def`, and `bundle#abcrt` are assigned to a device. Run the `zac bundle-install bundle#abc` command to install `bundle#abc` on the device. The bundles named `bundle#abcd` and `bundle#abcrt` are also installed on the device.

Action: To install such a bundle on the device, specify the bundle GUID instead of the bundle name in the command. To determine the bundle GUID, run the `zac bundle-list --show-guid` command.

The actions listed in the `Distribute` action set of a bundle gets executed twice

Source: ZENworks Configuration Management; Linux Package Management.

Explanation: Consider a bundle that is assigned to a device with the Distribution schedule set as **Now** and the **Install Immediately after Distribution** option selected. Both the `Distribute` and `Install` action set run on the device as a result of which the actions listed in the `Distribute` action set of the bundle gets executed twice.

Action: Perform the following steps in ZENworks Control Center:

- 1 Edit the bundle's distribution schedule to set the distribution schedule type as **Recurring** and select the **When a device is refreshed** option.
Ensure that the **Install Immediately after Distribution** option is selected.
- 2 Click the **Devices** tab. Select the device to which you have assigned the bundle, then click **Quick Tasks > Refresh Device**.

Unable to view the selected targets of packages on Internet Explorer 8

Source: ZENworks Configuration Management; Linux Package Management.

Possible Cause: This issue might occur if you use Internet Explorer 8.

Action: To view the selected targets of packages, you should use Mozilla Firefox or Internet Explorer 7.

B Upgrading from OES 2015 to OES 2015 SP1 using ZENworks 2017

The information and instructions in the following sections will help you to perform an online upgrade from Open Enterprise Server (OES) 2015 to OES 2015 SP1 using ZENworks 2017. After you perform the steps detailed in the following sections, your OES 2015 servers will be upgraded based on the configured schedule.

To ensure that your upgrade runs smoothly, we recommend that you read the following sections before performing the work outlined in them:

- ◆ “Preparing the Environment” on page 91
- ◆ “Replicating the Channels to Your ZENworks 2017 Server” on page 91
- ◆ “Preparing the Bundles for Upgrading” on page 92
- ◆ “Preparing the OES 2015 Servers for Upgrading” on page 92
- ◆ “Assigning the Bundles and Scheduling the Upgrades” on page 92

Preparing the Environment

Before you use ZENworks 2017 to upgrade the OES 2015 servers to OES 2015 SP1, you must have the following:

- ◆ A ZENworks 2017 server installed and running in your network. For more information, see the [ZENworks Server Installation Guide](#).
- ◆ The ZENworks 2017 agent installed on each OES 2015 server that you plan to upgrade.
- ◆ Each OES 2015 server registered with the ZENworks 2017 server.
- ◆ Each OES 2015 server updated with the latest OES 2015 and SUSE Linux Enterprise Server, (SLES) 11 SP3 patches: `SLES11-SP3-Updates-bundle` (with install action), `SLES11-SP3-Pool-bundle`, `OES2015-Updates-bundle` (with install action) and `OES2015-Pool-bundle`.

After the `SLES11-SP3-Updates-bundle` and the `OES2015-Updates-bundle` install successfully, reboot the machine and then remove the `OES2015-Updates-bundle` and `OES2015-Pool-bundle` assignments.

Replicating the Channels to Your ZENworks 2017 Server

Replicate the below catalogs from the patch channel onto the ZENworks server:

- ◆ `OES2015-SP1-Pool`
- ◆ `OES2015-SP1-Updates`
- ◆ `SLES11-SP4-Pool`
- ◆ `SLES11-SP4-Updates`

For more information on creating and replicating subscriptions, see [Part II, “Subscriptions,” on page 17](#). After replication, assign the bundles to the OES 2015 server.

Preparing the Bundles for Upgrading

Before you can use the downloaded bundles to upgrade your servers, you must create an empty OES 2015toSP1upgrade bundle and add two actions.

- 1 In ZENworks Control Center, click **Bundles**.
- 2 Click **New** and select **Bundle**.
- 3 Select **Linux Bundle** and click **Next**.
- 4 Select **Empty Bundle** and click **Next**.
- 5 Type the bundle name as OES2015toSP1upgrade and click **Next**.
- 6 Click **Finish** and complete the bundle creation process.
- 7 Click the Action tab of the bundle that you just created.
- 8 Select the Install tab and click **Add**.
- 9 Select **Run Script**.
- 10 Specify the Action Name as **Upgrade** and select **Define Your Own Script as the Script to Run**.
- 11 Click **Edit** against the Script content option.
- 12 In the **Edit - Script Content** dialog box, paste the following script and click **OK**:

```
/bin/sleep 300
/opt/novell/zenworks/bin/zac dup --no-confirm SLES11-SP4-Pool-bundle SLES11-SP4-Updates-bundle OES2015-SP1-Pool-bundle OES2015-SP1-Updates-bundle
if [ "$?" != "0" ] ; then
exit 1
```
- 13 In the **Wait before proceeding to next action** section, select **When Action is Complete**.
- 14 Click the Advanced tab and in the **Executable security level** section, select **Run as root** and then click **OK**.
- 15 Click the Install tab, click **Add**, then select **Reboot/Shutdown** from the drop-down list.
- 16 Select **Display a warning message before doing Reboot/Shutdown** and click **OK**.
- 17 Click **Apply** and publish the bundle.

