



ZENworks 2020 Update 3 Server Installation Guide

November 2022

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About This Guide

This *ZENworks Server Installation Guide* includes information to help you successfully install the ZENworks Primary Server software on Windows and Linux servers.

The information in this guide is organized as follows:

- ♦ [Part I, “Windows Installation,” on page 9](#)
- ♦ [Part II, “Linux Installation,” on page 55](#)
- ♦ [Part III, “Appendixes,” on page 95](#)

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](#).

Windows Installation

The following sections provide information and instructions to help you install the ZENworks Primary Server software on a Windows server:

- ♦ [Chapter 1, “Windows Installation Workflow,” on page 11](#)
- ♦ [Chapter 2, “Understanding What the ZENworks Installation Does,” on page 17](#)
- ♦ [Chapter 3, “Updating Windows Server Software,” on page 19](#)
- ♦ [Chapter 4, “Creating an External Certificate,” on page 21](#)
- ♦ [Chapter 5, “Installing and Configuring an External ZENworks Database,” on page 25](#)
- ♦ [Chapter 6, “Installing a ZENworks Primary Server on Windows,” on page 37](#)
- ♦ [Chapter 7, “Completing Post-Installation Tasks,” on page 51](#)

1 Windows Installation Workflow

The tasks you must complete to install your first ZENworks Primary Server are different from the tasks required for additional Primary Servers. The following sections provide the workflows for both processes:

- ♦ [“Installation Workflow for Your First Primary Server” on page 11](#)
- ♦ [“Installation Workflow for Additional Primary Servers” on page 13](#)

Installation Workflow for Your First Primary Server

To install the first ZENworks Primary Server and create your ZENworks Management Zone, complete the tasks in the order listed below.

To add a Primary Server to an existing ZENworks Management Zone, see [“Installation Workflow for Additional Primary Servers” on page 13](#).

Task	Details
<input type="checkbox"/> Review what the ZENworks installation program does when installing the first Primary Server and Management Zone.	<p>When installing the first Primary Server, the installation program performs operations to install the Primary Server software, set up the ZENworks databases, and establish the Management Zone.</p> <p>NOTE: After installing the first Primary Server, ZooKeeper is enabled on the Primary Server. The ZooKeeper services should be up and running at all times. For more information, see Installation Information.</p> <p>For more information, see Chapter 2, “Understanding What the ZENworks Installation Does,” on page 17.</p>
<input type="checkbox"/> Download and mount the ISO.	<p>You cannot extract the ISO image and use it to install.</p>
<input type="checkbox"/> Update the software on the Windows server where you will install the ZENworks Primary Server.	<p>Ensure that the Windows server software is up to date and that any software, such as anti-virus software, that might interfere with the Primary Server installation is updated and configured correctly.</p> <p>For more information, see Chapter 3, “Updating Windows Server Software,” on page 19.</p>

Task	Details
<input type="checkbox"/> (Optional) Create an external certificate for your Primary Server.	<p>ZENworks Primary Servers communicate with ZENworks managed devices using the HTTPS protocol. This secure communication requires that the ZENworks Management Zone has a defined Certificate Authority (CA) and that each Primary Server has its own server certificate issued by the zone's CA.</p> <p>ZENworks includes an internal ZENworks CA. If you use the internal ZENworks CA, it is created during installation of the first Primary Server, and each subsequent Primary Server you install is issued a certificate signed by the ZENworks CA.</p> <p>It is recommended that you use the internal ZENworks CA unless your corporate security policies do not allow you to do so. The internal ZENworks CA lasts 10 years and simplifies use of various ZENworks features, such as Remote Management.</p> <p>If you cannot use the internal ZENworks CA, you can use an external CA and provide external server certificates for each Primary Server you install.</p> <p>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.</p> <p>If you want to use external certificates, see Chapter 4, "Creating an External Certificate," on page 21.</p> <p><input type="checkbox"/> Install external database software to use for the ZENworks databases.</p> <p>ZENworks requires two databases, one for general data and another for audit data. For these databases, you can use the embedded PostgreSQL database software provided with ZENworks, or you can use supported external database software (see Database Requirements in the ZENworks 2020 Update 2 System Requirements).</p> <p>If you want to use an external database, see Chapter 5, "Installing and Configuring an External ZENworks Database," on page 25.</p>

