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ZENworks

Primary Server and Satellite Reference

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About This Guide

This *ZENworks Primary Server and Satellite Reference* provides information about managing ZENworks Primary Servers and configuring devices to function as Satellites. The guide includes the following sections:

- ♦ [Part I, “ZENworks Server,” on page 11](#)
- ♦ [Part II, “Satellites,” on page 49](#)
- ♦ [Part III, “Server Hierarchy,” on page 93](#)
- ♦ [Part IV, “Content,” on page 101](#)
- ♦ [Part V, “Appendixes,” on page 131](#)

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](#).

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ZENworks Server

The ZENworks Server is the backbone of the ZENworks system. It communicates with the ZENworks Agent on managed devices to perform management tasks. It stores content to be delivered to devices and images to be used for imaging devices. It communicates with other ZENworks Servers and ZENworks Satellites to replicate or receive content, software and hardware inventory, and messages throughout the Management Zone.

The following sections provide additional information about the ZENworks Server:

- ♦ [Chapter 1, “ZENworks Services on a Windows Server,” on page 13](#)
- ♦ [Chapter 2, “ZENworks Services on a Linux Server,” on page 17](#)
- ♦ [Chapter 3, “Configuring Additional Access to a ZENworks Server,” on page 21](#)
- ♦ [Chapter 4, “Configuring Restricted Access to a ZENworks Server,” on page 23](#)
- ♦ [Chapter 5, “Determining the ZENworks Software Version Installed on Servers,” on page 25](#)
- ♦ [Chapter 6, “Changing the Internal Docker IP,” on page 27](#)
- ♦ [Chapter 7, “Managing ZooKeeper,” on page 29](#)
- ♦ [Chapter 8, “Uninstalling a ZENworks Server,” on page 31](#)
- ♦ [Chapter 9, “Deleting a ZENworks Primary Server,” on page 33](#)
- ♦ [Chapter 10, “Troubleshooting ZENworks Server,” on page 35](#)
- ♦ [Chapter 11, “ZENworks SWEET32 Vulnerability,” on page 39](#)
- ♦ [Chapter 12, “Configuring a Primary Server as an MDM Server,” on page 41](#)
- ♦ [Chapter 13, “Firewall Rules and Exceptions,” on page 43](#)
- ♦ [Chapter 14, “Moving from a Windows or Linux Primary Server to Appliance,” on page 45](#)

1 ZENworks Services on a Windows Server

When it is running on a Windows server, a ZENworks Server includes the services listed in the following table. All services are always installed regardless of the ZENworks products (Asset Management, Configuration Management, Endpoint Security Management, Patch Management and Full Disk Encryption) you have licensed and activated. If a service is not required for your product, it is disabled.

Table 1-1 ZENworks Services on Windows

Service	Service Name	Description
Novell Identity Store	Novell Identity Store	Used by CASA(Common Authentication Service Adapter) to encrypt and store credentials entered by users. These credentials can be used to authenticate to additional network services.
TFTP Service	Novell TFTP	Used by PXE-enabled devices to request files that are needed to perform imaging tasks.
Novell ZENworks Agent Service	Novell ZENworks Agent Service	ZENworks primary agent provides application management and policy related services for managed desktops and servers.
ZENworks Embedded Datastore	Micro Focus ZENworks Embedded Datastore - PostgreSQL	Embedded database used for storing ZENworks objects and resources.
ZENworks Embedded Datastore for Auditing	Micro Focus ZENworks Embedded Datastore - PostgreSQL	Embedded datastore used for storing ZENworks Audit objects and resources.
ZENworks ISD Service	Novell ZENworks Image-Safe Data Service	Used for synchronizing image-safe data with OS information.
Micro Focus ZENworks Join Proxy	ZENworksJoinProxy	Allows ZENworks components to work with managed devices in a private network.
Micro Focus ZENworks Loader	ZENworksLoader	Used for loading and controlling the Java services that perform ZENworks Server tasks.
Novell ZENworks Preboot Policy Service	Novell ZENworks Preboot Policy Service	Used by PXE-enabled devices to check for assigned preboot policies and work.

Service	Service Name	Description
Novell ZENworks Preboot Service	Novell ZENworks Preboot Service	Used to provide imaging services to a device. This includes sending and receiving image files, discovering assigned Preboot bundles, acting as session master for multicast imaging, and so forth.
Novell ZENworks Updater Service	ZENworksUpdaterService	Used to set a refresh interval to pull down system updates from the Primary Server at a scheduled interval.
ZENworks Remote Management powered by VNC	nzrwinvnc	Used to enable remote management of the server.
Microfocus ZENworks Administration Management	Microfocus ZENworks Administration Management	An Apache Tomcat WebServer/Servlet Engine that hosts ZENworks administration management web services.
Micro Focus ZENworks API Gateway	Micro Focus ZENworks API Gateway	Used to control routing inbound network traffic to other ZENworks services.
Microfocus ZENworks Client Management	Microfocus ZENworks Client Management	An Apache Tomcat WebServer/Servlet Engine that hosts ZENworks client management web services.
Micro Focus ZENworks Services Monitor	ZENworksMonitor	Used to monitor the status of critical ZENworks services and to restart them in case of failure.
Novell Proxy DHCP Service	Novell Proxy DHCP Service	Used with a standard DHCP server to inform PXE-enabled devices of the IP address of the TFTP server.
Endpoint Security Service	zesservice	Used to support location awareness in the ZENworks Agent.
ZENworks Imaging Agent	Novell ZENworks Preboot Service	Used to save and restore image-safe data on the server (as a managed device). Only runs when launched by the ZENworks Agent.
Micro Focus ZENworks ZooKeeper	ZENworksZooKeeper	Used by various components such as Vertica and Mobile Management. For more information, see “Managing ZooKeeper” on page 29 .
Micro Focus ZENworks Antimalware	ZENworksAntimalware	Used by the Antimalware feature.

NOTE: Most of the ZENworks Services run as a privileged user account. This account can be identified based on the following naming convention: `__z_x_y__`, where x and y are the last two digits of the IP address of the server, added at the time of installation. This user name can be

changed to any other local user or domain user of the administrator's choice. It can be a local user who is part of the Administrators group or a domain user. In the case of a domain user, the user should be a member of the Built-in Administrator groups.

The services reside in the `\microfocus\zenworks\bin` directory on a ZENworks Server. Refer to the following sections for instructions to help you control the ZENworks services:

- ♦ [“Starting the ZENworks Services” on page 15](#)
- ♦ [“Stopping the ZENworks Services” on page 15](#)
- ♦ [“Restarting the ZENworks Services” on page 16](#)

Starting the ZENworks Services

Do one of the following:

- ♦ Start the ZENworks services from the Services windows:
 1. Click the desktop **Start** menu.
 2. Click **Settings > Control Panel**.
 3. Double-click **Administrative Tools > Services**.
 4. Select the service you want to start (see [Table 1-1 on page 13](#)), then click **Start**.
- ♦ Start the ZENworks services from the command prompt:
 1. Execute the following command:

```
microfocus-zenworks-configure -c Start
```

By default, all the services and the `Start` option are selected.
 2. To start a specific service, specify the number next to the service, then press Enter.
or
To start all the services, press Enter.

The ZENworks services start when the ZENworks Server is booted and should not normally need to be restarted. If you need to frequently restart the services, ensure that your server hardware meets the ZENworks minimum requirements. If the server does not have adequate RAM, ZENworks services might not continue running. For more information, see [“Database Requirements”](#) in the [ZENworks 23.3 System Requirements](#).

Stopping the ZENworks Services

Do one of the following:

- ♦ Stop the ZENworks services from the Services windows:
 1. Click the desktop **Start** menu.
 2. Click **Settings > Control Panel**.
 3. Double-click **Administrative Tools > Services**.
 4. Select the service you want to stop (see [Table 1-1 on page 13](#)), then click **Stop**.

- ◆ Stop the ZENworks services from the command prompt:
 1. Execute the following command:

```
microfocus-zenworks-configure -c Start
```
 2. To stop a specific service, specify the number next to the service you want to stop followed by the number next to the `Stop` action by using comma (,) as the delimiter, then press Enter.
or
To stop all the services, specify the number next to the `Stop` action, then press Enter.

Restarting the ZENworks Services

Do one of the following:

- ◆ Restart the ZENworks services from the Services windows:
 1. Click the desktop **Start** menu.
 2. Click **Settings > Control Panel**.
 3. Double-click **Administrative Tools > Services**.
 4. Select the service you want to restart (see [Table 1-1 on page 13](#)), then click **Restart**.
- ◆ Restart the ZENworks services from the command prompt:
 1. Execute the following command:

```
microfocus-zenworks-configure -c Start
```
 2. To restart a specific service, specify the number next to the service you want to restart followed by the number next to the `Restart` action by using comma (,) as the delimiter, then press Enter.
or
To start all the services, specify the number next to the `Restart` action, then press Enter.

2 ZENworks Services on a Linux Server

When it is running on a Linux server, the ZENworks Server includes the services listed in the following table. All services are always installed regardless of the ZENworks products (Configuration Management, Asset Management, Endpoint Security Management, and Patch Management) you have licensed and activated. If a service is not required for your product, it is disabled.

NOTE: At times, you might notice high memory utilization for certain services in the Primary Server and it might continue to remain high until garbage collection is executed. Garbage collection will automatically remove unused objects, thereby freeing up memory.

Table 2-1 ZENworks Services on Linux

Service	Service Name	Description
TFTP Service	microfocus-tftp.service	Used by PXE-enabled devices to request files that are needed to perform imaging tasks.
ZENworks Agent Service	novell-zenworks-xplatzmd.service	Used to enable the server as a managed device. Also used to support location awareness in the ZENworks Agent.
ZENworks Embedded Datastore	zenpostgres.service	Embedded datastore used for storing ZENworks objects and resources.
ZENworks Imaging Agent	novell-zislnx.service	Used to save and restore image-safe data on the server (as a managed device). Only runs when launched by the ZENworks Agent.
ZENworks Join Proxy	microfocus-zenjoinproxy.service	Allows ZENworks components to work with managed devices in a private network.
ZENworks Loader	microfocus-zenloader.service	Used for loading and controlling the Java services that perform ZENworks Server tasks.
ZENworks Preboot Policy Service	microfocus-zmgprebootpolicy.service	Used by PXE-enabled devices to check for assigned preboot policies and work.
ZENworks Preboot Service	microfocus-pbserv.service	Used to provide imaging services to a device. This includes sending and receiving image files, discovering assigned Preboot bundles, acting as session master for multicast imaging, and so forth.

Service	Service Name	Description
Microfocus ZENworks Administration Management	microfocus-zenadmin-mgmt.service	An Apache Tomcat WebServer/Servlet Engine that hosts ZENworks administration management web services.
Micro Focus ZENworks API Gateway	microfocus-zen-api-gateway.service	Used to control routing inbound network traffic to other ZENworks services.
Microfocus ZENworks Client Management	microfocus-zenclient-mgmt.service	An Apache Tomcat WebServer/Servlet Engine that hosts ZENworks client management web services.
Proxy DHCP Service	microfocus-proxydhcp.service	Used with a standard DHCP server to inform PXE-enabled devices of the IP address of the TFTP server.
ZENworks Updater Service	novell-zenupdater.service	Used to pull down system updates from the Primary Server at a scheduled interval.
Antimalware Service	microfocus-antimalware.service	Used by the Antimalware database. Applicable only if the Antimalware feature is enabled.

Refer to the following sections for instructions to help you control the ZENworks services:

- ♦ [“Checking the Status of a ZENworks Service” on page 18](#)
- ♦ [“Starting the ZENworks Services” on page 18](#)
- ♦ [“Stopping the ZENworks Services” on page 19](#)
- ♦ [“Restarting the ZENworks Services” on page 19](#)

Checking the Status of a ZENworks Service

1 At the console prompt, enter the following command:

```
systemctl status servicename
```

Replace *servicename* with the name of the service as listed in [Table 2-1 on page 17](#).

Starting the ZENworks Services

- ♦ To start a ZENworks service, do one of the following:
 - ♦ At the console prompt, execute `systemctl start servicename`, specify the number next to the service you want to start, then press Enter.
- ♦ To start all the ZENworks services:
 1. Execute the following command at the server prompt:

By default, all the services and the `Start` option are selected.

2. Press Enter.

The ZENworks services start when the ZENworks Server is booted and should not normally need to be restarted. If you need to frequently restart the services, ensure that your server hardware meets the minimum ZENworks requirements. If the server does not have adequate RAM, ZENworks services might not continue running. For more information, see “[Database Requirements](#)” in the *ZENworks 23.3 System Requirements*.

Stopping the ZENworks Services

- ♦ To stop a service, do one of the following:
 - ♦ At the console prompt, execute `stop`, specify the number next to the service you want to stop, then press Enter.
- ♦ To stop all the ZENworks services:
 1. Execute the following command at the server prompt:

```
zenworks stop
```
 2. Enter the number next to the `Stop` action.

Restarting the ZENworks Services

- ♦ To restart a service that is already running, do one of the following:
 - ♦ At the console prompt, execute `restart`, specify the number next to the service you want to restart, then press Enter.
- ♦ To restart all the ZENworks services:
 1. Execute the following command at the server prompt:

```
zenworks restart
```
 2. Enter the number next to the `Restart` action.

3 Configuring Additional Access to a ZENworks Server

If you have managed devices that are unable to authenticate to the IP address or DNS name of a ZENworks Server, such as devices outside the firewall or devices using a proxy server, you can specify additional IP addresses or DNS names for the ZENworks Server that can be used by the devices for access to the server.

- ♦ [“Addressing Non-Detectable IP Address Conditions” on page 21](#)
- ♦ [“Addressing Non-Detectable DNS Name Conditions” on page 21](#)

Addressing Non-Detectable IP Address Conditions

The Non-Detectable IP Addresses panel lets you specify the addresses that can be used to access the ZENworks Server when the server’s IP address cannot be found by a device.

- 1 In ZENworks Control Center, click **Devices** in the left pane, select **Servers** in the Devices panel, select a server object, click the **Settings** tab, click **Infrastructure Management**, then select **Non-detectable IP Addresses**.
- 2 Fill in the field:
IP Address: Standard dotted-decimal notation. For example, 192.168.0.1.
- 3 Click **Add** to add the address to the list.
- 4 Repeat [Step 1](#) to [Step 3](#) to add additional IP addresses.
- 5 If necessary, use the **Move Up** and **Move Down** buttons to reorder the list.
The IP addresses are used in the order listed, from top to bottom.
- 6 When you are finished adding addresses, click **Apply** or **OK** to save the addresses.

Addressing Non-Detectable DNS Name Conditions

The Additional DNS Names panel lets you specify additional names that can be used to access the ZENworks Server when the server’s DNS name cannot be found by a device.

The DNS names added in this panel are distributed to all managed devices for them to use in connecting to the server.

To add a DNS name:

- 1 In ZENworks Control Center, click **Devices** in the left pane, select **Servers** in the Devices panel, select a server object, click the **Settings** tab, click **Infrastructure Management**, then select **Additional DNS Names**.
- 2 In the **List of Server DNS Names** field, specify the DNS name for the IP address of the server (such as a proxy server) that the devices can access.

- 3 Click **Add** to add the DNS name to the list.
- 4 If necessary, use the **Move Up** and **Move Down** buttons to reorder the list.
The DNS names are used in the order listed, from top to bottom.
- 5 When you are finished adding addresses, click **Apply** or **OK** to save the addresses.

4 Configuring Restricted Access to a ZENworks Server

You can configure a list of IP addresses for the ZENworks server that should not be visible to the registration agent.

NOTE: The Restrict IP Addresses page is available only for Primary Servers and Satellite Servers.

To automatically move the newly added IP addresses to the **Restricted IP Addresses** list:

- 1 In ZENworks Control Center, click **Devices** in the left pane, select **Servers** in the Devices panel, select a server object, click the **Settings** tab, click **Infrastructure Management**, then select **Restricted IP Addresses**.
- 2 Select the **Restrict new IP addresses by default** option. The newly added IP addresses will be invisible to the ZENworks agent.

To restrict IP addresses:

- 1 In ZENworks Control Center, click **Devices** in the left pane, select **Servers** in the Devices panel, select a server object, click the **Settings** tab, click **Infrastructure Management**, then select **Restricted IP Addresses**.
- 2 Click the address in the Visible IP Addresses list, then click to move that IP address to the Restricted IP Addresses list.

To make a restricted IP address visible to the registration agent:

- 1 In ZENworks Control Center, click **Devices** in the left pane, select **Servers** in the Devices panel, select a server object, click the **Settings** tab, click **Infrastructure Management**, then select **Restricted IP Addresses**.
- 2 Click the address in the Restricted IP Addresses list, then click to move that IP address to the **Visible IP Addresses** list.

IMPORTANT: If there is only one IP address in the **Visible IP Addresses** list, do not move it to the **Restricted IP Addresses** list. Otherwise, the ZENworks agent cannot see the IP address of the server. The ZENworks agent should be able to see at least one IP address of the server.

5 Determining the ZENworks Software Version Installed on Servers

For upgrading and troubleshooting purposes, you use ZENworks Control Center to determine which versions of ZENworks Configuration Management (ZCM), ZENworks Asset Management (ZAM), ZENworks Patch Management (ZPM), ZENworks Endpoint Security Management (ZESM) and ZENworks Full Disk Encryption (FDE) are running on ZENworks Primary Servers in your Management Zone.

To see ZENworks version information for a specific Primary Server in your Management Zone:

- 1 In ZENworks Control Center, click the **Devices** tab.
- 2 Click **Servers**, then click the desired Primary Server.
- 3 View the version number in the **ZENworks Configuration Management Version**, **ZENworks Asset Management Version**, **ZENworks Patch Management Version**, **ZENworks Endpoint Security Management** and **ZENworks Full Disk Encryption** rows.
- 4 (Optional) Click the underlined version number next to **ZENworks Configuration Management Version** to see a list of installed packages.

To see ZENworks version information for all Primary Servers in your Management Zone:

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy panel, view the version information in the **ZCM Version**, **ZAM Version**, **ZPM Version**, **ZESM Version** and **FDE Version** columns for each server.

6 Changing the Internal Docker IP

When you upgrade a Primary Server to ZENworks 2020 Update 3 for the first time in the Management Zone, complete the following before running the upgrade.

By default, docker internally uses the IP 172.17.0.1/16. In case this IP conflicts with any other device or network in your organization, only then the docker IP should be changed.

To change the internal docker IP that is being used, perform the following steps:

1. Stop all the ZENworks services by running the `microfocus-zenworks-configure -c Start` command.
2. Modify the `daemon.json` file available in the `/etc/docker/`, and add the line `"bip": "<IP_address>"`, to the start of the file, as shown in the below image:

```
{
  "bip": "192.168.2.1/24",
  "log-level": "warn",
  "log-driver": "json-file",
  "log-opts": {
    "max-size": "10m",
    "max-file": "5"
  }
}
```

NOTE: You can use any private IP that is not being used by your organization.

In above example we have used `192.168.2.1/24`

3. Restart the docker service by running the following command:
`systemctl restart docker`
4. Start all the ZENworks services by running the `microfocus-zenworks-configure -c Start` command.

7 Managing ZooKeeper

ZooKeeper acts as a coordination service that provides flexible and robust synchronization within distributed systems. Apache ZooKeeper is already packaged with the ZENworks 2020 build. When you upgrade or install the ZENworks 2020 or a later release version on your first Primary Server, the ZooKeeper role is automatically enabled on this server.

However, if the Primary Server that is within the DMZ is unable to access the ZooKeeper service within the corporate network, then you need to manually open the port 6789 in the corporate firewall.

For more information on the ZooKeeper ports, see [ZENworks TCP and UDP Ports](#).

You can expand the ZooKeeper cluster as per your scalability requirements and to provide fault tolerance. To expand the ZooKeeper cluster and to maintain the cluster you need to execute a set of ZMAN commands.

Adding Servers to the ZooKeeper Cluster

- ◆ Execute the following command to add nodes or servers to the cluster:

```
zman server-role-zookeeper-add-server (zman srzas)
```

The parameter to be specified is:

- ◆ **--servers:** Specify a comma separated list of Primary Servers on which ZooKeeper should be enabled. You can specify the DNS, GUID or path of the server object (server, server folder or server group) relative to /Devices/Servers.

For example: `zman server-role-zookeeper-add-server --servers=server2.microfocus.com,server3.microfocus.com,server4.microfocus.com,server5.microfocus.com`

Managing the ZooKeeper Cluster

- ◆ **Modifying the ZooKeeper Cluster:** Execute the following command to modify the cluster level parameters of the ZooKeeper service.

```
zman server-role-zookeeper-update-cluster (zman srzuc)
```

The parameters of this command are:

- ◆ **-l --leader-connect-port:** Define the leader port that the followers will use to connect to a leader in the cluster. The default port is 6790. However, you can specify an unused port between 6000 and 65535.
- ◆ **-c --client-port:** Define the port on which ZooKeeper will listen in for incoming client connections. The default port is 6789. However, you can specify an unused port between 6000 and 65535.

- ♦ **-e --leader-elect-port:** Define the election port that all servers in the cluster will use to elect the leader. The default port is 6791. However, you can specify an unused port between 6000 and 65535.
- ♦ **-t --tick-time:** Define the length of a single tick, which is a basic time unit in milliseconds, used by ZooKeeper to regulate heartbeats and timeouts. The default value is 2000.
- ♦ **-i --init-limit:** Define the amount of time, in ticks, to allow followers to connect to the leader. The default value is 10.
- ♦ **-s --sync-limit:** Define the amount of time, in ticks, to allow followers to sync with ZooKeeper. The default value is 5.
- ♦ **-x --max-connections:** Specify the maximum number of client connections that the ZooKeeper cluster can accept. The default value is 120.

For example: `zman server-role-zookeeper-update-cluster -s=6`

- ♦ **Removing additional ZooKeeper servers:** Execute the following command to remove additional ZooKeeper servers:

```
zman server-role-zookeeper-remove-server (zman srzrs)
```

This command removes any additional servers from the existing cluster. Specify the DNS, GUID or path of the server object (server, server folder or server group) relative to /Devices/Servers. At least one server in the zone must have a ZooKeeper role enabled on it. Therefore, this command will not work if the server in which ZooKeeper role is enabled, is the last ZooKeeper server.

For example: `zman server-role-zookeeper-remove-server --servers=server1.microfocus.com`

- ♦ **Viewing list of ZooKeeper servers:** Execute the following command to view the list of ZooKeeper servers in a cluster.

```
zman server-role-zookeeper-list-cluster (zman srzlc)
```

Debugging Issues

Configuration Issues

For any configuration related issue you can first refer to either one of the logs:

General Debugging

If at any point in time, the ZooKeeper cluster is down, then check whether the port 6789 of the ZooKeeper server is not being used by any other component.

8 Uninstalling a ZENworks Server

Instructions for uninstalling a ZENworks Server are provided in the [ZENworks Uninstall Guide](#).

9 Deleting a ZENworks Primary Server

If you cannot run the uninstallation program to uninstall a ZENworks Primary Server, you can delete it from the Server Hierarchy panel.

WARNING: Use extreme caution when deleting a ZENworks Primary Server from your ZENworks system.

