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# ZENworks

## ZENworks Appliance Deployment and Administration Reference

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# About This Guide

This *ZENworks Virtual Appliance Deployment and Administration Reference* helps you to deploy and configure ZENworks Appliance to the ZENworks supported virtual infrastructure.

The information in this guide is organized as follows:

- ♦ [Chapter 1, “Overview,” on page 7](#)
- ♦ [Chapter 2, “System Requirements,” on page 9](#)
- ♦ [Chapter 3, “Appliance Deployment,” on page 11](#)
- ♦ [Chapter 4, “ZENworks Configuration,” on page 19](#)
- ♦ [Chapter 6, “Appliance Management,” on page 55](#)
- ♦ [Chapter 7, “ZENworks System Management,” on page 61](#)
- ♦ [Appendix A, “Troubleshooting,” on page 69](#)

## 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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# 1 Overview

ZENworks is available as a virtual appliance that can be deployed to a supported virtual infrastructure. ZENworks Appliance is built on a customized SUSE Linux Enterprise Server (SLES), and comes pre-installed with ZENworks and thus helps save on operating system license costs.

After deployment, ZENworks can be configured by using an easy to use web based Console. Also, the same console can be used to maintain ZENworks Appliance and perform basic tasks such as executing commands, starting and stopping services, viewing logs, uploading, and downloading files.

You can also tweak basic server settings and monitor the server performance. With the new ZENworks Appliance, it is significantly easier to move to a new major version of ZENworks.

Appliance supports `root` and `zenadmin` users.

The `root` and `zenadmin` users have the following privileges:

- ◆ **On Appliance**
  - ◆ Network
  - ◆ Time
  - ◆ Storage
  - ◆ System Services
  - ◆ Firewall
  - ◆ Administrative Passwords
  - ◆ Online Update
  - ◆ Shutting Down and Restarting ZENworks Appliance
- ◆ **On ZENworks**
  - ◆ ZENworks Configuration
  - ◆ Terminal and File Explorer
  - ◆ Logs
  - ◆ Log Configuration
  - ◆ ZENworks Control Center





# 2 System Requirements

ZENworks Appliance is a 64-bit (x86\_64) virtual machine. The following sections provide the requirements for deploying ZENworks Appliance onto a virtual infrastructure:

**Table 2-1** ZENworks Appliance Requirements

Item	Requirements
Hypervisor	<p>ZENworks Virtual Appliance can be deployed in the following virtual machine environments:</p> <ul style="list-style-type: none"><li>◆ VMware ESXi 6.x</li><li>◆ Microsoft Hyper-V Server Windows 2012, 2012 R2, and 2016</li><li>◆ XEN on SLES 12, SLES 15 and the support packs</li><li>◆ Citrix XenServer 7.x and Citrix Hypervisor 8.x</li></ul>
DNS Server	<p>Ensure that a DNS server has been set on the Primary Server on which appliance is being deployed. Also, the hostname of the local machine should be resolvable over DNS.</p>
Virtual Machine Configuration	<p>ZENworks Appliance requires the following minimum configuration that have been preconfigured by default:</p> <ul style="list-style-type: none"><li>◆ <b>RAM:</b> 16 GB minimum</li><li>◆ <b>Disk Space:</b> 90 GB minimum</li><li>◆ <b>CPU Cores:</b> 8</li></ul> <p>ZENworks requires two hard disks. One hard disk of size 90 GB is pre-configured with the appliance that uses the SLES 12 SP4 operating system and the other hard disk of minimum size 80 GB should be added for the ZENworks data.</p> <p>Depending on your requirement, you can increase the pre-configured disk space after deploying ZENworks Appliance</p>
IP Address	<p>The server must have a static IP address or a permanently leased DHCP address.</p>
Database	<p>The ZENworks Appliance can be configured to use any of the ZENworks supported database and the database must meet the database requirements.</p> <p>For more information, see <a href="#">Database Requirements</a> in the System Requirements.</p>

Item	Requirements
Administration Browser	<p>The following are supported web browsers for the appliance console:</p> <ul style="list-style-type: none"> <li>◆ Internet Explorer 11 and above</li> <li>◆ Latest versions of Mozilla Firefox</li> <li>◆ Latest versions of Microsoft Edge</li> <li>◆ Latest versions of Google Chrome</li> <li>◆ Latest version of Firefox ESR</li> </ul>
Supported Languages	<p>These are the supported languages for the appliance console:</p> <ul style="list-style-type: none"> <li>◆ English - en</li> <li>◆ French - fr</li> <li>◆ German - de</li> <li>◆ Italian - it</li> <li>◆ Japanese - ja</li> <li>◆ Portuguese (Brazilian)</li> <li>◆ Simplified Chinese - zh_CN</li> <li>◆ Traditional Chinese - zh_TW</li> <li>◆ Spanish - es</li> </ul>

# 3 Appliance Deployment

To deploy ZENworks Appliance, perform the tasks in the following sections:

- ♦ [Section 3.1, “Deploying the Appliance,” on page 11](#)
- ♦ [Section 3.2, “Configuring the Appliance Settings,” on page 17](#)
- ♦ [Section 3.3, “Known Issue,” on page 18](#)

## 3.1 Deploying the Appliance

To deploy ZENworks Appliance, perform the following:

- 1 Ensure that the virtual machine to which you want to deploy ZENworks Appliance meet the requirements listed in the [ZENworks System Requirements](#).
- 2 Download the ZENworks Appliance file from the Software Licensing and Downloads portal (SLD) or download the multi-part ZENworks Appliance ZIP files and create the open virtualization archive (OVA) file.

Based on your hypervisor, download the relevant file:

- ♦ **VMware ESXi:** Download the `.ova` file.
- ♦ **Microsoft Hyper-V:** Download the `.vhd` or `.vhdx` file.
- ♦ **Xen Server on SLES 12 / SLES 15:** Download the `xen.tar.gz` file.
- ♦ **Citrix Hypervisor (formerly XenServer):** Download the `xva.tar.gz` file.

---

**NOTE:** On a Windows device, use the native support for `tar` to extract the `xva.tar.gz` file. To extract the file, on the command prompt, specify the following:

```
tar -xjvf <xva.tar.gz file>
```

---

- 3 Deploy the ZENworks Appliance to the hypervisor by downloading and extracting the file (`.ova`, `.vhd`, `.vhdx`, `.xva` or `.raw`).
- 4 After deploying ZENworks Appliance, you must add a hard disk with a minimum size of 80 GB for the ZENworks data before you power on the Virtual Machine.  
Depending on your content requirement, you can increase the pre-configured disk space after deploying ZENworks Appliance.
- 5 Continue with the next task, [“Configuring the Appliance Settings” on page 17](#).

The following hypervisors are supported for deploying the appliance:

- ♦ [Section 3.1.1, “Deploying the Appliance on Microsoft Hyper-V,” on page 12](#)
- ♦ [Section 3.1.2, “Deploying the Appliance on Xen,” on page 13](#)
- ♦ [Section 3.1.3, “Deploying the Appliance on VMware ESXi,” on page 15](#)
- ♦ [Section 3.1.4, “Deploying the Appliance on Citrix Xen,” on page 16](#)

### 3.1.1 Deploying the Appliance on Microsoft Hyper-V

1. Log in to the host server either locally or from a remote workstation.

You can use Windows Remote Desktop to log in to the host server from a remote workstation.

2. Create a new directory in the location where you want each virtual machine to reside (for example, `C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks`). In a later step, you will download the software to this directory.

As a best practice, give this directory the same name as the name that you plan to use for your ZENworks virtual appliance. For example, if you plan to name the ZENworks appliance `ZENworks1`, the name of this new directory should also be `ZENworks1`.

3. Download the ZENworks software (`ZENworks<version>_Appliance-x86_64.vhd.zip`) to the directory on the host server that you created in Step 2.

You can access the software from the [Micro Focus Customer Center](#).

4. Extract the `ZENworks<version>_Appliance-x86_64.vhd.zip` file to the directory on the host server that you created in Step 2.
5. Open the Hyper-V Manager.
6. In Hyper-V Manager, on the left hand side, right-click the machine name. This is the host where you want to create the new virtual machine, then click `New > Virtual Machine`.

The New Virtual Machine Wizard is displayed.

7. Review the Before You Begin page, then click Next.
8. In the Name field, specify a name for the new virtual machine. For example, `ZENworks1`.
9. Click Next.
10. Select the generation of the virtual machine.

---

**NOTE:** Ensure that **Generation 1** is selected.

---

11. In the Startup memory field, specify the amount of memory (in MB) to allocate to the virtual machine. 16 GB is the recommended minimum for ZENworks.
12. Click Next.
13. On the Configure Networking page, select the networking card of your choice, then click Next.
14. Configure the bootable disk image:
  - a. On the Connect Virtual Hard Disk page, select Use an existing virtual hard disk, then browse to the `.vhd` file that was downloaded.
  - b. Click Open to select the file, then click Next.
15. Click Finish.
16. If you have not added a second hard disk, then ensure that a second hard disk is added before you power on the virtual machine.

Perform the following steps to add the second hard disk:

- a. In Hyper-V Manager, right-click the device that you just created, then click Settings.
- b. In the Hardware section, select SCSI Controller, select Hard Drive, then click Add.
- c. Select Virtual hard disk, then click New.
- d. Review the Before You Begin page, then click Next.

- e. Select the required Disk Format and then click Next.
  - f. On the Choose Disk Type page, select Fixed size, then click Next.
  - g. On the Specify Name and Location page, specify the following information, then click Next:
    - Name:** Specify a name for the hard disk. For example, ZENDisk2.
    - Location:** Specify the location where you want the hard drive to be located.
  - h. On the Configure Disk page, select Create a new blank virtual hard disk, then specify a size for the hard disk. 80 GB is recommended.
  - i. Click Next.
  - j. Review the summary information, and then click Finish.
  - k. Click Apply > OK.
17. Right-click the virtual machine, then click Start.

---

**IMPORTANT:** Do not start the appliance until you have created a separate Hyper-V hard disk for the appliance, as described in Step 15.

---

18. Right-click the virtual machine, then click Connect.
19. Continue with [Configuring the Appliance Settings](#).

## 3.1.2 Deploying the Appliance on Xen

1. Log in to the host server either locally or from a remote workstation.

You can use the following command to log in to the host server from a remote workstation on Linux:

```
ssh -X root@host_ip_address
```

You must use the -X in the command in order to display the GUI installation program. The steps in this section use the GUI installation program to configure the server.

2. Navigate to the `/var/lib/xen/images` directory on the host server.
3. Create a new directory inside the images directory where you can download ZENworks.

As a best practice, give this directory the same name as the name that you plan to use for your ZENworks virtual appliance. For example, if you plan to name the ZENworks appliance ZENworks1, the name of this new directory should also be ZENworks1.

You can download the software from the [Micro Focus Customer Center](#).

4. Change to the directory that you just created.
5. Download the ZENworks software (`ZENworks<version>_Appliance-x86_64.xen.tar.gz`) to the current directory on the host server.
6. Untar the `ZENworks<version>_Appliance-x86_64.xen.tar.gz` file in the directory where you downloaded it.

You can use the following command to untar the file:

```
tar -Sxvzf ZENworks<version>_Appliance-x86_64.xen.tar.gz
```

ZENworks-version directory is created, which contains a `.raw` file that you will use to run the virtual image. This process can take a few minutes.

7. From the host server, run the following command to launch the GUI configuration menu:  
vm-install  
The Create a Virtual Machine wizard is displayed.
8. Click Forward.
9. Select I have a disk or disk image with an installed operating system, then click Forward.
10. Select SUSE Linux Enterprise Server <version>, then click Forward.
11. Rename the virtual machine by clicking Name of Virtual Machine, then specifying a new name in the Name field. Then click Apply.
12. Configure the amount of memory and number of CPUs that Xen allocates for the ZENworks appliance.
  - a. On the Summary page, click Hardware, then specify the following information:
    - Available Memory:** Displays the amount of available memory that is available on the host server.
    - Initial Memory:** 16 GB is the recommended minimum amount of memory.
    - Maximum Memory:** Set this to the same value that you set for Initial Memory.
    - Available Processors:** Displays the number of available processors on the host server.
  - b. Click Apply.
13. Configure the bootable disk image:
  - a. On the Summary page, click Disks.
  - b. Click Hard disk.
  - c. On the Virtual Disk page, specify the following information:
    - Source:** Click Browse, then browse to the .raw file that you untared in Step 6.
    - Protocol/Storage Format:** Select file.
    - Size (GB):** The default size is shown in GB. This cannot be changed.
    - Create Sparse Image File:** This option is not available.
    - Read-Only Access:** Do not select this option.
  - d. Click OK.
14. Add a separate Xen hard disk. You must add a hard disk to the virtual machine before you choose this option. If you have not already added a hard disk, click Power Off Virtual Machine, modify the virtual machine settings to add a hard disk, then power on the virtual machine.
  - a. On the Disks page, click Hard disk.
  - b. On the Virtual Disk page, specify the following information:
    - Source:** This field should already contain the path to the .raw file that will be created when the virtual machine is created. If desired, you can rename the disk in the source field from disk0 to a name of your choosing.
    - Size (GB):** Specify the amount of hard disk space that you want to allocate. 80 GB is recommended.
15. Click OK > Apply.
16. Click OK to save your changes and to create and power on the virtual machine.

---

**IMPORTANT:** Do not power on the appliance until you have created a separate Xen hard disk for the appliance, as described in Step 14.

---

17. Continue with [Configuring the Appliance Settings](#).

### 3.1.3 Deploying the Appliance on VMware ESXi

The ZENworks Appliance is stored in an open virtualization archive format and you can deploy it to the VMware infrastructure by using the VMware vSphere Client application.

1. Download the ZENworks software (`ZENworks<version>_Appliance-x86_64.ova`) to your management workstation.

You can download the software from the [Micro Focus Customer Center](#).

2. In the vSphere client, click File > Deploy OVF Template.

---

**NOTE:** If the virtualization software you are using does not support .ovf, you must convert the .ovf file to .vmx using the VMware OVF Tool available on the VMware Website.

---

3. Browse to and select the downloaded .ova file (`ZENworks2020_Appliance-x86_64.ova`).
4. Click Next.
5. Click Next again.
6. In the Name field, rename the ZENworks appliance to a name of your choice, then click Next.
7. Click Next to accept the default for the disk format.
8. Click Finish.
9. Create a separate VMware hard disk for the appliance. This is the location where you will store your ZENworks files.
  - a. In the vSphere client, right-click the virtual machine that you just created, and for which you want to create secondary storage, then click Edit Settings.  
The Virtual Machine Properties page is displayed.
  - b. On the Hardware tab, click Add.  
The Add Hardware dialog box is displayed.
  - c. Select Hard Disk, then click Next.
  - d. Select Create a new virtual disk, then click Next.
  - e. In the Disk Size field, specify the amount of hard disk space that you want to allocate. 80 GB is recommended.
  - f. Select a datastore, then click OK.
  - g. Click Next.
  - h. Click Finish.
10. Increase the amount of memory that VMware allocates for the ZENworks appliance.
  - a. In the Virtual Machine Properties window, select Memory, then increase the setting to a suitable size for your environment. 16 GB is recommended.
  - b. Click OK to exit the Virtual Machine Properties window.

11. Power on the appliance (virtual machine).
12. Continue with [Configuring the Appliance Settings](#).

### 3.1.4 Deploying the Appliance on Citrix Xen

1. Download the ZENworks software (ZENworks<version>\_Appliance-x86\_64.xva.tar.gz) to your management workstation.

You can download the software from the [Micro Focus Customer Center](#).

2. In the Citrix XENCenter client, right-click the server on which you will install ZENworks Appliance, then click Import.

---

**NOTE:** On a Windows device, use the native support for `tar` to extract the `xva.tar.gz` file. To extract the file, on the command prompt, specify the following:

```
tar -xjvf <xva.tar.gz file>
```

---

3. **Import Source:** Browse to ZENworks<version>\_Appliance-x86\_64.xva.tar.gz extracted folder and select the ZENworks<version>\_Appliance-x86\_64-<build-no>.xva file.
4. **Location:** Click Next to continue with the default settings.
5. **Storage:** Select one or more storage repositories (SRs) where the disk images for the imported VMs will be placed, then click Next.
6. **Network:** Select network to connect VM. Select the Virtual network interface and then click Next
7. Review all the import settings and then click Finish to begin the import process and close the wizard.

The import progress is displayed in the status bar at the bottom of the XenCenter window and also on the Logs tab.

8. Create a separate hard disk for the appliance. This is the location where you will store your ZENworks files.
  - a. In the Citrix XenCenter client, select the virtual machine that you just created, and click on the Storage tab.