Preparing the OES 2015 Servers for Upgrading

Before the OES 2015 servers are upgraded, make sure that no Mozilla applications are running on the OES 2015 servers that you are upgrading.

Assigning the Bundles and Scheduling the Upgrades

Complete the following procedures to prepare your OES 2015 servers to be upgraded to OES 2015 SP1. The actual upgrade operations occur automatically, based on the schedule.

- ♦ [“Assigning the SLES11-SP4-Pool Bundle to OES 2015 Servers” on page 93](#)
- ♦ [“Assigning the OES2015-SP1-Pool Bundle to OES2015 Servers” on page 93](#)

- ◆ “Assigning the SLES11-SP4-Updates Bundle to OES2015 Servers” on page 93
- ◆ “Assigning the OES2015-SP1-Updates Bundle to OES2015 Servers” on page 94
- ◆ “Assigning the OES2015toSP1upgrade Bundle to OES2015 Servers” on page 94
- ◆ “Reconfiguring OES Services after Rebooting” on page 95

Assigning the SLES11-SP4-Pool Bundle to OES 2015 Servers

- 1 In ZENworks Control Center, click **Bundles**.
- 2 Click **SLES11-SP4-Pool**.
- 3 In the left column, select **SLES11-SP4-Pool-bundle**.
- 4 Click **Action > Assign to Device**.
- 5 Click the down arrow next to **Servers**, then select the servers to which you want to assign the bundle.
- 6 Click **OK > Next**.
- 7 Select the **Distribution Schedule** and click **Next**.
- 8 Select the **Schedule type** as **Now** and click **Next**.

IMPORTANT: Do not select **Install Immediately after Distribution** or **Launch Immediately after Installation**.

- 9 Select **Next > Finish**.

Assigning the OES2015-SP1-Pool Bundle to OES2015 Servers

- 1 In ZENworks Control Center, click **Bundles**.
- 2 Click **OES2015-SP1-Pool**.
- 3 In the left column, select the **OES2015-SP1-Pool-bundle** entry.
- 4 Click **Action > Assign to Device**.
- 5 Click the down-arrow next to **Servers**, then select the servers you want to assign the bundle to.
- 6 Click **OK > Next**.
- 7 Select the **Distribution Schedule** and click **Next**.
- 8 Select the **Schedule type** as **Now** and click **Next**.

IMPORTANT: Do not select **Install Immediately after Distribution** or **Launch Immediately after Installation**.

- 9 Select **Next > Finish**.

Assigning the SLES11-SP4-Updates Bundle to OES2015 Servers

- 1 In ZENworks Control Center, click **Bundles**.
- 2 Click **SLES11-SP4-Updates**.

- 3 In the left column, select `SLES11-SP4-Updates-bundle`.
- 4 Click **Action > Assign to Device**.
- 5 Click the down-arrow next to **Servers**, then select the servers you want to assign.
- 6 Click **OK > Next**.
- 7 Select the Distribution Schedule and click **Next**.
- 8 Select the Schedule type as **Now** and click **Next**.

IMPORTANT: Do not select **Install Immediately after Distribution** or **Launch Immediately after Installation**.

- 9 Select **Next > Finish**.

Assigning the OES2015-SP1-Updates Bundle to OES2015 Servers

- 1 In ZENworks Control Center, click **Bundles**.
- 2 Click **OES2015-SP1-Updates**.
- 3 In the left column, select `OES2015-SP1-Updates-bundle`.
- 4 Click **Action > Assign to Device**.
- 5 Click the down arrow next to **Servers**, then select the servers to which you want to assign the bundle.
- 6 Click **OK > Next**.
- 7 Select the **Distribution Schedule** and click **Next**.
- 8 Select the Schedule type as **Now** and click **Next**.

IMPORTANT: Do not select **Install Immediately after Distribution** or **Launch Immediately after Installation**.

- 9 Select **Next > Finish**.

Assigning the OES2015toSP1upgrade Bundle to OES2015 Servers

- 1 In ZENworks Control Center, click **Bundles**.
- 2 In the left column, select `OES2015toSP1upgrade`.
- 3 Click **Action > Assign to Device**.
- 4 Click the down-arrow next to **Servers**, then select the servers to which you want to assign the bundle.
- 5 Click **OK > Next**.
- 6 Select the **Distribution Schedule** and click **Next**.
- 7 Select the appropriate distribution type and select **Install Immediately after Distribution**.
- 8 Click **Next > Finish**.