Deleting a ZENworks Primary Server is irreversible. The preferred way to decommission a Primary Server is to run the uninstallation program from the Server. Deleting a Primary Server should only be used if the uninstallation program cannot be run (for example, if the Primary Server experiences a hard drive failure). For more information about running the uninstallation program, see the [ZENworks Uninstall Guide](#).

If the Primary Server that you are about to delete is an MDM server and is the last MDM server in the zone, then on deleting this server you will not be able to manage mobile devices. Before deleting this server, ensure that you delete the Android Enterprise subscription from the zone. For more information, see [Unenrolling the Organization from Android Enterprise](#).

If you remove a Primary Server that hosts an internal ZENworks database, your entire ZENworks Management Zone becomes inoperable.

If you remove a Primary Server on which the Patch Management subscription service is configured to run, you must reset the Patch Management settings before deleting the server. For more information on how to reset the Patch Management settings, see "" in the .

Deleting a ZENworks Server completely removes the ZENworks Server from the Management Zone. There is no recovery.

If the ZENworks Server in the zone is the last server on which the Kafka role is enabled, and the replication count of the Kafka cluster is 1, then before decommissioning the server, run the `zman server-role-kafka-add-broker` (`zman srkab`) to add a new broker and then proceed with the decommissioning of the existing server.

You can delete managed server and workstation devices by using the options on the **Devices** tab, as explained in “[Deleting Devices from Your ZENworks System](#)” in the [ZENworks Discovery, Deployment, and Retirement Reference](#).

To remove a ZENworks Primary Server from your Management Zone:

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy section, select the check box next to the Primary Server (you can select multiple devices).
- 3 Click **Action > Delete ZENworks Server**.

IMPORTANT: ♦If you plan to remove a server that is dedicated for a system update or a particular subscription such as the CVE subscription, then you need to manually remove the server assignment and assign another server for the system update or subscription.

- ◆ Before deleting the last Primary Server with Ondemand Content Master (OCM) role in the zone, then ensure that go through the following points:
 - Ensure that you assign the OCM role to another Primary Server.
 - If content is not replicated when pre-caching of content is not enabled, then content might not be available in the newly added OCM server.
-

10 Troubleshooting ZENworks Server

- ♦ “ZENRequest Valve Flooded with 503, 403, and 500 Statuses” on page 35
- ♦ “Unable to start ZENworks ZooKeeper Service on Primary Servers” on page 35
- ♦ “Server installation will fail on a Windows server if the free space is less than” on page 36
- ♦ “The ZENworks Application Window (ZAPP) might not work when you upgrade a server from Windows 2008 to 2012 and then you upgrade to ZENworks 2017” on page 37
- ♦ “When a second Primary Server is added to the zone, an out of memory error message might be displayed” on page 37
- ♦ “Unable to start the ZENworks Services on a Windows Primary Server” on page 37

ZENRequest Valve Flooded with 503, 403, and 500 Statuses

Source: The source of the message.

Explanation: While downloading content using Ondemand Content Master, the ZENRequest Valve in the content server is flooded with 503, 403, and 500 statuses.

Possible Cause: This might be due to broken URLs. By default, all the broken URLs are falling back to default or public link, which might not be accessible at the time.

Action: None

Unable to start ZENworks ZooKeeper Service on Primary Servers

Source: ZENworks; ZENworks Server

Explanation: Unable to start the Zookeeper service as the log files are corrupted.

Possible Cause: The Zookeeper service was stopped after creating a new transaction log file before flushing the log header into the log file.

Hence, the transaction log is left without a valid header and fails to start the Zookeeper server.

Action: If the stack traces are pointing to EOFException in zookeeper-messages.log as shown below, then perform the workaround steps (On Windows and On Linux):

```
DEBUG persistence.FileTxnLog: EOF exception
java.io.EOFException: Failed to read /data/version-2/
log.100f5387f
DEBUG persistence.FileTxnLog: Created new input stream /
data/version-2/log.100f538e7
ERROR server.ZooKeeperServerMain: Unexpected exception,
exiting abnormally java.io.EOFException
```

```
at
org.apache.zookeeper.server.ZooKeeperServerMain.main(ZooKeeperServerMain.java:64)
at
org.apache.zookeeper.server.quorum.QuorumPeerMain.initializeAndRun(QuorumPeerMain.java:128)
at
org.apache.zookeeper.server.quorum.QuorumPeerMain.main(QuorumPeerMain.java:82)
DEBUG server.NIOServerCnxn: Closed socket connection for client /xxx.xx.xxx.xx:48666 (no session established for client)
```

The paths are as follows:

- ◆ Linux/Xplat: /var/opt/microfocus/zenworks/common
- ◆ Windows: %ZENSERVER_HOME%\work\common\

Workaround On Windows: Perform the following steps:

- 1 Go to Services (services.msc), search Microfocus ZENworks Zookeeper, and Stop the service.
- 2 If the stack traces are pointing to EOFException in zookeeper-messages.log, DELETE the <PATH>/zookeeper/version-2/log.*.
- 3 After deleting, Start the Microfocus ZENworks Zookeeper service.
- 4 Check the status and verify if the service is Running.

Workaround On Linux: Perform the following steps:

- 1 To stop the service, run the following commands in the console:

```
systemctl stop microfocus-zenzookeeper.service
```
- 2 If the stack traces are pointing to EOFException in zookeeper-messages.log, DELETE the <PATH>/zookeeper/version-2/log.*.
- 3 After deleting, Start the Microfocus ZENworks Zookeeper service by running the following command:

```
systemctl start microfocus-zenzookeeper.service
```
- 4 Check the status and verify if the service is running by using the following command:

```
systemctl status microfocus-zenzookeeper.service
```

Server installation will fail on a Windows server if the free space is less than

Source: ZENworks, ZENworks Server

Explanation: Server installation fails on a Windows server, if you select a drive which has free space less than 20 GB.

Action: Re-initiate the installation process and select another drive that has at least 20 GB of free space.

The ZENworks Application Window (ZAPP) might not work when you upgrade a server from Windows 2008 to 2012 and then you upgrade to ZENworks 2017

Source: ZENworks, ZENworks Server

Explanation: The ZENworks Application Window (ZAPP) might not work, when you upgrade the Primary Server from ZENworks 11.4.x to ZENworks 2017 after upgrading the operating system from Windows Server 2008 to Windows Server 2012.

Action: After upgrading the operating system, manually install the latest .NET Framework (4.5.x), and then upgrade the Primary Server.

When a second Primary Server is added to the zone, an out of memory error message might be displayed

Source: ZENworks; ZENworks Server

Explanation: When a second Primary Server is added to the zone, though the installation is successful, you might receive an error message indicating that the installation failed due to insufficient memory.

Action: None, Ignore the message.

Unable to start the ZENworks Services on a Windows Primary Server

Source: ZENworks; ZENworks Server

Explanation: After you reboot or restart a Windows Primary Server, the ZENworks Services fail to start. If you choose to manually start the services, the following error message is displayed: `Error 1609: The service did not start due to a logon failure.`

Possible Cause: A group policy setting, applied on the server, has revoked the `log on as a service` right for the specified user account.

NOTE: Most of the ZENworks Services run as a privileged user account. This account can be identified based on the following naming convention: `__z_x_y__`, where `x` and `y` are the last two digits of the IP address of the server, added at the time of installation.

Action 1 (Mandatory): Configure the applied group policy setting to add the user account to the list of accounts that possess the `log on as a service` right.

Action 2 (Optional): If the ZENworks Services do not start after performing Action 1, perform the following steps:

- 1 Start the Local Security Settings MMC snap-in.
- 2 Expand **Local Policies**, and then click **User Rights Assignment**.

- 3 In the right pane, right-click **Log on as a service**, and then click **Security**.
- 4 Add the user to the policy, and then click **OK**.
- 5 Close the Local Security Settings MMC snap-in.

11 ZENworks SWEET32 Vulnerability

Primary and Satellite Servers are vulnerable to SWEET32. Perform the steps provided in the following ZENworks Servers to overcome the SWEET32 Vulnerability:

- ♦ “On Primary Servers:” on page 39
- ♦ “On Appliance Primary Server:” on page 39
- ♦ “On Satellite Servers:” on page 40

On Primary Servers:

- 1 Backup the server.xml in the following location:
 - ♦ **On Windows:**
 - ♦ **On Linux:**
- 2 In the server.xml file, remove the following ciphers attribute in the Connector element:
 - ♦ SSL_RSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA
- 3 Restart the services by running the command.

NOTE: If the zone is upgraded to 2017 Update 1 or later versions, then these steps are not required.

On Appliance Primary Server:

- 1 Backup the jetty-ssl.xml file available in the /opt/microfocus/jetty8/etc/ location.
- 2 Under the Call element in the jetty-ssl.xml file, move the following ciphers from **IncludedCipherSuites** to **ExcludedCiphers**:
 - ♦ SSL_DHE_RSA_WITH_3DES_EDE_CBC_SHA
 - ♦ SSL_RSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA
 - ♦ TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA
- 3 Restart the services by running the command.

NOTE: ♦ In addition to performing these steps, perform the steps mentioned in [“On Primary Servers:”](#) on page 39.

On Satellite Servers:

To address the SWEET32 vulnerability on the Satellite Servers, exclude the following set of ciphers in the `zenworks-ssl.conf` file. Manually create the `zenworks-ssl.conf` file in the following locations:

- ♦ **On Windows:**
- ♦ **On Linux:**

Add the `ExcludeCipherSuites` key name in the `zenworks-ssl.conf` file. The key name should not be modified:

```
ExcludeCipherSuites=SSL_RSA_WITH_3DES_EDE_CBC_SHA,  
TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA,  
TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA, TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA,  
TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA
```

NOTE: By default ciphers are not excluded to address the SWEET32 vulnerability, as the communication breaks between agents with Windows XP and Satellite Servers.

IMPORTANT: Fixing the SWEET32 vulnerability requires to remove weak ciphers. This causes older Windows versions to have less or no common ciphers to establish communication with the server. Hence, fixing SWEET32 vulnerability issue breaks communication from Windows XP or Windows 2003 devices.

12 Configuring a Primary Server as an MDM Server

This feature is applicable for mobile devices only. For more information, see [Configuring an MDM Server](#).

13 Firewall Rules and Exceptions

Ensure that the firewall rules allow outbound connections to the following addresses as you might not be able to download System Update, PRU, Patches and ZENworks NEWS.

- ♦ Primary Server performs the ZENworks System Update Entitlement registration or activation over HTTPS (port 443) using the [secure-www.novell.com \(https://secure-www.novell.com\)](https://secure-www.novell.com) website. This rule can be turned off after successfully completing the entitlement activation.
- ♦ ZENworks System Update, PRU (Checks and Downloads) and ZENworks NEWS are shared over HTTPS (port 443) using the [nu.novell.com \(https://nu.novell.com\)](https://nu.novell.com) website.

For more information on list of Patch provider websites that requires outbound connectivity to download patches, see .

For more information of TCP and UDP ports used by ZENworks Primary Servers, see [ZENworks 2020 TCP and UDP Ports](#).

14 Moving from a Windows or Linux Primary Server to Appliance

This section details the procedure to move from an existing Windows or Linux Primary Server to an Appliance server. Moving the data from Windows or a Linux server to an Appliance server is a two step process:

- ◆ [Section 14.1, “Backing up the existing Windows or Linux Primary Server,” on page 45](#)
- ◆ [Section 14.2, “Restoring Backed-up Files and Database on the Appliance server,” on page 46](#)

NOTE: ◆Ensure that the version on the new server and the existing Primary Server are same.

14.1 Backing up the existing Windows or Linux Primary Server

- 1 Take a reliable backup of the existing ZENworks Server. For more information, see [Backing Up and Restoring the ZENworks Server and Certificate Authority](#) in the [ZENworks Disaster Recovery Reference](#)
- 2 (Conditional) Take a reliable backup of the database in any of the following scenarios:
 - ◆ You are using an internal ZENworks database.
 - ◆ You are using an external database installed on the device hosting the Primary Server and you do not plan to use the device after uninstalling the Primary Server.

PostgreSQL: For detailed information on how to move the data from one PostgreSQL database to another PostgreSQL database, see [“Backing up an Embedded PostgreSQL Database on One Primary Server and Restoring it on another Primary Server”](#) in the [ZENworks Database Management Reference](#).

To take a backup of an external database, see the documentation for the database.

- 3 Take a reliable backup of the content-repo directory of the Primary Server. The content-repo directory is located by default in the `%ZENSERVER_HOME%\work` directory on Windows and in the `/var/opt/microfocus/zenworks/` on Linux.
- 4 Ensure that the images directory located within the content-repo directory has been successfully backed up.
- 5 (Optional) If there are any TFTP customizations related to imaging, then back up the TFTP files. The tftp directory is located in the `/srv/ folder` on the Linux server and in `%ZENWORKS_HOME%\share\` on the Windows server.
- 6 Disconnect the device from the network.

14.2 Restoring Backed-up Files and Database on the Appliance server

NOTE: ♦ If you want to replace more than one server, you need to install the same number of servers and replace each server on a one-to-one basis, sequentially. For faster deployment, all servers can be deployed to a single temporary zone.

- ♦ The migration steps should not be performed if you have configured multi-node ZooKeeper cluster.
-

1 Deploy the ZENworks 2020 Update 2 Appliance server with the following settings that are the same as that of the old Primary Server:

- ♦ Hostname, IP
- ♦ ZENworks Ports
- ♦ Management Zone Name

For more information on deploying an Appliance server, see [ZENworks Appliance Deployment and Administration Reference](#).

NOTE: ♦ Install the new server to a temporary zone and not to the existing production zone. The new server can be installed with any database engine (preferably the same database engine as that in the production zone, that is, if the production zone is using MSSQL, then install the new server with MSSQL in the temporary zone). After the existing Primary Server is replaced with the new server, the new server will start using the actual database in the production zone.

- ♦ If you want to replace more than one Primary Server, you need to install the same number of servers and replace each server on a one to one basis, either simultaneously or sequentially. For faster deployment, all servers can be deployed to a single temporary zone.
 - ♦ Ensure that you run the commands as a root user.
-

2 Do the following on the new Primary Server:

- ♦ (Conditional) If you have installed an Appliance server with the Embedded PostgreSQL database, then note down the database credentials for the super administrator and by running the following commands:

```
database-get-credentials-superuser (zman dgcs)
```

```
database-get-credentials (zman dgc)
```

```
database-get-credentials-audit (zman dgca)
```

3 Restore the backed-up data from the Windows or Linux server. For more information, see [Restoring a ZENworks Server](#) in the [ZENworks Disaster Recovery Reference](#).

4 Restore the backed-up tftp files `microfocus-tftp.conf` and `microfocus-proxydhcp.conf` to `/etc/opt/microfocus/zenworks/preboot`.

If you are restoring a Windows server, you should restore the `restore novell-tftp.conf` and `novell-proxydhcp.conf` files to `/etc/opt/microfocus/zenworks/preboot`.

5 Restore the backed-up tftp files `microfocus-tftp.conf` and `microfocus-proxydhcp.conf` to `/etc/opt/microfocus/zenworks/preboot`.

If you are restoring a Windows server, you should restore the `restore novell-tftp.conf` and `novell-proxydhcp.conf` files to `/etc/opt/microfocus/zenworks/preboot`.

6 (Conditional) Restore the backed-up database.

MS SQL: For detailed information on how to move the data to a new MS SQL database, see the MS SQL documentation. Later on, perform the steps described in “[Configuring the ZENworks Server to Point to the New MS SQL Database Containing Data Moved from Another MS SQL Database](#)” in the *ZENworks Database Management Reference*.

Oracle: For detailed information on how to move the data from one Oracle database to another Oracle database, see the Oracle documentation. Later on, perform the steps described in “[Configuring the ZENworks Server to Point to the New Oracle Database Containing Data Moved from Another Oracle Database](#)” in the *ZENworks Database Management Reference*.

PostgreSQL: For detailed information on how to move the data from one PostgreSQL database to another PostgreSQL database, see the Oracle documentation. Later on, perform the steps described in “[Backing up an Embedded PostgreSQL Database on One Primary Server and Restoring it on another Primary Server](#)” in the *ZENworks Database Management Reference*.

7 Run the following query to add the Appliance Server role:

```
microfocus-zenworks-configure -c AddRole -DdestGuid=<GUID> -  
Drole=ApplianceServer
```

where <GUID> is the GUID of the old Primary Server that is being replaced.

```
microfocus-zenworks-configure -c AddRole -  
DdestGuid=cd65a48408ee1e46e5984947fc51b5e3 -Drole=ApplianceServer
```

The GUID can be found in the following location:

On Windows: `%ZENSERVER_HOME%\conf\guid.txt`

On Linux: `/etc/opt/microfocus/zenworks/guid.txt`

8 Run the following configure actions on the Appliance server:

1. `microfocus-zenworks-configure -c MergeTruststore -Z`
2. `microfocus-zenworks-configure -c UpdateTrustStorePasswordConfigureAction`
3. `microfocus-zenworks-configure -c GenerateOSPProperties`
4. `microfocus-zenworks-configure -c UnifyTrustStoreForApplianceConfigureAction`
5. `microfocus-zenworks-configure -c EnableJMX`
6. `microfocus-zenworks-configure -c ZenProbe`
7. `microfocus-zenworks-configure -c EnableJMX`
8. `microfocus-zenworks-configure -c UpdateJMXOptionsConfigureAction`
9. Execute `permissions.sh` file which is available at `/opt/microfocus/zenworks/bin/`

9 Re-create all the default and custom deployment packages.

Default Deployment Packages: At the server’s command prompt, enter the following command:

```
microfocus-zenworks-configure -c CreateExtractorPacks -Z
```

NOTE: The `microfocus-zenworks-configure -c CreateExtractorPacks -Z` command will not rebuild the Mac pre-agent installer package.

IMPORTANT: Ensure that you do not run the ZMAN SURP command instead of `microfocus-zenworks-configure -Z -c CreateExtractorPacksConfigureAction` to rebuild deployment packages. The command `microfocus-zenworks-configure -Z -c CreateExtractorPacksConfigureAction` uses a different method to rebuild deployment packages. For more information, see *Rebuilding the Default Packages in ZENworks Discovery, Deployment, and Retirement Reference*.

Custom Deployment Packages: At the server's command prompt, enter the following command:

```
microfocus-zenworks-configure -c RebuildCustomPacks -Z
```

To avoid any errors while running this command, ensure that the custom packages are available in the new server at the following location before you run the command: `/opt/microfocus/zenworks/install/downloads/custom`.

- 10 Copy all the contents of the backed-up `content-repo` directory to the `/var/opt/microfocus/zenworks/directory`. If you have any issues in copying `content-repo` directory in Linux, then run `permissions.sh` file which is available at `/opt/microfocus/zenworks/bin/`.
- 11 (Optional) Also, copy the backed-up TFTP files to the second Primary Server. The `tftp` directory is located in the folder `/srv/`.
- 12 Restart the services by running the `microfocus-zenworks-configure -c Start` command, and then select the restart option.

NOTE: If you find Windows paths under `/etc/opt/microfocus/zenworks/zen-api-gateway/application.properties`, replace the Windows paths with Linux paths.

For example, all instances of `C:\\Program Files (x86)\\Micro Focus\\ZENworks\\conf\\security\\` should be modified to `/etc/opt/microfocus/zenworks/security/`

- 13 Ensure that the new server is functioning properly.
 1. Check the ZCC and Appliance configuration pages are working properly.
 2. Check whether the Appliance Summary details are updated under **ZCC > Devices > Servers**. If the OS details or the last contact time is not updated, run the `zac refresh` command on the server to refresh the page with new data.

NOTE: After migrating the Windows server to Appliance, administrator should reassign the bundles and policies that are applicable to Linux Primary Server. Also, administrators should re-look into the static group where the Windows Primary was part of, because now the platform has been changed

for the Primary Server.

|| Satellites

A Satellite is a managed device that can perform some of the roles that a ZENworks Primary Server normally performs, including authentication, information collection, content distribution, and imaging. A Satellite can be any managed Windows or Linux device (server or workstation), but not a Primary Server. For more information, see [Managed Device Requirements](#) in the *ZENworks System Requirements* and [Deploying the ZENworks Agent](#) in the *ZENworks Discovery, Deployment, and Retirement Reference*.

NOTE: ZENworks no longer allows you to promote a 32-bit device to the Satellite Server role or add a new role to an existing 32-bit Satellite Server. However, ZENworks will continue to support the existing 32-bit Satellite Servers.

When you configure a Satellite, you specify which roles it performs (Authentication, Collection, Content, or Imaging). A Satellite can also perform roles that might be added by third-party products that are snap-ins to the ZENworks framework.

You might, for example, create a Satellite in a location across a slow WAN link and create Closest Server rules to offload one or more roles from the Primary Server to the newly created Satellite to improve the performance of your ZENworks system.

NOTE: For information about Satellites from the perspective of an end user using the ZENworks Agent, see [“Satellite Roles”](#) in the *ZENworks Agent Guide*.

The following sections contain more information:

- ♦ [Chapter 15, “Understanding the Satellite Roles,”](#) on page 51
- ♦ [Chapter 16, “Adding and Configuring Satellite Devices,”](#) on page 55
- ♦ [Chapter 17, “Satellite Servers Authentication,”](#) on page 69
- ♦ [Chapter 18, “Refreshing a Satellite,”](#) on page 71
- ♦ [Chapter 19, “Removing the Roles from a Satellite,”](#) on page 73
- ♦ [Chapter 20, “Removing Satellites from the Server Hierarchy,”](#) on page 75
- ♦ [Chapter 21, “Specifying Content to be Hosted,”](#) on page 77
- ♦ [Chapter 22, “Manually Replicating Content from a Primary Server to Satellite Devices,”](#) on page 79
- ♦ [Chapter 23, “Moving a Satellite from One Primary Server to Another Primary Server,”](#) on page 81
- ♦ [Chapter 24, “Specifying a Different Repository for the Content Role Satellite \(Windows Only\),”](#) on page 83
- ♦ [Chapter 25, “Specifying a Different Repository for Content Role Satellite \(Linux Only\),”](#) on page 85

- ◆ Chapter 26, “Promoting an RHEL 6 device as a Content or Collection Role Satellite,” on page 87
- ◆ Chapter 27, “Troubleshooting Satellites,” on page 89

15 Understanding the Satellite Roles

A Satellite is a device that can perform some of the roles that a ZENworks Primary Server normally performs, including authentication, information collection, content distribution, and imaging.

NOTE: ZENworks no longer allows you to promote a 32-bit device to the Satellite Server role or add a new role to an existing 32-bit Satellite Server. However, ZENworks will continue to support the existing 32-bit Satellite Servers.

The following sections contain more information about each role:

- ♦ [“Understanding the Authentication Role” on page 51](#)
- ♦ [“Understanding the Collection Role” on page 51](#)
- ♦ [“Understanding the Content Role” on page 52](#)
- ♦ [“Understanding the Imaging Role” on page 53](#)
- ♦ [“Understanding the Join Proxy Role” on page 53](#)

Understanding the Authentication Role

When users logged in to previous versions of ZENworks, they were authenticated to the Management Zone by contacting the ZENworks Primary Server, which in turn contacted the user source that contains the users.