The Virtual Disks page is displayed.
  - b. Click Add.

The Add Virtual Disk dialog box is displayed.
  - c. In the Name field, specify the name of the virtual disk.
  - d. In the Size field, specify the amount of hard disk space that you want to allocate. 80 GB is recommended.
  - e. Click Add.
9. Power on the appliance (virtual machine).
10. Continue with [Configuring the Appliance Settings](#).



## 3.2 Configuring the Appliance Settings

To configure the appliance settings, perform the following:

- 1 On the License Agreement page, select the required **License Language** and **Keyboard Language**, then click **Accept**.
- 2 On the Passwords and Time Zone page, specify the following information, and then click **Next**:
  - ♦ **root Password and Confirmation:** The root password for ZENworks Appliance.
  - ♦ **zenadmin Password and Confirmation:** The zenadmin password for ZENworks Appliance.
  - ♦ **NTP Server:** The IP address or DNS name of the external Network Time Protocol (NTP) server.

It is recommended to set up the NTP server in accordance with the virtual infrastructure guidelines.
  - ♦ **Optional NTP Server:** The IP address or DNS name of the external Network Time Protocol (NTP) server.
  - ♦ **Region:** The local region.
  - ♦ **Time Zone:** The local time zone.
- 3 On the Network Settings Page, you can:
  - ♦ **Select the Static IP Address:** If you select this option, then perform Step 4.
  - ♦ **Select the DHCP IP Address:** If you select this option, enter the Host name, and then click **Next**.
- 4 On the Network Settings page, specify the following information, and then click **Next**:
  - ♦ **Hostname:** The Fully Qualified Domain Name (FQDN) associated with the appliance IP address. For example, `server.domain.com`.

The hostname must be resolveable, or some features in ZENworks do not work properly. Server names must support the DNS requirements, or the ZENworks login fails. Acceptable characters are the letters a-z (uppercase and lowercase), numbers, and the hyphen (-).
  - ♦ **Obtain IP Address using DHCP:** Select this option to get the IP Address using DHCP address. If you select this option **IP Address** and **Network Mask** will be disabled.
  - ♦ **IP Address:** The server must have a static IP address or a permanently leased DHCP address.
  - ♦ **Network Mask:** The network mask associated with the appliance IP address.
  - ♦ **Gateway:** The IP address of the gateway on the subnet where ZENworks Appliance is located.
  - ♦ **DNS Server:** The IP address of a primary DNS server for your network.
  - ♦ **Optional DNS Server:** The IP address of a primary DNS server for your network.
  - ♦ **Domain Search:** By default, domain that you specified in the **Hostname** field is displayed.
  - ♦ **Optional Domain Search:** The alternate domain.

If you have not added a hard disk after deployment, then a warning message is displayed. In this scenario, you need to power off the virtual machine, add a hard disk, power on, and then continue with [Step 2](#).
- 5 On the Data Store Location page, verify the new hard disk that you added.

6 Click **Configure**.

After the appliance configuration, URL is displayed. Use the URL (<https://<FQDN>:9443>) for administering the appliance and configuring ZENworks.

7 Continue with one of the following:

[Configuring the First Primary Server](#)

[Configuring the First Primary Server with an Existing Schema](#)

### 3.3 Known Issue

After ZENworks Appliance configuration, the security updates (product and operating system patches) could not be applied as users were unable to register to Micro Focus Customer Center (MFCC) server or a Local Subscription Management Tool (SMT) server.

To resolve this issue, apply the ZENworks 23.4 - FTF 94 or later and retry to register on the **Online Update** page. For steps to apply the ZENworks 23.4 - FTF 94, see [Official Primary Server FTF 94 on ZENworks 23.4](#).

# 4 ZENworks Configuration

The following sections provide the configuration flow for these process:

- [Section 4.1, “Configuring the First Primary Server,” on page 19](#)
- [Section 4.2, “Configuring the First Primary Server with an Existing Schema,” on page 25](#)
- [Section 4.3, “Configuring the Additional Primary Servers,” on page 33](#)
- [Section 4.4, “Database Configurations,” on page 37](#)
- [Section 4.5, “Logs,” on page 42](#)

## 4.1 Configuring the First Primary Server

After deploying the ZENworks Appliance to a virtual machine, perform the following steps to configure the ZENworks Appliance for the first Primary Server:

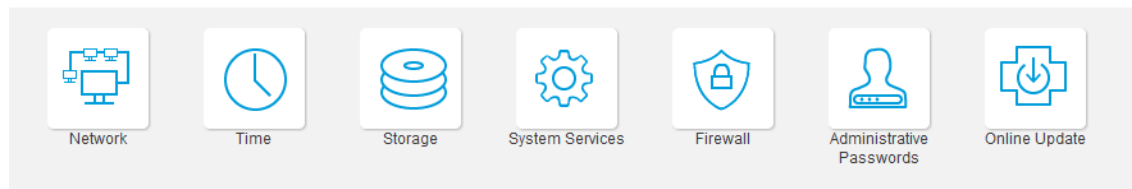
- 1 Launch the URL on a supported web browser.

The URL (`https://<FQDN>:9443` or `https://<ipaddress>:9443`) is displayed on the appliance console.

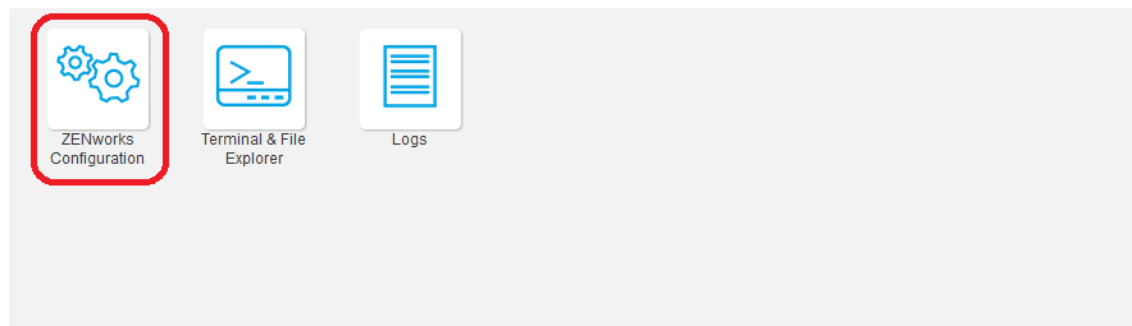
- 2 Log into the ZENworks Appliance with the `root` or `zenadmin` credentials that were specified in [Step 2](#), in the [Section 3.2, “Configuring the Appliance Settings,” on page 17](#).
- 3 In the Appliance console, click ZENworks Configuration to initiate ZENworks appliance configuration.

**!** Before using ZENworks, you must complete the ZENworks Appliance configuration. To configure, click ZENworks Configuration.

### Appliance Configuration



### ZENworks



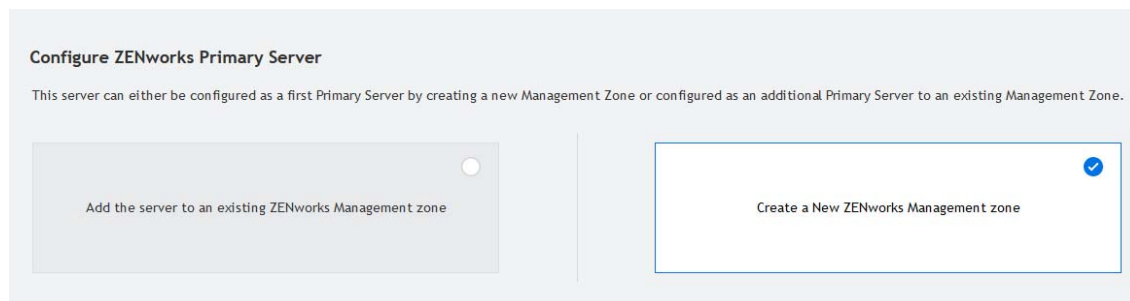
You will be redirected to a new browser tab.

---

**NOTE:** Ensure that you have enabled or allowed the pop-up in your browser.

---

- 4 In the new tab, the ZENworks License Agreement page is displayed. Accept the terms of the license and click Next.
- 5 In the Configure ZENworks Primary Server screen, select Create a New ZENworks Management Zone, and then click Next.



- 6 In the background, a system requirement check is performed automatically. The system runs the prerequisite validation for Hardware, Software, Network, and File system components. If there are any failure in prerequisite validation, the system displays the warning or error details for the component. Rectify the issue, and then click Re-run System Check to perform the prerequisite validation again.

After the validation is complete, click Next.

- 7 On the Zone Configuration screen, specify the following:
  - ♦ **Zone name:** A unique Management Zone name. The zone name can have a minimum of 6 characters and a maximum of 20 characters. It must not contain spaces and special characters such as (@ \$ [ ] / : \* ? | > < " & % { } ; ^ + ( ) ! ~ ` ). The zone name is displayed in ZENworks Control Center.
  - ♦ **Password:** The administrator password is used for logging into the ZENworks Control Center. The password should have a minimum of 6 characters. By default, the login username is administrator. After completing the installation, you can add other administrator names in ZCC that can be used to login to the Management Zone.  
The password should have a minimum of 6 characters. It should contain an uppercase and a lowercase letter, a numeric character, and a special character (!, @, #, \$, ^, \*).
  - ♦ **Confirm Password:** Use this field to confirm the password. If there is a mismatch, an error message is displayed after you click **Next**. You must re-enter the correct passwords.  
By default, ZENworks creates an administrator account with the administrator as the login name. This password can be used to log into the ZENworks Control Center as the default administrator.

**Zone Configuration**

Specify a unique name for the zone, and password for the default administrator account. Select a database that supports the number of devices you want to manage in this zone.

**Basic Details**

Zone Name\*:

Password\*:  Confirm Password\*:

**ZENworks Database Type**

<p><b>Embedded PostgreSQL</b> (Upto 5,000 Devices)</p> <input checked="" type="radio"/>	<p><b>External PostgreSQL</b> (Upto 20,000 Devices)</p> <input type="radio"/>	<p><b>Microsoft SQL Server</b> (Upto 40,000 Devices)</p> <input type="radio"/>	<p><b>Oracle</b> (Upto 1,00,000 Devices)</p> <input type="radio"/>
---	---	--	--

In the ZENworks Database Type section, Select the ZENworks database type.

Depending on the number of devices you plan to manage in this ZENworks Management Zone, you can select any of the following databases:

- ◆ If you have 5,000 or fewer devices, you can use the Embedded PostgreSQL or Remote PostgreSQL database.
- ◆ If you have up to 40,000 devices, you can use Microsoft SQL Server or Oracle.
- ◆ If you have up to 100,000 devices, you need to use the Oracle Enterprise Edition (with partitioning).

Ensure that the server where you want to install the external database meets the [Database Requirements](#).

The following are the supported databases:

- ◆ **Embedded PostgreSQL:** ZENworks automatically installs the embedded database on the current server.  
For configuration information, see [“Embedded PostgreSQL Database Configuration” on page 38](#).
- ◆ **External PostgreSQL:** This database must already exist on a server in your network. It is recommended that you use a different server rather than the current server.  
For configuration information, see [“External PostgreSQL Database Configuration” on page 38](#).
- ◆ **Microsoft SQL Server:** You can create a database or use an existing database on the Microsoft SQL Server.  
For configuration information, see [“Microsoft SQL Server Database Configuration” on page 39](#).
- ◆ **Oracle:** You can create a database or use an existing database on the Oracle database Server.

---

**NOTE:** If required, you can select Let ZENworks partition the database for improved performance.

---

For configuration information, see [“Oracle Server Database Configuration” on page 40](#).

---

**NOTE:** If you are using an external database, then you need to create two databases, one to save ZENworks data and another to save Audit data. The Audit database is used to record changes made to ZENworks configurations, policies, and other settings. This data helps administrators to adhere to security compliance, troubleshoot issues, and monitor user activities.

---

8 Click Next.

9 On the ZENworks Port screen, open all the Ports and click Next.

ZENworks Ports

The ports displayed on this page are required by ZENworks. If required, you can modify the port numbers. On proceeding the given ports will be opened in the firewall.

Alternate Port for 7443: 7443

Alternate Port for 443: 443

**Open Ports**

The ports mentioned below are needed by ZENworks, but they are currently blocked by the Firewall on the device. To proceed, enable Yes, open all the above-listed ports.

**Port Details:**

443 , 7019 , 7443 , 7444 , 7628 , 9971 , 54327 , 61491 , 61492 , 61495

Yes, open all the above-listed ports

10 On the Configure Certificate Authority screen, choose the type of Certificate Authority (CA) for the Management Zone, and then click Next.

---

**NOTE:** The certificate validity should be between 1 and 10 years. If you plan to use the server as an MDM server, then to ensure communication with iOS and Mac devices, the certificate validity should not exceed 2 years.

---

**10a Internal CA:** The certificate is automatically generated. The validity of the certificate is between 2 to 10 years. If you are using the internal CA, then you can skip to [Step 11](#).

**10b External CA:** If you are using an external CA, then you can select **Secure certificate (.p12, or .pfx)**, **Root certificate and Server certificate with Private key**, or **Root certificate and Server certificate** as Certificate Type.

**Configure Certificate Authority**

ZENworks requires a Certificate Authority (CA) to manage server certificates. ZENworks creates an internal CA to issue and manage identity certificates for mobile devices in the zone. If you select an external CA, then the internal CA will co-exist with the external CA.

**Certificate Authority Type**

Internal CA  External CA

Generate the Certificate Signing Request (CSR)

If you have selected ZENworks to generate a CSR, then select Root certificate and Server certificate. A Private Key is not required, as it already exists on the server. For more information, see [ZENworks Online Documentation](#)

**Note:** The certificate validity should not exceed 2 years for an MDM server.

Certificate Type\*: Select Certificate Type...

You can convert your certificate or key to ZENworks acceptable formats using the openssl command line tool (available as part of most Linux distributions or as part of the cygwin tool set).

For example, convert your PEM encoded private key to DER encoded thusly:

```
openssl pkcs8 -topk8 -nocrypt -in key.pem -inform PEM -out key.der -outform DER
```

PEM encoded certificate to DER encoded thusly:

```
openssl x509 -in cert.pem -inform PEM -out cert.der -outform DER
```

**10b1** If you want ZENworks to generate a CSR, click **Generate CSR**.

If you generate the CSR from this page, the Private Key will be stored on the server.

**Generate & Download CSR**

To generate a CSR, specify the below attributes. You can download the CSR to submit it to the Certificate Authority.

Common Name*: <input type="text"/>	City/Locality*: <input type="text"/>
<small>Common Name should match with the server's name. The name can include alphanumeric and special characters.</small>	State/Province*: <input type="text"/>
Alternate Name*: <input type="text"/>	Country/Region*: <input type="text"/>
Organization*: <input type="text"/>	Key Strength*: 1024 bits
Organization Unit*: <input type="text"/>	

While configuring ZENworks, you need to have a signed server certificate, private key, and a CA certificate. To get the signed server certificate, you need to generate a CSR and validate by the CA.

Specify the following information.

- ♦ **Common Name (CN):** The Fully Qualified Domain Name of the ZENworks Primary Server. This name should match the server name in the URL, in order for browsers to accept the certificate for SSL communication. For example, mail.novell.com.
- ♦ **Organization (O):** Organization name.
- ♦ **Organizational Unit (OU):** Organizational unit name, such as a department or division.
- ♦ **City or Locality (L)**
- ♦ **State or Province (ST)**
- ♦ **Country or Region:** Two-letter country code or region. For example, US.
- ♦ **Key strength:** The required key strength can be 1024 or 2048.

After specifying all the details, click Download CSR to download the CSR.

**10b2** Based on the required certificate type, specify the following details:

- ♦ **Secure certificate (.p12 or .pfx)**
  - ♦ **Secure certificate:** This certificate stores the server certificate, any intermediate certificate chains, and the private key in a encrypted file, which is password-protected. It supports the .p12 or .pfx file format.

- ◆ **Password:** Password for the secured certificate file.
- ◆ **Root certificate and Server certificate**

To use **Root certificate and Server certificate**, you must have generated a CSR by using the **Generate CSR** link.

- ◆ **Root certificate:** The top-level certificate in the certificate tree issued by the CA that signed the Server certificate and any intermediate certificate chains. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
- ◆ **Server certificate:** It is a signed certificate that is used for the ZENworks server. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.

---

**NOTE:**

- ◆ When the server certificate is not directly signed by a root CA, a certificate chain containing the server certificate and the intermediate certificate that signed the server certificate needs to be provided in the **Server Certificate** field. The Root Certificate can be a single, self-signed certificate.
- ◆ The server certificate should contain the complete chain of the certificate. The top-level should consist of a root certificate, which is signed by the Root CA, followed by the intermediate certificates, and then the server certificate. The server certificate should be the leaf level certificate.
- ◆ The private key format can either be in Binary or Base64.