Task	Details
<input type="checkbox"/> Install external database software to use for the Audit databases.	<p>You can use the embedded PostgreSQL database software provided with ZENworks, or you can use supported external database software (see Database Requirements in the ZENworks 2020 Update 2 System Requirements).</p> <p>If you want to use an external database, see Chapter 5, “Installing and Configuring an External ZENworks Database,” on page 25.</p> <p>After configuring the ZENworks database, configure the Audit database. The fields for ZENworks and Audit are same.</p>
<input type="checkbox"/> Install the ZENworks Primary Server software on a supported Windows server.	For instructions, see “Installing the Primary Server Software” on page 45.
<input type="checkbox"/> Verify that the Primary Server is running.	<p>There are specific checks you can perform to ensure that installation of the software was successful and that the Primary Server is running.</p> <p>For instructions, see “Verifying the Installation” on page 48.</p>
<input type="checkbox"/> Activate the ZENworks products for which you are licensed or that you want to evaluate.	<p>All ZENworks products are installed. However, you need to provide the license keys for the products that you have licensed. If desired, you can also activate unlicensed products for a 60-day evaluation period.</p> <p>For instructions, see “Licensing Products” on page 51.</p>
<input type="checkbox"/> Back up the ZENworks Primary Server and other ZENworks components.	<p>You should back up the Primary Server at least one time and schedule regular back ups of the ZENworks databases.</p> <p>For instructions, see “Backing Up ZENworks Components” on page 53.</p>
<input type="checkbox"/> Review the post-installation tasks and complete any that apply to your Primary Server installation.	<p>There are several post-installation tasks that you might need to perform for your Primary Server. Review the list of tasks and complete any that apply.</p> <p>For instructions, see Chapter 7, “Completing Post-Installation Tasks,” on page 51.</p>

Installation Workflow for Additional Primary Servers

To install a ZENworks Primary Server and add it to your existing ZENworks Management Zone, complete the tasks in the order listed below.

IMPORTANT: If your zone is upgraded to ZENworks 2020 Update 2, and when you add the second Primary Server, the Security setting will be enabled by default. If the Security setting is enabled, then the communication with the server and agent with the earlier version of ZENworks (2020 Update 1 and earlier) will fail. For more information, see Securing ZENworks Devices in the [Online Documentation site](#).

Task	Details
<input type="checkbox"/> Review what the ZENworks installation program does when adding a Primary Server to an existing Management Zone.	<p>When installing an additional Primary Server in a Management Zone, the installation program performs operations to install the Primary Server software, add the Primary Server to the existing Management Zone, install ZENworks Control Center, and start the ZENworks services.</p> <p>For more information, see Chapter 2, “Understanding What the ZENworks Installation Does,” on page 17.</p>
<input type="checkbox"/> Download and mount the ISO	<p>You cannot extract the ISO image and use it to install.</p>
<input type="checkbox"/> Update the software on the Windows server where you will install the ZENworks Primary Server.	<p>Ensure that the Windows server software is up to date and that any software, such as anti-virus software, that might interfere with the Primary Server installation is updated and configured correctly.</p> <p>For more information, see Chapter 3, “Updating Windows Server Software,” on page 19.</p>
<input type="checkbox"/> (Optional) Create an external certificate for your Primary Server.	<p>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.</p> <p>If your zone is using an external CA, you must provide the new Primary Server with a valid certificate issued from the external CA.</p> <p>For instructions about creating a certificate from an external CA, see Chapter 4, “Creating an External Certificate,” on page 21.</p>
<input type="checkbox"/> Install the ZENworks Primary Server software on a supported Windows server.	<p>Installation of an additional Primary Server is less complex than installation of the first Primary Server. The installation program only requires you to provide a target location for the software files, authentication information for the Management Zone (Primary Server address and Administrator login credentials), and files for the external certificate (if the zone is using an external CA).</p> <p>For instructions about running the installation program, see “Installing the Primary Server Software” on page 45.</p>