Satellite devices with the Authentication role can now speed the authentication process by spreading the workload among various devices and by performing authentication locally to managed devices. You can have multiple Satellite devices with the Authentication role. In addition, each Satellite with the Authentication role can have multiple user sources configured and each Satellite can have multiple connections to each user source to provide failover.

When a managed device uses a Satellite for authentication, the Satellite issues an authentication token to the managed device so that it can authenticate to the Management Zone using SSL.

On the managed device, the Authentication module is inactive until you promote the managed device to be a Satellite with the Authentication role or until the Authentication role is added to an existing Satellite.

Understanding the Collection Role

If you want to improve information roll-up access for a group of devices to minimize traffic to the ZENworks Primary Server that is hosting the ZENworks database, you can enable the Collection role on a device. For example, if you have devices that are rolling up information to a Primary Server outside of their network segment, you can minimize network traffic by enabling the Collection role

on a device within the network segment to accept the information from the other devices in that segment. That Collection role device is then the only device from that segment that is rolling up information to the Primary Server.

You can enable the Collection role on any managed device. The Collection role requires only the Collection role module that is installed with the ZENworks Agent. The module is inactive until you enable the Collection role on the managed device.

When you enable a Collection role on a device, you can assign any ZENworks Primary Server as its parent server. The Collection role device uploads information only to its parent Primary Server. If the parent Primary Server is not a child of another Primary Server, it writes the information directly to the database. If the parent Primary Server is a child of another Primary Server, it passes the information up to its parent Primary Server, which writes the information to the database.

A Satellite with the Collection role collects inventory information, messages (errors, warning, informational, and so forth), and policy and bundle statuses, then rolls that information up to its parent Primary Server, which in turn either writes to the database directly or passes the information to its parent Primary Server, which does the database writing. The role includes a roll-up schedule that you can edit.

To redirect collection roll-up from the satellite to a different server, configure the PreferredCollectionRollUpServer registry key. This will re-route the collection roll-up to an alternate Primary Server that you can rely on temporarily instead of the configured Parent Primary server. To assign a different primary server for collection roll-up, create the PreferredCollectionRollUpServer registry key. This key specifies the alternate server that will be used for collection roll-up. For more information, see PreferredCollectionRollUpServer in the [ZENworks Registry Keys Reference](#).

On the managed device, the Collection module is inactive until you promote the managed device to be a Satellite with the Collection role or until the Collection role is added to an existing Satellite.

Understanding the Content Role

Content consists of bundles, policies, system updates (ZENworks Server and ZENworks Agent), and patches.

If you want to improve content access for a group of devices without creating another Primary Server, you can create the Content role on a device. For example, if you have devices that are accessing a Primary Server outside of their network segment, you can create the Content role on a device within the network segment to service those devices.

The Content role provides the same content delivery service as a Primary Server but requires only the Content role module that is installed with the ZENworks Agent. The module is inactive until you enable it on the managed device.

When you enable the Content role on a device, you assign a Primary Server as its parent content server. The Content role Satellite downloads content only from its parent Primary Server. Therefore, any content you want hosted on a Content role Satellite must also be hosted on its parent Primary Server.

On the managed device, the Content module is inactive until you promote the managed device to be a Satellite with the Content role or until the Content role is added to an existing Satellite.

Understanding the Imaging Role

The Imaging role installs the Imaging services and adds the Imaging role to the device. With this role, the device can be used as an Imaging server to perform all Imaging operations, such as taking an image and applying an image within or across subnets by using unicast or multicast imaging.

The Imaging role can be used to achieve load balancing for the Primary Server, and also to support cross-subnet imaging. The Satellite uses ZENworks Control Center to communicate with the Primary Server for Imaging operations in the Auto mode.

On the managed device, the Imaging module is inactive until you promote the managed device to be a Satellite with the Imaging role or until the Imaging role is added to an existing Satellite. This activates the Imaging services on the device, and enables you to perform the Imaging operations in auto and maintenance mode. The Imaging services installed on the device include TFTP, Preboot policy, pbserv, and proxy DHCP. All services, except for proxy DHCP, are automatically started. You can manually start or stop the proxy DHCP service from ZENworks Control Center.

Understanding the Join Proxy Role

Join Proxy is a Primary Server or a Satellite with the Join Proxy role that acts as a proxy by accepting and maintaining connections from Windows managed devices that are in a private network.

Join Proxy when used for remote management operations joins two connections together. The first connection being the one that the managed device maintains with the proxy server while the second one is the connection that comes from the viewer machine of the administrator.

In ZENworks, Join Proxy is a role that is by default assigned to the Primary Servers while you can also assign this role to Satellites. If you choose a Primary Server for the Join Proxy role, there is no need to further configure the server. If you choose a Satellite, then you need to assign the Join Proxy role to the Satellite server.

When a Join Proxy is used, the ZENworks Agent first connects to the Join Proxy server if its location is configured with a Join Proxy server. The agent then initiates a TCP connection to the Join Proxy Server and then periodically checks in to keep the connection alive. The ZENworks administrator will be able to remotely manage the device only if the Join Proxy server is reachable by both the ZENworks administrator and the managed device.

For example, if a device is located in a hotel room behind a NAT (Network Address Translation) the administrator cannot directly contact the machine. In this context, the administrator can only use the Join Proxy to reach the managed device.

16 Adding and Configuring Satellite Devices

You can create a new Satellite device or configure an existing Satellite with the Authentication, Content, Imaging, and Collection roles, change its default port, and adjust the schedules for the roles. You can also remove roles from an existing Satellite.

Before promoting a managed device as a Satellite, ensure to review the following guidelines:

- ◆ The ZENworks version installed on the managed device must be the same as that of the Primary Server.

NOTE: Ensure that you update the Satellite Server to the latest version of ZENworks before you promote to any role.

- ◆ You cannot promote the following devices as a Satellite:
 - ◆ A managed device that has a previous version of ZENworks Agent (version 10.x or 11.x) installed.
 - ◆ A ZENworks 11.x test device.
- ◆ You cannot change the Satellite roles and settings for the existing Satellites until you upgrade the Satellites to ZENworks. For more information on how to upgrade Satellites to ZENworks, see .
- ◆ For a MAC device that has been promoted as a Satellite, only the Collection and Content roles are available.

The following sections contain more information:

- ◆ [“Tasks for Adding and Configuring Satellites” on page 55](#)
- ◆ [“Authentication Role” on page 58](#)
- ◆ [“Collection Role” on page 59](#)
- ◆ [“Content Role” on page 60](#)
- ◆ [“Imaging Role” on page 63](#)
- ◆ [“Join Proxy Role” on page 66](#)
- ◆ [“Satellite Server Output Throttle Rate Calculations” on page 68](#)

Tasks for Adding and Configuring Satellites

- 1 To add a new Satellite into the Server Hierarchy panel, in ZENworks Control Center, click the **Configuration** tab. In the Server Hierarchy panel, select the check box next to the desired Primary Server, click **Action**, then click **Add Satellite Server**.

or

To configure an existing Satellite from the Server Hierarchy panel, in ZENworks Control Center, click the **Configuration** tab. In the Server Hierarchy panel, select the check box next to the Satellite that you want to configure, click **Action**, then click **Configure Satellite Server**.

You can only configure one Satellite at a time.

or

To configure an existing Satellite from the device view, in ZENworks Control Center, click the **Devices** tab, then on the **Managed** tab, click either **Servers** or **Workstations**. In the Servers or Workstations panel, select the check box for the Satellite that you want to configure, click **Action**, then click **Configure Satellite Server**.

You can only configure one Satellite at a time.

Depending on whether you are adding a new Satellite device or configuring an existing device, the title of the dialog box is different (Add Satellite Server or Configure Satellite Server). The settings and options on each page are similar.

You can also use the `zman satellite-server-create (ssc)` command to add or configure roles for a Satellite. For more information, see “[Satellite Server Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

- 2 Click the **General** tab to specify the basic information about the satellite server, including the roles of the server. (Conditional) To remove Satellite roles from a device, deselect the desired role in the Satellite Server Roles section, then click **OK**.

You can also use the `zman satellite-server-delete (ssd)` command to remove roles from a Satellite. For more information, see “[Satellite Server Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

- 3 (Conditional) To add a role to a Satellite, select the desired role in the **Satellite Server Roles** section.

If the **Configure** link is disabled for any role, that role is disabled for this device. For example, if the Satellite’s parent Primary Server does not have the Collection role, the Satellite’s Collection role is disabled and cannot be configured. Non-configurable roles that a managed device performs are also listed in the dialog box but cannot be edited.

See the following sections for more information about each role:

- ◆ “[Authentication Role](#)” on page 58
 - ◆ “[Collection Role](#)” on page 59
 - ◆ “[Content Role](#)” on page 60
 - ◆ “[Imaging Role](#)” on page 63
- 4 Click the **Server Settings** tab to view the default port and throttle rate settings. You can change these default values if required.

Port for Content and/or Collection HTTP Requests: In this field specify the port number (Optional). The default port is 80. Content and Collection servers share the same Web server and the same port. Make sure that the specified port is not in use.

Port for authentication Secure HTTPS requests: In this field, specify the port number. The default port is 443. This is the port on which the Satellite device listens while communicating with the managed devices. Make sure that the specified port is not in use.

Satellite Server Output Throttle Rate (in kbps): In this field, specify the rate at which the Satellite server should send the content to other devices requesting the content. These devices could be either other content satellite servers or managed devices. Satellite server calculates different throttle rates in the following scenarios:

- ◆ A Single content request with the Content type throttle
- ◆ A Single content request without the Content type throttle

- ◆ Multiple requests without the Content type throttle
- ◆ Multiple requests with the Content type throttle

For more information, see [“Satellite Server Output Throttle Rate Calculations”](#) on page 68.

NOTE: The settings for the satellite server output throttle rate is saved in the `satelliteContentReplicationSettings.properties` file on the satellite server. This setting is used when the satellite server sends the content to requesting devices.

The path to access the `satelliteContentReplicationSettings.properties` file is:

- ◆ **Windows:** `%ZENWORKS_HOME%\conf\SatConfig`
 - ◆ **Linux:** `/etc/opt/novell/zenworks/conf/SatConfig`
-

- 5 Click the **Content Replication** tab to select one of the listed content replication methods.

A satellite with the Content role replicates content from other satellite content servers by using one of the following methods:

Use Parent Primary Server Only: This is the default content replication method. The satellite replicates content only from its parent primary server (as configured during the satellite promotion).

Use Closest Content Servers First: Select this option if you want the Satellite server to look for a content repository hosted in the CIFS location (if it is configured) or closest content servers first, to replicate the content.

If the CIFS location is not configured or if content is not found in the CIFS location, the Satellite Server checks the closest content servers for content replication before trying to use the parent Primary Server.

The CIFS share or the closest servers will be determined by the Location or the Network environment that is effective on the Satellite.

Use Closest Content Servers Only: Select this option if you want the Satellite Server to look for a content repository hosted in the CIFS location (if it is configured) or closest content servers only to replicate the content. If the CIFS location is not configured or if content is not found in the CIFS location, the Satellite Server checks the closest content servers for content replication. If content is not found on the closest servers as well, the replication will fail.

The CIFS share or the closest servers will be determined by the Location or the Network environment that is effective on the Satellite.

- 6 Click **OK** to save your changes and exit the dialog box.
- 7 Repeat the previous steps to configure other Satellites.
- 8 Specify the devices that need to use this Satellite for the Collection Roll-Up, Content, Authentication and Imaging roles.
- 9 To configure the Location Closest Server for this Satellite:
 - 9a On the **Configuration** page, click the **Locations** tab.
 - 9b In the **Locations** panel, click the location for which you want to configure the Closets Servers rules.
 - 9c Click the **Severs** tab.
 - 9d Configure the location closest servers.

Authentication Role

This role helps speed the authentication process by spreading the workload among various devices and by performing authentication locally to managed devices.

Prerequisites to Configure the Authentication Role on a Satellite

If you have installed ZENworks with external certificates, you must complete the following tasks on the Satellite before configuring the Authentication role on a Satellite:

1. Ensure that the Satellite has its own individual server certificate and private key.
For detailed information on how to create to an external certificate, see “[Creating an External Certificate](#)” in the [ZENworks Server Installation](#).
2. Import the external certificate by using the `zac isc` command on the Satellite.
For more information about `zac`, see the `zac man` page (`man zac`) on the Satellites or see the [ZENworks Command Line Utilities Reference](#).

NOTE: You must import the external certificate each time you promote the Satellite to Authentication role.

Configuring the Authentication Role on a Satellite

- 1 (Optional) To configure the Authentication role on a Satellite, select the check box next to **Authentication**, click **Configure** to display the Configure Authentication dialog box.
- 2 Specify the authentication port.
- 3 Select a user source from the User Source drop-down list.
- 4 Click **Add** to display the Add User Source Connections dialog box.

Fill in the fields:

Connection Name: (Optional) Specify all or part of the name for the connection to the LDAP directory, then click **Filter** to display the list of connections that match the criteria.

If you have many connections in your ZENworks Management Zone, you can use the **Connection Name** field to display only those connections that match the criteria. For example, to display all connections that contain the word “London,” type `London` in the **Connection Name** field, then click **Filter**.

Connection Address: (Optional) Specify part of the IP address or DNS hostname of the connection to the LDAP directory, then click **Filter** to display all connections with that IP address.

If you have many connections in your ZENworks Management Zone, you can use the **Connection Address** field to display only those connections that match the criteria. For example, to search for and display all connections that have an IP address starting with 172, type `172` in the **Connection Address** field, then click **Filter**.

User Source Connections: Select the check box next to the connection you want to add.

- 5 Click **OK** to return to the Configure Authentication dialog box.

- 6 (Optional) Reorder the connections in the User Source Connection list by selecting a connection's check box, then clicking **Move Up** or **Move Down**.

The device uses the connections in the order they are listed to authenticate the device to the ZENworks Management Zone.

- 7 Click **OK** to return to the Add Satellite Server or Configure Satellite Server dialog box.
- 8 Continue with [Step 4 on page 56](#).

NOTE: Any change made to an Authentication satellite server in the Zone will trigger a device refresh through the Quick Task feature. If the Authentication satellite is modified, it will cause all the Authentication satellite servers in the Zone to refresh. This may lead to the creation of excessive Quick Tasks, resulting in the clogging of database.

To prevent the creation of excessive Quick Tasks, you can configure the Quick Task refresh interval by editing the `quicktask_trigger_interval` field in the file named `quicktask.properties`. This file can be accessed from the following location:

By default, the Quick Task refresh interval value is set as 600 minutes (10 hours). If changes are made to the satellite server within the predefined refresh interval, a new Quick Task will not be created. The new changes will get reflected on the managed devices when the next system refresh is performed.

Collection Role

This role causes the device to collect inventory information, messages (errors, warning, informational, and so forth), and policy and bundle statuses, then rolls that information up to its parent Primary Server, which in turn either writes to the database directly or passes the information to its parent Primary Server, which does the database writing.

When the Collection role is promoted to use SSL, the managed devices communicate with Satellite Servers through HTTPS. The Satellite Server and Primary Server communication also happens through HTTPS after the Satellite Server is upgraded to ZENworks 2020 or a later version. This feature is backward compatible. Hence, even for managed devices prior to ZENworks 2020, the collection rollup will be performed over SSL using the configured Satellites. Communication between the managed devices and Primary Server also happens through HTTPS after the Primary Server is upgraded to ZENworks 2020 Update 1 or a later version. This feature is backward compatible. Hence, even for managed devices prior to ZENworks 2020 Update 1, the collection rollup will be performed over SSL using the configured Primary Servers.

The Closest Server Rule for collection on agents changes to HTTPS URLs over the SSL port.

When an existing Collection Satellite Server is configured to use SSL, until the CSR is calculated and the agent is refreshed, the CSR will continue to point to the HTTP URL.

If the agents are communicating with a Windows Satellite Server, since the CSR's are still pointing to the HTTP URL, collection upload will fail until the above mentioned CSR calculation happens and the agent is refreshed to get the correct HTTPS URL.

Prerequisites to Configure the Collection Role on a Satellite

If you have installed ZENworks with external certificates, you must complete the following tasks on the Satellite before configuring the Collection role with **SSL Enabled** on a Satellite:

1. Ensure that the Satellite has its own individual server certificate and private key.

For detailed information on how to create to an external certificate, see “[Creating an External Certificate](#)” in the *ZENworks Server Installation*.

2. Import the external certificate by using the `zac isc` command on the Satellite.

For more information about `zac`, see the `zac man` page (`man zac`) on the Satellites or see the *ZENworks Command Line Utilities Reference*.

NOTE: You must import the external certificate each time you promote the Satellite to Collection role.

Configuring the Collection Role on a Satellite

To configure the Collection role:

- 1 Select the check box next to **Collection**, then click **Configure**.

- 1a Collection Roll-Up Schedule:** Specify the number of days, hours, and minutes for how often you want the collected data to be rolled up from the devices that use it as a collection server.

The Collection Roll-Up schedule determines how often the collected inventory information is rolled up to the parent Primary Server for inclusion in the ZENworks database. When the information is in the database, it is viewable in ZENworks Control Center.

- 1b** Select the **Use SSL to transport data securely** check box to roll-up collection data from agents using SSL. By default, this option is disabled.

NOTE: If you have installed ZENworks with external certificates, you must add an external certificate to the Satellite before enabling the SSL setting. For more information about adding an external certificate, see [Configuring the Authentication Role on a Satellite](#).

- 2 Configure any additional roles as desired, then click **OK**.
- 3 Click **OK**.
- 4 Continue with [Step 4 on page 56](#).

Content Role

This role enables the managed device to distribute content (bundles, policies, system updates, and patches) to other devices.

When you set up a device to function with a Content role, you must specify a Primary Server as its parent. The device with the Content role receives all content from its parent Primary Server. Any content you want hosted on a Satellite with the Content role must also be hosted on its parent Primary Server. If the content is not hosted on the new Primary Server, it is added.

Prerequisites to Configure the Content Role on a Satellite

If you have installed ZENworks with external certificates, you must complete the following tasks on the Satellite before configuring the Content role with **SSL Enabled** on a Satellite:

1. Ensure that the Satellite has its own individual server certificate and private key.

For detailed information on how to create to an external certificate, see “[Creating an External Certificate](#)” in the [ZENworks Server Installation](#).

2. Import the external certificate by using the `zac isc` command on the Satellite.

For more information about `zac`, see the `zac man` page (`man zac`) on the Satellites or see the [ZENworks Command Line Utilities Reference](#).

NOTE: You must import the external certificate each time you promote the Satellite to Content role.

Configuring the Content Role on a Satellite

- 1 Select the check box next to **Content**, and click **Configure**. View the settings for the default configuration. You can edit the default configuration or click **Add** to create a configuration for a specific type of content. See below for information about adding or editing a configuration.

Fill in the fields:

Content Type: Select a Content Type (for example, **Policy**, **Non-Patch Bundles**, or **System Update Server**).

NOTE: If you choose **Imaging** as the **Content Type** and configure the settings to replicate the Imaging content, these settings are automatically reflected in the Configure Imaging Content Replication dialog box invoked while configuring the Imaging role to the device. Similarly, the Imaging content replication settings configured while configuring the Imaging role to a device are automatically reflected in the Configure Content Type Replication dialog box invoked while configuring the Content role with the Imaging content type to the device.

Throttle (in KB/sec): Select the throttle rate. This rate specifies the maximum rate at which content (in kilobytes per second) is replicated. The actual rate can be lower, depending on other factors, including the number of downloads.

NOTE: The specified throttle speed only controls the rate at which ZENworks delivers content, it does not control the rate at which the NIC sends data to other applications. Thus the total bandwidth used by the server's NIC may be greater than the throttle speed set.

To view the traffic from ZENworks alone, you need to filter on the ports configured for your server. For example 80 and 443.

By default, from ZENworks 2020 Update 1 onwards, content is transferred from Primary Servers, in an encrypted form, to other Primary Servers, Satellite Servers and managed devices through a secure connection (HTTPS port 443). However, content between Satellite Servers and Managed Devices will continue to be transferred over port 80.

SSL communication between ZENworks 2020 Update 1 and later Primary Servers and older agents is backward compatible. Hence, even if the managed devices are not updated to ZENworks 2020 Update 1 or later version, the content from the Primary Server will continue to be transferred to them over SSL. The Closest Server Rule for content over managed devices changes to HTTPS URLs, over the SSL port.

Duration: Click the up-arrow or down-arrow to set the content update duration period in minutes. Depending on the Schedule Type and its options you select, you need to be aware of the following:

- ◆ The **End Time** setting in all three scheduling types (**Days of the Week**, **Month**, and **Fixed Interval**) is not the true end time when the content update stops processing. The end time specifies the end of the time period during which an update can start. For Fixed Interval replication in a newly promoted Satellite Server, the replication starts with a minimum delay of 1 day.

If you select **Days of the Week** or **Month** and set a random start and end time, the update starts between these times and continues for the specified duration. For example, if the **Duration** is set at the default of 60 minutes and the update starts 10 minutes before the specified end time, content is updated for the entire 60 minutes. The same concept applies for the **Fixed Interval** schedule. If **Duration** is set at the default of 60 minutes and the end time does not allow enough time for the specified duration, content is updated for the entire 60 minutes.

- ◆ If the Primary Server contains too much content to update during the specified duration, the update continues at the next regularly scheduled time. Content that already exists on the Satellite device is not updated again. Content that was not updated during the previous update and any new content added to the Primary Server is updated.

After the completion of content replication, if there is no content to replicate when the satellite queries for the missing content on the primary server, you can add more time in between the content replication retries in a given content replication duration. This will reduce the load on the primary server and the database.

If there is no content to replicate, the satellite content query interval doubles each time. By default the first wait is 10 minutes. For instance, the first query interval would be at 10 minutes, the next at 20, then 40, 80, 160, and so on until the interval has reached the maximum wait time of 1440 minutes. At any point of time, if the content for replication is found, then the query interval is reset to 10 minutes.

You can configure the initial wait time with the following registry key:

For Windows:

```
HKLM\SOFTWARE\Novell\ZCM: CDPRestartInterval (Reg_SZ): Seconds to wait
```

For Linux:

```
/etc/opt/novell/zenworks/conf/xplatzmd.properties  
CDPRestartInterval=Seconds to wait
```

Schedule Type: Select a schedule for how often you want the Satellite's content to be updated from the parent Primary Server:

- ◆ **No Schedule:** If you select **No Schedule**, content is never automatically updated from the parent Primary Server. To manually replicate the content run the `zac wake-cdp (cdp)` command on the Satellite.
- ◆ **Recurring:** Select **Days of the Week**, **Monthly**, or **Fixed Interval**, then fill in the fields. For more information, see ["Recurring" on page 137](#).

You should also consider the following:

- ◆ We recommend you to set the schedule to 12 hours.
- ◆ When you change the default Zone level Content Replication Schedule, the new schedule is not applied to the existing Satellite Servers that have been promoted to the Content role. For the new Content Replication Schedule to be applied to the promoted Satellite Servers, you can either demote and then promote the Satellite Servers to the Content role or you can edit the default Content Replication Schedule for each promoted Satellite Server.