---

- ◆ **Root certificate and Server certificate with Private Key**

- ◆ **Root certificate:** The top-level certificate in the certificate tree issued by the CA that signed the Server certificate and any intermediate certificate chains. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
- ◆ **Server certificate:** It is a signed certificate that is used for the ZENworks server. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
- ◆ **Private key:** The private key file that is associated with the signed server certificate. It supports the `.der` file format.

For subsequent deployments of Primary Servers to the Management Zone, the same CA must be used to create the Secured Certificate with the Private Key that is established by the first Primary Server's deployment.

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

- 11 The Summary screen displays the information that you provided to add a new Primary Server to an existing ZENworks Management Zone.



**Summary**

Following is the summary of the information that you have provided to add a new Primary Server to an existing ZENworks Management Zone.

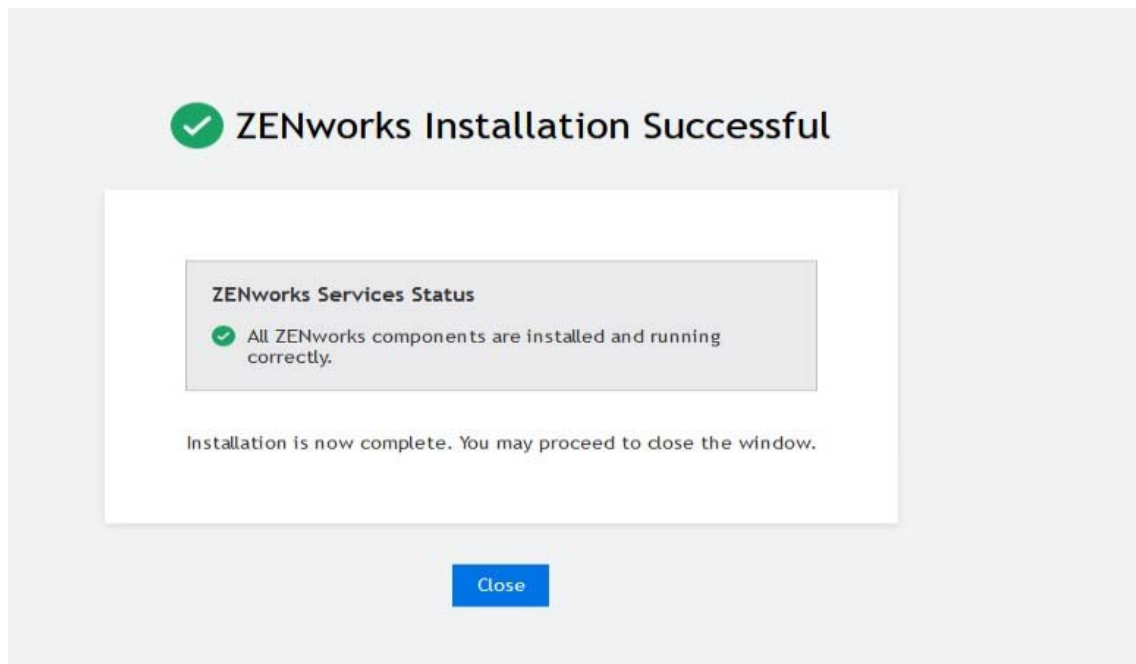
Product Name:	ZENworks 23.4.0.146
Installation Path:	/opt/microfocus/zenworks
Management Zone Name:	Infodev
Zone Type:	New Management Zone
Certificate Authority:	Internal

**Note:** Clicking Install initiates the ZENworks configuration.

**12** Click Install to initiate the ZENworks configuration.

ZENworks configuration starts and it might take several minutes. The configuration process will continue in the background even if you close the browser or the browser times out.

After successfully completing the installation, the status will be displayed as shown in the following images:



The image shows a success dialog box for ZENworks installation. At the top, there is a green checkmark icon followed by the text "ZENworks Installation Successful". Below this, there is a white box containing a grey box with the title "ZENworks Services Status". Inside this grey box, there is a green checkmark icon and the text "All ZENworks components are installed and running correctly." Below the grey box, the text "Installation is now complete. You may proceed to close the window." is displayed. At the bottom center of the dialog box, there is a blue button labeled "Close".

After ZENworks is configured, from the Home page you can use the ZENworks console to access the ZENworks Configuration Management capabilities.

## 4.2 Configuring the First Primary Server with an Existing Schema

**NOTE:** With a fresh installation of ZENworks 23.4, setting up a new Management Zone using a Windows Server and Linux Server is not supported.

If you want to setup a new zone using a Windows Server and Linux Server, we recommend you install ZENworks 2020 Update 2 and then upgrade to ZENworks 23.4. For information see, ([https://www.novell.com/documentation/zenworks-2020-update-2/zen\\_installation/data/bookinfo.html](https://www.novell.com/documentation/zenworks-2020-update-2/zen_installation/data/bookinfo.html))

---

- ◆ [Section 4.2.1, “Creating the Database Schema for Microsoft SQL,”](#) on page 26
- ◆ [Section 4.2.2, “Creating the Database Schema for Oracle,”](#) on page 29

## 4.2.1 Creating the Database Schema for Microsoft SQL

Only a Database Administrator can create the database schema. This database schema will be later used by the ZENworks Administrator to create a new management zone.

### Prerequisite:

Make sure Java is installed on the system before running the Schema Creator Tool.

To create a database schema, perform the following steps:

1. Log in to the [Customer Portal](#) or [Software Licenses and Downloads](#).
2. From the **Downloads** screen, select the **Product**, **Product Name** (entitlement) and **Version** to view the files. Click the **Media Version** column to sort the files.
3. Download and extract the Schema Creator Tool.
4. Navigate to the extracted folder and open the `mssql-schema-details.properties` file. The `mssql-schema-details.properties` includes all of the details required for the Schema Creator Tool to create the database schema, a ZENworks user to access the database, and connection parameters.
5. Add the following parameters in the `mssql-schema-details.properties` file:

For ZENworks database, add the following parameters:

- ◆ `ACCESS_PASSWORD=` Specify the Microsoft database password for the ZENworks administrator to use.
- ◆ `ACCESS_USER=` Specify the Microsoft database user name for ZENworks administrator.
- ◆ `ADMIN_PASSWORD=` Specify the database administrator password.
- ◆ `ADMIN_USER=` Specify the database administrator user name. Make sure the administrator has rights to create a user.
- ◆ `DATABASE_DIR=` Specify the database directory where database should to be created. Make sure to include `\\` in the path. For example, `C:\\Database`.
- ◆ `DATABASE_PORT=` Specify the port number used by the external database server.
- ◆ `DATABASE_SERVER_ADDRESS=` Specify the IP address of the external database server.
- ◆ `DATABASE_TYPE=` Microsoft SQL
- ◆ `DB_NAME=` Specify the name for the new ZENworks database.

For audit database, add the following parameters:

- ◆ `AUDIT_ACCESS_PASSWORD=` Specify the Microsoft SQL database password for the audit administrator to use.
- ◆ `AUDIT_ACCESS_USER=` Specify the Microsoft SQL database user name for audit administrator.

- ♦ AUDIT\_ADMIN\_PASSWORD= Specify the Microsoft SQL database administrator password.
  - ♦ AUDIT\_ADMIN\_USER= Specify the Microsoft SQL database administrator user name.
  - ♦ AUDIT\_DATABASE\_DIR= Specify the database directory where database should to be created. Make sure to include \\ in the path. For example, C:\\Database
  - ♦ AUDIT\_DATABASE\_PORT= Specify the port number used by the external database server.
  - ♦ AUDIT\_DATABASE\_SERVER\_ADDRESS= Specify the IP address of the external database server.
  - ♦ AUDIT\_DB\_NAME= Specify the name for the new database.
6. After updating the Microsoft SQL properties file, run the following command from the extracted location:
- ```
java -jar db-creation-tool.jar mssql-schema-details.properties
```
- The JDBC URL is displayed after successfully executing the command.
7. Make of note of the JDBC URL for Audit and ZCM printed in the console at completion.

Next, on the Appliance, perform the following steps:

- 1 Launch the URL on a supported web browser.

The URL (<https://<FQDN>:9443> or <https://<ipaddress>:9443>) is displayed on the appliance console.

- 2 Log in to ZENworks Appliance with the root or zenadmin credentials.
- 3 Go to the System Services tile, select the **SSH service**, and click **Start**.
- 4 Download the silent installer properties file (silentinstall.config) from the following location:
- 5 Modify the silent installer properties file (silentinstall.config) with relevant information including the JDBC URL that was printed out in the tool (in step 6 above).
- 6 Edit the following parameters in the `silentinstall.config` file:

Make sure to include the values as specified in the `mssql-schema-details.properties` file.

- ♦ DATABASE\_JDBC\_URL= Specify the JDBC URL that was copied after running the tool. The database and Audit database JDBC URLs will be the same.
- ♦ AUDIT\_DATABASE\_JDBC\_URL= Specify the JDBC URL that was copied after running the tool. The database and Audit database JDBC URLs will be the same.
- ♦ DATABASE\_ACCESS\_USER= Specify the Microsoft SQL database password for the ZENworks administrator to use.
- ♦ OBFUSCATED\_DATABASE\_ACCESS\_PASSWORD= Specify the Microsoft SQL database user name for the ZENworks administrator to use.
- ♦ AUDIT\_DATABASE\_ACCESS\_USER= Specify the Microsoft SQL database user name for audit administrator.
- ♦ OBFUSCATED\_AUDIT\_DATABASE\_ACCESS\_PASSWORD= Specify the Audit database password for the ZENworks administrator to use.
- ♦ USE\_EXTERNAL\_DB\_POSTGRESQL= Specify 0 (zero) if you do not want to use an external PostgreSQL database.
- ♦ SSL\_SERVER\_CERT\_VALIDITY= Specify the certificate validity as 2. This value is in years.

- ◆ IS\_PRIMARY\_SERVER= Set this value to true to configure Microsoft SQL as a Primary Server.
- ◆ TargetTypes= Specify the target types as  
FIRST\_PRIMARY,ZEN\_SERVER,ROLE\_ApplianceServer,sles12
- ◆ TOMCAT\_SECURE\_PORT= The port used by the Microsoft SQL database server. The default port for Microsoft SQL in ZENworks is 443.
- ◆ DATABASE\_TYPE= Specify the database type as sql-server.
- ◆ OPEN\_FIREWALL\_PORTS= Enter Y to open the firewall ports.
- ◆ ZENSERVICES\_HOME= Specify the following location to create a ZENworks Services directory:  
/opt/microfocus/zenworks
- ◆ OBFUSCATED\_ZONE\_PASSWORD= Specify the Management zone password.
- ◆ USE\_EXTERNAL\_DB\_MSSQL= Enter 1 to use an external Microsoft SQL database.
- ◆ ZENSERVICES\_BIN= Specify the following location to create a ZENworks Services bin:  
/opt/microfocus/zenworks/bin
- ◆ SERVER\_ADDRESSES= Specify a valid IP address or a Fully Qualified Domain Name (FQDN) for the Microsoft SQL server.
- ◆ CREATE\_NEW\_EXTERNAL\_DATABASE= Enter 1 to create an external database.
- ◆ ZEN\_ADMIN\_PORT= Specify the port used by the Microsoft SQL server. The default port is 7433.
- ◆ USE\_INTERNAL\_CA= Specify 1 to use internal CA.
- ◆ MANAGEMENT\_ZONE\_NAME= Specify the name of the management zone.
- ◆ CREATE\_NEW\_EXTERNAL\_AUDIT\_DATABASE= The value 0 is the default and means that the new external audit database will not be used.
- ◆ DNS= Specify the DNS name or IP address of your zone's Primary Server.
- ◆ IS\_FIRST\_SERVER= Specify 1 to create a first server.
- ◆ IS\_APPLIANCE= Specify 1 to create an appliance.
- ◆ USE\_EMBEDDED\_DATABASE= The value 0 is the default and means that the embedded database will not be used.
- ◆ USE\_EMBEDDED\_DB\_POSTGRES= The value 0 is the default and means that the embedded PostgreSQL database will not be used.
- ◆ CREATE\_NEW\_EXTERNAL\_DATABASE= The value 0 is the default and means that the new external database will not be created.
- ◆ CREATE\_NEW\_EXTERNAL\_AUDIT\_DATABASE= The value 0 is the default and means that the new external audit database will not be created.
- ◆ USE\_EXTERNAL\_DB\_ORACLE= The value 0 is the default and means that the external database will not be used.

**7** Copy the `silentinstall.config` file to the `/tmp` folder on the appliance.

**8** Invoke the silent installer by running the following command:

```
/usr/share/ZCMInstaller/zenworks-installer-linux/zuper-installer.sh -f
/tmp/silentinstall.config
```

---

**NOTE:** It is recommended to run this command from the local console session.

---

To view the real-time status of the installation, run the following command:

```
tail -f /var/opt/microfocus/log/zenworks/  
Progress_Tracker_ZENworks_Install.log
```

To hide the Application configuration prompt in ZENworks, create the ZENworksIsConfigured file in /opt/microfous/zenworks by running the following command:

```
touch /opt/microfocus/zenworks/ZENworksIsConfigured
```

## 4.2.2 Creating the Database Schema for Oracle

Only a Database Administrator can create the database schema. This database schema will be later used by the ZENworks Administrator to create a new management zone.

### Prerequisite:

Make sure Java is installed on the system before running the Schema Creator Tool.

To create a database schema, perform the following steps:

1. Log in to the [Customer Portal](#) or [Software Licenses and Downloads](#).
2. From the **Downloads** screen, select the **Product**, **Product Name** (entitlement) and **Version** to view the files. Click the **Media Version** column to sort the files.
3. Download and extract the Schema Creator Tool.
4. Navigate to the extracted folder and open the `oracle-schema-details.properties` file. The `oracle-schema-details.properties` includes all of the details required for the Schema Creator Tool to create the database schema, a ZENworks user to access the database, and connection parameters.
5. Add the following parameters in the `oracle-schema-details.properties` file:

For ZENworks database, add the following parameters:

- ♦ `ACCESS_PASSWORD=` Specify the Oracle database password for the ZENworks administrator to use.
- ♦ `ACCESS_USER=` Specify the Oracle database user name for ZENworks administrator.
- ♦ `ADMIN_PASSWORD=` Specify the database administrator password.
- ♦ `ADMIN_USER=` Specify the database administrator user name. Make sure the administrator has rights to create a user.
- ♦ `DATABASE_ORACLE_SERVICE_NAME=` Specify a valid service name for the Oracle server.
- ♦ `DATABASE_PORT=` Specify the port number used by the external database server.
- ♦ `DATABASE_SERVER_ADDRESS=` Specify the IP address of the external database server.
- ♦ `DATABASE_TYPE=` Oracle
- ♦ `DB_NAME=` Specify the name for the new ZENworks database.
- ♦ `DATABASE_ORACLE_TABLETS_DBF=` Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path. Make sure to use `\\` in the path. For example: `C:\\Oracle\\Database\\ZCMTABLE.dbf`

- ◆ DATABASE\_ORACLE\_INDEXES\_DBF= Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path. Make sure to use \\ in the path. For example: C:\\Oracle\\Database\\ZCMTABLE.dbf
- ◆ DATABASE\_ORACLE\_TABLE\_TABLESPACE= The tablespace name for tables that exist on the Oracle server.
- ◆ DATABASE\_ORACLE\_INDEX\_TABLESPACE= The tablespace name for indexes that exist on the Oracle server.

For audit database, add the following parameters:

- ◆ AUDIT\_ACCESS\_PASSWORD= Specify the Oracle database password for the audit administrator to use.
- ◆ AUDIT\_ACCESS\_USER= Specify the Oracle database user name for audit administrator.
- ◆ AUDIT\_ADMIN\_PASSWORD= Specify the Oracle database administrator password.
- ◆ AUDIT\_ADMIN\_USER= Specify the Oracle database administrator user name.
- ◆ AUDIT\_DATABASE\_ORACLE\_SERVICE\_NAME= Specify a valid service name for the Oracle server.
- ◆ AUDIT\_DATABASE\_PORT= Specify the port number used by the external database server.
- ◆ AUDIT\_DATABASE\_SERVER\_ADDRESS= Specify the IP address of the external database server.
- ◆ AUDIT\_DB\_NAME= Specify the name for the new database.
- ◆ AUDIT\_DATABASE\_ORACLE\_TABLE\_TABLESPACE= The tablespace name for tables that exist on the Oracle server.
- ◆ AUDIT\_DATABASE\_ORACLE\_INDEX\_TABLESPACE= The tablespace name for indexes that exist on the Oracle server.
- ◆ AUDIT\_DATABASE\_ORACLE\_TABLES\_DBF= Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path. Make sure to use \\ in the path. For example: C:\\Oracle\\Database\\ZCMTABLE.dbf
- ◆ AUDIT\_DATABASE\_ORACLE\_INDEXES\_DBF= Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path. Make sure to use \\ in the path. For example: C:\\Oracle\\Database\\ZCMTABLE.dbf

6. After updating the Oracle properties file, run the following command from the extracted location:

```
java -jar db-creation-tool.jar oracle-schema-details.properties
```

The JDBC URL is displayed after successfully executing the command.