Task	Details
❑ Verify that the Primary Server is running.	<p>There are specific checks you can perform to ensure that installation of the software was successful and that the Primary Server is running.</p> <p>For instructions, see “Verifying the Installation” on page 48.</p>
❑ Back up the ZENworks Primary Server.	<p>You should back up the Primary Server at least one time.</p> <p>For instructions, see “Backing Up ZENworks Components” on page 53.</p>
❑ Review the post-installation tasks and complete any that apply to your Primary Server installation.	<p>There are several post-installation tasks that you might need to perform for your Primary Server. Review the list of tasks and complete any that apply.</p> <p>For instructions, see Chapter 7, “Completing Post-Installation Tasks,” on page 51.</p>

2 Understanding What the ZENworks Installation Does

The ZENworks installation program does the following during installation of your first Primary Server:

- ♦ Creates the Management Zone
- ♦ Generates a password that you supply for the default ZENworks Administrator account
- ♦ Establishes and populates the ZENworks database and Audit database

The ZENworks installation program does the following during installation of any Primary Server:

- ♦ Installs the ZENworks Agent so that the server can be managed
- ♦ Installs ZENworks Control Center, the web console used to manage your ZENworks System
- ♦ Installs the zman command line utility
- ♦ Installs and starts the ZENworks services

3 Updating Windows Server Software

Before installing ZENworks Primary Server software to a Windows server, ensure that you update the software on the server:

- ♦ Run Windows Update on the server to ensure that all available updates are installed. When finished, disable Windows Update to prevent failure of the Primary Server software installation due to parallel installation of updates.
- ♦ Update other software (for example, anti-virus) to prevent failure of the Primary Server software installation due to parallel installation of updates.
- ♦ If you are testing or reviewing ZENworks 2020 Update 2, we recommend that you deploy the product in a non-production environment.

4 Creating an External Certificate

ZENworks Primary Servers communicate with ZENworks managed devices using the HTTPS protocol. This secure communication requires that the ZENworks Management Zone have a defined Certificate Authority (CA) and that each Primary Server have its own server certificate issued by the zone's CA.

ZENworks includes an internal ZENworks CA. If you use the internal ZENworks CA, it is created during installation of the first Primary Server. Each subsequent Primary Server you install is issued a certificate signed by the ZENworks CA.

We recommend that you use the internal ZENworks CA unless your corporate security policies do not allow you to do so. The internal ZENworks CA lasts 10 years and simplifies use of various ZENworks features such as Remote Management.

The following are the acceptable formats for 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.

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
```

NOTE

- ♦ If it is an intermediate CA, you need to provide the complete chain. ZENworks will use the root CA in the chain as the future CA. The top-level should consist of a root certificate, which is signed by the Root CA, followed by the intermediate certificates, and then the Leaf certificate (server certificate).
- ♦ If it is an intermediate CA, you need to provide the complete chain. ZENworks will use the root CA in the chain as the future CA. The chain should begin with the server certificate, the intermediate or subordinate certificate authority and then root ca.

- ♦ The supported certificate formats are .der, .cer, .crt, .p7b, .pem, .cert
 - ♦ If you plan to configure Kafka or Vertica in your zone, then ensure that two-way SSL is enabled for the server certificate issued by an external CA. For more information on Kafka or Vertica, see [ZENworks Vertica Guide](#).
-

See the following sections for detailed instructions on using external certificates:

- ♦ [“Generating a Certificate Signing Request \(CSR\)” on page 22](#)
- ♦ [“Generating a Certificate by Using NetIQ ConsoleOne” on page 23](#)
- ♦ [“Generating a Certificate by Using NetIQ iManager” on page 23](#)

Generating a Certificate Signing Request (CSR)

For each Windows server where you will install the ZENworks Primary Server software, you need to create an individual server certificate with the subject being the server’s Fully Qualified Domain Name (FQDN).

- 1 Install OpenSSL.
- 2 To generate a private key that is needed to create a certificate signing request (CSR), enter the following command:

```
openssl genrsa -out zcm.pem 2048
```

- 3 To create a CSR that can be signed by a Certificate Authority, enter the following command:

```
openssl req -new -key zcm.pem -out zcm.csr
```

When you are asked for “YOUR name,” enter the full DNS name assigned to the server where you are installing the Primary Server software domain names include *www.company.com*, *payment.company.com* and *contact.company.com*.

- 4 To convert the private key from PEM format to the DER encoded format, enter the following command:

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

The private key must be in the PKCS8 DER encoded format. You can use the OpenSSL command line tool to convert your keys to the proper format.

- 5 Use the CSR to generate a certificate by using ConsoleOne, iManager, or a true external CA such as Verisign.

If you are using a true external CA such as Verisign, refer to Verisign for information about using the CSR to generate a certificate. If you are using ConsoleOne or iManager as your Certificate Authority, instructions are provided in the following sections:

- ♦ [“Generating a Certificate by Using NetIQ ConsoleOne” on page 23](#)
- ♦ [“Generating a Certificate by Using NetIQ iManager” on page 23](#)

Generating a Certificate by Using NetIQ ConsoleOne

- 1 Ensure that eDirectory is configured as the CA.
- 2 Issue the certificate for the Primary Server:
 - 2a Launch ConsoleOne.
 - 2b Log in to the eDirectory tree as an administrator with the appropriate rights.

For more information about the appropriate rights, see the [Entry Rights Needed to Perform Tasks \(https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html\)](https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html) section in the *NetIQ Certificate Server 3.3* documentation.
 - 2c From the **Tools** menu, click **Issue Certificate**.
 - 2d Browse for and select the `zcm.csr` file, then click **Next**.
 - 2e Complete the wizard by accepting the default values.
 - 2f Specify the certificate basic constraints, then click **Next**.
 - 2g Specify the validity period and the effective and expiration dates, then click **Next**.
 - 2h Click **Finish**.
 - 2i Choose to save the certificate in the DER-format, then specify a name for the certificate.
- 3 Export the Organizational CA's self-signed certificate:
 - 3a Log in to eDirectory from ConsoleOne.
 - 3b In the **Security** container, right-click the **CA**, then click **Properties**.
 - 3c In the **Certificates** tab, select the self-signed certificate.
 - 3d Click **Export**.
 - 3e When prompted to export the private key, click **No**.
 - 3f Export the certificate in DER format and choose the location where you want to save the certificate.
 - 3g Click **Finish**.

You should now have the three files that you need to install ZENworks using an external CA.

Generating a Certificate by Using NetIQ iManager

- 1 Ensure that eDirectory is configured as the CA.
- 2 Issue the certificate for the Primary Server:
 - 2a Launch iManager.
 - 2b Log in to the eDirectory tree as an administrator with the appropriate rights.

For more information about the appropriate rights, see the [Entry Rights Needed to Perform Tasks \(https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html\)](https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html) section in the *NetIQ Certificate Server 3.3* documentation.
 - 2c From the **Roles and Tasks** menu, click **Novell Certificate Server > Issue Certificate**.
 - 2d Click **Browse** to browse for and select the CSR file, `zcm.csr`, then click **Next**.
 - 2e Accept the default values for the key type, the key usage, and the extended key usage, then click **Next**.

5 Installing and Configuring an External ZENworks Database

ZENworks requires two databases, one for general (ZENworks) data and another for audit data. For these databases, you can use the embedded PostgreSQL database software provided with ZENworks, or you can use a supported external database software (see [Database Requirements](#) in the [ZENworks 2020 Update 2 System Requirements](#)).

If you want to use the embedded database, skip the remainder of this section. During the Primary Server software installation, the embedded database will be installed (see [Installing the Primary Server Software](#)).

- ♦ “Prerequisites for External Databases” on page 25
- ♦ “Configuring the External ZENworks Database” on page 28

Prerequisites for External Databases

Review the following sections to meet the prerequisites for the external database you plan to use:

- ♦ “Prerequisites for PostgreSQL” on page 25
- ♦ “Prerequisites for Microsoft SQL Server” on page 26
- ♦ “Prerequisites for Oracle” on page 26

Prerequisites for PostgreSQL

To use the PostgreSQL database, ensure that the following prerequisites are met:

- ♦ Install and set up the PostgreSQL database so that it can be updated during ZENworks installation. For more information, see [Installing PostgreSQL](#).
- ♦ During ZENworks installation, you must specify a database user. Ensure that the database user has read/write permissions to create and modify the tables on the database server.

NOTE: For this database, ZENworks support provides problem determination, provision of compatibility information, installation assistance, usage support, ongoing maintenance, and basic troubleshooting. For additional support, including extended troubleshooting and error resolution, see the [PostgreSQL Support web site \(https://www.postgresql.org/support/\)](https://www.postgresql.org/support/).

Prerequisites for Microsoft SQL Server

To use the Microsoft SQL Server database for ZENworks, ensure that the Microsoft SQL Server software is installed on the database server so that the ZENworks installation program can create the new Microsoft SQL database. For instructions on installing the Microsoft SQL Server software, refer to the Microsoft documentation.

For MS SQL, set the `READ_COMMITTED_SNAPSHOT` setting to `ON` so that it allows read access to information in the database while data is being written or modified.

To set the `READ_COMMITTED_SNAPSHOT` setting to `ON`, execute the following command at the database server prompt:

```
ALTER DATABASE database_name SET READ_COMMITTED_SNAPSHOT ON;
```

Prerequisites for Oracle

During the installation of the ZENworks database on Oracle, you can choose to create a new user schema or specify an existing one that resides on a server in your network.

- ♦ **Create a new user schema:** Ensure that the following requirements are met:

- ♦ You must have the database administrator credentials. Ensure that the administrator has Data Definition Language (DDL) and Redefinition rights with the Grant option (`DBMS_LOCK`, `DBMS_REDEFINITION`, and `DBMS_DDL`) enabled.

NOTE: Ensure that the database administrator has the following privileges:

- ♦ `GRANT ALL on DBMS_REDEFINITION TO system GRANT option;`
 - ♦ `GRANT ALL on DBMS_DDL TO system GRANT option;`
 - ♦ `GRANT ALL ON DBMS_LOCK TO system WITH GRANT OPTION;`
-

- ♦ A tablespace is needed for the Oracle access user. A tablespace is a storage location where the actual data underlying database objects can be kept. It provides a layer of abstraction between physical and logical data, and serves to allocate storage for all DBMS managed segments. (A database segment is a database object which occupies physical space such as table data and indexes.) Once created, a tablespace can be referred to by name when creating database segments.
- ♦ The tablespace can be created by ZENworks or can be created by the Database Administrator.
- ♦ The tablespace has sufficient space to create and store the ZENworks database schema. The tablespace requires a minimum of 10 GB to create ZENworks database schema.
- ♦ **Use an existing user schema:** You can install to an existing Oracle user schema in the following scenarios:
 - ♦ The database administrator creates a user schema with the necessary rights, and you receive the credentials for that user schema from the database administrator. Database administrator credentials are not required to install to an existing Oracle user schema.
 - ♦ You create a user in the Oracle database and choose to use it during ZENworks installation.

If you choose to use an existing user schema, ensure that the following requirements are met:

- ♦ The tablespace has sufficient space to create and store the ZENworks database schema. The tablespace requires a minimum of 10 GB to create the ZENworks database schema.
 - ♦ The quota for the user schema is set to Unlimited on the tablespace that is required during installation.
- ♦ **Rights to create the database:** Ensure that the user schema has the following rights to create the database:

```
CREATE SESSION
CREATE TABLE
CREATE VIEW
CREATE PROCEDURE
CREATE SEQUENCE
CREATE TYPE
CREATE TRIGGER
ALTER ANY TABLE
DROP ANY TABLE
LOCK ANY TABLE
SELECT ANY TABLE
CREATE ANY TABLE
CREATE ANY TRIGGER
CREATE ANY INDEX
CREATE ANY DIMENSION
CREATE ANY EVALUATION CONTEXT
CREATE ANY INDEXTYPE
CREATE ANY LIBRARY
CREATE ANY MATERIALIZED VIEW
CREATE ANY OPERATOR
CREATE ANY PROCEDURE
CREATE ANY RULE
CREATE ANY RULE SET
CREATE ANY SYNONYM
CREATE ANY TYPE
CREATE ANY VIEW
DBMS_DDL
DBMS_REDEFINITION
DBMS_LOCK (Execute and Debug)
```

IMPORTANT: The above privileges are used to modify tables only in ZENworks schema and not in any other schema. The DBMS_DDL and DBMS_REDEFINITION packages are used to restructure some of the tables as partitioning tables during fresh installation of ZENworks.

You can give the DBMS_DDL and DBMS_REDEFINITION rights to the user at the time of installation or upgrade. After the installation or upgrade is successful, you can revoke the DBMS_DDL and DBMS_REDEFINITION rights and also those privileges with ANY option.

For more details, see the [Oracle database documentation \(http://docs.oracle.com/cd/B28359_01/server.111/b28310/tables007.htm#i1006801\)](http://docs.oracle.com/cd/B28359_01/server.111/b28310/tables007.htm#i1006801).

For Oracle databases, performance can be affected by whether you configure your database to use a shared server or dedicated server processes. Each ZENworks Primary Server is configured with a database connection pool whose size fluctuates with the ZENworks system load. This pool can grow at peak loads to a maximum of 300 concurrent database connections per Primary Server. If your Oracle database is configured to use dedicated server processes, it is possible that your database server resource usage can reach undesirable levels that affect performance when there are multiple Primary Servers in your zone. If you encounter this problem, consider changing your ZENworks database to use shared server processes.

- ♦ **Day-to-Day Operations for Databases:** Ensure that the ZENworks and Audit users have the minimum rights to function during database operations.

```
CREATE TRIGGER
```

```
CREATE SESSION
```

```
CREATE SEQUENCE
```

```
CREATE TYPE
```

```
CREATE PROCEDURE
```

```
CREATE VIEW
```

```
CREATE TABLE
```

```
DBMS_LOCK (Execute & Debug)
```

Prerequisites for Oracle RAC

- ♦ Oracle database and Real Application Clusters (RAC) version must be 12c R1 or above.
- ♦ Tablespaces must be created by your database administrator manually (do not use ZENworks to create the tablespaces).
- ♦ Shut down ZENworks services on all Primary Servers and Reporting Server before upgrading ZENworks.

Configuring the External ZENworks Database

This section provides instructions for configuring the ZENworks database by running the ZENworks installation program on the database server. This method is required if you are using an external PostgreSQL database. For other databases, this method is useful if your ZENworks administrator and database administrator are not the same person.

Ensure that the server where you plan to install the external database fulfills the requirements in [Database Requirements](#) in the [ZENworks 2020 Update 2 System Requirements](#) and “[Prerequisites for External Databases](#)” on page 25.

- 1 On the server where you have installed the external database, insert the *ZENworks* installation DVD or mount the ZENworks ISO.

IMPORTANT: If you have not already burned the ZENworks ISO image to a DVD, you need to do so before beginning the installation. Do not extract the ISO image and use it to install.

If the DVD auto-runs the database installation program, exit the program.

Enter the following at the command prompt on the external database server:

```
DVD_drive:\setup.exe -c
```

or

If ZENworks has already been installed on a device, and if you want to use the device to configure another instance of the ZENworks database (on the same device or on another device) by using the external database installation program, run the following command:

```
DVD_drive:\setup.exe -c --zcminstall
```

2 On the Select ZENworks Database page, select one of the following:

- ♦ Select ZENworks Database
- ♦ Select Audit Database
- ♦ Select both ZENworks Database and Audit Database

NOTE: When the **ZENworks Database** and **Audit Database** option is selected, you need to create the ZENworks database schema first and then create the audit database schema.

The supported combinations of ZENworks and Audit database are shown below:

ZENworks Database	Audit Database
Embedded PostgreSQL	<ul style="list-style-type: none">♦ Embedded PostgreSQL (Default)♦ External PostgreSQL
External PostgreSQL	<ul style="list-style-type: none">♦ External PostgreSQL (Default)♦ Embedded PostgreSQL
Microsoft SQL Server	Microsoft SQL Server
Oracle	Oracle

3 On the Select Database type page, select one of the following, then click **Next**:

- ♦ **PostgreSQL:** Creates a ZENworks database schema on a PostgreSQL Server.
- ♦ **Microsoft SQL Server:** Creates a ZENworks database schema on a Microsoft SQL Server.
- ♦ **Oracle:** Specifies a user schema that you can use to set up an external Oracle database schema for use with ZENworks.

IMPORTANT: The server hosting the database must have time synchronization with all of the Primary Servers in the Management Zone.

4 Refer to the following section for details on the information that you need to know (you can also click the **Help** button for similar information):

- ♦ [“PostgreSQL Database Information” on page 30](#)

- ♦ [“MS SQL Database Information” on page 31](#)
- ♦ [“Oracle Database Information” on page 34](#)

PostgreSQL Database Information

Installation Information	Explanation
PostgreSQL Server Configuration	Specify the port used by the PostgreSQL database server. By default, port 54327 is used for the ZENworks database and port 54327 is used for the Audit database. Change the default port number if you have a conflict.
PostgreSQL Access Configuration	<p>Defaults are provided for some of the information, which you can change as necessary:</p> <ul style="list-style-type: none"> ♦ Server Address: Specify DNS or IP address of the database server. ♦ Port: Specify the port number used by the PostgreSQL database. ♦ Username: Specify PostgreSQL administrator user name. ♦ Password: Specify PostgreSQL administrator password.
Database File Location	<p>Specify the path where you want to create the ZENworks PostgreSQL database file. By default, the installation program creates the <i>drive:\microfocus\zenworks</i> directory, which you can change. A <i>\database</i> directory is appended to the default directory.</p> <p>For example, the default path is <i>drive:\microfocus\zenworks\database</i>.</p> <p>The default path for the Audit database is the same as for the ZENworks database.</p>
Review Database Information	<p>Review the database configuration information.</p> <p>The Server Address field displays the IP address configured in the <i>hosts</i> file. This does not impact the database installation.</p> <p>The database driver information is automatically detected by the ZENworks database installer.</p>
Review SQL Scripts	Review the SQL scripts to be executed during the database creation.

MS SQL Database Information

Installation Information	Explanation
External Database Server Configuration	<p>The database server must have an MS SQL database installed. Defaults are provided for some of this information, which can be changed as necessary:</p> <ul style="list-style-type: none"> ♦ Server Address: We recommend that you identify the server by its DNS name rather than its IP address, to be in sync with certificates that are signed with DNS names. <p>IMPORTANT: If you change your database server's IP address or DNS name at a later time, ensure that your corporate DNS server is updated with this change to keep DNS for the database server in sync.</p> <ul style="list-style-type: none"> ♦ Port: Specify the port used by the MS SQL database server. The default is port 1433. Change the default port number if you have a conflict. ♦ Named instance: This is the name of the SQL server instance that is hosting the existing ZENworks database. You must specify the named instance if you want it to be something other than the default of <code>mssqlserver</code>. ♦ Database Name: Specify the name of the existing MS SQL database on which you want to host the ZENworks database. This option is available only for an existing database. ♦ Username: Specify the user who can modify the database. The user must have read/write permissions to modify the database. <p>NOTE: Ensure that the special character ' is not part of the database name.</p> <p>For Windows authentication, provide a user name on the current device or in the domain.</p> <p>IMPORTANT: The installer wizard continues without validating the credentials; therefore, ensure that the correct credentials are provided. Else, the installation might fail towards the end of the installation process.