Be aware that the cleanup action for content occurs every night at midnight.

If you do not set a schedule for a particular type of content, the <Default> schedule applies to all content of that type.

- 2 Click **OK** to return to the Configure Content Role dialog box.
- 3 Enable the **Use SSL to transport data securely** option to secure content transfer between the Satellite and managed devices. If you are using ZENworks Endpoint Security Antimalware, the Satellite must be enabled for SSL to serve ondemand content (malware signatures and scan engine updates) to a managed device's Antimalware Agent.

NOTE: If you have installed ZENworks with external certificates, you must add an external certificate to the Satellite before enabling the SSL setting. For more information about adding an external certificate, see [Configuring the Authentication Role on a Satellite](#).

- 4 The On-demand Content configuration has zone settings configured by default to manage content downloads and the content cache. If you want to override these settings for the Satellite, click **Configure** for On-demand Content.
- 5 Click **OK** to return to the Add Satellite Server or Configure Satellite Server dialog box.
- 6 Continue with [Step 4 on page 56](#).
- 7 (Optional) Specify the content to host on the Content Server.

If you want to specify the content that the Satellite hosts, you can include or exclude content from being replicated to it.

If you want to include content that its parent Primary Server does not have, you must first add the content to the parent Primary Server.

Imaging Role

Selecting this option installs the Imaging services and adds the Imaging role to the device. With this role, the device can be used as an Imaging server to perform all the Imaging operations, such as taking an image, applying an image, and multicasting an image. However, the ZENworks images are not replicated from the Primary Server to Imaging Satellites.

NOTE: The Imaging role is tied to the state of your ZENworks Configuration Management license. If your license state is deactivated, the Imaging role is disabled. For example, if you have a licensed copy of ZENworks Asset Management and you are evaluating ZENworks Configuration

Management, the Imaging role is disabled if your ZENworks Configuration Management license expires. For more information, see “[Possible License State Changes](#)” in the *ZENworks Product Licensing Reference*.

1 Select the check box next to **Imaging**, then click **Configure**.

2 (Conditional) Select the check box next to **Enable PXE Services** to automatically start the Proxy DHCP service on the device to which the Imaging Server role has been assigned.

To check whether the Proxy DHCP service has been started on the device, review the message log of the device (**Devices** tab > **Workstations** folder > click the workstation > **Summary** > Message Log panel).

3 (Conditional) Select the check box next to **Delete Image Files from the Server if Imaging Role is Removed** if you want the ZENworks image files to be automatically deleted from the device when the Imaging role is removed from the device.

The messages are logged in the Message Log panel if the severity level of the local file and the system log is set to **Information and Above** on the Local Device Logging page. (**Configuration** tab > **Device Management** > **Local Device Logging**).

This option is available only when you want to remove the Imaging Server role from the device.

4 Click **Options** next to **Configure Imaging Content Replication** to launch the Configure Imaging Content Replication dialog box.

The Configure Imaging Content dialog box lists a default configuration that applies to the imaging content, with a fixed interval schedule of every five minutes, no throttling, and a 60-minute content replication period.

5 Configure the Imaging content replication settings.

5a Select a throttle rate (in KB/sec). This rate specifies the maximum rate at which content (in kilobytes per second) is replicated. The actual rate can be lower, depending on other factors, including the number of downloads.

5b Select the duration of the content replication.

When you set the duration, be aware of the following:

- ◆ The **End Time** setting in all three scheduling options in the Recurring schedule type (**Days of the Week**, **Month**, and **Fixed Interval**) is not the end time when the content stops replicating. The start and end time settings specify the time period during which a replication can start.

If you select **Days of the Week** or **Month** and set a random start and end time, the replication starts between these times and continues for the specified duration. For example, if the **Duration** is set at the default of 60 minutes and replication starts 10 minutes before the specified end time, content is replicated for the entire 60 minutes. The same concept applies for the **Fixed Interval** schedule. If **Duration** is set at the default of 60 minutes and the end time does not allow enough time for the specified duration, content is replicated for the entire 60 minutes.

- ◆ If the Primary Server contains too much content to replicate during the specified duration, the replication continues at the next regularly scheduled time. Content that already exists on the Satellite device is not replicated again. Content that was not replicated during the previous replication session and any new content added to the Primary Server is replicated.

5c Select a schedule (**No Schedule** or **Recurring**).

The Imaging Content Replication schedule determines how often the imaging content is sent down from the parent Primary Server to its child Satellite. Be aware that the cleanup action for content occurs every night at midnight.


If you do not set a schedule, the <Default> schedule applies to the Imaging content.

5d Click **OK** to save the changes.

NOTE: You can also configure the Imaging content replication settings while configuring the Content role to a device. These settings are automatically reflected in the Configure Imaging Content Replication dialog box invoked while configuring the Imaging role to the device. Similarly, the Imaging content replication settings configured while configuring the Imaging role to a device are automatically reflected in the Configure Content Type Replication dialog box invoked while configuring the Content role with Imaging content type to the device.

6 Click **OK**.

7 (Conditional) If you configure the Imaging role, the role is immediately added to the device. If the role is not immediately added, it is added only during the next device refresh schedule. If you want to immediately apply the role to the device, manually refresh the device in one of the following ways:

- ◆ In the ZENworks Control Center, click the **Configuration** tab > the **Server Hierarchy**, select the check box next to the devices you want to refresh, then click **Action** > **Refresh Device**.
- ◆ On a managed device, do one of the following:
 - ◆ Right-click the  icon, then click **Refresh**.
 - ◆ Execute the `zac ref` command from the console prompt.

To check whether the Proxy DHCP service has been started on the device, review the message log of the device (**Devices** tab > **Workstations** folder > click the workstation > **Summary** > Message Log panel or **Devices** tab > **Servers** folder > click the server > **Summary** > Message Log panel).

The messages are logged in the Message Log panel only if the severity level of the local file and the system log is set to **Information and Above** on the Local Device Logging page. (**Configuration** tab > **Device Management** > **Local Device Logging**).

8 (Conditional) If the Linux Satellite has the Imaging role configured, turn off the firewall on the device before performing imaging operations.

IMPORTANT: Imaging content refers to files present in the TFTP folder and the imaging content does not include images available in the server.

TFTP Folder Location:

- ◆ **On Windows:** %ZENWORKS_HOME%\share\tftp
 - ◆ **On Linux:** /srv/tftp
-

Join Proxy Role

If you want to remotely connect a managed device that is in a private network or on the other side of a firewall or router that is behind NAT (Network Address Translation), a remote management proxy server should be installed on the same NAT environment that the device is in. For this, an interface machine is required.

Finding the interface machine is difficult in cases where the Managed device is moved out of the zone to home. As each individual home is a NAT environment, one remote management proxy is required for each home to remotely control the device in home. There is no single remote management proxy for devices across many NAT environments. Different remote management proxy servers are required for different NAT environments.

However you can use the Join Proxy Satellite server that allows multiple devices to connect to it for remote management operations. The devices will connect to the Join Proxy based on the locations configured for them, so an interface machine is not required. You can easily promote a device to and demote a device from the Join Proxy role.

You can add Join Proxy role to a ZENworks 11.3 or later version of a Windows or Linux managed device to make it a Join Proxy server for performing remote management operations on Windows managed devices that are in a private network.

NOTE: Primary servers by default have a Join Proxy role. If you select a Primary Server for the Join Proxy role, there is no need to further configure the server in ZENworks Control Center. However, you can reconfigure the Join Proxy configuration settings by manually editing the `joinproxy.properties` file on the Primary Server device in the following location:

Configuring Join Proxy Closest Server rules for the location and network environment helps the managed devices to connect to the closest Join Proxy servers defined for them in the location. For more information, see [“Creating Closest Server Rules for a Location”](#) and [“Creating Closest Server Rules for a Network Environment”](#) in *ZENworks Location Awareness Reference*.

Example 16-1 For example:

For Join Proxy services, a device receives the following server list from the ZENworks system. It attempts to connect to the first server in the list, then the second, and so on until it is successfully connected.

- ◆ Server4 (network environment)
- ◆ Server5 (network environment)
- ◆ Server3 (location)

For more information, see [“Creating Closest Server Rules for a Location”](#) in *ZENworks Location Awareness Reference*.

NOTE: You can promote only ZENworks 11.3 or later versions of Windows or Linux managed devices to the Join Proxy Satellite role. Using the Join Proxy Satellite Server, you can perform remote management operations only on Windows managed devices that are in a private network.

To configure the Join Proxy role:

- 1 First identify the ZENworks Windows or Linux managed device in the demilitarized zone (DMZ).
- 2 In ZENworks Control Center, select the check box next to **Join Proxy**, then click **Configure**.
- 3 In the Join Proxy Role Settings dialog box, specify the port on which the Join Proxy listens for connection. The default port number is 7019.
- 4 Specify the maximum number of devices to be allowed to connect to the Join Proxy. The default value is 1000, but you can change it to any value up to 1000. Because satellite servers are dedicated to join proxy service, they allow more such connections without being overloaded.

NOTE: ♦ For a Primary server, the default value is 100. To manually increase this limit, update the `joinproxy.properties` file and restart the Join Proxy service. Increasing the join proxy connection limit on a Primary server might overload it when more devices start connecting to the Primary server.

- ♦ If the maximum number of devices to be allowed to connect to the Join Proxy Server is reached, then the connection switches to another Join Proxy server as a failover. The same information is updated in the Remote-Control dialog.

Though the range for maximum number of connections is from 1- 65535, if you specify a number greater than 1000, the following message is displayed:

```
Maximum number of connections exceeding 1000 may impact the performance
of Join Proxy adversely. Do you want to continue anyway?
```

- 5 Specify the frequency interval at which the Join Proxy should check if the devices are still connected to it or not. The default value is one minute.

NOTE: Based on the frequency specified here, Join Proxy will send packets to all the managed devices connected to it to detect the connection status and update it in the database. This enables remote operators to connect to managed devices through Join Proxy for performing remote sessions on Windows managed devices that are in a private network.

If you specify a lower value in this field, status updates are quicker in the database. However, this might result in higher traffic on the network, depending upon the number of devices connected to the Join Proxy.

-
- 6 Click **Ok** to return to the Add Satellite Server dialog box.
 - 7 Configure any additional roles as desired, then click **OK**.
 - 8 Create locations and assign Join Proxy devices to them.

For more details, see [“Creating Closest Server Rules for a Location” ZENworks Location Awareness Reference](#). You can have multiple Join Proxies configured for a single location. You can include even Primary Servers in the Closest Server rules for the Join Proxy.

Double - click the Z icon of the Join Proxy server to view the Join Proxy Server’s configuration details.

NOTE: Linux or Mac devices cannot connect to Join Proxy. However you might find Join Proxy listed as the Closest Server in Zicon Properties page of Linux or Mac devices when they are moved to a location that has Join Proxy.

Satellite Server Output Throttle Rate Calculations

When you assign the Content role to a Satellite Server, you need to specify the output throttle rate for it. The Satellite server output throttle rate is the rate at which the Satellite Server should send the content to other devices requesting content. These devices could be either other content Satellite Servers or managed devices.

While sending content to other devices, the Satellite Server calculates the throttle rate in the following manner:

For a Single Content Request with a Content Type Throttle: If you specified the Satellite Server output throttle rate as 500, and if the content type throttle is set to 200, then the final throttle rate will be smaller of the two.

For a Single Content Request with No Content Type Throttle: If you specified the Satellite Server output throttle rate as 500, and if there is no content type throttle configured for the content type, then the throttle rate for a single content request is 500.

For Multiple Requests without the Content Type Throttle: The sender Satellite Server divides the Satellite Server output throttle rate by the number of requests to find the final throttle rate.

For Multiple Requests with the Content Type Throttle: First, the sender Satellite divides the Satellite Server output throttle rate by the number of requests. Next, the sender Satellite considers the rate that is set for the content type throttle. The sender Satellite then uses the smaller of the two rates as the final throttle rate.

For information about content type throttle, see [“Throttle \(in KB/sec\):” on page 61](#).

Example 16-2 Example:

The following table describes how the Satellite Server calculates the final throttle rate when you have specified 500 as the Satellite Server output throttle rate:

No. of Requests	Content Type Throttle (A)	Satellite Server Output Throttle Rate after Dividing (B)	Final Throttle Rate (Minimum of A and B)
5	100	$500/5=100$	100
10	100	$500/10=50$	50
2	200	$500/2=250$	200
1	600	$500/1=500$	500

17 Satellite Servers Authentication

To achieve authentication at Satellite Servers, a token based authentication is introduced from ZENworks 2020 Update 2 onwards. By default, the Satellite Servers will not be able to perform the basic authentication. However, the security setting on Satellite Server can be configured by performing the following steps:

1. In ZCC, click Devices.
2. Click Servers, and then click the required Satellite Server.
3. Click Settings > Device Management > System Variables.
4. In System Variables, add the variables as shown in below tables.
5. Click Apply.

After upgrading all agents that are communicating with Satellite Servers to ZENworks 2020 Update 2 or above, enable the enhanced security feature and add the following system variables at zone, folder or device levels:

Name	Value
authfilter.requireAuth	true
security.authfilter.allowLegacyDevice	false

Modifying the value of the “security.authfilter.allowLegacyDevice” parameter as false ensures that the requests without authentication header or requests with basic header is not authenticated.

However, if you have older agents in your zone, then the following configuration enables these agents to communicate with the Satellite Servers. The requests from agent with version ZENworks 2020 Update 2 or above sends bearer token as authorized header and will be allowed only if the token is valid.

Name	Value
authfilter.requireAuth	true
security.authfilter.allowLegacyDevice	true

Modifying the value of the “security.authfilter.allowLegacyDevice” parameter as true ensures that the requests without authentication header or requests with basic header is also authenticated.

18 Refreshing a Satellite

You can refresh a device so that any pending actions take place immediately.

- 1 Select the check box next to the Satellite that you want to refresh.
- 2 Click **Action > Refresh Device**.
The QuickTask Status box is displayed while the action is in progress.
- 3 (Optional) To close the status dialog box, click **Hide**.
The refresh action continues in the background.
- 4 (Optional) To cancel the refresh action, click the check box for the device, click **Stop**, then click **Hide** to close the dialog box.

19 Removing the Roles from a Satellite

You can choose to remove one or more roles from a Satellite. However, the Satellite must have at least one role configured for it to continue to perform the Satellite function. If you remove all the roles, the Satellite is demoted to be only managed device.

Removing a Satellite role does not remove the device from any of the non-default Closest Server rules. The device is removed from the non-default Closest Server rules only when it is no longer a Satellite.

To remove one or more roles from a Satellite:

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy panel, select the check box next to the Satellite from which you want to remove the role.
- 3 Click **Actions > Configure Satellite Server**.
- 4 In the Configure Satellite Server dialog box, deselect the check box next to the Satellite role you want to remove.
- 5 Click **OK**.

If your Management Zone consists of ZENworks Primary Servers and ZENworks 10.2.x/10.3.x Satellites, you cannot remove individual roles from the Satellites. You can only demote the Satellite to a managed device.

When you demote a Satellite Server in ZENworks Control Center, the icon of the device changes only after a successful demotion is acknowledged by the device to the Server. If during demotion, the managed device or the agent on the manage device is not reachable, the demotion task does not complete successfully and the Satellite icon does not change on the Server.

20 Removing Satellites from the Server Hierarchy

You can remove a Satellite from the Server Hierarchy listing when that device is no longer needed to perform Satellite functions. The Satellite can have any version of the ZENworks Agent installed. The device's object isn't removed from ZENworks; it is just removed from the Server Hierarchy listing. The device is still a managed device in your ZENworks Management Zone. However, it will not contain the replicated content, imaging services and data, or the rolled-up collection-information.


When you remove a Satellite, the managed devices that used it must be reconfigured to use another server for content, collection, imaging and authentication purposes. For more information, see [“Adding Closest Servers to Locations”](#) in the *ZENworks Location Awareness Reference*.

You cannot use this option to remove a Primary Server from the listing.

To remove a Satellite:

- 1 For the Satellite that you want to remove, make a note of all devices that are using it for authentication, content, imaging, or collection information roll-up.
- 2 In ZENworks Control Center, click the **Configuration** tab.
- 3 In the Server Hierarchy panel, select the check box next to the Satellite that you want to remove from the zone.
- 4 Click **Action > Remove Satellite Server**.
- 5 To confirm the removal, click **OK**.
- 6 As necessary, reconfigure the managed devices that used the Satellite so that they can continue to receive content and roll up collection information.

For more information, see [“Adding Closest Servers to Locations”](#) in the *ZENworks Location Awareness Reference*.

- 7 (Conditional) The Imaging role is immediately removed from the device. If the role is not immediately removed, it is removed only during the next device refresh schedule. If you want to immediately remove the role from the device, manually refresh the device in one of the following ways:
 - ♦ In the ZENworks Control Center, click the **Configuration** tab > the **Server Hierarchy**, select the check box next to the devices you want to refresh, then click **Action > Refresh Device**.
 - ♦ On a managed device, do one of the following:
 - ♦ Right-click the  icon, then click **Refresh**.
 - ♦ Execute the `zac ref` command from the console prompt.

21 Specifying Content to be Hosted

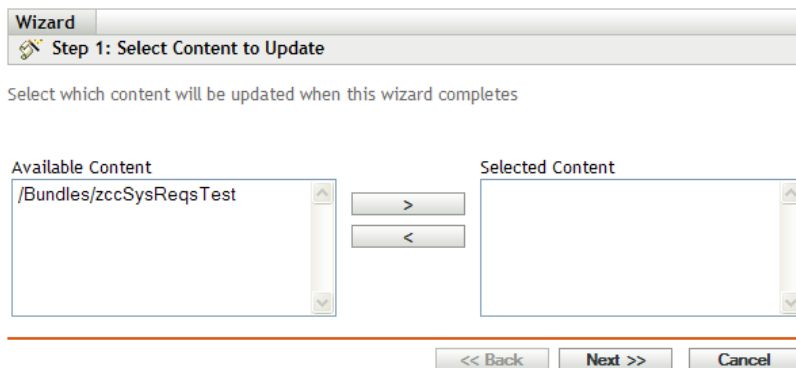
Because Content role devices retrieve their content from their parent Primary Servers, any content that you want hosted on a Satellite must also be hosted on its parent Primary Server.

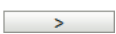
When you create relationships between content and content servers (ZENworks Primary Servers and Satellites) by using the Select Content to Update Wizard, these relationships adds to any existing relationships. The selected content is hosted on the content server in addition to the content already existing on the server.

Consider the content for Bundle A and Policy B is hosted on Server 1 and not on Server 2. Select Bundle A and Policy B, then use the Select Content to Update Wizard to include the content on Server 2. During the next scheduled replication, Bundle A and Policy B are added to Server 2.

To specify the content to be hosted:

- 1 In ZENworks Control Center, click the **Configuration** tab. In the Server Hierarchy section, select the check boxes next to the Satellites with the Content role that you want to designate as the hosts for one or more pieces of content.
- 2 Click **Action > Specify Content** to launch the Select Content to Update Wizard.



- 3 In the **Available Content** list, select the desired content.
You can use Shift+click and Ctrl+click to select multiple bundles or policies.
- 4 Click  to move the selected content to the **Selected Content** list.
- 5 Click **Next**.
- 6 Click **Finish** to create the relationships between the content and the content servers.

Depending on the relationships created, the content is replicated to or removed from content servers during the next scheduled replication.

22 Manually Replicating Content from a Primary Server to Satellite Devices

You can export content from a ZENworks Primary Server's content repository and then manually import that content into a Satellite device's content repository. This process is sometimes called offline content replication.

For more information about exporting content from the content repository, see the `zman satellite-server-export-content (ssec)` command under "[Satellite Server Commands](#)" in the [ZENworks Command Line Utilities Reference](#). After you export the content, you can copy it to a network drive or to a storage device and then manually import the content into the Satellite device's content repository.

For more information about importing the content into a Satellite device's content repository, see the `zac cdp-import-content (cic)` command under "[Content Distribution Commands](#)" in the [ZENworks Command Line Utilities Reference](#).

You cannot manually export content from one ZENworks Primary Server and then import that content into another Primary Server. For information about replicating content between Primary Servers, see [Section 33, "Content Replication,"](#) on page 115.

23 Moving a Satellite from One Primary Server to Another Primary Server

You can move a Satellite from its parent Primary Server to another Primary Server.

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy panel, select the check box next to the Satellite that you want to move, then click **Move**.
- 3 Select the Primary Server you want to be the Satellite's new parent, then click **OK**.

Any content (bundles, policies, and patches) you want hosted on a Satellite with the Content role must also be hosted on its parent Primary Server. If the content is not hosted on the new Primary Server, it is added.

24 Specifying a Different Repository for the Content Role Satellite (Windows Only)

The content repository is located in the following default path on Windows Satellites:

`installation_path\zenworks\work\content-repo`

To change the default path to another location accessible to the server:

- 1 Make sure that the disk drive you want to use is attached to the Satellite and is properly formatted.

You do not need to specify a drive letter, but the server must recognize the hardware.

- 2 Make sure that there is no content in the default location (`installation_path\zenworks\work\content-repo`) by doing one of the following:

- ◆ If the `content-repo` directory is not present in the path given above, create the `content-repo` directory in that path.
- ◆ If you need to save the content that is now in this directory, rename the existing directory and create a new empty directory named `content-repo`.

You can later copy the content from the renamed directory to the new content repository location (see [Step 9](#)).

- ◆ If you do not need any of the content in the existing `content-repo` directory, delete the directory and re-create the `content-repo` directory.

An empty `content-repo` directory must exist to act as the pointer to the new content repository location for the Satellite.

- 3 Click **Start**, right-click the **My Computer** icon, then select **Manage**.

You can also click **Start**, then enter `compmgmt.msc` at the **Run** command line.

- 4 Select **Disk Management** under the **Storage** section in the left pane.

The disk drive you selected in [Step 1](#) should be displayed.

- 5 Right-click the partition of the disk drive that you want to use as your content repository on the Satellite, then select **Change Drive Letter and Paths**.

This is the disk drive (see [Step 1](#)) that you will mount to the `content-repo` directory.

- 6 Click **Add**.

This displays the Add Drive Letter or Path dialog box.

- 7 Select **Mount in the Following Empty NTFS Folder**, then browse for and select the `content-repo` directory:

`installation_path\zenworks\work\content-repo`

- 8 Click **OK** as necessary to exit and save the configuration change.

- 9 If necessary (see [Step 2](#)), move the files from the old renamed `content-repo` directory to the new `content-repo` directory.

This copies the files to the hard drive that you have selected for your new content repository.

25 Specifying a Different Repository for Content Role Satellite (Linux Only)

The content repository is located in the following default path on Linux Satellites:

To change the default path to another location accessible to the server, use one of the following ways:

- ♦ If you want to move the content repository to a different location on a different device, create a NFS volume on the device, mount the content-repo directory on the volume, and make the root user as the owner of the directory with Read, Write, and Execute permissions.
- ♦ If you want to move the content repository to a different location on the same Linux Satellite, mount the repository on a different volume that has sufficient disk space by using Soft Link.
- ♦ If you want to move the content repository to a OES device, create a NSS volume (CIFS share) on the device, mount the content-repo directory on the volume, and make the root user as the owner of the directory with Read, Write, and Execute permissions.