7. Make of note of the JDBC URL for Audit and ZCM printed in the console at completion.

Next, on the Appliance, perform the following steps:

- 1 Launch the URL on a supported web browser.  
The URL (https://<FQDN>:9443 or https://<ipaddress>:9443) is displayed on the appliance console.
- 2 Log in to ZENworks Appliance with the root or zenadmin credentials.
- 3 Go to the System Services tile, select the **SSH service**, and click **Start**.
- 4 Download the silent installer file (silentinstall.config) from the following location:

- 5 Modify the silent installer file (`silentinstall.config`) with relevant information including the JDBC URL that was printed out in the tool (in step 6 above).
- 6 Edit the following parameters in the `silentinstall.config` file:

Make sure to include the values as specified in the `oracle-server-details.properties` file.

- ◆ `AUDIT_DATABASE_ACCESS_USER`= Specify the ZENworks Audit database user name.
- ◆ `AUDIT_DATABASE_ADMIN_USER`= Specify the ZENworks Audit database server administrator user name.
- ◆ `AUDIT_DATABASE_ORACLE_INDEX_TABLESPACE`= Specify the tablespace name for tables that exist on the Oracle server.
- ◆ `AUDIT_DATABASE_ORACLE_SERVICE_NAME`= Specify a valid service name for the Oracle server.
- ◆ `AUDIT_DATABASE_ORACLE_TABLE_TABLESPACE`= The tablespace name for indexes that exist on the Oracle server.
- ◆ `CREATE_NEW_EXTERNAL_AUDIT_DATABASE`= Specify 1 to create an external audit database.
- ◆ `CREATE_NEW_EXTERNAL_DATABASE`= Specify 1 to create an external database.
- ◆ `DATABASE_ACCESS_USER`= Specify the Oracle database password for the ZENworks administrator to use.
- ◆ `DATABASE_ORACLE_INDEX_TABLESPACE`= Specify the tablespace name for indexes that exist on the Oracle server.
- ◆ `DATABASE_ORACLE_SERVICE_NAME`= Specify a valid service name for the Oracle server.
- ◆ `DATABASE_ORACLE_TABLE_TABLESPACE`= Specify the tablespace name for tables that exist on the Oracle server.
- ◆ `DATABASE_TYPE`= `oracle`
- ◆ `DNS`= Specify the DNS name or IP address of your zone's Primary Server.
- ◆ `IS_APPLIANCE`= Specify 1 to create an appliance.
- ◆ `IS_FIRST_SERVER`= Specify 1 to create a first server.
- ◆ `IS_PRIMARY_SERVER`= Specify 1 to create a first Primary Server.
- ◆ `MANAGEMENT_ZONE_NAME`= Specify the name of the management zone.
- ◆ `OBFUSCATED_AUDIT_DATABASE_ACCESS_PASSWORD`= Specify the audit database password for the ZENworks administrator to use.
- ◆ `OBFUSCATED_DATABASE_ACCESS_PASSWORD`= Specify the Oracle database password for the ZENworks administrator to use.
- ◆ `OBFUSCATED_ZONE_PASSWORD`= Specify the Management zone password.
- ◆ `OPEN_FIREWALL_PORTS`= Enter Y to open the firewall ports.
- ◆ `SERVER_ADDRESSES`= Specify a valid IP address or a Fully Qualified Domain Name (FQDN) for the Oracle server.
- ◆ `SKIP_PARTITIONING`= Specify 0 (zero) to let ZENworks use partitioning with the Oracle database. The default value is 1, which means that partitioning will not be used with the Oracle database.
- ◆ `SSL_SERVER_CERT_VALIDITY`= Specify the certificate validity as 2. This value is in years.

- ◆ TargetTypes= Specify the target types as  
FIRST\_PRIMARY,ZEN\_SERVER,ROLE\_ApplianceServer,sles12
- ◆ TOMCAT\_SECURE\_PORT= The port used by the Oracle database server. The default port for Oracle in ZENworks is 443.
- ◆ USE\_EMBEDDED\_DB\_POSTGRESQL= The value 0 is the default and means that the embedded PostgreSQL database will not be used.
- ◆ USE\_EMBEDDED\_DATABASE= The value 0 is the default and means that the embedded database will not be used.
- ◆ USE\_EXISTING\_EXTERNAL\_AUDIT\_DATABASE= The value 0 is the default and means that the existing external audit database will not be used.
- ◆ USE\_EXISTING\_EXTERNAL\_DATABASE= The value 0 is the default and means that the existing external database will not be used.
- ◆ USE\_EXTERNAL\_DB\_MSSQL= The value 0 is the default and means that the external Microsoft SQL database will not be used.
- ◆ USE\_EXTERNAL\_DB\_ORACLE= Specify 1 to use the Oracle external database.
- ◆ USE\_EXTERNAL\_DB\_POSTGRESQL= The value 0 is the default and means that the external PostgreSQL database will not be used.
- ◆ USE\_INTERNAL\_CA= Specify 1 to use internal CA.
- ◆ ZEN\_ADMIN\_PORT= Specify the port used by the Oracle server. The default port is 7433.
- ◆ ZENSERVER\_BIN= Specify the following location to create a ZENworks Server bin:  
/opt/microfocus/zenworks/bin
- ◆ ZENSERVER\_HOME= Specify the following location to create a ZENworks Server directory:  
/opt/microfocus/zenworks
- ◆ DATABASE\_JDBC\_URL= Specify the JDBC URL that was copied after running the tool. The database and Audit database JDBC URLs will be the same.
- ◆ AUDIT\_DATABASE\_JDBC\_URL= Specify the JDBC URL that was copied after running the tool. The database and Audit database JDBC URLs will be the same.
- ◆ MOUNT\_PATH= Specify the following ZENworks installer path:  
/usr/share/ZCMInstaller

**7** Copy the `silentinstall.config` file to the `/tmp` folder on the appliance.

**8** Invoke the silent installer by running the following command:

```
/usr/share/ZCMInstaller/zenworks-installer-linux/zuper-installer.sh -f
/tmp/silentinstall.config
```

---

**NOTE:**

- ◆ It is recommended to run this command from the local console session.
- ◆ To view the real-time status of the installation, run the following command in a new console:

```
tail -f /var/opt/microfocus/log/zenworks/
Progress_Tracker_ZENworks_Install.log
```

---



To hide the Application configuration prompt in ZENworks Appliance, create the `ZENworksIsConfigured` file in `/opt/microfocus/zenworks` by running the following command:

```
touch /opt/microfocus/zenworks/ZENworksIsConfigured
```

## 4.3 Configuring the Additional Primary Servers

### 4.3.1 Prerequisites

Before starting the procedure, ensure that you go through the following points:

- ◆ Ensure that the new server that you are adding to the zone meets all the requirements. For more information, see [ZENworks System Requirements](#) in the [ZENworks Documentation](#) site.
- ◆ Ensure that the first Primary Server is at ZENworks 23.4. If the first Primary Server is at a lesser version, then installation might fail.
- ◆ The first Primary Server should be up and running.
- ◆ If you are using an external database, then ensure that the database is up and running.
- ◆ If your ZENworks Management Zone is using the internal ZENworks Certificate Authority (CA), the new Primary Server is automatically issued a server certificate during installation.
- ◆ If your zone is using an external CA, you must provide the new Primary Server with a valid certificate issued from the external CA.
- ◆ Ensure that you have taken a reliable backup of the Primary Server.

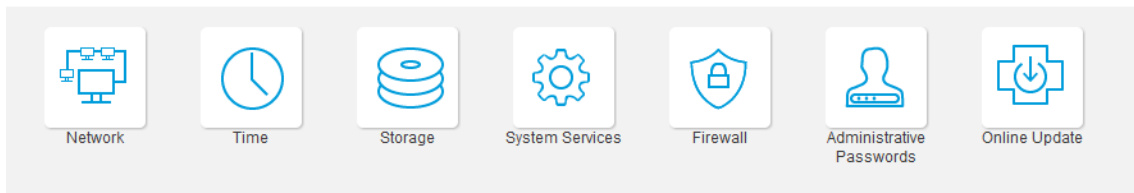
### 4.3.2 Adding a New Primary Server

To add a new Primary Servers to your existing ZENworks Management Zone, perform the following steps:

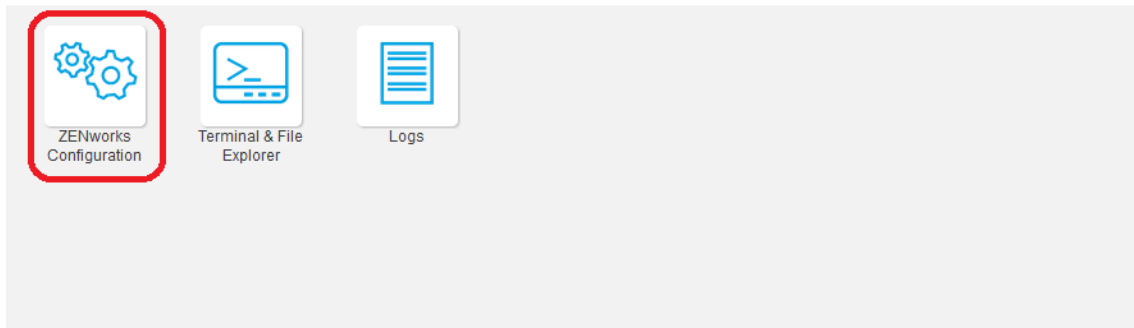
- 1 Deploy ZENworks Appliance. For information, see [Chapter 3, “Appliance Deployment,” on page 11](#).
- 2 Launch the URL on a supported web browser.  
The URL (`https://<FQDN>:9443` or `https://<ipaddress>:9443`) is displayed on the appliance console.
- 3 Log into ZENworks Appliance with the `root` or `zenadmin` credentials that were used in [Step 2](#), in the [Section 3.2, “Configuring the Appliance Settings,” on page 17](#).
- 4 In the Appliance console, click ZENworks Configuration to initiate ZENworks appliance configuration.

**!** Before using ZENworks, you must complete the ZENworks Appliance configuration. To configure, click ZENworks Configuration.

#### Appliance Configuration



#### ZENworks



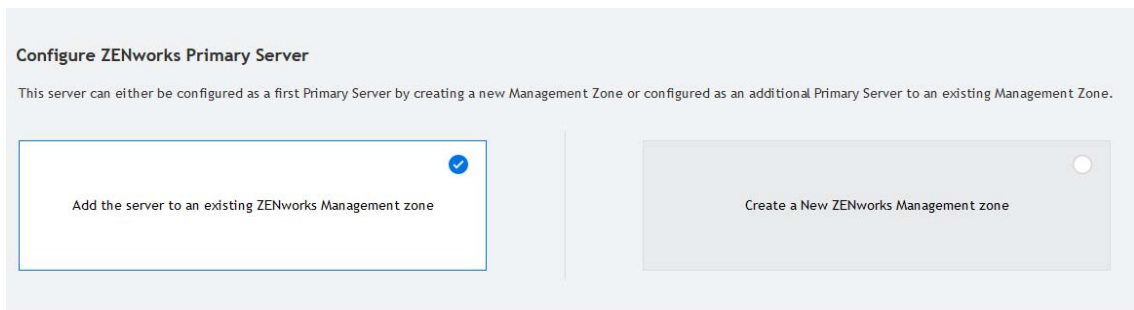
You will be redirected to a new browser tab.

---

**NOTE:** Ensure that you have enabled or allowed the pop-up in your browser.

---

- 5 In the new tab, the ZENworks License Agreement page is displayed. Accept the terms of the license and click Next.
- 6 Select Add the server to an existing ZENworks Management zone, and then click Next.



Requirements for the server that is being added to an existing ZENworks Management Zone:

- ◆ The DNS name or IP address of your zone's Primary Server
- ◆ The zone administrator credentials to add a new Primary Server
- ◆ The additional Primary Server can be added only if all the Primary Servers in the zone are upgraded to ZENworks

- 7 In the Connect to an Existing Primary Server, specify the following information, and then click Next:

**Connect to an Existing Primary Server**

To add a new Primary Server in a zone, specify the address of an existing Primary Server with the Certificate Authority role. Specify the administrator credentials with the required permission to add Primary Servers.

Primary Server\*:

Port\*:

Administrator\*:

Password\*:

- ◆ **Primary Server:** The first Primary Server's FQDN or IP address.
- ◆ **Port:** The Port used by the first Primary Server in the Management Zone. The default port is 7443.

---

**NOTE:** When adding a new appliance, ensure that you specify the default 7443 port, or any custom port used when upgrading ZENworks.

---

- ◆ **Administrator:** The ZENworks management zone's administrator user name.
- ◆ **Password:** The password for the ZENworks management zone's administrator.

- 8 On the Open Ports screen, select Yes, open all the above-listed ports, and then click Next.
- 9 To communicate securely with the first Primary Server, in the Validate Primary Server Certificate dialog box, select Click here to accept this certificate and proceed, and then click Confirm.



This dialog box is displayed only when an unknown certificate is detected.

- 10 Specify certificate details for the additional Primary Server.

---

**NOTE:** The certificate validity should be between 1 and 10 years. If you plan to use the server as an MDM server, then to ensure communication with iOS and Mac devices, the certificate validity should not exceed 2 years.

---

- ◆ If an Internal certificate is used in the first Primary Server, ZENworks detects the internal certificate and automatically issue the certificate.

- ◆ If an External certificate is used in the first Primary Server, choose the required certificate (**Server Certificate with Private Key** or **Server Certificate**). If you have used the **Generate CSR** link, then upload **Server Certificate**. Based on the certificate specify the following details:

- ◆ **Server Certificate:** Browse to the signed certificate to be used for this server.

The certificate must be a SubCA (approved by SubCA) and CA (Approved by root CA) certificates in order:

```
====Beginning of the Certificate File====
=[Server Certificate]=
=[SubCA Certificate]=
=[CA Certificate]=
====End of the Certificate File====
```

- ◆ **Private Key File:** This field is enabled if you select the **Server Certificate with Private Key** option. Browse to the **.der** private key file that is associated with the signed certificate.