IMPORTANT: The servers that you selected in the preceding steps are now ready to be upgraded to OES2015 SP1. The actual upgrade operations occur automatically based on the configuration.

Make sure that the `SLES11-SP4-Pool-bundle`, `OES2015-SP1-Pool-bundle`, `SLES11-SP4-Updates-bundle` and `OES2015-SP1-Updates-bundle` bundles have been applied before applying the `OES2015toSP1upgrade` bundle.

Reconfiguring OES Services after Rebooting

The upgrade process includes an automatic server reboot. After the reboot, log in to the server add the OES 2015 SP1 and SLES 11 SP4 medias (CD or network source) and then run `yast2 channel-upgrade-oes` to complete the OES services reconfiguration. You will be prompted for the eDirectory or Domain Services for Windows password. If the answer file has not been provided, supply the password and continue.



Upgrading from SLES11 SP2 to SLES11 SP3 by using a ZENworks 2017

This section helps you use ZENworks 2017 to perform an unattended, online upgrade from SUSE Linux Enterprise Server (SLES) 11 SP2 to SLES 11 SP3. After you perform the steps in the following sections, your SLES 11 SP2 servers are upgraded based on the schedule you set. This involves replication of bundles from the Novell repository by using the Subscription feature, deploying to the agent on a certain schedule, then creating a bundle with a run script action to upgrade the service pack.

As an example, suppose that you need to upgrade a set of managed devices that have SLES 11 SP2 installed with the latest SLES 11 SP2 updates in the ZENworks Management Zone.

Prerequisites:

- ♦ A ZENworks 2017 is installed and running in your network. For more information, see the ZENworks Installation Guide.

The ZENworks Agent is installed on each SLES 11 SP3 server that you plan to upgrade.

Each SLES 11 SP2 server is registered with the ZENworks 2017.

(Optional) Each SLES 11 SP2 server is updated with the latest patches.

IMPORTANT: If SLES11 SP2 server has OES11 SP1 installed & configured on it, make sure that the SLES11 SP3 bundles are not assigned on SLES11 SP2 managed devices. Please refer the below steps which are to be followed for blocking the SLES11 SP3 bundles on SLES11 SP2 managed devices.

- 1 Log into ZCC.
- 2 Click the Bundles option in the left pane.
- 3 Now, browse through the appropriate folder and select the appropriate bundle (SLES11-SP3-Pool & SLES11-SP3-Updates).
- 4 Go to the Requirements tab, add 3 filters. The following are the filters and the appropriate values which are to be set

Filter

1. `Linux Distribution = SUSE Linux Enterprise Server 11 - x86_64`
2. `Linux Service Pack <= 2`
3. `File Exists - /etc/novell-release - No`

NOTE: To set the above filters, refer the screenshot of the filter settings at the end of the document.

- 5 Apply the changes and publish the new version of bundles.

- 6 Assign the newer version of the bundles to the devices.
- 7 Refresh the devices & deploy them.

To upgrade from SLES11 SP2 to SLES11 SP3:

- 1 Replicate the following catalogs, SLES11-SP3-Pool and SLES11-SP3-Updates by using the Subscription feature.
For information on creating and replicating Subscriptions, see Subscription in the ZENworks Linux Package Management Reference.
- 2 After you replicate the subscription, assign the bundles listed in step 1 to the SLES11 SP2 server managed device.

IMPORTANT: Do not select the Install Immediately after Distribution or Launch Immediately after Installation options in the Bundle Assignment Wizard.

- 3 In ZENworks Control Center, click Bundles.
- 4 Create a Linux SLES11SP3Upgrade bundle.
- 5 Select Empty Bundle as the Bundle Category type.
- 6 Follow the wizard to complete the bundle creation.
- 7 Select Actions > Install Actionset and add the Run Script action to the bundle.
- 8 In the Run Script action menu, select Script to Run as Define your own script.
- 9 In the Script content field, copy the following code, then click OK.

```
/bin/sleep 180  
  
/opt/novell/zenworks/bin/zac dist-upgrade --no-confirm SLES11-SP3-Pool-bundle  
SLES11-SP3-Updates-bundle  
  
if [ "$?" != "0" ] ; then  
exit 1  
fi
```
- 10 Select the When action is complete option instead of the default No wait option and click Ok.
- 11 Click Apply and then Publish the bundle.
- 12 Assign the SLE11SP3Upgrade bundle to the SLES11 SP2 managed devices, and schedule the bundles to install appropriately.

IMPORTANT: Make sure that SLES11-SP3-Pool-bundle and SLES11-SP3-Updates-bundle has been assigned before applying the SLE11SP3Upgrade bundle.

- 13 After the patching is successful, verify the following in the managed device: PATCHLEVEL is updated from 2 to 3 under "/etc/SuSE-release".
- Similar steps can be performed by replicating the following catalogs, SLED11-SP3-Pool and SLED11-SP3-Updates and then using it to upgrade a SLED11 SP2 managed device to SLED 11 SP3.