For more information, see [“Changing the Location of the Content Repository on a Linux or Appliance Server”](#) on page 107.

26 Promoting an RHEL 6 device as a Content or Collection Role Satellite

To promote an RHEL 6 device as a Content or Collection Role Satellite, the firewall needs to allow communication over the HTTP port. However, due to SELinux policy rules, certain `iptables` commands such as `iptables-save` are denied write-access to the `iptables` configuration, due to which the firewall rules are not enforced.

To promote an RHEL 6 device as a Content or Collection Role Satellite:

- 1 Enable the permissive state for the security domain `iptables_t` using the following command:

```
# semanage permissive -a iptables_t
```

- 2 Promote the device to a Content or Collection Role Satellite.

As an alternative workaround, you can also restart the ZENworks Agent service using the following command, before promoting a device to a Content or Collection Role Satellite:

```
/etc/init.d/novell-zenworks-xplatzmd restart
```


27 Troubleshooting Satellites

The following section provides solutions to the problems you might encounter while working with Satellites:

- ♦ [“An error is displayed After Promoting a Linux Managed Device to a Satellite Server” on page 89](#)
- ♦ [“Linux managed device promoted as a Satellite server with authentication role, the Jetty service hangs” on page 89](#)
- ♦ [“Unable to add a Satellite with the Imaging role to a Windows managed device by using the zman ssc command” on page 90](#)
- ♦ [“Unable to remove a Satellite with the Imaging role from a Windows device by using the zman ssd command” on page 90](#)
- ♦ [“The managed device is not promoted to the Imaging Satellite role even though the role has been assigned to it” on page 90](#)
- ♦ [“Updated Imaging statistics are not displayed on the ZENworks icon when a Windows Vista SP2 managed device is promoted to be a Satellite with the Imaging role” on page 90](#)
- ♦ [“Updated Imaging statistics are not displayed on the ZENworks icon when a Windows Vista SP2 managed device is promoted to be a Satellite with the Imaging role” on page 91](#)
- ♦ [“After upgrading Satellite Servers with Authentication and Collection roles and Collection over SSL enabled, the Satellite Servers stop working.” on page 91](#)

An error is displayed After Promoting a Linux Managed Device to a Satellite Server

Explanation: After promoting a Linux Managed Device to a content Satellite Server role, the Unable to connect to the database, either the schema is invalid, or the connection could not be acquired error displayed in the ZCC and the same error is logged in the agent zmd log.

Possible Cause: This might be because the managed device was demoted from the content satellite role and after you promote the device as a Content Satellite Server for the second time, the issue is observed.

Action: Restart the agent service.

Linux managed device promoted as a Satellite server with authentication role, the Jetty service hangs

Explanation: When you promote a Linux managed device as a satellite server with authentication role, the Jetty service hangs.

Action: Set a system variable `RegenerateJettyKeystore` for the satellite server and refresh the agent.

Unable to add a Satellite with the Imaging role to a Windows managed device by using the `zman ssc` command

Source: ZENworks; Satellite.

Action: To promote a Windows managed device to be a Satellite with the Imaging role, use the `zman ssaimg` command.

For more information about the `zman ssaimg` command, view the `zman man` page (`man zman`) on the ZENworks Server or see “[Satellite Server Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

Unable to remove a Satellite with the Imaging role from a Windows device by using the `zman ssd` command

Source: ZENworks; Satellite.

Action: To remove the Imaging Satellite role from a Windows managed device, use the `zman ssrimg` command.

This command does not remove other Satellite roles such as Content or Collection if they are assigned to the device.


For more information about the `zman ssrimg` command, view the `zman man` page (`man zman`) on the ZENworks Server or see “[Satellite Server Commands](#)” in the [ZENworks Command Line Utilities Reference](#).

The managed device is not promoted to the Imaging Satellite role even though the role has been assigned to it

Source: ZENworks; Satellite.


Possible Cause: The managed device is unable to contact the Primary Server because of the firewall settings configured on the managed device.

Action: Do the following on the managed device:

- 1 Disable the firewall settings.
- 2 Ping the Primary Server to make sure that the managed device can contact the server.
- 3 Refresh the information on the  icon by right-clicking the icon, then clicking **Refresh**.

Updated Imaging statistics are not displayed on the ZENworks icon when a Windows Vista SP2 managed device is promoted to be a Satellite with the Imaging role

Source: ZENworks; Satellite.

Explanation: When you promote a Windows Vista SP2 managed device to be a Satellite with the Imaging role, any updated Imaging statistics are not displayed on the  icon (**Show Properties > Satellite > Imaging**)

Action: To view the latest Imaging statistics on the Satellite:

1 At the console prompt, go to

```
ZENworks_installation_directory\novell\zenworks\bin\pre  
boot.
```

2 Run the following command:

```
zmgmcast -status -i Satellite_IP_address
```

Updated Imaging statistics are not displayed on the ZENworks icon when a Windows Vista SP2 managed device is promoted to be a Satellite with the Imaging role

Source: ZENworks; Satellite.

Explanation: When you promote a Windows Vista SP2 managed device to be a Satellite with the Imaging role, any updated Imaging statistics are not displayed on the  icon (**Show Properties > Satellite > Imaging**)

Action: For older satellites (with the Authentication and Collection roles) that have been updated to 2020, you need to import the certificate again with the DNS suffix in place before enabling collection over SSL.

For older Satellite Servers (with only the Collection role) that have been updated to 2020, you need to ensure that the device has a proper DNS suffix before importing the certificate using the `zac` command.

After upgrading Satellite Servers with Authentication and Collection roles and Collection over SSL enabled, the Satellite Servers stop working.

Source: ZENworks; Satellites.

Explanation: In an external CA zone, when you upgrade Satellite Servers with Authentication and Collection roles to ZENworks 2020 and enable SSL for collection, they will stop working if the device certificate is not imported with the DNS suffix.

Action: Ensure that the device has the proper DNS suffix and re-import the certificate before enabling the **Collection over SSL** feature.



Server Hierarchy

Your Management Zone's server hierarchy determines the relationships among the ZENworks Primary Servers and Satellites. These relationships control the flow of content and information within the zone. Proper configuration can help you to minimize network traffic between network segments connected by slow links.

- ◆ [Chapter 28, "Primary Servers: Peer Versus Parent/Child Relationships," on page 95](#)
- ◆ [Chapter 29, "Satellite Role Relationships," on page 97](#)
- ◆ [Chapter 30, "Changing the Parent-Child Relationships of Primary Servers," on page 99](#)

28 Primary Servers: Peer Versus Parent/Child Relationships

By default, each Primary Server that you add to the system is created as a peer to all other Primary Servers. Being in a peer relationship enables a Primary Server to:

- ♦ Have direct write access to the ZENworks database so that it can add information (inventory, messages, and status).
- ♦ Retrieve device configuration information directly from the database.
- ♦ Pull content (bundles, policies, system updates, and patches) from any Primary Server.

Direct write access to the ZENworks database requires a JDBC/ODBC connection. If a Primary Server is located on the network so that it cannot effectively access the ZENworks database via a JDBC/ODBC connection, you can configure the Primary Server to be a child of another Primary Server that does have direct write access to the database. However, you should try to maintain peer relationships between your Primary Servers unless your network connections do not allow it.

Being in a child relationship instructs a Primary Server to use HTTP to roll up inventory, message, and status information to its parent Primary Server, which then writes the information to the database. However, the child Primary Server still retrieves configuration information from the database and passes configuration information back up to the database. For this reason, the child Primary Server must have a direct connection to the ZENworks database.

We do not recommend having a Primary Server across a WAN link from the ZENworks database because this causes increased traffic across the network. We recommend that you use a Satellite device across a WAN link. For more information, see [Section 29, “Satellite Role Relationships,”](#) on [page 97](#).

29 Satellite Role Relationships

A Satellite is a device that can perform certain roles that a ZENworks Primary Server normally performs. A Satellite can be any managed Windows or Linux device (server or workstation), but not a Primary Server. The ZENworks version installed on the managed device must be same as that of the Primary Server. When you configure a Satellite, you specify which roles it performs (Authentication, Collection, Content or Imaging). A Satellite can also perform roles that might be added by third-party products that are snap-ins to the ZENworks framework. For more information about the tasks you can perform on Satellites, see [Chapter II, “Satellites,” on page 49](#).

The following sections contain more information:

- ♦ [“Authentication Role Server Relationships” on page 97](#)
- ♦ [“Content Role Server Relationships” on page 97](#)
- ♦ [“Collection Role Server Relationships” on page 97](#)
- ♦ [“Imaging Role Server Relationships” on page 97](#)
- ♦ [“Join Proxy Role Server Relationship” on page 98](#)

Authentication Role Server Relationships

An Authentication role identifies a managed device that is able to authenticate devices to the ZENworks Management Zone. When you set up a device to function with a Authentication role, you must specify a Primary Server as its parent.

Content Role Server Relationships

A Content role identifies a managed device that is able to distribute content (bundles, policies, system updates, and patches) to other devices. When you set up a device to function with a Content role, you must specify a Primary Server as its parent. The device with the Content role receives all content from its parent Primary Server.

Collection Role Server Relationships

A Collection role causes a managed device to collect inventory information, messages (errors, warning, informational, and so forth), and policy and bundle statuses, then rolls that information up to its parent Primary Server, which in turn either writes to the database directly or passes the information on to its parent Primary Server, which does the database writing.

Imaging Role Server Relationships

An Imaging role causes a managed device to take and restore images within as well as across subnets by using unicast or multicast imaging.

Join Proxy Role Server Relationship

A Satellite with the Join Proxy role acts as a Join Proxy server. Join Proxy helps to connect to Windows devices that are in a private network. Remote Management is one of those operations performed using Join Proxy.

30 Changing the Parent-Child Relationships of Primary Servers

You can move a Primary Server to be a peer or child of other Primary Servers:

- ♦ [“Making a Primary Server a Child” on page 99](#)
- ♦ [“Making a Primary Server a Peer” on page 99](#)

NOTE: Making a Primary Server a Child is not recommended, instead, make the Primary Server a Peer.

Making a Primary Server a Child

You can place a Primary Server as a child of another Primary Server. This child Primary Server no longer writes collection data directly to the ZENworks database; instead, it passes its information on to its parent Primary Server, which does the database writing. However, the child Primary Server still retrieves configuration information from the database and passes configuration information back up to the database. For this reason, the child Primary Server must have a direct connection to the ZENworks database

To make a Primary Server a child of another server:

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy panel, select the check box next to the Primary Server you want to make a child.
- 3 Click **Move** to display the **Move Device** dialog box.
- 4 Select the Primary Server that you want to be its parent server.
- 5 Click **OK**.

NOTE: Making a Primary Server a Child is not recommended, instead, make the Primary Server a Peer.

Making a Primary Server a Peer

This places the Primary Server back to the first level of the hierarchy, or moves it to be a child of another Primary Server if it is nested more than one level deep.

If you move a Primary Server back to the first level, it writes directly to the ZENworks database.

- 1 In ZENworks Control Center, click the **Configuration** tab.
- 2 In the Server Hierarchy panel, select the check box next to the Primary Server you want to make a peer.

- 3 Click **Move** to display the **Move Device** dialog box.
- 4 Do one of the following:
 - ♦ Select **None** to move it up to the first level of servers in the listing.
 - ♦ Select another Primary Server to be the parent server.
- 5 Click **OK**.

IV Content

The following sections provide information to help you ensure that content is correctly among the devices in your ZENworks Management Zone:

Each ZENworks Server contains a content repository. The content repository stores all bundle, policy, Patch Management, Product Recognition Update (PRU) and system update content that has been to the server and any images that have been captured and stored to the server.

- ♦ [Chapter 31, “Content,” on page 103](#)
- ♦ [Chapter 32, “Content Repository,” on page 105](#)
- ♦ [Chapter 33, “Content Replication,” on page 115](#)
- ♦ [Chapter 34, “Content Delivery,” on page 117](#)
- ♦ [Chapter 35, “Content Sharing,” on page 121](#)
- ♦ [Chapter 36, “Troubleshooting,” on page 127](#)

31 Content

ZENworks and distributes content among Primary Servers, Satellites, and managed devices. This includes the following content:

Each ZENworks Server contains a content repository. The content repository stores all bundle, policy, Patch Management, Product Recognition Update (PRU) and system update content that has been to the server and any images that have been captured and stored to the server.

- ♦ **Bundles:** The files, configuration settings, installation instructions, and so forth required to deploy and manage an application or files on a device. Used in ZENworks Configuration Management and ZENworks Patch Management.
- ♦ **Policies:** The set of rules that control a range of hardware and software configuration settings on managed devices. Used in ZENworks Configuration Management.
- ♦ **Patches:** The files and instructions required to update existing software on a managed device. Used in ZENworks Patch Management.
- ♦ **System Updates:** The software updates for ZENworks system components. Used in ZENworks Configuration Management, ZENworks Asset Management, ZENworks Patch Management, ZENworks Endpoint Security Management and ZENworks Full Disk Encryption.

32 Content Repository

Each ZENworks Server contains a content repository. The content repository stores all bundle, policy, Patch Management, Product Recognition Update (PRU) and system update content that has been to the server and any images that have been captured and stored to the server.

ZENworks supports any filesystem to host the content repository, although each filesystem has advantages and limitations. For example, the XFS filesystem handles very large files, which can be an advantage, depending on the nature of the content in the repository.

The content repository is self-maintaining. Whenever you add a bundle or policy, the bundle or policy content is added to the appropriate content repositories based upon the replication settings. Whenever you remove a bundle or policy or change which servers host its content, the bundle or policy content is also removed from the appropriate servers.

If necessary, you can move the content repository to a different location. The following sections provide instructions:

- ♦ [“Changing the Location of the Content Repository on a Windows Server” on page 105](#)
- ♦ [“Changing the Location of the Content Repository on a Linux or Appliance Server” on page 107](#)
- ♦ [“Mounting the Content Repository on a Linux Server to an NSS Volume” on page 108](#)
- ♦ [“Changing the Location of the Temporary Location on a Windows Server” on page 109](#)
- ♦ [“Changing the Location of the Temporary Location on a Linux Server” on page 110](#)
- ♦ [“Configuring NSS Volume as a Content Repository on an OES Satellite Server” on page 112](#)

Changing the Location of the Content Repository on a Windows Server

The content repository is found in the following location on a Windows server:

```
installation_path\zenworks\work\content-repo
```

You can specify a different disk drive to be your content repository. In Windows, this is done by “mounting” the drive. Mounting is simply pointing an existing path to a hard drive partition without the use of mapped drive letters.

In the following steps, you mount the default content repository location to a disk drive partition, which becomes the new content repository:

- 1 Make sure that the disk drive you want to use is attached to the server and is properly formatted as NTFS.

This disk drive can be an existing or new one for the machine. The hardware must be recognized by the server. However, do not specify a drive letter if you are adding a new disk drive to the machine. Windows does not allow mounting to a drive letter.

- 2 Stop all ZENworks Services.

- 3 Because an empty `content-repo` directory must exist in the default location (`installation_path\zenworks\work\content-repo`) to be the pointer to the new content repository location, do one of the following to make sure that there is no content in the default location:
 - ♦ If you need to save the content that is now in this directory, rename the existing directory and create a new directory named `content-repo`.
You can later copy the content from this renamed directory to the new content repository location (see [Step 11](#)).
 - ♦ If you do not need any of the content in the existing `content-repo` directory, delete the directory and re-create it.
 - ♦ If the `content-repo` directory is not present in the path given above, create the path and directory.
- 4 Click **Start**, right-click the **My Computer** icon, then select **Manage**.
You can also click **Start**, then enter `compmgmt.msc` at the **Run** command line.
- 5 Select **Disk Management** under the **Storage** section in the left pane.
The disk drive you selected in [Step 1](#) should be displayed in the right pane.
- 6 (Conditional) If a driver letter is associated with the partition that you want to use as the new content repository location, do the following:
 - 6a In the Computer Management dialog box, right-click the drive's partition.
 - 6b Select **Change Drive Letter and Paths**.
 - 6c Select the drive letter.
 - 6d Click **Remove**, then select **Yes** to confirm.
- 7 Right-click the partition of the disk drive that you want to use as your content repository, then select **Change Driver Letter and Paths**.
This is the disk drive that you will mount to the `content-repo` directory in [Step 9](#).
- 8 Click **Add**.
This displays the Add Drive Letter or Path dialog box.
- 9 Select **Mount in the Following Empty NTFS Folder**, browse for and select the default `content-repo` directory, then click **Next**.
The default directory is `installation_path\zenworks\work\content-repo`.
This mounts the default path to the hard drive partition that you selected in [Step 7](#).
If necessary, format the drive as NTFS using the Computer Management feature in Windows.
- 10 Click the buttons as necessary to exit and save the configuration change.
- 11 (Conditional; see [Step 3](#)) Copy the files from the old renamed `content-repo` directory to the new `content-repo` directory.
- 12 Start all ZENworks Services.

From this point on, all ZENworks data is written directly to the new content repository location on the selected hard drive partition.

Changing the Location of the Content Repository on a Linux or Appliance Server

From ZENworks 2020 Update 2 onwards, ZENworks might not function properly if you have content-repo as a symbolic link to a folder that is outside the ZENworks folder structure.

For example, if the content is available in `/var/my-external-content-repo` and `/var/opt/microfocus/zenworks/content-repo` points to that location, then it might not work.

Hence, ensure that you move the `/var/my-external-content-repo` to a different partition and mount it to `/var/opt/microfocus/zenworks/content-repo`.

You can store your data on a local mount or on a network share such as NFS, SMB, or CIFS and mount the share in your `content-repo` directory to access your data.

Let us assume that `/dev/sdb` is a partition on which you are planning have the content-repo, perform the following steps:

- 1 Stop all the ZENworks services.
- 2 Create a directory by running `mkdir /tmp/temp-mount`
- 3 Mount the partition: `mount </dev/sdb> /tmp/temp-mount`
- 4 Move the content by using `mv /var/my-external-content-repo/* /tmp/temp-mount`
- 5 Unmount the directory by using `umount /tmp/temp-mount`
- 6 Remove the directory by running `rmdir /tmp/temp-mount`
- 7 Remove the symbolic link by running `rm /var/opt/novell/zenworks/content-repo/.`
- 8 Create a directory by running the `mkdir /var/opt/novell/zenworks/content-repo/` command.
- 9 Run `mount </dev/sdb> /var/opt/microfocus/zenworks/content-repo` to mount the content-repo. Ensure that this steps is performed automatically by adding an entry in the `/etc/fstab` file.
Example: `//localhost/zenshare /var/opt/microfocus/zenworks/content-repo cifs username=root,password=rootpass 0 0`

- 10 To verify, run `ls /var/opt/microfocus/zenworks/content-repo`

If the command lists the content and images folder, then the content-repo is configured successfully.

- 11 Run `permissions.sh`
- 12 Start all the ZENworks services.

The following sections provide information on managing content repository locations on Linux.

- ♦ [“Mounting a Share” on page 108](#)
- ♦ [“Unmounting a Share” on page 108](#)
- ♦ [“Creating a Permanent Mount” on page 108](#)
- ♦ [“Moving Existing Content to the New Repository” on page 108](#)

Mounting a Share

Use the following command to mount the share:

If you only need to store the data from part of your content repository on another share, you can also do that. For example, if you need to store your ZENworks image files on another share, you can use the following command:

Or, to store bundle and policy content on another share, you can use the following command:

Start all ZENworks Services after the share is mounted.

Unmounting a Share

The mount that you created in [“Mounting a Share” on page 108](#) is temporary; the share is unmounted when the operating system is shut down or rebooted. You can also use the following command to manually unmount the share:

Stop all ZENworks Services before unmounting the share and start all ZENworks Service after the share is unmounted.

Creating a Permanent Mount

Stop all ZENworks Services before creating a permanent mount and start all ZENworks Service after the permanent mount is created.

To ensure that the mount occurs each time the Linux server starts, you must add the following entry to your `/etc/fstab` configuration file:

The credentials file listed in the command contains a username and password. For more information, see the `mount.cifs(8)` man page. The format of the credentials file is:

```
username=value
```

```
password=value
```

Moving Existing Content to the New Repository

After you change the location of a content repository by mounting a new share, any content in the old location is no longer available. To make it available, you must move it to the new repository. Stop all ZENworks Services before moving existing content to the new repository and start all ZENworks Service after the existing content is moved.

Mounting the Content Repository on a Linux Server to an NSS Volume

You can mount the `content-repo` directory on a Linux server on to an NSS Volume.

Before you begin, ensure that the following prerequisites are met:

- ◆ The NSS volume is set up and mounted in the `/media/nss/NSSVOL/` directory of the server.

- ♦ The Samba service is installed and configured to run as `root` on the server. To verify this, run the following command and ensure that the value in UID column is `root`, especially for the processes with PPID = 1.

```
ps -Alf | grep samba
```

To mount the `content-repo` directory:

- 1 Stop the ZENserver, ZENloader and ZENmnr services.
- 2 Run the following command to move the content from the `content-repo` directory to a temporary directory on the disk so that the `content-repo` directory is empty:
- 3 Go to the `/media/nss/NSSVOL` directory, and create a `zencontent` subdirectory within it.
- 4 Use YaST to add the newly created subdirectory to the list of Samba shares (for example, `zenshare`) on the server.
- 5 Restart the Samba service.
- 6 (Conditional) Run the following command to add a Samba `root` user if the Samba `root` user does not already exist:

```
smbpasswd -a root
```

For security reasons, you must specify a `root` password that is different from the login password.

- 7 (Optional) To test if the newly created share is accessible over the Samba protocol, access the share from a Windows device by providing the Samba `root` user credentials
- 8 Restart the ZENserver, ZENloader and ZENmnr services.

Changing the Location of the Temporary Location on a Windows Server

Creating bundles that contain content temporarily requires up to twice the amount of disk space as the original files. The bundle creation process uploads copies of the original files from the local machine to a temporary directory on the ZENworks content server. The process then packages those files as encrypted, compressed ZENworks content files. After the ZENworks content files are created, the original uploaded files are automatically deleted.

NOTE: ZENworks runs a recurring queue action everyday to delete files and directories older than 4 days. This value can be configured in the `TomcatTempCleanup.xml` file and the names of the deleted files can be printed in the log files by configuring the `printFileNames` parameter.

If the space on the default temporary location is insufficient, you can specify a different disk drive to be the location of temporary files. In Windows, this is done by “mounting” the drive. Mounting is simply pointing an existing path to a hard drive partition without the use of mapped drive letters.

In the following steps, you mount the default temporary location to a disk drive partition, which becomes the new temporary location:

- 1 Make sure that the disk drive you want to use is attached to the server and is properly formatted as NTFS.

This disk drive can be an existing or new one for the machine. The hardware must be recognized by the server. However, do not specify a drive letter if you are adding a new disk drive to the machine. Windows does not allow mounting to a drive letter.

2 Stop all ZENworks Services.

3 Click **Start**, right-click the **My Computer** icon, then select **Manage**.

You can also click **Start**, then enter `compmgmt.msc` at the **Run** command line.