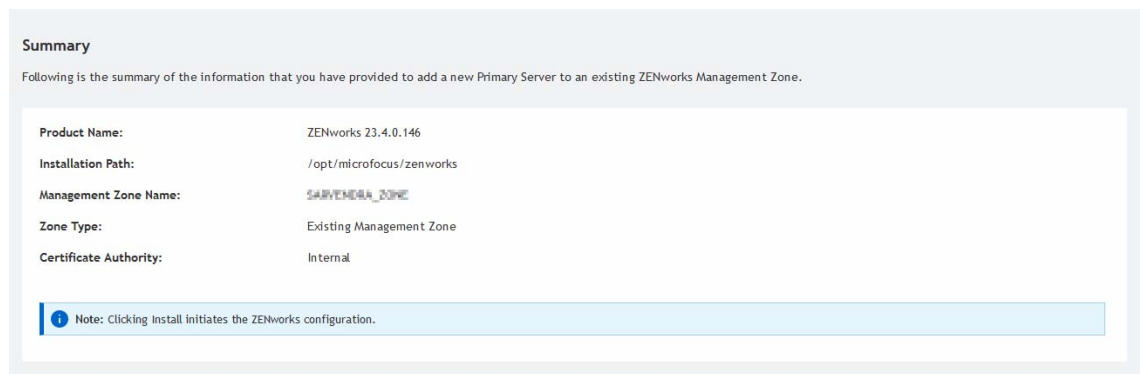
To convert the PEM file to DER file, use the following command:

```
openssl pkcs8 -topk8 -nocrypt -in privateKey.key -inform PEM -
out key.der -outform DER
```

To verify the privateKey.key file, use the following command:

```
openssl rsa -in privateKey.key -check
```

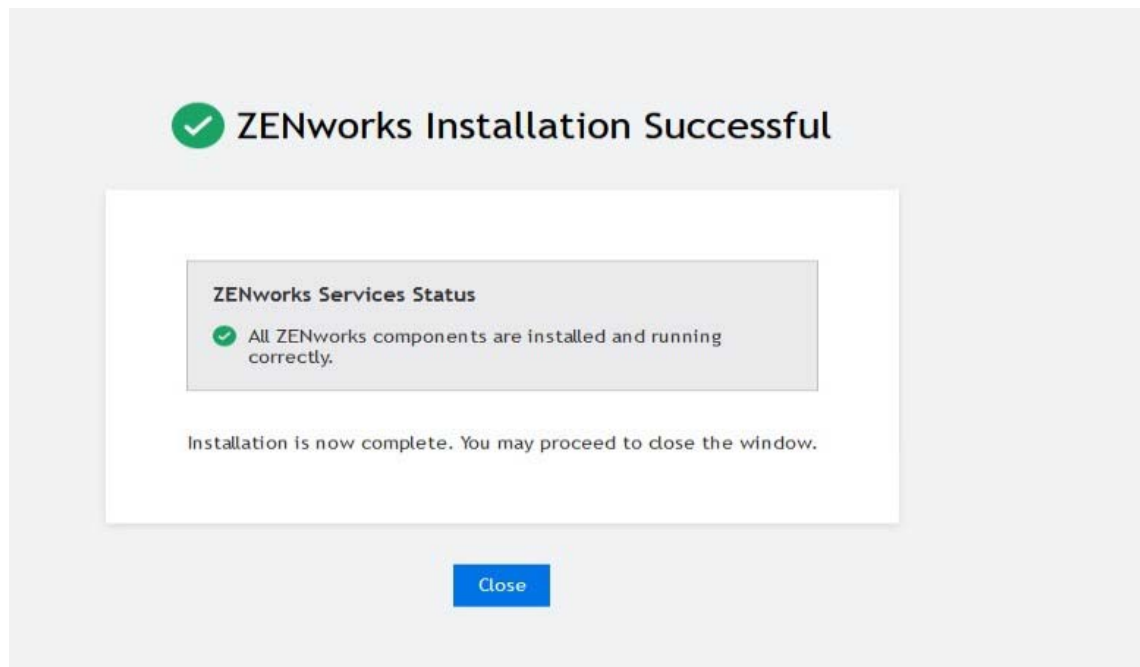
- 11 The Summary screen displays the information that you provided to add a new Primary Server to an existing ZENworks Management Zone.



- 12 Click Install to initiate the ZENworks configuration.

ZENworks configuration starts and it might take several minutes. The configuration process will continue in the background even if you close the browser or the browser times out.

After successfully completing the installation, the status will be displayed as shown in the following images:



On Windows, it is recommended that you restart the server so that settings are applied successfully.

If the installation fails, then a link to download the log files will be displayed on the screen. click the link and download the log files to troubleshoot the issues.

If you are facing any issues, then go through the Troubleshooting section.

## 4.4 Database Configurations

Depending on the number of devices you plan to manage in this ZENworks Management Zone, you can use any of the following databases:

- If you have 5,000 or fewer devices, you can use the Embedded PostgreSQL or External PostgreSQL database.
  - If you have up to 40,000 devices, you can use Microsoft SQL Server or Oracle.
  - If you have up to 100,000 devices, you need to use the Oracle Enterprise Edition (with partitioning).
- ◆ [Section 4.4.1, “Embedded PostgreSQL Database Configuration,” on page 38](#)
  - ◆ [Section 4.4.2, “External PostgreSQL Database Configuration,” on page 38](#)
  - ◆ [Section 4.4.3, “Microsoft SQL Server Database Configuration,” on page 39](#)
  - ◆ [Section 4.4.4, “Oracle Server Database Configuration,” on page 40](#)

---

**NOTE:** If you are using an external database, then you need to create two databases, one to save ZENworks data and another to save Audit data. The Audit database is used to record changes made to ZENworks configurations, policies, and other settings. This data helps administrators to adhere to security compliance, troubleshoot issues, and monitor user activities.

---

## 4.4.1 Embedded PostgreSQL Database Configuration

Choose the **Embedded PostgreSQL** to store the ZENworks and Audit data. If you select the embedded database option, no further database configuration is required for ZENworks and Audit.

## 4.4.2 External PostgreSQL Database Configuration

The PostgreSQL database must exist on a different server in your network. It is recommended that you use a different server rather than the current server.

If you are using an external database, then you need to create two databases, one to save ZENworks data and another to save Audit data.

The Audit database is used to record changes made to ZENworks configurations, policies, and other settings. This data helps administrators to adhere to security compliance, troubleshoot issues, and monitor user activities.

While [Configuring the First Primary Server](#), if you choose to use External PostgreSQL as your database, then perform the following:

- 1 In the ZENworks Database Configuration page, specify the following information for the server that is hosting an existing ZENworks database:
  - ◆ **Server Address:** Specify the database server address and ensure that the database server is up and running.
  - ◆ **Port:** Select the port through which the ZENworks can communicate with the database server. The default port is 5432.
  - ◆ **Administrator Username:** Specify the database administrator username, who has the rights to create a database.
  - ◆ **Administrator Password:** Specify the database administrator password to access the database.

The database administrator username and password will be used to connect to the database server to create the database. The credentials will be discarded after the database and user are created.
  - ◆ **Database Name:** Specify a name for the database that will be created for ZENworks.
  - ◆ **Username:** Specify a new user who can access the ZENworks database.
  - ◆ **Password:** Specify a password to access the ZENworks database
  - ◆ **Confirm Password:** Use this field to confirm the password. If there is a mismatch, an error message is displayed after you click Next. You can then specify the passwords again.
- 2 Click **Next** and continue with **Audit database**.
- 3 Specify the server information that is hosting an existing Audit database. The fields displayed are the same that were displayed in the ZENworks Database Configuration page.
- 4 Click **Next** and continue with the **ZENworks Ports**. For information, see [Step 9 on page 22](#), in the [Configuring the First Primary Server](#).

## 4.4.3 Microsoft SQL Server Database Configuration

The Microsoft SQL database must exist on a different server in your network. It is recommended that you use a different server rather than the current server.

If you are using an external database, then you need to create two databases, one to save ZENworks data and another to save Audit data.

The Audit database is used to record changes made to ZENworks configurations, policies, and other settings. This data helps administrators to adhere to security compliance, troubleshoot issues, and monitor user activities.

While [Configuring the First Primary Server](#), if you choose to use Microsoft SQL as your database, then perform the following:

- 1 In the Microsoft SQL Server Configuration for ZENworks page, perform the following:

### Database Server Details

You can either select the port through which you can access the Microsoft SQL Server or select the name instance of the Microsoft SQL Server.

- ◆ Server address: Specify a Fully Qualified Domain Name (FQDN) or a valid IP address for the Microsoft SQL server.
- ◆ Port: Select the port used by the Microsoft SQL server. The default port is 1433.
- ◆ Named instance: Specify the name of the Microsoft SQL server instance that is hosting the ZENworks database.

### Create New Database

In this section, select the mode of authentication for the SQL server, you can select either SQL Server authentication or Windows authentication.

To create a new database, you need to know the database administrator credentials who has system administrator privileges.

It is important to know whether you installed the Microsoft SQL Server by using Windows authentication or Mixed mode authentication. Ensure that you select the option that coincides with your Microsoft SQL server options, or else the authentication fails.

- ◆ SQL Server Authentication: If you select this option, then you need to specify the administrator credentials who has the required privileges to create a new database.
- ◆ Windows Authentication: If you select this option, specify the Windows administrator credentials and domain name where the user you specified in the Username field exists.

- 2 In the Create New User Schema for Microsoft SQL, perform the following:

### Database Details

In this section, specify the name and the directory details of the ZENworks database. If the specified directory does not exist, then the configuration fails.

### Authentication

In this section, select the required authentication type and specify the credentials.

---

**NOTE:**

- ◆ For SQL Server Authentication, a new user will be created with the required permission to access the ZENworks instance.
  - ◆ For Windows Authentication, specify the existing domain user credentials to whom the required permission should be provided to access the ZENworks database.
- 

- 3 Click **Next** and continue with **Audit database**.
- 4 Specify the server information that is hosting an existing Audit database. The fields displayed are the same that were displayed in the ZENworks Database Configuration page.
- 5 Click **Next** and continue with **ZENworks Ports**. For information, see [Step 9 on page 22](#), in the *Configuring the First Primary Server*.

## 4.4.4 Oracle Server Database Configuration

The Oracle database must exist on a different server in your network. It is recommended that you use a different server rather than the current server.

If you are using an external database, then you need to create two databases, one to save ZENworks data and another to save Audit data.

The Audit database is used to record changes made to ZENworks configurations, policies, and other settings. This data helps administrators to adhere to security compliance, troubleshoot issues, and monitor user activities.

---

**NOTE:** For the Oracle database, if required, you can select Let ZENworks partition the database for improved performance.

---

While [Configuring the First Primary Server](#), if you choose to use Oracle as your database, then perform the following:

- 1 In the User Schema page, perform the information for ZENworks database to connect to the Oracle database:

**Basic Details**

- ◆ Server address: Specify a Fully Qualified Domain Name (FQDN) or a valid IP address of the Oracle server.
- ◆ Port: Specify the port used by the database server. The default port is 1521.
- ◆ Service name: Specify a valid service name for the Oracle server.

**Admin Details**

In this section, specify username and password of the database administrator credentials who has the rights to create a new user schema.

- 2 In the New User Schema page, perform the following:
  - 2a Specify the details of a new user that should be created in the database with access to the new user schema.
    - ◆ Username: Specify a new username for the ZENworks database.



The username can have a maximum of 30 characters. It must not contain spaces or special characters such as (@ [ ] / : \* ? | > < " & % { } ; , ^ + - = ( ) ! ~ ` . ). The username must not be a database reserve word and it must not start with a number.

- ◆ Password: Specify a valid password to access the ZENworks database.

The password can have a maximum of 30 characters. It must not contain special characters such as ( ; : " / @ % ? { } ). The password must not be a database reserve word and it must not start with a number.

- ◆ Confirm Password: Use this field to confirm the password. If there is a mismatch, an error message is displayed after you click Next. You can then specify the passwords again.

**2b** If you want the ZENworks to create the tablespace, select Let ZENworks Create Tablespaces, and specify the following:

- ◆ Tables and Indexes should be unique and must start with [a-z] | [A-Z]. The Oracle tablespace naming conventions must be followed.
- ◆ Tables and Indexes DBF file locations should be fully qualified paths and must be unique. The specified path of the folder must be an existing path.

**2c** If you want your database administrator to create the tablespace, select Tablespaces Created By DBA.

If you want your database administrator to create the tablespace, select Tablespaces Created By DBA.

**3** Click **Next** and continue with **Audit database**.

**4** Specify the server information that is hosting an existing Audit database. The fields displayed are the same that were displayed in the ZENworks Database Configuration page.

**5** Click **Next** and continue with the **ZENworks Ports**. For information, see [Step 9 on page 22](#), in the [Configuring the First Primary Server](#).

---

**NOTE:** After configuring ZENworks Appliance on the first Primary Server in the zone, the ZooKeeper service is by default enabled on this server. Ensure that the ZooKeeper service is up and running at all times to enable proper functioning of various ZENworks components. To verify the status of the ZooKeeper service, see the Diagnostics page in ZCC. For more information on the ZooKeeper component, see the [ZENworks Primary Server and Satellite Reference](#).

You also need to ensure that the firewall allows client connections from other Primary Servers to the ZooKeeper services on port 6789. If the Primary Servers in your zone are unable to access the ZooKeeper service, then to open the ports, you can run the following Configure action on the server in which ZooKeeper is enabled.

```
microfocus-zenworks-configure -c ClusterFirewallConfigureAction -  
Doperation=add -Dservice=zookeeper
```

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](#).

---

## 4.5 Logs

Before configuring ZENworks, all logs are stored in the `/var/opt/novell/jetty/logs/jetty.stderrout.out` location.

While configuring and after configuring the ZENworks, all logs are stored in the `/var/opt/microfocus/log/zenworks` location.

# 5 ZENworks Configuration

The following sections provide the configuration flow for these process:

- ♦ [Section 5.1, “Configuring the First Primary Server,” on page 43](#)
- ♦ [Section 5.2, “Configuring the Additional Primary Servers,” on page 52](#)
- ♦ [Section 5.3, “Logs,” on page 54](#)

## 5.1 Configuring the First Primary Server

This is applicable for a fresh installation of ZENworks. After deploying the ZENworks Appliance to a virtual machine, perform the following steps to configure ZENworks Appliance for the first Primary Server:

- 1 Launch the URL on a supported web browser.

The URL (<https://<FQDN>:9443> or <https://<ipaddress>:9443>) is displayed on the appliance console.

- 2 Choose the required language. If the web browser supports the selected language, then it displays in that language, else it displays in English.

For information, see [Supported Languages in Chapter 2, “System Requirements,” on page 9](#).

- 3 Log in to ZENworks Appliance with the `root` or `zenadmin` credentials that were specified in [Step 2](#), in the [Section 3.2, “Configuring the Appliance Settings,” on page 17](#).

When you log in for the first time, you are prompted to configure ZENworks Appliance.

- 4 Verify the prerequisites on the Configure ZENworks Management Zone page.

Based on how you want to use ZENworks, you should be prepared with the required information to complete the configuration.

Requirements for the first Primary Server:

- ♦ A unique name for the new ZENworks Management Zone. It helps you to identify easily if multiple zones are configured in the zone.
- ♦ A supported database depending on the number of devices that you want to manage.
- ♦ Certificate Authority configuration

The ZENworks server requires a certificate to communicate securely. ZENworks supports internal and external certificates. If you want to use an internal certificate, it will be automatically generated by ZENworks. If you want to use an external certificate, you can generate a Certificate Signed Request (CSR) using ZENworks or by using your organization-specific methods, and then get the signed certificates.

A CSR is encrypted text, provided by a user to the Certificate Authority (CA), through a Secure Sockets Layer (SSL) digital certificate application. The CSR is validated by the CA and a signed certificate is issued.

- 5 If you want ZENworks to generate a CSR, click **Generate CSR**.

If you generate the CSR from this page, the Private Key will be stored on the server.

While configuring ZENworks, you need to have a signed server certificate, private key, and a CA certificate. To get the signed server certificate, you need to generate a CSR and validate by the CA.

**5a** Specify the following information.

- ♦ **Common Name (CN):** The Fully Qualified Domain Name of the ZENworks Primary Server. This name should match the server name in the URL, in order for browsers to accept the certificate for SSL communication. For example, `mail.novell.com`.
- ♦ **Organization (O):** Organization name.
- ♦ **Organizational Unit (OU):** Organizational unit name, such as a department or division.
- ♦ **City or Locality (L)**
- ♦ **State or Province (ST)**
- ♦ **Country or Region:** Two-letter country code or region. For example, US.
- ♦ **Key length:** The required key length can be 1024 or 2048.

**Key strength:** The required key strength can be 1024 or 2048.

**5b** Click **Generate** and download the CSR.

**6** Choose **If this is the first Primary Server** as the type of Management Zone, then click **Configure first Primary Server**.

**7** Specify the following:

- ♦ **Zone name:** A unique Management Zone name. The zone name can have a minimum of 6 characters and a maximum of 20 characters. It must not contain spaces and special characters such as (`@ $ [ ] / : * ? | > < " & % { } ; ^ + ( ) ! ~ ``). The zone name is displayed in ZENworks Control Center.
- ♦ **Password:** The administrator password is used for logging in to ZENworks Control Center. The password must contain a minimum of 6 characters.
- ♦ **Confirm Password:** Use this field to confirm the password. If there is a mismatch, an error message is displayed after you click **Next**. You must re-enter the correct passwords.
- ♦ Select the required database type. Two database instances of the same database type is required to store the ZENworks data and the Audit data.

Based on the number of devices in the Management Zone, follow these database guidelines and select the most suitable database:

- ♦ If you have 5,000 or fewer devices, you can use the Embedded PostgreSQL or Remote PostgreSQL database.
- ♦ If you have up to 40,000 devices, you can use Microsoft SQL Server or Oracle.
- ♦ If you have up to 100,000 devices, you need to use the Oracle Enterprise Edition (with partitioning).

Ensure that the server where you want to install the external database meets the [Database Requirements](#).

The following are the supported databases:

- ♦ **Embedded PostgreSQL:** ZENworks automatically installs the embedded database on the current server.

For configuration information, see [“Embedded PostgreSQL Database Configuration” on page 46.](#)

- ◆ **Remote PostgreSQL:** This database must already exist on a server in your network. It is recommended that you use a different server rather than the current server.