4 Select **Disk Management** under the **Storage** section in the left pane.

The disk drive you selected in [Step 1](#) should be displayed in the right pane.

5 (Conditional) If a driver letter is associated with the partition that you want to use as the new content repository location, do the following:

5a In the Computer Management dialog box, right-click the drive's partition.

5b Select **Change Drive Letter and Paths**.

5c Select the drive letter.

5d Click **Remove**, then select **Yes** to confirm.

6 Right-click the partition of the disk drive that you want to use as your temporary location, then select **Change Driver Letter and Paths**.

This is the disk drive that you will mount to the `temporary location` directory in [Step 9](#).

7 Click **Add**.

This displays the Add Drive Letter or Path dialog box.

8 Select **Mount in the Following Empty NTFS Folder**, browse for and select the default `temporary location` directory, then click **Next**.

This mounts the default path to the hard drive partition that you selected in [Step 7](#).

If necessary, format the drive as NTFS using the Computer Management feature in Windows.

9 Click the buttons as necessary to exit and save the configuration change.

10 Start all ZENworks Services.

From this point on, all ZENworks data is written directly to the new temporary location on the selected hard drive partition.

Changing the Location of the Temporary Location on a Linux Server

You can store your data on a local mount or on a network share such as NFS, SMB, or CIFS and mount the share in your `temporary` directory to access your data.

You can also create a symbolic link on your local hard drive if you want to store your data elsewhere on your local device. However, the existing temporary location directory must be deleted.

1 Run the following command to create the symbolic link to the new directory where you want to store the data:

```
ln -s another-temporary-directory-on-device /var/temp/
```

See the `ln(1)` man page for more information about how to symbolically link directories.

- ZENworks requires that the ZENworks user has complete ownership rights on the directory to which you have created the symbolic link. Run the following command to make the ZENworks user the owner of this directory:

```
chown zenworks:zenworks -R /var/temp/
```

See the `chown(1)` man page for more information about how to change ownership of directories.

The following sections provide information on managing content repository locations on Linux.

- ♦ [“Mounting a Share” on page 111](#)
- ♦ [“Unmounting a Share” on page 111](#)
- ♦ [“Creating a Permanent Mount” on page 111](#)

Mounting a Share

After configuring a share on a remote machine, you can mount it from `/var/temp/`. Stop all ZENworks Services before mounting the share

Use the following command to mount the share:

```
mount -t cifs -o username=username //example.machine.com/share_name /var/temp/
```

In the command, `//example.machine.com/share_name` is the share to mount and `/var/temp/` is the mount point.

Start all ZENworks Services after the share is mounted.

Unmounting a Share

The mount that you created in [“Mounting a Share” on page 108](#) is temporary; the share is unmounted when the operating system is shut down or rebooted. You can also use the following command to manually unmount the share:

```
umount /var/temp/
```

Stop all ZENworks Services before unmounting the share and start all ZENworks Service after the share is unmounted.

Creating a Permanent Mount

Stop all ZENworks Services before creating a permanent mount and start all ZENworks Service after the permanent mount is created.

To ensure that the mount occurs each time the Linux server starts, you must add the following entry to your `/etc/fstab` configuration file:

```
//example.machine.com/share_name /var/temp/ cifs  
credentials=path_to_credentials_file 0 0
```

The credentials file listed in the command contains a username and password. For more information, see the `mount.cifs(8)` man page. The format of the credentials file is:

username=*value*

password=*value*

Configuring NSS Volume as a Content Repository on an OES Satellite Server

Any server in a remote location can be used to host ZENworks Satellite and Content Repository on an NSS Volume. This enables optimization of hardware resources and network bandwidth.

- ♦ OES 2017 SP1 as Satellite Server

Prerequisites

1. The OES Server is running.
2. NSS volumes are mounted on the OES Server.
3. ZENworks Primary Server is running.
4. Few bundles are created and are available on the ZENworks Primary Server.

ZENworks Primary Server Configurations

Discover and deploy ZENworks Agent on an OES Server by using ZENworks Configuration Management. To add the OES Server as a Satellite:

- 1 Log in to ZENworks Control Center.
- 2 Click **Server Hierarchy** > **Action** > **Configure Satellite Server**.
- 3 Browse for and select the OES Server to be added as a Satellite Server.
- 4 Select **Content** from the Satellite Server Roles list.
- 5 Click **Configure**.
- 6 In the Settings tab, change the port number from 80 to any other port which is not used for content and/or collection HTTPS requests. (Port 80 is used by the OES services).
- 7 In the Content Replication tab, select the **Use Parent Primary Server Only** as the content replication method and save the changes.

NOTE: You can also create a Closest Server Rule (Network Environment/Location) for agents to receive content from the Satellite Server.

- 8 Click **Configuration** and select the Satellite Server that has been configured.
- 9 Click **Details** and navigate to the Content tab.
- 10 Select the bundles and policies which need to be included for content replication.
- 11 In **Server Hierarchy**, click the arrow icon to navigate to the Satellite Server.
- 12 Select the Satellite Server, click **Actions** and select **Configure Satellite Server**.
- 13 In the Satellite Server Roles panel, click the **Configure** link for **Content**.

- 14 In the Configure Content Role panel, click **Edit** to configure the interval for content replication or create a new schedule by adding a new interval.
- 15 Click **Edit** to configure interval, throttle rate, duration, and schedule type for content.

Verifying content replication on OES Server

- 1 Check the privileges of the `content_repo` folder in the default location.
- 2 Navigate to the following directory to verify if the content is replicated successfully from the Primary Server to the Satellite Server:

Satellite Server (OES Server) Configurations

- 1 Stop the ZENworks Agent on the Satellite Server by running the following command:

```
# /etc/init.d/novell-zenworks-xplatzmd stop
```
- 2 Create a user defined content repo under NSS mounted volume. For example:

```
/media/nss/VOL1/zendata/content-repo/
```
- 3 Copy the content data from the default location to the mounted volume as follows by running the following command:

```
cp /var/opt/novell/zenworks/content-repo/media/nss/VOL1/zendata
```
- 4 Rename the `content-repo` directory path to `/var/opt/novell/zenworks/content-repo-backup`.
- 5 Create a soft link by using the following command:

```
ln -s /media/nss/VOL1/zendata/content-repo/ /var/opt/novell/zenworks/content-repo
```
- 6 Start the ZENworks Agent on the Satellite Server by running the following command:

```
# /etc/init.d/novell-zenworks-xplatzmd start
```
- 7 Assign the bundle to any managed device.

Verifying content replication on a managed device

Check the `zmd-message` logs to ensure that the content is replicated successfully from the Satellite Server to the managed device. You can find the logs in the following location for a Windows managed device:

```
C:\Program Files (x86)\Novell\ZENworks\logs\LocalStore
```


33 Content Replication

When you add a bundle or policy that contains files, the files are uploaded to the content repository on the ZENworks Server. In addition, the ZENworks database is updated to reflect the addition of the bundle or policy and its content.

ZENworks Servers and Satellite devices, collectively referred to as content servers, periodically read the ZENworks database to discover new bundles and policies. Each content server that does not have the bundle or policy content retrieves it from the content server where it resides.

There are a variety of settings you can use to control how content is replicated among content servers in your zone.

Content Replication settings can be inherited from the following locations:

- ♦ **(System):** The bundle is inheriting the setting established for the Management Zone (**Configuration** tab > **Management Zone Settings** > **Content** > **Content Replication**).
- ♦ **Folder:** The bundle is inheriting the setting established for one of its parent folders.
- ♦ **Bundle:** The bundle is not inheriting the setting, but the setting is configured directly on the bundle.
- ♦ ---: The bundle is not inheriting the setting and the setting is not configured directly on the bundle. In other words, the setting is not configured at the system level, the folder level, or the bundle level.

If the settings are configured at the system or folder level, click **Override settings** to enable you to configure the setting at the bundle or policy level.

If you are configuring settings on a bundle folder or policy folder, you can click **Force Inheritance** in the **Folder Task** list in the left navigation pane to ensure that all children (all subfolders as well as individual bundles and policies) inherit the settings.

Content replication settings let you:

- ♦ Specify whether content is replicated to new content servers by default.
- ♦ Manually include content on or exclude content from content servers.
- ♦ Schedule how often replication occurs.
- ♦ Set a limit, or throttle, on the maximum amount of content that is replicated per second from one content server to another.
- ♦ Specify whether you want the ZENworks Agent on managed devices or Satellite devices to use checksum comparison to help ensure that no errors were introduced during content replication and that the content was not altered.

For information about performing these tasks, see the following sections:

- ♦ [“Cleaning up Content from the Primary Server” on page 116](#)

Cleaning up Content from the Primary Server

You can cleanup a bundle’s or policy’s content from a Primary Server immediately without waiting for the scheduled content cleanup.

- 1 In ZENworks Control Center, click the **Devices** tab on the left, select one of the Primary Servers and click Content.
- 2 In the Replication Settings panel under the Content tab, select the check box for the content (bundle or policy) you want to cleanup immediately from the selected Primary Server.
- 3 Click **Actions > Cleanup Now**.

The content will be removed from the **Included** column. The content will be removed also from the repository of the selected Primary Server.

NOTE: The Cleanup Now option is applicable only for the Primary Servers and not for the Satellite Servers. The content will not be cleaned up if that is the only Primary server where the content is hosted.

34 Content Delivery

Content delivery, or distribution, refers to the process of transferring bundle and policy content from a content server (ZENworks Primary Server or Satellite with the Content role) to a managed device.

There are a variety of settings you can use to determine how content is delivered to managed devices, such as setting up Closest Server rules, setting delivery blackout dates for when content can't be downloaded, and setting how often you want managed devices to look for new content to download.

For information about performing these tasks, see the following sections:

- ♦ [“Setting Up Location Closest Server Rules” on page 117](#)
- ♦ [“Scheduling Delivery Blackout Dates” on page 117](#)
- ♦ [“Setting the Device Refresh Schedule” on page 118](#)

Setting Up Location Closest Server Rules

When you have multiple content servers, you can use the Closest Server rules to determine from which content server a managed device receives its content. By associating content servers with locations, you can ensure that a device accesses the closest content server even when the device changes location. The Closest Server rules for a location let you map devices to content servers based on many network parameters (DNS names, IP addresses, Gateways, and so forth).

For more information, see [“Adding Closest Servers to Locations”](#) in the *ZENworks Location Awareness Reference*.

Scheduling Delivery Blackout Dates

If there are times when you don't want managed devices to download content, you can create a content blackout schedule. Schedules can be defined at the following levels:

- ♦ **Management Zone:** The schedule is inherited by all devices.
- ♦ **Device Folder:** The schedule is inherited by all devices within the folder and its subfolders. It overrides the Management Zone blackout schedule.
- ♦ **Device:** The schedule applies only to the device for which it is defined. It overrides any schedules set at the Management Zone and folder levels.

A blackout schedule can include one or more time periods.

NOTE:

- ◆ The Content Blackout Schedule setting lets you prevent managed devices from downloading content from a content source during the blackout period. This setting, however, does not affect content replication. For this reason, a Satellite device with the Content role can still replicate content from its parent primary server during the blackout period.
 - ◆ After migrating to the Advance Patch feed, the content blackout schedule is not supported for patch pre-caching.
-

To create a content blackout schedule:

- 1 Launch ZENworks Control Center.
- 2 Do one of the following:
 - ◆ To create a content blackout schedule for your Management Zone, click the **Configuration** tab, then click **Bundle, Policy and Content** (in the Management Zone Settings panel) > **Content Blackout Schedule**.
 - ◆ To create a content blackout schedule for a device folder, open the folder's details page, then click **Settings** > **Bundle, Policy and Content** (in the Settings panel) > **Content Blackout Schedule**.
 - ◆ To create a content blackout schedule for a device, open the device's details page, click **Settings** > **Bundle, Policy and Content** (in the Settings panel) > **Content Blackout Schedule**.
- 3 If you are creating content blackout schedules for a device or device folder, click **Override settings** to activate the Content Blackout Schedule panel.
- 4 Click **Add** to display the Specify Blackout Time Period dialog box, then fill in the following fields:
 - Start Date:** Select the first date you want to include in the schedule.
 - End Date:** Select the last date you want to include in the schedule. The blackout time period (specified by the start and end times) occurs on each day from the start date to the end date.
 - Start Time:** Select the hour you want the blackout time period to start each day.
 - End Time:** Select the hour you want the blackout time period to end each day. If you want the blackout time period to extend for 24 hours, select the same time as the start time.
- 5 Click **OK** to save the blackout period.
- 6 Repeat [Step 4](#) to create additional blackout periods.
- 7 When you are finished, click **OK** or **Apply** to save the schedule.

Setting the Device Refresh Schedule

At device startup, the ZENworks Agent on a device contacts a ZENworks Server to refresh its information. If information changes after startup, the ZENworks Agent must refresh its information again before the changes can show up on the device.

If the refreshed information indicates that there is new content to be downloaded, the ZENworks Agent contacts its content server and begins the download process.

You can use the device refresh schedule to determine how often a device contacts a ZENworks Server to update bundle, policy, configuration, and registration information. Schedules can be defined at the following levels:

- ♦ **Management Zone:** The schedule is inherited by all devices.
- ♦ **Device Folder:** The schedule is inherited by all devices within the folder and its subfolders. It overrides the Management Zone schedule.
- ♦ **Device:** The schedule applies only to the device for which it is defined. It overrides any schedules set at the Management Zone and folder levels.

To create a device refresh schedule:

- 1 Launch ZENworks Control Center.
- 2 Do one of the following:
 - ♦ To create a device refresh schedule for your Management Zone, click the **Configuration** tab, then click **Device Management** (in the Management Zone Settings panel) > **Device Refresh Schedule**.
 - ♦ To create a device refresh schedule for a device folder, open the folder's details page, then click **Settings** > **Device Management** (in the Settings panel) > **Device Refresh Schedule**.
 - ♦ To create a device refresh schedule for a device, open the device's details page, then click **Settings** > **Content** (in the Settings panel) > **Device Refresh Schedule**.
- 3 If you are creating a device refresh schedule for a device or device folder, click **Override settings** to activate the Device Refresh Schedule panel, then choose from the following schedules:

Manual Refresh: If you want a device refreshed only when its user manually initiates the refresh, select **Manual Refresh**, then click **Apply**. Users can initiate a refresh by clicking the ZENworks icon located in the desktop's notification area (system tray).

Timed Refresh: Select **Timed Refresh** if you want to establish a refresh schedule. You can use a Full Refresh Schedule or a Partial Refresh Schedule:

- ♦ **Full Refresh Schedule:** Defines how often you want a device to update all of its information from the ZENworks Server, including bundle, policy, setting, and registration information. Use the following fields to create the full refresh schedule:
 - ♦ **Days, Hours, Minutes:** Specifies the amount of time between refreshes. For example, to set a refresh interval of 8.5 hours, you would specify 0 Days, 8 Hours, 30 Minutes. The default is 12 hours.
 - ♦ **Random Time to Wait:** Select this option to ensure that multiple devices with the same refresh schedule do not all initiate their refresh at the same time. For example, if you have 1000 devices with the same refresh schedule, you might overburden your ZENworks Server. By selecting this option, the device waits a randomly generated amount of time before initiating its refresh. Use the **Minimum** and **Maximum** fields to specify the range (in seconds) for the randomly generated time.
- ♦ **Partial Refresh Schedule:** Defines how often you want a device to update its policy, configuration setting, and registration information from the ZENworks Server. Bundle information is not updated.

In the **Days**, **Hours**, and **Minutes** fields, specify the amount of time between refreshes. For example, to set a refresh interval of 3 hours, you would specify 0 Days, 3 Hours, 0 Minutes. The default is 2 hours.

The **Timed Refresh** setting is applicable to both the full and partial refreshes.

The refresh interval is not reset until the device refresh is complete. For example, assume you set a refresh interval of 8 hours. The device's first refresh occurs at 6:00 p.m. and takes 13 seconds to complete. The second refresh occurs at 2:00:13 a.m. (8 hours after the refresh was completed at 6:00:13). If the second refresh takes 15 seconds to complete, the third refresh occurs at 10:00:28 a.m.

- 4 When you are finished, click **OK** or **Apply** to save the schedule.

35 Content Sharing

Content sharing helps you leverage your existing file sharing infrastructure and download the content to managed devices.

NOTE: Managed devices download the content from the content repository by using the HTTP protocol. They can additionally download the content by using the CIFS protocol.

For information about sharing content, see the following sections:

- ♦ “Sharing the content-repo Directory on the Primary Server” on page 121
- ♦ “Shared Content Repository” on page 124

Sharing the content-repo Directory on the Primary Server

On the ZENworks Primary Server, you need to configure the content repository as a file system share that can be accessed as an anonymous read-only share. You must configure the content repository as read-only for preventing anonymous users from manipulating the data and causing security issues.

- ♦ “Sharing the Content Repository on a SUSE Linux” on page 121
- ♦ “Sharing the Content Repository on Windows” on page 122

Sharing the Content Repository on a SUSE Linux

1 Install Samba.

For more information on how to install Samba, see the *Samba Administration Guide* (http://www.novell.com/documentation/oes11/file_samba_cifs_lx/index.html?page=/documentation/oes11/file_samba_cifs_lx/data/bookinfo.html#bookinfo).

2 Launch YaST Control Center.

3 In the **Filter** field, type `Samba Server`.

The Samba Server configuration process is initialized.

4 Click **Next**.

The Samba Installation window is displayed.

5 In the **Workgroup or Domain Name** field, specify the workgroup or domain name, then click **Next**.

6 In the **Samba Server Type** option, select one of the following:

- ♦ Primary Domain Controller (PDC)
- ♦ Backup Domain Controller (BDC)
- ♦ Not a Domain Controller

7 Click **Next**.

The Samba Configuration window is displayed.

8 In the **Start-Up** tab, select how you want the Samba Server to start:

- ◆ During Boot
- ◆ Manually

9 Click **OK**.

The Password dialog box is displayed.

10 Specify the Samba root password, verify the password, then click **OK**.

11 Select the settings for the new share.

11a Click **Shares > All users > Edit**.

The New Share window is displayed.

11b Specify the share name, then provide a short description of the share.

11c Select the **Directory** option to share the folder.

11d Select the **Read-Only** check box to only read the files that are shared.

11e Select the **Inherit ACLS** check box to make new files inherit the default ACLs from the containing folder.

11f Click **OK**.

12 In the Share content-repo window, click **Edit**.

13 In the **Selected Option** drop-down list, select **guest ok**, then click **OK**.

14 Click **OK**.

Sharing the Content Repository on Windows

You can perform the following tasks in the order listed:

1. Enable simple file system sharing.

Windows 2003

- a. Click **Start > All Programs > Accessories > Windows Explorer**.
- b. Expand **My Computer**, then locate the shared folder or drive to that you want to share.
- c. Right-click the folder or drive, then click **Properties**.
The Properties dialog box is displayed.
- d. Click the **Sharing** tab.
- e. Select the **Share this folder** option.
- f. Specify the share name and a brief description about the folder.
- g. Click **Apply > OK**.

Windows 7

- a. Open Windows Explorer, then locate the shared folder or drive to that you want to share.
- b. Right-click the folder or drive, then click **Properties**.
The Properties dialog box is displayed.

- c. Click **Sharing > Share**.
- d. In the Advanced Sharing panel, click **Advanced Sharing**.
The Advanced Sharing dialog box is displayed.
- e. Select the **Share this folder** check box.
The Settings panel is enabled.
- f. Specify the share name.
- g. Click **Apply > OK**.

Windows 10

- a. Open Windows Explorer, then locate the shared folder or drive to that you want to share.
- b. Right-click the folder or drive, then click **Properties**.
The Properties dialog box is displayed.
- c. Click **Sharing > Share**.
- d. In the Advanced Sharing panel, click **Advanced Sharing**.
The Advanced Sharing dialog box is displayed.
- e. Select the **Share this folder** check box.
The Settings panel is enabled.
- f. Specify the share name.

NOTE: By default, the simultaneous users count is 20. This value might have to be increased depending on the number of agents accessing the Satellite's content-repo at any point in time. The default read only permissions should not be modified.

- g. Click **Apply > OK**.
2. Use the `gpedit.msc` method to configure the group policy settings:
- a. From the desktop Start menu, click **Run**.
 - b. In the Open option, type `gpedit.msc`, then click **OK**.
The Local Group Policy Editor window is displayed.
 - c. Navigate to **Computer Configuration > Windows Settings > Security Settings > Local Policies > Security Options**.
 - d. Select the **Network access: Let Everyone permissions apply to anonymous users** option.
 - e. In the **Local Security Setting** tab, select **Enabled**.
 - f. Click **Apply > OK**.
 - g. Select the **Network access: Shares that can be accessed anonymously** option.
 - h. In the **Local Policy Setting** tab, add the content-repo setting to the list of shares.
 - i. Click **Apply > OK**.
 - j. Restart the Server service from the Service Manager.

Shared Content Repository

This feature enables you to share the content repository among multiple Primary Servers in the same zone. In prior releases of ZENworks, every Primary Server had its own content repository. This section includes the following:

- ◆ [“Pre-requisites” on page 124](#)
- ◆ [“Configuring the Shared Content Repository for Multiple Primary Servers” on page 125](#)
- ◆ [“Revoking the Sharing of the Content Repository” on page 126](#)

NOTE: The shared content Repository does not support the Ondemand content distribution. To stop the content servers from getting the content ondemand, you can set the Blacked out Schedule for Ondemand content. For more information, see [Blacked out Schedule for Ondemand Content](#).

Pre-requisites

Before you configure the shared repository, you need to ensure that the following prerequisites are met in the following scenarios:

- ◆ [“ZENworks running as a Primary Server on a Linux device” on page 124](#)
- ◆ [“ZENworks running as a Primary Server on a ZENworks Appliance” on page 125](#)
- ◆ [“ZENworks running as a Primary Server on a Windows Server Class device” on page 125](#)

ZENworks running as a Primary Server on a Linux device

- ◆ Ensure that the ZENworks user has read/write access to the shared volume.
- ◆ Ensure that shared volume path is configured in the `/etc/fstab` file. This will ensure that during the reboot of the machine, the administrator does not have to remount the shared volume on the Primary Servers.

The following command is an example of the shared volume path configuration when the shared repository is hosted on an separate OES Server as CIFS Share, on an NSS volume:

In this command:

- ◆ Replace `<IP address of the OES server>` with the IP address of the OES Server on which the content repository is hosted.
- ◆ Replace `<Shared Volume>` with the NSS volume configured on the OES Server, with CIFS share enabled.
- ◆ `username` is the name of the zenworks user, created on the OES Server, which is also LUM (Linux User Management) enabled.

The following command is an example of the shared volume path configuration when the NFS Share is hosted on a separate SLES Server:

In this command:

- ◆ Replace `<IP address of the SLES server>` with the IP address of the SLES Server on which the content repository is hosted.
- ◆ Replace `<Shared Volume>` with the NSS volume that is configured on the SLES Server, with NFS share enabled.

ZENworks running as a Primary Server on a ZENworks Appliance

NOTE: If NFS Share is configured on the appliance, ensure that you install the `nfs-client` RPM. This RPM is not installed by default along with the appliance.