For configuration information, see [“Remote PostgreSQL Database Configuration” on page 47.](#)

- ◆ **Microsoft SQL Server:** You can create a database or use an existing database on the Microsoft SQL Server.

For configuration information, see [“Microsoft SQL Server Database Configuration” on page 47.](#)

- ◆ **Oracle:** If you select the Oracle database, the partition confirmation option is enabled. Only Oracle Enterprise edition supports this partitioning feature. For Oracle Standard edition, the partitioning feature is not supported. We recommend to use partitioning since it improves application performance and manageability.

- ◆ Choose **Yes, let ZENworks use partitioning with the Oracle database.** Otherwise, choose **No, do not use partitioning with Oracle database.**

For configuration information, see [“Oracle Server Database Configuration” on page 49.](#)

8 Click **Next**.

9 Choose the type of Certificate Authority (CA) for the Management Zone.

---

**NOTE:** The certificate validity should be between 1 and 10 years. If you plan to use the server as an MDM server, then to ensure communication with iOS and Mac devices, the certificate validity should not exceed 2 years.

---

- ◆ **Internal CA:** The certificate is automatically generated.
- ◆ **External CA:** Choose **Secure certificate (.p12, or .pfx), Root certificate and Server certificate with Private key, or Root certificate and Server certificate.**

You can convert your certificate or key to ZENworks acceptable formats using the openssl command line tool (available as part of most Linux distributions or as part of the cygwin tool set).

For example, convert your PEM encoded private key to DER encoded thusly:

```
openssl pkcs8 -topk8 -nocrypt -in key.pem -inform PEM -out key.der -outform DER
```

PEM encoded certificate to DER encoded thusly:

```
openssl x509 -in cert.pem -inform PEM -out cert.der -outform DER
```

9a Based on the required certificate, specify the details:

- ◆ **Secure certificate (.p12 or .pfx)**
  - ◆ **Secure certificate:** This certificate stores the server certificate, any intermediate certificate chains, and the private key in a encrypted file, which is password-protected. It supports the .p12 or .pfx file format.

- ◆ **Password:** Password for the secured certificate file.
- ◆ **Root certificate and Server certificate with Private Key**
  - ◆ **Root certificate:** The top-level certificate in the certificate tree issued by the CA that signed the Server certificate and any intermediate certificate chains. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
  - ◆ **Server certificate:** It is a signed certificate that is used for the ZENworks server. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
  - ◆ **Private key:** The private key file that is associated with the signed server certificate. It supports the `.der` file format.
- ◆ **Root certificate and Server certificate**

To use **Root certificate and Server certificate**, you must have generated a CSR by using the **Generate CSR** link.

- ◆ **Root certificate:** The top-level certificate in the certificate tree issued by the CA that signed the Server certificate and any intermediate certificate chains. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.
- ◆ **Server certificate:** It is a signed certificate that is used for the ZENworks server. It supports the `.pem`, `.crt`, `.cer`, `.der`, `.p7b`, or `.p7c` file format.

---

**NOTE:** ◆When the server certificate is not directly signed by a root CA, a certificate chain containing the server certificate and the intermediate certificate that signed the server certificate needs to be provided in the **Server Certificate** field. The Root Certificate can be a single, self-signed certificate.

- ◆ The server certificate should contain the complete chain of the certificate. The top-level should consist of a root certificate, which is signed by the Root CA, followed by the intermediate certificates, and then the server certificate. The server certificate should be the leaf level certificate.
  - ◆ The private key format can either be in Binary or Base64.
- 

#### 9b Click **Finish**.

ZENworks configuration starts and it might take several minutes. The configuration process will continue in the background even if you close the browser or the browser times out.

For subsequent deployments of Primary Servers to the Management Zone, the same CA must be used to create the Secured Certificate with the Private Key that is established by the first Primary Server's deployment.

After ZENworks is configured, from the Home page you can use the ZENworks console to access the ZENworks Configuration Management capabilities.

## 5.1.1 Embedded PostgreSQL Database Configuration

Choose the **Embedded PostgreSQL** to store the ZENworks and Audit data. If you select the embedded database option, no further database configuration is required for ZENworks and Audit.

If you select **Remote PostgreSQL** for Audit, see *[“Remote PostgreSQL Database Configuration” on page 47](#)*.

## 5.1.2 Remote PostgreSQL Database Configuration

The PostgreSQL database must exist on a different server in your network. It is recommended that you use a different server rather than the current server.

For information, see [Installing and Configuring an External ZENworks Database](#), in the [ZENworks Server Installation](#).

- 1 Specify the following information for the server that is hosting an existing ZENworks database:
  - ♦ **Server address:** A valid IP address or a Fully Qualified Domain Name (FQDN) of the Remote PostgreSQL database server.
  - ♦ **Port:** The port used by the PostgreSQL database server. The default port for PostgreSQL in ZENworks is 54327.
  - ♦ **Database name:** The name of the existing database.
  - ♦ **Username:** The user name that has read and write permissions to access the database.
  - ♦ **Password:** A valid password for user name to access the database.

---

**NOTE:** If you are using an external PostgreSQL database, then ensure that you always use lowercase letters for the password.

---

- ♦ **Server name:** The name of the Remote PostgreSQL database server.
- 2 Click **Next** and continue with **Audit database**.
  - 3 Specify the server information that is hosting an existing Audit database. These fields are the same as those for the ZENworks database ([Step 1](#)). The default port for the Audit database is 2639.
  - 4 Click **Next** and continue with the **Configure Certificate Authority**. For information, see [Step 9 on page 45](#), in the [Configuring the First Primary Server](#).

## 5.1.3 Microsoft SQL Server Database Configuration

Database can be created while configuring ZENworks using the **Create Database** option or it can be created separately by using ZENworks database installation method, and then select the **Existing Database** option.

For information, see [Installing and Configuring an External ZENworks Database](#), in the [ZENworks Server Installation](#).

You can create a database or use an existing database on the Microsoft SQL Server.

- ♦ [“Creating a Database” on page 47](#)
- ♦ [“Existing Database” on page 49](#)

### Creating a Database

- 1 Specify the following information for ZENworks to connect to the server:
  - ♦ **Server address:** A valid IP address or a Fully Qualified Domain Name (FQDN) for the Microsoft SQL server.
  - ♦ **Port:** The port used by the Microsoft SQL server. The default port is 1433.

- ♦ **Named instance:** The name of the Microsoft SQL server instance that is hosting the ZENworks database.

---

**IMPORTANT:** It is important to know whether you installed the Microsoft SQL Server by using Windows authentication or Mixed mode authentication. Ensure that you select the option that coincides with your Microsoft SQL server options; otherwise, authentication fails.

---

2 Select **Create Database**.

3 Select the authentication mode. Based on the type of authentication (Windows or SQL Server), the following information is displayed:

- ♦ **Username:** Specify the user who has system administrator permissions.  
For **Windows authentication**, specify the administrator user name on the Microsoft SQL server or in the domain (Microsoft Active Directory or Novell eDirectory).  
For **SQL authentication**, specify the system administrator user name.
- ♦ **Password:** Specify a valid password to access the database.
- ♦ **Domain:** This field is enabled if you select **Windows Authentication**. Specify the Fully Qualified Domain Name (FQDN) or hostname.

4 Click **Next**.

5 Specify the following information:

- ♦ **Database location:** The path of the folder that exists on the Microsoft SQL server that is used to store database files. For example, `C:\Database`.
- ♦ **Database name:** A unique name for the ZENworks database.

6 Select the authentication mode. Based on the type of authentication (Windows or SQL Server), the following information is displayed:

- ♦ **Username:** Specify a user for the ZENworks database.  
For **Windows authentication**, specify a user name that exist in the device or in the domain (Microsoft Active Directory) that is hosting the Microsoft SQL Server.  
For **SQL authentication**, specify a username that does not exists in the Microsoft SQL Server.
- ♦ **Password:** This field is enabled if you select **Windows Authentication**. Specify a valid password to access the database.
- ♦ **Domain:** This field is enabled if you select **Windows Authentication** on Microsoft SQL Server Configuration for ZENworks page and the **Windows Authentication** option on this page. Specify the Fully Qualified Domain Name (FQDN) or hostname and ensure that FQDN is reachable.

7 Click **Next** and continue with *Audit database*. These fields are the same as those for the ZENworks database.

8 Click **Next** and continue with **Configure Certificate Authority**. For information, see [Step 9 on page 45](#), in the *Configuring the First Primary Server*.



## Existing Database

Database can be created by using the ZENworks database installation method.

- 1 Specify the following information for ZENworks to connect to the server:
  - ♦ **Server address:** A valid IP address or a Fully Qualified Domain Name (FQDN) for the Microsoft SQL server.
  - ♦ **Port:** The port used by the Microsoft SQL server. The default port is 1433.
  - ♦ **Named instance:** The name of the Microsoft SQL server instance that is hosting the ZENworks database.
- 2 Select **Existing Database**.
- 3 Click **Next**.
- 4 Specify the following information for the existing ZENworks database:
  - ♦ **Database name:** The database name that is created by using the ZENworks database creation (`setup.exe -c` or `setup.sh -c`).
- 5 Select the authentication mode. Based on the type of authentication (Windows or SQL Server), the following information is displayed:
  - ♦ **Username:** Specify the same user name that is created at the time of the database through the ZENworks database creation.
  - ♦ **Password:** Specify a valid password to access the database.
  - ♦ **Domain:** This field is enabled if you select **Windows Authentication**. Specify the Fully Qualified Domain Name (FQDN) or hostname.
- 6 Click **Next** and continue with *Audit database*. These fields are the same as those for the ZENworks database.
- 7 Click **Next** and continue with **Configure Certificate Authority**. For information, see [Step 9 on page 45](#), in the *Configuring the First Primary Server*.

### 5.1.4 Oracle Server Database Configuration

User Schema can be created while configuring ZENworks using the **Create User Schema** option or it can be created separately by using ZENworks database installation method, and then select the **Existing User Schema** option.

For information, see [Installing and Configuring an External ZENworks Database](#), in the *ZENworks Server Installation*.

- ♦ [“Creating a User Schema” on page 49](#)
- ♦ [“Existing User Schema” on page 51](#)

### Creating a User Schema

For ZENworks to connect to the Oracle server with **New user schema**:

- 1 Specify the following information in order for ZENworks to connect to the Oracle server:
  - ♦ **Server address:** A valid IP address or a Fully Qualified Domain Name (FQDN) of the Oracle server.

- ♦ **Port:** The port used by the ZENworks database server. The default port is 1521.
- ♦ **Service name:** For Oracle server connectivity, specify a valid service name.

**Oracle User Schema:** User schema options are used to set up an external Oracle database schema to configure ZENworks. You can create a new user schema or use an existing schema that exists on the Oracle database server.

2 Choose **New User Schema**.

3 Specify the user credentials for an administrator who has rights to create the user schema, if you are creating a user schema.

- ♦ **Username:** The user name that has read and write permissions to access the database.
- ♦ **Password:** A valid password of user name to access the database.

4 Click **Next**.

5 Specify the following information:

- ♦ **Username:** Specify a new user name for the ZENworks database. The user name can have a maximum of 30 characters. It must not contain spaces or special characters such as (@ [ ] / : \* ? | > < " & % { } ; , ^ + - = ( ) ! ~ ` . ). The user name must not be a database reserve word and it must not start with a number.
- ♦ **Password:** Specify a valid password to access the ZENworks database. The password can have a maximum of 30 characters. It must not contain special characters such as ( ; : " / @ % ? { } ). The password must not be a database reserve word and it must not start with a number.
- ♦ **Confirm password:** Use this field to confirm a correct password. If there is a mismatch, an error message is displayed after you click **Next**. You must re-enter the correct password.

6 Choose **Let ZENworks create the tablespaces** or **Let Oracle DBA create the tablespace** for the tablespaces required by the ZENworks database.

Select **Let ZENworks create the tablespaces** if you want the ZENworks database to create the tablespace. Specify the following information:

- ♦ **Tablespace name for tables:** Specify the tablespace name for tables. It must be a unique and must start with [a-z] | [A-Z]. The Oracle tablespace naming conventions must be followed.
- ♦ **Tablespace name for indexes:** Specify the tablespace name for indexes. It must be a unique and must start with [a-z] | [A-Z]. The Oracle tablespace naming conventions must be followed.
- ♦ **DBF file location for tables:** Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path.
- ♦ **DBF file location for indexes:** Specify the dbf fully qualified file path, it must be unique. The specified physical path of the folder must be an existing path.

or

Select **Let Oracle DBA create the tablespace** if you want your database administrator to create the tablespace. Specify the following information:

- ♦ **Tablespace name for tables:** The tablespace name for tables that exist on the Oracle server.
- ♦ **Tablespace name for indexes:** The tablespace name for indexes that exist on the Oracle server.

---

**IMPORTANT:** If you are using Automatic Storage Management (ASM) or some other disk storage, select **Let Oracle DBA create the tablespace**.

---

- 7 Click **Next** and continue with **Audit database** configuration. These fields are the same as those for the ZENworks database.
- 8 Click **Next** and continue with the **Configure Certificate Authority**. For information, see [Step 9 on page 45](#), in the [Configuring the First Primary Server](#).

## Existing User Schema

User schema can be created by using the ZENworks database installation method.

For information, see [Installing and Configuring an External ZENworks Database](#), in the [ZENworks Server Installation](#).

For ZENworks to connect to the Oracle server with an **Existing user schema**:

- 1 Specify the following information in order for ZENworks to connect to the Oracle server:
  - ◆ **Server address:** A valid IP address or a Fully Qualified Domain Name (FQDN) of the Oracle server.
  - ◆ **Port:** The port used by the ZENworks database server. The default port is 1521.
  - ◆ **Service name:** For Oracle server connectivity, specify a valid service name.

**Oracle User Schema:** User schema options are used to set up an external Oracle database schema to configure ZENworks. You can create a new user schema or use an existing schema that exists on the Oracle database server.
- 2 Choose **Existing User Schema**.
- 3 Click **Next**.
- 4 Specify the following information:
  - ◆ **Username:** The user name for an existing ZENworks database user who has permissions to create tables, views, procedures, sequences, and triggers.
  - ◆ **Password:** A valid password to access the database.
- 5 Specify the tablespace names for ZENworks:
  - ◆ **Tablespace name for tables:** The tablespace name for tables. This name should be associated with an existing user name that is specified in the **Username** field
  - ◆ **Tablespace name for indexes:** The tablespace name for indexes. This name should be associated with an existing user name that is specified in the **Username** field.
- 6 Click **Next** with *Audit database* configuration. These fields are the same as those for the ZENworks database.
- 7 Click **Next** and continue with **Configure Certificate Authority**. For information, see [Step 9 on page 45](#), in the [Configuring the First Primary Server](#).

---

**NOTE:** After configuring ZENworks Appliance on the first Primary Server in the zone, the ZooKeeper service is by default enabled on this server. Ensure that the ZooKeeper service is up and running at all times to enable proper functioning of various ZENworks components. To verify the status of the ZooKeeper service, see the Diagnostics page in ZCC. For more information on the ZooKeeper component, see the [ZENworks Primary Server and Satellite Reference](#).

If the Primary Servers in your zone are unable to communicate with the ZooKeeper service due to firewall restrictions, you can run the following configure action to open the ZooKeeper ports: You also need to ensure that the firewall allows client connections from other Primary Servers to the ZooKeeper services on port 6789. If the Primary Servers in your zone are unable to access the ZooKeeper service, then to open the ports, you can run the following Configure action on the server in which ZooKeeper is enabled.

```
novell-zenworks-configure -c ClusterFirewallConfigureAction -  
Doperation=add -Dservice=zookeeper
```

```
microfocus-zenworks-configure -c ClusterFirewallConfigureAction -  
Doperation=add -Dservice=zookeeper
```

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 2020 TCP and UDP Ports](#).

---

## 5.2 Configuring the Additional Primary Servers

---

**NOTE:** When you add an additional Primary server of ZENworks 2020 Update 2 version to an existing zone (update 3 or later version), the OS supported on the latest version of servers gets overwritten to ZENworks 2020 Update 2. Perform the steps mentioned in the [Troubleshooting](#) section, after adding an additional Primary Server.

---

To configure additional Primary Servers to your ZENworks Management Zone:

- 1 Deploy ZENworks Appliance. For information, see [Chapter 3, “Appliance Deployment,” on page 11](#).
- 2 Launch the URL on a supported web browser.  
The URL (<https://<FQDN>:9443> or <https://<ipaddress>:9443>) is displayed on the appliance console.
- 3 Log in to ZENworks Appliance with the `root` or `zenadmin` credentials that were used in [Step 2](#), in the [Section 3.2, “Configuring the Appliance Settings,” on page 17](#).  
When you log in for the first time, you are prompted to configure ZENworks Appliance.
- 4 Verify the prerequisites on the Configure ZENworks Management Zone page.  
Based on how you want to use ZENworks, you should be prepared with the required information to complete the configuration.  
Requirements for the server that is being added to an existing ZENworks Management Zone:
  - ♦ The DNS name or IP address of your zone's Primary Server
  - ♦ The zone administrator credentials to add a new Primary Server
  - ♦ The additional Primary Server can be added only if all the Primary Servers in the zone are upgraded to ZENworks
- 5 Choose the type of Management Zone as **If this server is being added to an existing ZENworks Management Zone**, then click **Add New Primary Server**.

6 Specify the following:

- ♦ **Server address:** The first Primary Server's IP address or FQDN.
- ♦ **Port:** The Port used by the first Primary Server in the Management Zone. The default port is 443.

---

**NOTE:** When adding a new appliance, ensure that you specify the default 7443 port, or any custom port used when upgrading ZENworks.

---

- ♦ **Username:** The ZENworks management zone's administrator user name.
- ♦ **Password:** The password for the ZENworks management zone's administrator.

7 Click **Next**.

8 In the Unknown Certificate dialog box, validate the certificate, then click **Accept** to communicate securely with the first Primary Server.

9 Specify certificate details for the additional Primary Server.

---

**NOTE:** The certificate validity should be between 1 and 10 years. If you plan to use the server as an MDM server, then to ensure communication with iOS and Mac devices, the certificate validity should not exceed 2 years.

---

- ♦ If an Internal certificate is used in the first Primary Server, ZENworks detects the internal certificate and automatically issue the certificate.
- ♦ If an External certificate is used in the first Primary Server, choose the required certificate (**Server Certificate with Private Key** or **Server Certificate**). If you have used the **Generate CSR** link, then upload **Server Certificate**. Based on the certificate specify the following details:

- ♦ **Server Certificate:** Browse to the signed certificate to be used for this server.

The certificate must be a SubCA (approved by SubCA) and CA (Approved by root CA) certificates in order:

```
====Beginning of the Certificate File====
```

```
=[Server Certificate]=
```

```
=[SubCA Certificate]=
```

```
=[CA Certificate]=
```

```
====End of the Certificate File====
```

- ♦ **Private Key File:** This field is enabled if you select the **Server Certificate with Private Key** option. Browse to the **.der** private key file that is associated with the signed certificate.

To convert the PEM file to DER file, use the following command:

```
openssl pkcs8 -topk8 -nocrypt -in privateKey.key -inform PEM -out key.der -outform DER
```

To verify the privateKey.key file, use the following command:

```
openssl rsa -in privateKey.key -check
```

10 Click **Finish**.

ZENworks configuration starts and it might take several minutes. The configuration process will continue in the background even if you close the browser or the browser times out.

## 5.3 Logs

Before configuring ZENworks, all logs are stored in the `/var/opt/novell/jetty/logs/jetty.stderrout.out` location.

While configuring and after configuring the ZENworks, all logs are stored in the `/var/opt/novell/log/zenworks` location.

While configuring and after configuring the ZENworks, all logs are stored in the `/var/opt/microfocus/log/zenworks` location.

# 6 Appliance Management

In ZENworks Appliance, a web based interface is provided to manage the appliance. The user interface helps you to configure and perform operations on a ZENworks Primary Server. Based on the logged-in user the tiles are displayed.

To manage ZENworks, see [Chapter 7, “ZENworks System Management,” on page 61](#).

ZENworks Appliance enables you to reconfigure settings of the appliance, such as administrative passwords, network settings, and certificate settings.

---

**NOTE:** ZENworks does not support the installation of third-party software on the appliance. The ZENworks EULA does not allow installation of third-party software on the appliance.

---

ZENworks Appliance supports `root` and `zenadmin` users. You must use the `root` user if you want to perform any operations on the appliance and ZENworks.

To manage ZENworks Appliance:

- 1 On a supported web browser, launch the URL to access the Management Console.  
The URL (`https://<FQDN>:9443` or `https://<ipaddress>:9443`) that is displayed on the appliance console.
- 2 Specify the login credentials, then click **Log in**.  
The following options are displayed in the Appliance Configuration:
  - ♦ [Section 6.1, “Network,” on page 55](#)
  - ♦ [Section 6.2, “Time,” on page 56](#)
  - ♦ [Section 6.3, “Storage,” on page 56](#)
  - ♦ [Section 6.4, “System Services,” on page 57](#)
  - ♦ [Section 6.5, “Firewall,” on page 58](#)
  - ♦ [Section 6.6, “Administrative Passwords,” on page 58](#)
  - ♦ [Section 6.7, “Online Update,” on page 59](#)
  - ♦ [Section 6.8, “Shutting Down and Restarting ZENworks Appliance,” on page 60](#)

## 6.1 Network

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Network**.
- 2 Below **DNS Configuration**, you can modify the name servers, search domains, and gateway settings for the ZENworks Appliance network.
- 3 Below **NIC Configuration**, click the **ID** to modify the IP address, hostname, and network mask of any Network Interface Controller (NIC) associated with the appliance. (If multiple NICs are configured for ZENworks Appliance, you can configure the additional NICs.)
- 4 Click **OK**, then restart the appliance to reflect the changes.

- 5 (Optional) In the **Appliance Administration UI (port 9443) Access Restrictions**, specify the IP address of any networks for which you want to allow access to the ZENworks Appliance. Leave this blank to allow any network to access the ZENworks Appliance.
- 6 Click **OK**.

## 6.2 Time

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Time**.
- 2 Change the required time configuration options:
  - ♦ **NTP Server:** Specify the NTP server that you want to use for time synchronization. Multiple servers can be specified by providing spaces.
  - ♦ **Region:** Select the region where ZENworks Appliance is located.
  - ♦ **Time Zone:** Select the time zone on which ZENworks Appliance is located.
  - ♦ **Hardware Clock Set to UTC**
- 3 Click **OK**.

## 6.3 Storage

If you have created hard disk partitions (`/vastorage` and `/var`), ZENworks Appliance provides tools that allow you to expand the storage space for the `/vastorage` and `/var` partitions.

---

**NOTE:** Before expanding the storage space for the `/vastorage` and `/var` partitions, stop all ZENworks services on the Appliance. To stop the ZENworks services on the Appliance, run the following command as root:

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

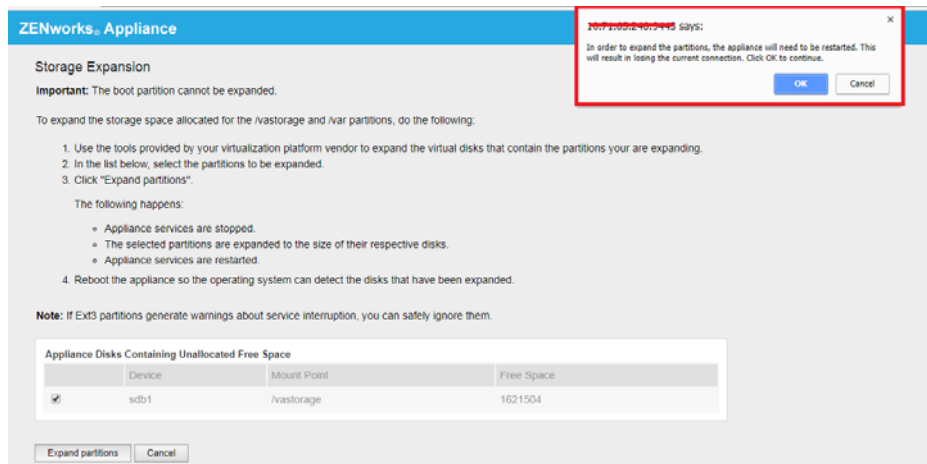
For more information, see [ZENworks 2020 Appliance vastorage partition fails to expand](#).

---

- 1 Shutdown the appliance.
- 2 Use the tools provided by your visualization platform vendor to expand the virtual disks that contain the partitions you are expanding.
- 3 Start the appliance.
- 4 In the ZENworks Appliance home page, in the Appliance Configuration section, click **Storage**.
- 5 In the **Appliance Disks Containing Unallocated Free Space** section, select the partitions to be expanded.
- 6 Click **Expand partitions**.

After clicking Expand partitions, a browser pop-up message is displayed.





7 Click Ok and restart the appliance so that the operating system detects the volume size change.

---

**NOTE:** ♦Expansion of the drive is performed during the shutdown process.

- ♦ If you have installed more than 2 hard disks in your appliance, then use the YaST tool to expand the additional hard disks (other than the root and the vastorage).
- 

## 6.4 System Services

List of services that is running on the ZENworks Appliance. The following system services are available:

- ♦ SSH
- ♦ Proxy DHCP
- ♦ Samba

In the System Services page, you can perform the following actions:

---

**NOTE:** After updating to ZENworks 2020 Update 3, by default, the proxydhcp service is enabled on all Linux/Appliance Primary Servers.

If not required, the service can be disabled by running the following command:

```
systemctl disable microfocus-proxydhcp.service
```

---

- ♦ [Section 6.4.1, “Starting, Stopping, or Restarting System Services,” on page 57](#)
- ♦ [Section 6.4.2, “Setting System Services to Automatic or Manual,” on page 58](#)

### 6.4.1 Starting, Stopping, or Restarting System Services

- 1 In the System Services page, select the service that you want to start, stop, or restart.
- 2 Click **Action**, then click **Start**, **Stop**, or **Restart**.

## 6.4.2 Setting System Services to Automatic or Manual

- 1 On the System Services page, select the service that you want to make automatic or manual.
- 2 Click **Options**, then click **Set as Automatic**, or **Set as Manual**.

If you choose **Set as Automatic**, the SSH services will start automatically when you start the appliance.

If you choose **Set as Manual**, you need to start or stop the SSH services manually after you start the appliance.

## 6.5 Firewall

During the configuration a few ports on appliance are open. You can view the current firewall configuration from the ZENworks Appliance.

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Firewall**.  
Port numbers are displayed with the current status.

If you have a firewall, you must allow the listed port numbers to ensure that you have a seamless experience with ZENworks Appliance. As a best practice, do not change any port numbers from the default ports.

For more information on opening the Firewall ports, see the Opening Ports section in the [SUSE Linux Enterprise Server Documentation \(https://www.suse.com/documentation/sles-12/book\\_security/data/sec\\_security\\_firewall\\_suse.html\)](https://www.suse.com/documentation/sles-12/book_security/data/sec_security_firewall_suse.html).

## 6.6 Administrative Passwords

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Administrative Passwords**.
- 2 Specify the new passwords for the `root` and `zenadmin` administrators.  
If you are changing the root password, you must first specify the current root password.
- 3 (Optional) Select or clear **Allow root access to SSH**. When this option is selected, the root user is able to SSH to the appliance. If this option is not selected, only the zenadmin user can SSH to the appliance.
- 4 Click **OK**.

## 6.7 Online Update

Online Update enables you to update the Appliance.

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Online Update**.

You can perform the following actions:

- ♦ **Register:** Enables you to register with Micro Focus Customer Center (MFCC) server or a Local Subscription Management Tool (SMT) server from where you can download software updates and install automatically to update the product.

To register online update service:

1. Click the Register tab.
2. Choose the type of service **Local SMT** (Subscription Management Tool) or **Novell Customer Center** (NCC).

Based on the service type, specify the following:

### Local SMT

- ♦ **Hostname:** The hostname of the server from where you want to download.
- ♦ **SSL Cert URL (optional):** The SSL certificate to communicate with the server.
- ♦ **Namespace path (optional):** The name space of the file or directory.

### Novell Customer

- ♦ **Email:** The email address to receive the updates on ZENworks suite.
- ♦ **Activation key:** The activation key for the server base license.
- ♦ **Allow data send:** choose how you want to receive the data **Hardware Profile** or **Optional information**.

3. Click **Register**.
- ♦ **Update Now:** After registration, click **Update Now** to trigger downloaded updates.
  - ♦ **Schedule:** After registration, you can configure type of updates to download and whether to automatically agree with the licenses.

To schedule online update:

1. Click the **Schedule** tab.
  2. Select a schedule for download updates (Manual, Daily, Weekly, Monthly).
- ♦ **View Info:** Displays the list of installed and downloaded software updates.
  - ♦ **Refresh:** Refreshes the status of updates on the Appliance.

---

**NOTE:** ♦The Operating System security patches and updates for ZENworks Appliance are provided every 3 to 4 months.

- ♦ After updating the Appliance security patches involving non-kernel patches, the **Reboot Needed** button notification will still be displayed as certain processes will continue to use deleted files until reboot. Hence, a reboot is required after applying appliance security patches with or without kernel patches.
-

## 6.8 Shutting Down and Restarting ZENworks Appliance

- 1 On the ZENworks Appliance home page, in the Appliance Configuration section, click **Reboot** or **Shutdown**.

This restarts or shuts down ZENworks Appliance.

# 6 ZENworks System Management

The user interface helps you to configure and perform operations on a ZENworks Primary Server. Based on the logged-in user the tiles are displayed.

On ZENworks, the `root` user has all privileges, whereas for the `zenadmin` user certain privileges are restricted. If you log in as a `zenadmin` user, you will not be able to execute commands that tend to modify the existing configuration, such as `zac refresh`, `zac clear-cache` and so on. Only commands that displays the existing configuration can be executed. The `zenadmin` user is used as a ZENworks administrator to perform day-to-day activities in ZENworks.

The following operations can be performed by `root` and `zenadmin`:

- ◆ Explore all the files and folders of the appliance system
- ◆ View logs
- ◆ View and edit log configurations
- ◆ View and edit the ZENworks configuration settings
- ◆ Restart both appliance and ZENworks
- ◆ Launch a terminal and execute ZENworks commands

---

**NOTE:** Not all the commands are supported when you log in as a `zenadmin` user. Commands to display the current settings (`zac zone-config`, `zac config-location`), preferences (`zac get-pref`), list (`zac bundle-list`, `zac policy-list`, `zac external-service-list`, `zac lock-list`), properties (`zac bundle-props`, `zac agent-properties`), search (`zac bundle-search`) command, patch commands (`zac patch-apply-policy`, `zac patch-quarantine-release`, `zac patch-scan`) and so on are supported.

---

To manage ZENworks Appliance:

- 1 Launch the URL on a supported web browser to access the Management Console.

For example: `https://<FQDN>:9443` or `https://<ipaddress>:9443`

- 2 Specify the login credentials, then click **Log in**.

If you log in as a `root` or `zenadmin` user, the following options are displayed in the ZENworks section:

- ◆ [Section 6.1, “ZENworks Configuration,” on page 50](#)
- ◆ [Section 6.2, “Terminal and File Explorer,” on page 51](#)
- ◆ [Section 6.3, “Logs,” on page 53](#)
- ◆ [Section 6.4, “Log Configuration,” on page 54](#)
- ◆ [Section 6.5, “Samba Share Configuration,” on page 54](#)
- ◆ [Section 6.6, “ZENworks Control Center,” on page 55](#)

## 6.1 ZENworks Configuration

The ZENworks Configuration page is enabled only after ZENworks is successfully configured.

- 1 On the ZENworks Appliance home page, in the **ZENworks** section, click **ZENworks Configuration**.

The ZENworks Configuration page has the Summary, Basic, and Advanced views.

The Summary view enables you to view the ZENworks Primary Server details. This includes information about the Certificate, ZENworks Database, ZENworks Audit Database, and Appliance details, such as type of hypervisor used, operating system, RAM and file system and HDD details.

The Additional hard disk that is added will be attached to the `/dev/sdb1` and mounted on `/vastorage`. All ZENworks related configurations, log files, backup files, certificates, and binaries are stored on the additional hard disk.

Click **Open ZENworks Control Center** to use ZENworks.

The Basic view displays frequently used server configuration settings as an individual configuration value. You can edit frequently used ZENworks related settings.

For example, you can configure **HTTP Thread Count** by changing the default value, save, and then restart the pending service that is available in Restart Service page.

Basic view has the following options:

- ♦ **Save:** Saves the modified settings.
- ♦ **Refresh:** Refreshes all the ZENworks configurations.
- ♦ **Reset all values to defaults:** Reverts the settings to the state since applying last ZENworks system update.
- ♦ **Restart Services:** Enables you to select the services that need to be restarted to reflect the configuration changes.


When there is a change in the configuration file that is associated with the ZENworks process, then the system automatically determines it and the process gets listed in the Restart Services page.

The Advanced view enables you to view, configure, or edit any server configuration file that is related to ZENworks, such as ZENServer, Tomcat, CASA, datamodel, ZENLoader, and ZMAN. You can view all relevant server configuration files in the ZENworks Primary Server.