ZENworks running as a Primary Server on a Windows Server Class device

When ZENworks is running as a Primary Server on a Windows device, the user account with which the ZENworks Loader process is running should have read/write access to the shared repository, before the shared repository is configured.

This section explains how to configure the shared content repository for an anonymous user. The ZENworks user account can be obtained by opening the ZENworks Loader process from the `services.msc` application and navigating to the **Log on** tab. Configuring stricter access permissions is beyond the scope of ZENworks. You will need to contact your File System administrator for further assistance.

The following command is an example for a scenario in which the shared content repository is hosted on an OES Server as CIFS Share, on an NSS volume:

In this command, `WIN_VOL` is the CIFS Share created on the OES Server, with anonymous access.

Configuring the Shared Content Repository for Multiple Primary Servers

- 1 Stop the ZENworks Loader and ZENworks Server services only on those Primary Servers for which you want to configure the shared content repository.

For example, if there are three Primary Servers in a zone (PS1, PS2 and PS3) and the shared content-repo needs to be configured for PS1 and PS2, then the services need to be stopped only on PS1 and PS2.

- 2 Mount the shared content repo either by configuring the `/etc/fstab` file or by using the `mount` command on a Linux or Windows server. For more information, see the [“Pre-requisites” on page 124](#) section.
- 3 Repeat steps 1 to 3 to mount each of the Primary Servers to the shared content repository.
- 4 Restart the ZENwork Loader and ZENworks Server services only on those Primary Servers for which the shared content is configured.

NOTE: 1.If you plan to add a new Primary Server to an existing zone and then configure the Shared Content Repo for this server, the Primary Server should initially be configured with its own local content repository. Once the server is installed, ensure that there is a long delay in the content replication interval so that content replication does not happen to the local repository. You need to follow steps 1 to 7 that are listed above, to configure the new Primary Server to the shared content repo.

2. If you want the shared content to be available for all the Primary Servers immediately, run the `Replicate Now` action.
-

Revoking the Sharing of the Content Repository

This scenario will enable you to revoke the sharing of the content repository that is mounted to a Primary Server.

- 1 Stop the ZENworks Loader and ZENworks Server services on those Primary Servers for which the shared content repository needs to be revoked.
- 2 Once the shared content repo folder is revoked successfully, you need to copy the content from the shared content repo to the local content repo.
- 3 Restart the ZENworks Loader and ZENworks Server services on those Primary Servers for which the shared content repository is revoked.

36 Troubleshooting

The following sections provide solutions to the issues you might encounter during content replication.

- ♦ [“When the time zone is changed, the changes are not updated in the containers” on page 127](#)
- ♦ [“An Apache curator error message is displayed in the logs, when new servers are added to the ZooKeeper cluster” on page 127](#)
- ♦ [“Removing the Content role from a Satellite does not remove the device from the Closest Server Default Rule and Closest Server Rules” on page 128](#)
- ♦ [“The imaging content is replicated according to the default content replication schedule even if you change the schedule after promoting a managed device to an Imaging Satellite” on page 128](#)
- ♦ [“Join Proxy connection might not work and displays incorrect port information on the Z icon page of the Join Proxy server” on page 128](#)
- ♦ [“When no content is available, content replication does not work based on the defined schedule” on page 129](#)
- ♦ [“Mac pre-agent installer package was not created” on page 129](#)

When the time zone is changed, the changes are not updated in the containers

Explanation: When you change the time zone using Appliance console or Yast on a Linux Primary server, the changes are not updated in the containers.

Action: After updating the time zone in the Appliance console or in the non-appliance Linux server (using Yast) perform the following steps:

1. Run the `microfocus-zenworks-configure -c UpdateTimeZoneConfigureAction`.
2. Restart all ZENworks services.

An Apache curator error message is displayed in the logs, when new servers are added to the ZooKeeper cluster

Explanation: When additional servers are added to the ZooKeeper cluster, the following Apache curator related error message is displayed in the logs for each newly added server, even though the servers are successfully added in the cluster:

```
ERROR org.apache.curator.framework.imps.EnsembleTracker - Invalid config event received
```

Action: As there is no loss in functionality and the servers are added successfully, no action needs to be performed. However, a bug has been raised with Apache.

Removing the Content role from a Satellite does not remove the device from the Closest Server Default Rule and Closest Server Rules

Source: ZENworks

Explanation: If you remove the Content role from a Satellite device, the device is not automatically removed from the Closest Server Default Rule and the Closest Server Rules.

Action: Remove the Satellite device from the Server Hierarchy list. In ZENworks Control Center, click the Configuration tab > select the check box next to the Satellite device, click Action, then click Remove Satellite Server.).

The imaging content is replicated according to the default content replication schedule even if you change the schedule after promoting a managed device to an Imaging Satellite

Source: ZENworks

Explanation: If you change the Imaging content replication schedule for an Imaging Satellite, the imaging content is replicated from the Primary Server to the Satellite while promoting the managed device to the Imaging Satellite, by using the default schedule and not the revised schedule.

NOTE: ZENworks images are not replicated from one Primary Server to other Primary or Satellite Servers.

Action: To change the imaging content schedule after promoting a managed device to an Imaging Satellite:

- 1 Remove the Imaging role from the Satellite.

For detailed information on how to demote a Satellite to a managed device, see [Section 19, “Removing the Roles from a Satellite,” on page 73](#).

- 2 Add the Imaging role to the Satellite, then configure the desired imaging content replication schedule while configuring the role.

For detailed information on how to add the Imaging role to a Satellite, see [“Understanding the Imaging Role” on page 53..](#)

Join Proxy connection might not work and displays incorrect port information on the Z icon page of the Join Proxy server

Source: ZENworks

Explanation: When a managed device tries to connect to a Primary server for Join Proxy service, the connection might fail. To verify the connection status if you click Servers in the Z icon page of the Join Proxy server, the port information displayed along with the host name might be incorrect. For example, port number could be 80 instead of the default port number 7019.

Action: Update the incorrect Join Proxy settings:

When no content is available, content replication does not work based on the defined schedule

Source: ZENworks; Content Replication

Explanation: When there is no content available for replication, the content replication schedule does not follow the defined schedule or the CDP restart schedule.

Action: You need to configure the `DisableCDPRestartIntervalDoubling` setting, which has been introduced in ZENworks 11 SP4, to `True` or `False`.

- ♦ `True`: The CDP restart interval will get reset to the initial value (governed by `CDPRestartInterval` setting) and remain constant till the setting is changed to `False`.
- ♦ `False`: The CDP restart interval will double if no content is available.

NOTE: By default, this setting is set to `False`.

To configure the `DisableCDPRestartIntervalDoubling` setting:

- ♦ On Linux and Mac operating systems, configure the setting in the `/etc/opt/Novell/zenworks/conf/xplatzmd.properties` file.
- ♦ On a Windows operating system, use the Registry Editor and configure the registry key: `HKLM\SOFTWARE\Novell\ZCM:DisableCDPRestartIntervalDoubling=true`

OR

```
HKLM\SOFTWARE\Novell\ZCM:
DisableCDPRestartIntervalDoubling=false
```

Mac pre-agent installer package was not created

Source: ZENworks

Explanation: When trying to rebuild the deployment package by running the `microfocus-zenworks-configure -c CreateExtractorPacks -Z` command, the deployment package rebuilding was successfully completed but the Mac pre-agent installer package was not created. This is a known issue. The `microfocus-zenworks-configure -c CreateExtractorPacks -Z` command will not rebuild the Mac pre-agent installer package.

Action: None

V Appendixes

The following sections provide information related to ZENworks Primary Servers:

- ♦ [Appendix A, “Support for L4 Switches,” on page 133](#)
- ♦ [Appendix B, “Schedule Types,” on page 135](#)
- ♦ [Appendix C, “Understanding Communication between ZENworks Components in Multi-Locale Environment,” on page 141](#)
- ♦ [Appendix D, “RPMs for Linux Primary Servers,” on page 143](#)
- ♦ [Appendix E, “Changing the Location of the Content Repository on a Linux or Appliance Server,” on page 147](#)
- ♦ [Appendix F, “TCP and UDP Ports Used by ZENworks Primary Servers,” on page 149](#)

A Support for L4 Switches

Layer 4 (L4) is used to make switching decisions, which means that a switch considers the information in Layer 4 when routing a packet. For example, an L4 switch can decide where to send the packet based on the port numbers. Layer 4 information is used to direct application sessions to different servers and prioritize and queue certain packet types, such as database or application server traffic. An L4 switch requires every device along its path to be together. These switches are useful for WAN and LAN/WAN boundaries.

Each L4 switch has a slightly different method and terminology for the sticky bit or persistence bind, which allows a client that has established a session to be directed to the same Primary Server for all requests sent during the session.

If you choose to deploy Primary Servers behind a L4 switch;

- ◆ Ensure that all such Primary servers are running on the same HTTP and HTTPS ports.
- ◆ Ensure that you open the administrative and client management ports in the L4 switch. For example, open the 7443 and 443 ports for agent and server communication with ZENworks.
- ◆ And if you have specified DNS name for L4 switch in ZCC, ensure that the specified DNS name is resolvable by all the Primary servers behind L4.

For pull deployment in ZENworks to work efficiently, you must enable the sticky bit with the sticky age set to 30 minutes. After the deployment task is finished, the sticky bit configuration is not required and can be removed.

The following table lists supported and unsupported scenarios if L4 switching is used in ZENworks:

Supported	Not Supported
Pull deployment (Sticky bit set)	Push deployment
Regular managed device activity (Bundles and policy assignments, remotely controlling the devices, etc.)	Content Satellite
Authentication to user sources	Collection Satellite
	Authentication Satellite

NOTE: System updates of managed devices, Patch Management, and Imaging scenarios have not been tested.

Predeployment Tasks

Before you begin to use the pull deployment method to deploy the ZENworks Agent, perform the following tasks:

- 1 Create an L4 definition:
 - 1a In ZENworks Control Center, click the **Configuration** tab.
 - 1b In the Management Zone Settings panel, click **Infrastructure Management**, then click **Closest Server Default Rule** to display the Closest Server Default Rule page.
 - 1c Click **L4 Switch > Create Empty L4 Switch Definition**.
 - 1d In the Create Empty L4 Switch Definition dialog box, specify the IP address or DNS name of the L4 switch.
 - 1e Click **OK**.
- 2 Add Primary Server to the L4 switch:
 - 2a Select the Primary Server that you want to add to the L4 switch, then click **L4 Switch > Add To L4 Switch Definition**.
 - 2b In the Add to Existing/New L4 Switch Definition dialog box, specify the L4 IP address or DNS name for a new L4 switch definition or select an existing L4 definition from the drop-down list, then click **OK**.
 - 2c Click **OK**.
- 3 (Optional) Add an L4 switch definition to a location:
 - 3a Click **Configuration > Locations**.
 - 3b Select the location that you want to add to the L4 switch, then click **Servers** tab.
 - 3c Click **L4 Switch > Add L4 Switch**.
 - 3d In the Add Existing L4 Switch Definition dialog box, select an existing L4 definition from the drop-down list, then click **OK**.
 - 3e Click **Apply**.
- 4 Edit the deployment package to add the L4 switch IP address.

For more information on how to edit the deployment package, see “[Customizing Packages](#)” in the *ZENworks Discovery, Deployment, and Retirement Reference*.
- 5 On the L4 switch console, enable the sticky bit or persistent bind with the stick age set to 30 minutes.

For more information on how to enable the sticky bit, refer to your L4 switch vendor documentation.

B Schedule Types

You can schedule to run ZENworks components based on your requirements. The following schedules are available:


- ♦ “Date Specific” on page 135
- ♦ “Event” on page 136
- ♦ “Now” on page 137
- ♦ “Recurring” on page 137
- ♦ “No Schedule” on page 140

Date Specific

The Date Specific scheduling option lets you specify one or more dates on which to run the event.

Figure B-1 Date Specific Schedule

The screenshot shows a configuration window for a "Date Specific" schedule. At the top, "Schedule Type:" is set to "Date Specific". Below this is a "Start Date(s)" field with a calendar icon. There are two checkboxes: "Run event every year" and "Process immediately if device unable to execute on schedule". Under "Select when schedule execution should start:", "Start immediately at Start Time" is selected. The "Start Time" is set to 1:00 am and the "End Time" is set to 1:00 am. There is a checkbox for "Use Coordinated Universal Time (Current UTC 11:46 PM)". At the bottom, there are three checkboxes: "Wake on Lan (Applies to Devices only)", "Install Immediately after Distribution", and "Launch Immediately after Installation". Navigation buttons at the bottom are "<< Back", "Next >>", and "Cancel".

Start Dates: Click  to display a calendar you can use to select a date for the event. You can add multiple dates one at a time.

Run Event Every Year: Select this option to run the event every year on the dates shown in the **Start Date(s)** list.

Process Immediately if Device Unable to Execute on Schedule: Any event is considered past due if a bundle is not executed on the configured schedule for some reason. If you select this option, the past due event is executed during the immediate device refresh.

NOTE: The event is executed immediately after device refresh because the configured schedule which is passed does not recur.

Select When Schedule Execution Should Start: Select one of the following options:

- ◆ **Start Immediately at Start Time:** Starts the event at the time you specify in the **Start Time** field.
- ◆ **Start at a Random Time between Start Time and End Time:** Starts the event at a randomly selected time between the time you specify in the **Start Time** and **End Time** fields. You can use this option to avoid possible network overload from concurrently scheduled events.

Use Coordinated Universal Time (UTC): The Start Time is converted to Universal Coordinated Time (UTC). Recommended, if the management zone is across geographical locations. Select this option to indicate that the Start Time you entered is already in Coordinated Universal Time and should not be converted. For example, suppose you are in the Eastern time zone. If you enter 10:00 a.m. and select this option, the Start Time is scheduled for 10:00 UTC. If you don't select this option, the Start Time is scheduled for 14:00 UTC because Eastern time is UTC - 4 hours.

Event

This scheduling option lets you specify the event you want, to trigger the scheduled action.

NOTE: ◆User management is supported only on Windows platforms.

- ◆ Event Schedule type is not supported for Inventory Scans.
 - ◆ Event Schedules are not supported on Linux and Macintosh devices.
-

Figure B-2 Event Schedule

The screenshot shows a configuration window for an event schedule. At the top, there is a label 'Schedule Type:' followed by a dropdown menu currently set to 'Event'. Below this is a large rectangular area with the instruction 'Select the event that this schedule should be triggered on:'. Inside this area is a list of radio button options: 'User Login', 'User Logout', 'Device Boot', 'On Device Lock', 'On Device Unlock', 'ZENworks - Login', 'ZENworks - Logout', and 'Device Connecting to Network (Windows Only)'. Below the radio button list is another section containing three checkbox options: 'Wake on Lan (Applies to Devices only)', 'Install Immediately after Distribution', and 'Launch Immediately after Installation'. At the bottom of the window, there are three buttons: '<< Back', 'Next >>', and 'Cancel'.

Select from the following triggers:

User Login: A user logs in to the device's operating system.

User Logout: A user logs out of the device's operating system. This is not applicable if a user shuts down, or reboots the system.

Device Boot: The device powers on.

On Device Lock: The device's operating system is locked.

On Device Unlock: The device's operating system is unlocked.

ZENworks Login: A user logs in to the ZENworks Management Zone.

ZENworks Logout: A user logs out of the ZENworks Management Zone.

Device Connecting to Network (Windows Only): The disconnected device detects a new wired or wireless network connection.

NOTE: At device startup, the ZENworks Agent contacts a ZENworks Server according to the device's refresh schedule to refresh its bundle, policy, configuration, and registration information. If information changes, the ZENworks Agent must refresh its information before the changes can show up on the device, even if one of the event triggers occur. By default, devices refresh randomly between 300 and 360 seconds after device startup with a full refresh every 12 hours.

For example, if you create a bundle and schedule it to launch when the device connects to the network, the device must be manually refreshed or refreshed according to schedule before the ZENworks Agent can upload or launch the bundle, even if the device connects to the network.

Now

Select this option to run the event immediately. For this schedule to be effective during bundle assignment, ensure that the number of devices to which you want to assign a bundle does not exceed 30. If you select more than 30 devices with the distribution schedule set to Now, the following error message is displayed:

```
Distribution Schedule can be set to 'Now' only for bundle assignments to devices not exceeding 30.
```

To assign bundles, policies, WOL tasks randomly to more than 30 devices, use the **Quick Tasks** option in ZENworks Control Center. For more information, see [Initiating a Quick Task](#) in the *ZENworks Control Center Reference*.

Recurring

The Recurring scheduling option lets you repeat the event at a specified interval.

NOTE: The following sections describe all of the Recurring schedule options. Depending on the event or action you are scheduling, some options might not be available.

Figure B-3 Recurring Schedule

Schedule Type:
Recurring

When a device is refreshed
 Delay execution after refresh: 0 Days 0 Hours 0 Minutes

Days of the week
Sun Mon Tue Wed Thu Fri Sat

Start Time: 1 :00 am
[More Options](#)

Monthly
 Day of the month: 1
 Last day of the month
 First Sunday
Start Time: 1 :00 am
[More Options](#)

Fixed Interval
0 Months 0 Weeks 0 Days 0 Hours 0 Minutes
Start Date: 7/12/07 Start Time: 1 :00 am
[More Options](#)

Wake on Lan (Applies to Devices only)
 Install Immediately after Distribution
 Launch Immediately after Installation

<< Back Next >> Cancel

When a Device Is Refreshed: This schedule causes the event to occur each time the ZENworks Agent performs a refresh on the device. If you want to delay the event so that it does not happen immediately upon refresh, select the **Delay execution after refresh** option and specify the number of days, hours, or minutes you want to delay the event.

Days of the Week: This schedule lets you specify the days during the week that you want the event to run. The event is run on these same days each week.


Select **Days of the Week**, then fill in the following fields:

- ◆ **Sun... Sat:** Specifies the days of the week you want to run the event.
- ◆ **Start Time:** Specifies the time you want to run the event.
- ◆ **Process Immediately if Device Unable to Execute on Schedule:** Any event is considered past due if a bundle is not executed on the configured schedule for some reason. If you select this option:
 - ◆ A past due bundle is executed immediately after the device refresh if the bundle has flown down to the agent on or before the configured schedule.
 - ◆ A past due bundle is executed in the next recurring schedule if the bundle has not flown down to the device on or before the configure schedule.

- ♦ **Use Coordinated Universal Time:** The Start Time is converted to Universal Coordinated Time (UTC). Recommended, if the management zone is across geographical locations. Select this option to indicate that the Start Time you entered is already in Coordinated Universal Time and should not be converted. For example, suppose you are in the Eastern time zone. If you enter 10:00 a.m. and select this option, the Start Time is scheduled for 10:00 UTC. If you don't select this option, the Start Time is scheduled for 14:00 UTC because Eastern time is UTC - 4 hours.
- ♦ **Start at a Random Time between Start Time and End Time:** Starts the event at a randomly selected time between the time you specify in the **Start Time** and **End Time** fields. You can use this option to avoid possible network overload from concurrently scheduled events.
- ♦ **Restrict Schedule Execution to the Following Date Range:** Limits running the event to the time period specified by the starting and ending dates.

Monthly: This schedule lets you specify one or more days during the month to run the event.

Select **Monthly**, then fill in the following fields:

- ♦ **Day of the Month:** Specifies the day of the month to run the event. Valid entries are 1 through 31. If you specify 29, 30, or 31 and a month does not have those days, the event is not run that month.
- ♦ **Last Day of the Month:** Runs the event on the last day of the month, regardless of its date (28, 30, or 31).
- ♦ **First Sunday:** Specifies a specific day of a week. For example, the first Monday or the third Tuesday. Click  to add multiple days.
- ♦ **Start Time:** Specifies the time you want to run the event.
- ♦ **Process Immediately if Device Unable to Execute on Schedule:** Any event is considered past due if a bundle is not executed on the configured schedule for some reason. If you select this option:
 - ♦ A past due bundle is executed immediately after the device refresh if the bundle has flown down to the agent on or before the configured schedule.
 - ♦ A past due bundle is executed in the next recurring schedule if the bundle has not flown down to the device on or before the configure schedule.
- ♦ **Use Coordinated Universal Time:** The Start Time is converted to Universal Coordinated Time (UTC). Recommended, if the management zone is across geographical locations. Select this option to indicate that the Start Time you entered is already in Coordinated Universal Time and should not be converted. For example, suppose you are in the Eastern time zone. If you enter 10:00 a.m. and select this option, the Start Time is scheduled for 10:00 UTC. If you don't select this option, the Start Time is scheduled for 14:00 UTC because Eastern time is UTC - 4 hours.
- ♦ **Start at a Random Time between Start Time and End Time:** Starts the event at a randomly selected time between the time you specify in the Start Time and End Time boxes. You can use this option to avoid possible network overload from concurrently scheduled events.
- ♦ **Restrict Schedule Execution to the Following Date Range:** Limits running of the event to the time period specified by the starting and ending dates.

Fixed Interval: This schedule lets you specify an interval between days to run the event. For example, you can run the event every 14 days.

Select **Fixed Interval**, then fill in the following fields:

- ♦ **Months, Weeks, Days, Hours, Minutes:** Specifies the interval between times when the event is run. You can use any combination of months, weeks, days, hours, and minutes. For example, both *7 days, 8 hours* and *1 week, 8 hours* provide the same schedule.
- ♦ **Start Date:** Specifies the initial start date for the interval.

NOTE: For a newly promoted Satellite Server, by default, the replication starts with a delay of 1 day.

- ♦ **Start Time:** Specifies the initial start time for the interval.
- ♦ **Process Immediately if Device Unable to Execute on Schedule:** Any event is considered past due if a bundle is not executed on the configured schedule for some reason. If you select this option:
 - ♦ A past due bundle is executed immediately after the device refresh if the bundle has flown down to the agent on or before the configured schedule.
 - ♦ A past due bundle is executed in the next recurring schedule if the bundle has not flown down to the device on or before the configured schedule.
- ♦ **Use Coordinated Universal Time:** The Start Time is converted to Universal Coordinated Time (UTC). Recommended, if the management zone is across geographical locations. Select this option to indicate that the Start Time you entered is already in Coordinated Universal Time and should not be converted. For example, suppose you are in the Eastern time zone. If you enter 10:00 a.m. and select this option, the Start Time is scheduled for 10:00 UTC. If you don't select this option, the Start Time is scheduled for 14:00 UTC because Eastern time is UTC - 4 hours.
- ♦ **Restrict Schedule Execution to the Following Date Range:** Limits running of the event to the time period specified by the start date, end date, and end time.

No Schedule

The No Schedule option is selected if you do not want to run the event automatically.

C Understanding Communication between ZENworks Components in Multi-Locale Environment

If you choose to run the ZENworks Primary Server, ZENworks Control Center, and ZENworks Agent on operating systems with different locales, review the following points to understand the communication behavior between ZENworks components:

- ◆ ZENworks extends support to the following languages:
 - ◆ Single-byte languages: English, French, German, Italian, Portuguese, and Spanish
 - ◆ Double-byte languages: Chinese-Traditional, Chinese-Simplified, and Japanese
- ◆ ZENworks Primary Server is language independent. It can render messages in all the languages supported by ZENworks.
- ◆ It is recommended to launch ZENworks Control Center in the same locale as the operating system locale of the management console.