By default the file will be in Read-Only mode. To edit a file, toggle the **Edit Mode**, change the required content of the file, and then **Save**. changes are made to the file, then the corresponding process has to be restarted by clicking **Restart Services**.

The Advanced view has the following options:

- ♦ **Edit Mode:** Enables you to toggle or edit a server configuration file in an editor.
- ♦ **Reload:** Loads the server configuration file from the file system. Any unsaved changes made in the browser editor will be lost.
- ♦ **Reset to default:** Reverts the file to the state since applying last ZENworks system update.
- ♦ **Save:** Saves a server configuration file to the file system.
- ♦ **Refresh All:** Refreshes all the ZENworks configurations.

- ♦ **Download:** Downloads the server configuration files.
- ♦ **Download all Files:** Downloads all the server configuration folders that are displayed in the left pane. The appliance creates a compressed archive of the files to be downloaded.
- ♦ **Reset all values to default:** Reverts all the files to the state since applying last ZENworks system update.
- ♦ **Select Path:** Click the select path  icon to copy the physical path of the configuration file.
- ♦ **Restart Services:** Enables you to select the services that need to be restarted (in Basic or Advanced view) and to reflect the configuration changes.

When there is a change in the configuration file that is associated with the ZENworks process, then the system automatically determines it and the process gets listed in the Restart Services page.

## 6.2 Terminal and File Explorer

This tile launches an integrated view for File System Explorer and Terminal.

- ♦ [Section 6.2.1, “Terminal,” on page 51](#)
- ♦ [Section 6.2.2, “File Explorer,” on page 52](#)

### 6.2.1 Terminal

SSH service needs to be running for terminal to work. SSH service is not started by default for security reasons.

- 1 On the ZENworks Appliance home page, in the **Appliance Configuration**, click the **System Services** icon.
- 2 Select the **SSH service** on the System Services page.
- 3 Click **Action**, then click **Start**.  
Set the SSH service to **Automatic**, if you want to restart the SSH service automatically after you reboot the device.
- 4 On the ZENworks Appliance home page, in the **ZENworks** section, click **Terminal & File Explorer**

A new browser window launches two frames that display a **File Explorer** (for performing file operations) and a **Terminal**. Whenever you close the Terminal browser or tab, then a confirmation message is displayed.

If you log in as `zenadmin` or `root` user, you can open a terminal session. The `zenadmin` user can execute ZENworks commands such as `zman`, `zac`, and `microfocus-zenworks-configure`.

You can perform file operations by using an embedded File Explorer that enables you to transfer content between the local and the remote file systems. You can also open new terminals rooted at any folder in the remote file system.

You can launch more than one terminal by clicking **New Terminal**. By default, a maximum of five terminals can be launched.

To configure with any other value than the default value of the terminal:

- 1 Go to `/etc/opt/microfocus/base`
- 2 Open the `terminal_config.properties` file.
- 3 Change the `maxTerminalsPerBrowser` value with the required value, then save the file.

To select a theme (foreground and background color) for the terminals:

- 1 Click the **Settings**  icon, then select the required terminal theme.

To create a theme:

- 1 Go to `/etc/opt/microfocus/base`
- 2 Open the `terminal-themes.xml` file.
- 3 Add your own theme, then save the file. For example:

```
<theme>
  <name>example</name>
  <background-color>#000000</background-color>
  <foreground-color>yellow</foreground-color>
</theme>
```

## 6.2.2 File Explorer



- 1 On the ZENworks Appliance home page, in the **ZENworks** section, click **Terminal & File Explorer**.

A new browser window launches two frames that display a **File Explorer** (for performing file operations) and a **Terminal** (SSH).









This enables you to perform operations on files and folders.

- ♦ The file operations are based on user privileges (POSIX file permissions).
- ♦ If you log in as `zenadmin`, all file operations are executed as `zenworks` user.
- ♦ If you log in as `root`, all file operations are executed as `root` user.
- ♦ In the tabular view, a context menu is available with these options: **Open Terminal**, **Refresh**, **Upload**, **Delete**, and **Rename**.
- ♦ The Tree View for appliance file system displays the appliance file system as a tree. Only folders are displayed in the tree view. The following options are available **Open Terminal**, **Refresh**, **Cut**, **Copy**, **Paste**, **Delete**, **Rename**, **New Folder**, **Download**, and **Upload**.
- ♦ File explorer enables you to explore the Appliance's (SLES -Unix) file system, breadcrumb navigation, upload, download, refresh, rename, create, delete, or, CCP operations (cut, copy, and paste).

Below the file path, a toolbar is displayed and you can perform the following:

Icon	Name	Description
	Terminal Settings	To change the terminal theme display settings.
	Select Path	To select file path that is displayed on the breadcrumb.



Icon	Name	Description
	Settings	To configure show or hide files.
/	Breadcrumb	Displays the path for selected file or folder.
	Parent Directory	Display the contents of the parent folder in the tabular view.
	Download	To download files and folders under a specified folder.
	Upload	Supports multiple file upload; folder upload is not supported.
	New folder	Creates a folder in the current folder.
	New file	Creates a new file in the current folder.
	Refresh	Updates the tabular view with the latest contents from the appliance.
	Delete	Enables you to delete multiple files and folders under a specified folder.

## 6.3 Logs

All log files that are monitored on ZENworks Appliance are organized in a virtual tree structure and path of the particular file or folder is displayed. Log files can be viewed in the Tail mode or View From Start mode.

In the Tail mode, a log file is displayed from the end of log file.

In the View From Start mode, a log file is displayed from the start of the log file. Whenever log files span across multiple version of files, then starting from the first version of that file the content is displayed.

- 1 On the ZENworks Appliance home page, in the **ZENworks** section, click **Logs**.

This enables you to view logs of the ZENworks Primary Server. Logs are categorized based on Appliance logs, operating system logs, and ZENworks logs. With-in ZENworks, logs are categorized based on different ZENworks components.

Logs has the following options:

- ♦ **View**, **View From Start**, and **Refresh**
- ♦ **Download** enables you to download a log file or a folder.
- ♦ **Resume** and **Pause** enable you to tail log files to see the latest information. You can configure the refresh interval of a tail by specifying the **Refresh** time in **Seconds**. Refresh specifies the interval of time between two requests. By default **Refresh** is set to one second.

Specify **Lines to load** to control the number of lines to be retrieved for the tail interval. By default **Lines to load** is set to 100.

Control the speed in which log file is displayed. Log files are loaded by making multiple HTTP requests in periodic intervals of time. Each request loads a configurable number of lines.

- ♦ **Clear** enables you to clear the current displayed logs. However, logs will not be cleared in ZENworks Appliance. To see the cleared logs, start the log file.
- ♦ **Search** enables you to filter logs based on the search criteria. You can use tail and grep to monitor log files from the terminal. The log viewer provides a GUI for tailing and filtering the content in log files. You can search based on log level such as INFO, ERROR, and DEBUG and also with regular expressions (AND and OR).

## 6.4 Log Configuration

This enables you to view, configure, or edit any log configuration files that are related to ZENworks, such as ZENServer, ZENLoader, Embedded Database, ZMAN, CASA, Inventory, Imaging, and Remote Management.

To launch ZENworks Log Configuration:

- 1 On the ZENworks Appliance home page, in the **ZENworks** section, click **Log Configuration**.

You can view all configuration log files that are categorized logically on the ZENworks Primary Server. The Basic view displays frequently used log configuration settings and you can set different log levels such as debug, info, off, warning, and error.

In the Advanced view, it loads ZENworks component's log configuration file, and can be edited to debug any issue in the customer environment. After editing the configuration file, you can restart the services. You can also list files that are modified and process that requires to restart.

For example, the Tomcat maximum file size is 300 KB by default. You can edit the configuration file to increase the file size to 400 KB.

The Advanced view of Log Configuration has the following options:

- ♦ **Edit Mode:** Click the **Edit Mode** icon to edit a configuration file that displays in an editor.
- ♦ **Reload:** Reloads the current changes to a configuration file.
- ♦ **Reset to default:** Reverts the file to the state since applying the last ZENworks system update.
- ♦ **Save:** Saves a configuration file.

## 6.5 Samba Share Configuration

Samba allows to share files across various platforms over a network. By default, Samba share uses the port 139. Hence, it is recommended that the port 139 is opened in your appliance.

Using the following content repo folders, you can share files using Samba:

- ♦ `contentrepo="/var/opt/microfocus/zenworks/content-repo/"`
- ♦ `images="/var/opt/microfocus/zenworks/content-repo/images/"`

## 6.5.1 Accessing the shared folder

To access the Samba shared folder, perform the following steps:

1. Press Windows Start + R.
2. In the Run window, type `\\<APPLIANCE_IP>\<SHARE>` and hit enter.
  - ♦ APPLIANCE\_IP is the IP address of your Appliance server.
  - ♦ SHARE is the name of the share that you want to access. The share can be contentrepo or images.
3. Specify the credentials.

---

**NOTE:** By default, zenadmin is the user name and novell is the password. However, you can change the default credentials. For more information on changing the password see Changing Samba Password.

---

## 6.5.2 To change the Samba password, perform the following steps in the Appliance Terminal

To change the Samba password, perform the following steps in the Appliance Terminal:

1. Run the following command:

```
sudo smbpasswd -a <username>
```

Here, zenadmin is the username.
2. A prompt is displayed to specify the new password.
3. After changing the password, restart the samba services by running the `systemctl restart smb.service` command.

## 6.5.3 Changing the Samba Share Settings

The default Samba share settings are available in `smb.conf` file in the `/etc/samba/` location. Based on requirements, you can change the settings, and then restart the samba services by running the `systemctl restart smb.service` command.

## 6.6 ZENworks Control Center

To use ZENworks Control Center:

- 1 On the ZENworks Appliance home page, in the **ZENworks** section, click **ZENworks Control Center**.
- 2 On the ZENworks Control Center login page, specify the ZENworks Management Zone credentials that you specified during configuration.



# A Troubleshooting

The following sections provides solutions to the problems you might encounter while deploying and Configuring ZENworks Appliance:

- ♦ [“Online Update to MFCC/SMT Fails” on page 69](#)
- ♦ [“In Appliance, the Login Screen is Displayed During ZENworks Configuration” on page 69](#)
- ♦ [“ZENworks Appliance disk expansion does not take effect” on page 70](#)
- ♦ [“After appliance migration, the appliance goes into the emergency mode” on page 70](#)
- ♦ [“Error is displayed when you try to configure the ZENworks appliance with a .pfx certificate” on page 70](#)
- ♦ [“Unable to Deploy the Appliance on VMware vSphere” on page 71](#)
- ♦ [“The ntpd service is disabled even when the NTP Time Source is configured” on page 71](#)
- ♦ [“System Update Fails On Windows 10 Devices” on page 71](#)
- ♦ [“After Running SSLConfigureAction from the Terminal or Command Prompt, the ZENworks Appliance Gets Terminated” on page 72](#)

## Online Update to MFCC/SMT Fails

Source: ZENworks Appliance

Explanation: After ZENworks Appliance configuration, the security updates (product and operating system patches) could not be applied as users were unable to register to Micro Focus Customer Center (MFCC) server or a Local Subscription Management Tool (SMT) server.

Action: To resolve this issue, apply the ZENworks 23.4 - FTF 94 or later and retry to register on the [Online Update](#) page. For steps to apply the ZENworks 23.4 - FTF 94, see [Official Primary Server FTF 94 on ZENworks 23.4](#).

## In Appliance, the Login Screen is Displayed During ZENworks Configuration

Source: ZENworks 23.4, ZENworks New Installation

Possible Cause: In the Appliance console, while configuring ZENworks, if you are inactive, the browser session timeout, and a login screen will be displayed.

Action: If the login screen is displayed, then perform the following steps.

1. Go to the Appliance console.
2. Click the ZENworks configuration tile.
3. Redo all the configurations.

## ZENworks Appliance disk expansion does not take effect

**Explanation:** On ZENworks Appliance, the function to expand the `/vastorage` disk on the web administration console does not take effect if the appliance contains any additional disk which is mounted to a directory below `/vastorage`.

The system does not report any errors and request the administrator to restart the appliance. The size of the `/vastorage` disk is unchanged after the appliance has been restarted.

**Action:** On a command line, stop all ZENworks services using the `microfocus-zenworks-configure -c Start` command and then unmount the additional disk amount `/dev/sdc1` before using the web administration console to expand the `/vastorage` disk.

## After appliance migration, the appliance goes into the emergency mode

**Source:** ZENworks Appliance

**Explanation:** An appliance with `content-repo` mounted on a separate disk (3rd disk), after migrating, the appliance goes to the emergency mode.

**Action:** While in the emergency mode, in `/etc/fstab`, update the `x-systemd.requires=/vastorage` parameter to the mounted `content-repo`, as shown in the below example:

```
/dev/sdc1    /var/opt/microfocus/zenworks/content-repo
ext4    acl,user_xattr,x-systemd.requires=/vastorage    1
2
```

After making the changes, reboot the appliance for the changes to take effect.

## Error is displayed when you try to configure the ZENworks appliance with a .pfx certificate

**Source:** ZENworks Appliance

**Explanation:** While configuring the ZENworks appliance for the first Primary Server, if you upload an external CA in the `.pfx` format, the `This certificate chain does not match the Root certificate` error is displayed.

**Possible Cause:** The `.pfx` file does not contain the self-signed root certificate.

**Action:** Log in to ZENworks Appliance. On the ZENworks Appliance home page, under **ZENworks**, click **Terminal & File Explorer**.

Perform the following steps to upload files to ZENworks Appliance. Alternatively, you can use any WinSCP tool to upload the files.

1. In the **File Explorer**, select a folder where you will run the command to create a `.pfx` file and click **Upload**.
2. Select the file to upload and click **Open**.
3. Click **Start Upload** in the **File Upload** dialog box.

Run the following command to create a `.pfx` file:

```
openssl pkcs12 -export -out <name>.pfx -inkey <key> -in
<server.cer> -certfile <int+cer.cer>
```

Specify the following values in the command:

- ◆ name: name of the .pfx file
- ◆ key: key in the .pem format
- ◆ server.cer: Server certificate
- ◆ int+cer.cer: The root certificate and intermediate certificate. Note: It should not contain the server certificate.

## Unable to Deploy the Appliance on VMware vSphere

Source: The source of the message.

Explanation: Deploying the ZENworks Appliance on VMware vSphere 6.x fails with a "**TypeError: Cannot read property 'keyValue' of undefined**" error.

Action: Perform the following steps:

1. Download the embedded host client available in the following link:

<https://flings.vmware.com/esxi-embedded-host-client>

2. Upload the downloaded VIB file into the datastore, and then install the file using the following command:

```
[root@ESXI~] esxcli software vib install -v /vmfs/
volumes/<your_datastore> /esxui-signed-12086396.vib
```

3. After successfully installing the VIB, restart the appliance deployment.

## The ntpd service is disabled even when the NTP Time Source is configured

Explanation: In the ZENworks Appliance, by default, the ntpd service is disabled even when the NTP Time source is configured, and the ntpd service might not run automatically after a device reboot.

Action:

1. In the ZENworks Appliance terminal, open Yast, select System > Date and Time, and then select Other Settings.
2. Select Synchronize with NTP Server and then select the Run NTP as daemon option. After accepting the changes, the ntpd service is enabled and the ntpd service runs automatically after the device reboots.

## System Update Fails On Windows 10 Devices

Source: ZENworks 2020

Explanation: When you deploy ZENworks 2020 Update 1 on Windows 10 64-bit devices, the system update might fail.

Action: Redeploy the update on the devices on which the update has failed.

## After Running SSLConfigureAction from the Terminal or Command Prompt, the ZENworks Appliance Gets Terminated

Source: ZENworks Appliance 2020 Update 3

Explanation: When you run the `novell-zenworks-configure -c SSL -Z configure` action from the Terminal or Command Prompt, the ZENworks Appliance (9443) gets terminated.

The Jetty log displays the below exceptions:

*java.security.UnrecoverableKeyException: Password verification failed*

*Caused by: java.security.PrivilegedActionException: java.io.IOException: Keystore was tampered with, or password was incorrect*

Action: To ensure the ZENworks Appliance is up and running:

1. Run the following command immediately after executing SSL configure action from the Terminal or Command Prompt:

```
microfocus-zenworks-configure -c
UnifyTrustStoreForApplianceConfigureAction
```

2. Restart the appliance Jetty service using the command: `systemctl restart vabase-jetty`.

---

**NOTE:** It is always recommended to initiate remind from ZCC UI. Running the SSL configure action from console is not advisable for the purpose of Certificate Authority (CA)/Server certificate remind.

---