For example, if the operating system locale of the management console is German, you must launch ZENworks Control Center in German.

You can choose to launch ZENworks Control Center in a locale different from the operating system of the management console only if the device has the necessary language support packs installed.

- ◆ ZENworks uses UTF-8 encoding for ZENworks textual messages and local encoding for standard Windows messages. If ZENworks Control Center is launched in a locale that is different from the operating system locale of the ZENworks Agent, the ZENworks messages that are sent by the agent are only translated and displayed in the ZENworks Control Center locale. The standard Windows messages are displayed in the operating system locale of the management console.

For example, assume that the operating system locale of the ZENworks Agent is German and the operating system locale of the management console is French. If you choose to launch ZENworks Control Center in French, the ZENworks messages from the agent are displayed in French and not in German in ZENworks Control Center. The Windows messages sent from the agent are displayed in French.

- ◆ During Remote Management sessions and Remote Management operations that are triggered by the ZENworks Icon, all messages and user prompts are displayed on the managed device in the language of its operating system locale. During a Remote Management session, the keystrokes are translated according to the management console keyboard; the agent simulates the virtual key codes it receives from the viewer.

If the operating system locale of the managed device is a single-byte locale supported by ZENworks, you can choose to launch Remote Viewer in any single-byte locale supported by ZENworks. For example, if the locale of the operating system of the managed device is French, you can launch the Remote Viewer in any of the following locales: English, French, German, Italian, Portuguese, or Spanish.

If the operating system locale of the managed device is a double-byte locale supported by ZENworks, you must launch ZENworks Control Center in the same double-byte locale as the operating system locale of the management console, or in English. For example, if the locale of the operating system of the managed device is Japanese, you must launch the Remote Viewer in either Japanese or English.

Table C-1 *Supported Compatibility Matrix between the Operating System Locale of the Managed Device and ZENworks Control Center Locale*

Operating System Locale of the Managed Device	Remote Viewer Locale
English, French, German, Italian, Portuguese, or Spanish	English, French, German, Italian, Portuguese, or Spanish
Chinese-Simplified	Chinese-Simplified or English
Chinese-Traditional	Chinese-Traditional or English
Japanese	Japanese or English

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RPMs for Linux Primary Servers

Server	RPM
SLES 11, 64-bit	bash.x86_64, coreutils.x86_64, diffutils.x86_64, fillup.x86_64, glibc.x86_64, grep.x86_64, insserv.x86_64, logrotate.x86_64, perl-base.x86_64, sed.x86_64, tcpd.x86_64, libxml2.x86_64, licenses.noarch, libavahi-client3.x86_64, libavahi-common3.x86_64, libjpeg.x86_64, libopenssl0_9_8.x86_64, xorg-x11-libX11.x86_64, xorg-x11-libXext.x86_64, xorg-x11-libXfixes.x86_64, xorg-x11-libs.x86_64, zlib.x86_64, glibc-32bit.x86_64, libjpeg-32bit.x86_64, zlib-32bit.x86_64, libbz2-1.x86_64, libexpat1.x86_64, libglib-2_0-0.x86_64, libgmodule-2_0-0.x86_64, libgobject-2_0-0.x86_64, libsqlite3-0.x86_64, rpm.x86_64, dbus-1.x86_64, hal.x86_64, net-tools.x86_64, util-linux.x86_64, gdbm.x86_64, libncurses5.x86_64, libreadline5.x86_64, perl.x86_64, gawk.x86_64, pwduutils.x86_64, findutils.x86_64, coreutils-lang.x86_64, info.x86_64, libacl.x86_64, libattr.x86_64, libselinux1.x86_64, pam.x86_64, filesystem.x86_64, bzip2.x86_64, cron.x86_64, popt.x86_64, xorg-x11-libXau.x86_64, xorg-x11-libxcb.x86_64, fontconfig.x86_64, freetype2.x86_64, xorg-x11-libICE.x86_64, xorg-x11-libSM.x86_64, xorg-x11-libXmu.x86_64, xorg-x11-libXp.x86_64, xorg-x11-libXpm.x86_64, xorg-x11-libXprintUtil.x86_64, xorg-x11-libXrender.x86_64, xorg-x11-libXt.x86_64, xorg-x11-libXv.x86_64, xorg-x11-libfontenc.x86_64, xorg-x11-libxkbfile.x86_64, glib2.x86_64, pcre.x86_64, permissions.x86_64, aaa_base.x86_64, ConsoleKit.x86_64, PolicyKit.x86_64, dbus-1-glib.x86_64, libgcc43.x86_64, libsmbios2.x86_64, libstdc++43.x86_64, libusb-0_1-4.x86_64, libuuid1.x86_64, libvolume_id1.x86_64, parted.x86_64, pciutils.x86_64, pm-utils.x86_64, pmtools.x86_64, setserial.x86_64, audit-libs.x86_64, libblkid1.x86_64, libsepol1.x86_64, util-linux-lang.x86_64, terminfo-base.x86_64, libdb-4_5.x86_64, mono-core.x86_64, libldap-2_4-2.x86_64, libnscd.x86_64, libxcrypt.x86_64, openssl.x86_64, pam-modules.x86_64, libzio.x86_64, cracklib.x86_64, glib2-branding-SLES.noarch, glib2-lang.x86_64, cpio.x86_64, login.x86_64, mingetty.x86_64, ncurses-utils.x86_64, psmisc.x86_64, sles-release.x86_64, udev.x86_64, libgthread-2_0-0.x86_64, pam-config.x86_64, device-mapper.x86_64, libreiserfs.x86_64, pciutils-ids.noarch, sysvinit.x86_64, cyrus-sasl.x86_64, cracklib-dict-full.x86_64, cpio-lang.x86_64, sles-release-DVD.x86_64, update-alternatives.noarch, postfix.x86_64, netcfg.noarch, openldap2-client.x86_64, jpackage-utils.x86_64

Server	RPM
SLES 12, 64 bit	bash-4.2-82.1.x86_64, bind-libs-9.9.9P1-49.1.x86_64, bind-utils-9.9.9P1-49.1.x86_64, btrfsprogs-4.1.2-7.1.x86_64, bzip2-1.0.6-29.2.x86_64, cdrkit-cdrtools-compat-1.1.11-24.15.x86_64, coreutils-8.22-9.1.x86_64, cpio-2.11-29.1.x86_64, cracklib-2.9.0-7.1.x86_64, cracklib-dict-full-2.8.12-63.17.x86_64, cron-4.2-58.3.x86_64, cronie-1.4.11-58.3.x86_64, cups-libs-1.7.5-12.4.x86_64, curl-7.37.0-31.1.x86_64, dbus-1-1.8.22-22.2.x86_64, dbus-1-x11-1.8.22-22.2.x86_64, diffutils-3.3-5.40.x86_64, dirmngr-1.1.1-4.1.x86_64, ethtool-3.12.1-5.1.x86_64, file-5.19-9.1.x86_64, filesystem-13.1-11.13.x86_64, fillup-1.42-270.64.x86_64, findutils-4.5.12-7.1.x86_64, fipscheck-1.2.0.9.3.x86_64, gawk-4.1.0-3.663.x86_64, glib2-tools-2.38.2-5.12.x86_64, glibc-2.19-38.2.x86_64, gnu-unifont-bitmap-fonts-20080123-83.182.noarch, grep-2.16-3.1.x86_64, gtk2-tools-2.24.24-3.1.x86_64, iceauth-1.0.6-3.59.x86_64, icedax-1.1.11-24.15.x86_64, icewm-1.3.8-5.3.x86_64, identity-abstraction-0.1.620-24.noarch, info-4.13a-37.229.x86_64, initvicons-0.5-101.62.x86_64, input-utils-2007.06.22-179.70.x86_64, insserv-compat-0.1-13.1.noarch, iotop-0.6-3.10.noarch, iproute2-3.12-12.2.x86_64, iptables-1.4.21-2.10.x86_64, iputils-s20121221-2.19.x86_64, jakarta-commons-lang-2.0-22.4.noarch, jakarta-commons-logging-1.0.4-21.2.noarch, javapackages-tools-2.0.1-6.10.x86_64, kbd-1.15.5-8.7.1.x86_64, keyutils-1.5.9-3.29.x86_64, kpartx-0.5.0-55.1.x86_64, less-458-5.13.x86_64, libacl1-2.2.52-6.1.x86_64, libadns1-1.4-101.65.x86_64, libaio1-0.3.109-17.15.x86_64, libao4-1.2.0-1.13.x86_64, libao-plugins4-1.2.0-1.13.x86_64, libapparmor1-2.8.2-45.1.x86_64, libapr1-1.5.1-2.7.x86_64, libapr-util1-1.5.3-1.77.x86_64, libasm1-0.158-6.1.x86_64, libasound2-1.0.27.2-11.10.x86_64, libassuan0-2.1.1-3.217.x86_64, libatk-1_0-0-2.10.0-1.84.x86_64, libattr1-2.4.47-3.143.x86_64, libaudiofile1-0.3.6-4.4.x86_64, libaudit1-2.3.6-3.103.x86_64, libaugeas0-1.2.0-10.1.x86_64, libavahi-client3-0.6.31-23.1.x86_64, libavahi-common3-0.6.31-23.1.x86_64, libblkid1-2.25-37.1.x86_64, libbz2-1-1.0.6-29.2.x86_64, libcairo2-1.12.16-16.3.x86_64, libcamgm100-1.0.7-1.4.x86_64, libcap2-2.22-13.1.x86_64, libcap-ng0-0.7.3-4.125.x86_64, libcloog-isl4-0.18.1-1.124.x86_64, libcom_err2-1.42.11-7.1.x86_64, libconfuse0-2.7-4.1.x86_64, libcrack2-2.9.0-7.1.x86_64, libcroco-0_6-3-0.6.8-6.62.x86_64, libcryptsetup4-1.6.4-2.10.x86_64, libcurl4-7.37.0-31.1.x86_64, libdb-4_8-4.8.30-27.206.x86_64, libdbus-1-3-1.8.22-22.2.x86_64, libdcerpc0-4.2.4-26.2.x86_64, libdcerpc-binding0-4.2.4-26.2.x86_64, libdnet1-1.12-20.57.x86_64, libdrm_intel1-2.4.52-2.12.x86_64, libdrm_nouveau2-2.4.52-2.12.x86_64, libdrm_radeon1-2.4.52-2.12.x86_64, liboggkate1-0.4.1-20.65.x86_64, libopenssl1_0_0-1.0.1i-52.1.x86_64, libp11-kit0-0.20.3-7.1.x86_64, libpango-1_0-0-1.36.3-4.14.x86_64, libparted0-3.1-19.3.1.x86_64, libpcap1-1.5.3-6.1.x86_64, libpci3-3.2.1-7.1.x86_64, libpciaccess0-0.13.2-5.1.x86_64, libpcre16-0-8.39-7.1.x86_64, libpcre1-8.39-7.1.x86_64, libpixmap1-0-0.32.6-1.13.x86_64, libply2-0.9.0-25.1.x86_64, libply-boot-client2-0.9.0-25.1.x86_64, libply-splash-core2-0.9.0-25.1.x86_64, libply-splash-graphics2-0.9.0-25.1.x86_64, libpng16-16-1.6.8-11.1.x86_64, libpopt0-1.16-26.128.x86_64, libprocps3-3.3.9-7.1.x86_64, libproxy1-0.4.11-11.2.x86_64, libpth20-2.0.7-139.67.x86_64, libpulse0-5.0-2.7.x86_64, libpython2_7-1_0-2.7.9-24.2.x86_64, libqrencode3-3.4.3-1.31.x86_64, libQt5Core5-5.5.1-6.1.x86_64, libQt5DBus5-5.5.1-6.1.x86_64, libQt5Gui5-5.5.1-6.1.x86_64, libQt5Network5-5.5.1-6.1.x86_64, libQt5Widgets5-5.5.1-6.1.x86_64, libQt5X11Extras5-5.5.1-3.2.x86_64, libreadline6-6.2-82.1.x86_64, libreisersfscore0-3.6.24-5.47.x86_64, libruby2_1-2_1-2.1.2-12.3.x86_64, libsamba-credentials0-4.2.4-26.2.x86_64, libsamba-hostconfig0-4.2.4-26.2.x86_64, libsamba-passsdb0-4.2.4-26.2.x86_64, libsamba-util0-4.2.4-26.2.x86_64, libsamdb0-4.2.4-26.2.x86_64, libsasl2-3-2.1.26-7.1.x86_64, libSDL-1_2-0-1.2.15-14.1.x86_64, libseccomp2-2.1.1-5.1.x86_64, libselinux1-2.3-4.6.x86_64, libsemanage1-2.3-1.340.x86_64, libsensors4-3.3.5-1.22.x86_64, libsepol1-2.3-1.476.x86_64, libSM6-1.2.2-3.59.x86_64, libsmartcols1-2.25-37.1.x86_64, libsmbclient-raw0-4.2.4-26.2.x86_64, libsmbconf0-4.2.4-26.2.x86_64, libsmbldap0-4.2.4-26.2.x86_64, libsmi-0.4.8-18.63.x86_64, libsmi2-0.4.8-18.63.x86_64, libsndfile1-1.0.25-25.1.x86_64, libsoftokn3-3.21.3-50.1.x86_64, libsolv-tools-0.6.23-2.34.1.x86_64, libspeex1-1.1.999_1.2rc1-22.64.x86_64, libsqlite3-0-3.8.10.2-3.1.x86_64,

Server	RPM
	libssh2-1-1.4.3-19.1.x86_64, libstdc++6-6.2.1+r239768-2.4.x86_64, libstorage6-2.25.35.1-3.1.x86_64, libstorage-ruby-2.25.35.1-3.1.x86_64, libtalloc-2-2.1.5-4.1.x86_64, libtasn1-3.7-11.1.x86_64, libtasn1-6-3.7-11.1.x86_64, libtdb1-1.3.8-4.1.x86_64, libtevent0-0.9.26-4.1.x86_64, libtevent-util0-4.2.4-26.2.x86_64, libtiff5-4.0.6-31.1.x86_64, libtirpc1-0.2.3-12.3.x86_64, libts-1_0-0-1.0-7.44.x86_64, libudev1-210-116.3.3.x86_64, libunwind-1.1-9.8.x86_64, libusb-0_1-4-0.1.13-29.13.x86_64, libusb-1_0-0-1.0.18-2.6.x86_64, libustr-1_0-1-1.0.4-31.197.x86_64, libutempter0-1.1.6-5.114.x86_64, libuuid1-2.25-37.1.x86_64, libvmtools0-10.0.5-3.1.x86_64, libvorbis0-1.3.3-8.23.x86_64, libvorbisenc2-1.3.3-8.23.x86_64, libvorbisfile3-1.3.3-8.23.x86_64, libwbclient0-4.2.4-26.2.x86_64, libwicked-0-6-0.6.31-26.1.x86_64, libwrap0-7.6-886.3.x86_64, libX11-6-1.6.2-11.1.x86_64, libX11-6-32bit-1.6.2-11.1.x86_64, libX11-data-1.6.2-11.1.noarch, libX11-devel-1.6.2-11.1.x86_64, libX11-xcb1-1.6.2-11.1.x86_64, libx86emu1-1.5-1.2.x86_64, libxatracker2-1.0.0-100.1.x86_64, libXau6-1.0.8-4.58.x86_64, libXau6-32bit-1.0.8-4.58.x86_64, libXau-devel-1.0.8-4.58.x86_64, libXaw7-1.0.12-4.1.x86_64, libxcb1-1.10-3.1.x86_64, libxcb1-32bit-1.10-3.1.x86_64, libxcb-composite0-1.10-3.1.x86_64, libxcb-damage0-1.10-3.1.x86_64, libxcb-devel-1.10-3.1.x86_64, libxcb-dpms0-1.10-3.1.x86_64, libxcb-dri2-0-1.10-3.1.x86_64, libxcb-dri3-0-1.10-3.1.x86_64, libxcb-glx0-1.10-3.1.x86_64, libxcb-icccm4-0.4.0-1.16.x86_64, libxcb-image0-0.3.9-8.60.x86_64, libxcb-keysyms1-0.3.9-8.54.x86_64, libxcb-present0-1.10-3.1.x86_64, libxcb-randr0-1.10-3.1.x86_64, libxcb-record0-1.10-3.1.x86_64, libxcb-render0-1.10-3.1.x86_64, libxcb-render-util0-0.3.8-8.52.x86_64, libxcb-res0-1.10-3.1.x86_64, libxcb-screensaver0-1.10-3.1.x86_64, libxcb-shape0-1.10-3.1.x86_64, libxcb-shm0-1.10-3.1.x86_64, libxcb-sync1-1.10-3.1.x86_64, libxcb-util1-0.3.9-10.54.x86_64, libxcb-xevie0-1.10-3.1.x86_64, libxcb-xf86dri0-1.10-3.1.x86_64, libxcb-xfixes0-1.10-3.1.x86_64, libxcb-xinerama0-1.10-3.1.x86_64, libxcb-xkb1-1.10-3.1.x86_64, libxcb-xprint0-1.10-3.1.x86_64, libxcb-xtest0-1.10-3.1.x86_64, libxcb-xv0-1.10-3.1.x86_64, libxcb-xvmc0-1.10-3.1.x86_64, libXcomposite1-0.4.4-7.53.x86_64, libXcursor1-1.1.14-3.60.x86_64, libXdamage1-1.1.4-7.54.x86_64, libXdmcp6-1.1.1-8.59.x86_64, libxerces-c-3_1-3.1.1-12.3.x86_64, libXext6-1.3.2-3.61.x86_64, libXext6-32bit-1.3.2-3.61.x86_64, libXext-devel-1.3.2-3.61.x86_64, libXfixes3-5.0.1-5.2.x86_64, libXfont1-1.4.7-7.1.x86_64, libXfontcache1-1.0.5-10.55.x86_64, libXft2-2.3.1-9.32.x86_64, libXi6-1.7.4-17.1.x86_64, libXinerama1-1.1.3-3.55.x86_64, libxkbcommon0-0.4.1-3.1.x86_64, libxkbcommon-x11-0-0.4.1-3.1.x86_64, libxkbfile1-1.0.8-11.1.x86_64, libxml2-2-2.9.1-26.3.1.x86_64, libxml2-tools-2.9.1-26.3.1.x86_64, libxml-security-c17-1.7.3-2.2.x86_64, libXmu6-1.1.2-3.60.x86_64, libXmuu1-1.1.2-3.60.x86_64, libXpm4-3.5.11-3.60.x86_64, libXrandr2-1.4.2-5.2.x86_64, libXrender1-0.9.8-5.2.x86_64, libxshmfence1-1.1-1.28.x86_64, libxslt1-1.1.28-6.57.x86_64, libxslt-tools-1.1.28-6.57.x86_64, libXt6-1.1.4-3.59.x86_64, libxtables10-1.4.21-2.10.x86_64, libXtst6-1.2.2-5.2.x86_64, libXtst6-32bit-1.2.2-5.2.x86_64, libXxf86misc1-1.0.3-10.54.x86_64, libXxf86vm1-1.1.3-3.54.x86_64, libyaml-0-2-0.1.6-7.1.x86_64, libyui7-3.2.3-1.2.x86_64, libyui-ncurses7-2.47.4-1.2.x86_64, libyui-ncurses-pkg7-2.48.2-1.2.x86_64, libyui-qt7-2.46.21-1.3.x86_64, libz1-1.2.8-5.1.x86_64, libzio1-1.00-9.188.x86_64, linux-glibc-devel-3.12-6.54.noarch, logrotate-3.8.7-3.21.x86_64, make-4.0-4.1.x86_64, mcscan-1.0.0-11.noarch, ncurses-utils-5.9-40.124.x86_64, netcfg-11.5-27.1.noarch, net-tools-1.60-764.185.x86_64, openssl-2.0.0-17.1.x86_64, openssl-1.0.1i-52.1.x86_64, parted-3.1-19.3.1.x86_64, pciutils-3.2.1-7.1.x86_64, pciutils-ids-2016.04.04-11.1.noarch, perl-5.18.2-11.1.x86_64, permissions-2015.09.28.1626-13.1.x86_64, postfix-2.11.6-24.2.x86_64, procmail-3.22-267.12.x86_64, procps-3.3.9-7.1.x86_64, rpm-4.11.2-15.1.x86_64, sles-release-POOL-12.1-1.331.x86_64, systemd-210-116.3.3.x86_64, systemd-bash-completion-210-116.3.3.noarch.

E Changing the Location of the Content Repository on a Linux or Appliance Server

While upgrading ZENworks 2020 Update 1 and earlier versions to ZENworks 2020 Update 2, ZENworks might not function properly, after upgrade, if you have content-repo as a symbolic link to a folder that is outside the ZENworks folder structure.

For example, if the content is available in `/var/my-external-content-repo` and `/var/opt/novell/zenworks/content-repo` points to that directory, then it might not work.

Hence, ensure that you move the `/var/my-external-content-repo` to a different partition and mount it to `/var/opt/novell/zenworks/content-repo`.

You can store your data on a local mount or on a network share such as NFS, SMB, or CIFS and mount the share in your `content-repo` directory to access your data.

Let us assume that `/dev/sdb` is a partition on which you are planning have the content-repo, perform the following steps:

- 1 Stop all the ZENworks services.
- 2 Create a directory by running `mkdir /tmp/temp-mount`
- 3 Mount the partition: `mount </dev/sdb> /tmp/temp-mount`
- 4 Move the content-repo by using `mv /var/my-external-content-repo/* /tmp/temp-mount`
- 5 Unmount the directory by using `umount /tmp/temp-mount`
- 6 Remove the directory by running `rmdir /tmp/temp-mount`
- 7 Remove the symbolic link by running `rm /var/opt/novell/zenworks/content-repo/`
- 8 Create a directory by running the `mkdir /var/opt/novell/zenworks/content-repo/` command
- 9 `mount </dev/sdb> /var/opt/novell/zenworks/content-repo`. Ensure that these steps are performed automatically by adding an entry in the `/etc/fstab` file.
Example: `//localhost/zenshare /var/opt/novell/zenworks/content-repo cifs username=root,password=rootpass 0 0`
- 10 To verify, run `ls /var/opt/novell/zenworks/content-repo`
If the command lists the content and images folder, then the content-repo is configured successfully.
- 11 Run `permissions.sh`
- 12 Start all the ZENworks services.

F TCP and UDP Ports Used by ZENworks Primary Servers

For more information on TCP and UDP ports, please see [ZENworks TCP and UDP Ports](#).

G Documentation Updates

This section contains information on documentation content changes that were made in this Servers Reference for ZENworks Configuration Management. The information can help you to keep current on updates to the documentation.

The documentation for this product is provided on the Web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the changes listed in this section.

If you need to know whether a copy of the PDF documentation that you are using is the most recent, the PDF document includes a publication date on the title page.

The documentation was updated on the following date:

G.1 May 2021: ZENworks 2020 Update 2

Location	Change
Chapter 1, “ZENworks Services on a Windows Server,” on page 13	Added new services.
Chapter 2, “ZENworks Services on a Linux Server,” on page 17	Added new services.
Chapter 14, “Moving from a Windows or Linux Primary Server to Appliance,” on page 45	Added new chapter.