</p> <p>For SQL authentication, provide a user name that matches that of a valid SQL user.</p> <ul style="list-style-type: none"> ♦ Password: Type the password of the user specified in the <code>Username</code> field. ♦ Domain: It is important to know whether you installed the SQL Server by using SQL authentication, Windows authentication, or mixed. Ensure that you select the option that coincides with your SQL Server options; otherwise, the authentication will fail. <p>If you are using MS SQL with Windows Authentication, the host name (not FQDN) of Active Directory is used.</p> <p>If you are using Windows authentication, specify the Windows domain where the user you specified in the <code>Username</code> field exists. If you are not using a Windows domain, specify the server's short name.</p>

Installation Information	Explanation
External Database Configuration > Database Location (applicable only for the new database)	Specify the path of the existing MS SQL database file on the SQL server. By default, it is c:\database. NOTE: Ensure that the specified path exists on the device hosting the database before the installation starts.
Review Database Information	Review the database configuration information.
Review SQL Scripts	Review the SQL scripts to be executed during the creation of the database. You can only view the scripts.

Oracle Database Information

Installation Information	Explanation
Oracle User Schema Options	<p>During ZENworks installation, you can select to create a new user schema or specify an existing schema that resides on a server in your network. To use an existing user schema, the user schema must be created separately by using the ZENworks database installation method (setup.exe -c).</p> <p>ZENworks requires tablespaces to be created on the Oracle database. A tablespace can be created either by ZENworks or Database Administrator. For an existing user schema, specify the information for the tablespace that is already created by using ZENworks database installation method.</p>
Oracle Server information	<p>The database server must have an Oracle database installed. Defaults are provided for some of this information, which can be changed as necessary:</p> <ul style="list-style-type: none"> ♦ Server Address: We recommend that you identify the server by its DNS name rather than its IP address, to be in sync with certificates that are signed with DNS names. IMPORTANT: If change your database server's IP address or DNS name at a later time, ensure that your corporate DNS server is updated with this change to keep DNS for the database server in sync. ♦ Port: Specify the port used by the database server. The default is port 1521. Change the default port number if you have a conflict. ♦ Service Name: For a new user schema, specify the instance name (SID) on which the user schema is to be created. For an existing user schema, specify the instance name (SID) on which the user schema has been created.

Installation Information	Explanation
Oracle Administrator (applicable only for the new user schema)	<ul style="list-style-type: none"> ◆ Username: Specify the user who can modify the database. The user must have read/write permissions to modify the database. ◆ Password: Specify the password to be used to access the database.
Oracle Access User	<ul style="list-style-type: none"> ◆ Username: For a new user schema, specify a name. For an existing user schema, specify the name of the user schema that already exists in the Oracle database. ◆ Password: For a new user schema, specify a password to be used to access the database. For an existing user schema, specify the password used to access the user schema that already exists in the Oracle database. ◆ Tablespace: For a new user schema, select one of the following tablespace options: <ul style="list-style-type: none"> ◆ Let ZENworks create the tablespace: Select this if you want ZENworks to create the tablespace. ◆ Let DBA create the tablespace: Select this if you want your database administrator to create the tablespace. The following details are required to create a new tablespace: IMPORTANT: If you are using Automatic Storage Management (ASM) or some other Disk storage, select Let DBA create the tablespace. <ul style="list-style-type: none"> ◆ Tablespace name for Tables (Ensure Tablespace name is unique and it should start with [a-z] [A-Z]. Oracle tablespace naming convention has to be followed.) ◆ Tablespace name for Indexes (Ensure Tablespace name is unique and it should start with [a-z] [A-Z]. Oracle tablespace naming convention has to be followed.) ◆ DBF File location for Tables ◆ DBF File location for Indexes (The specified physical path of the DBF file should be an existing path. The file name must have the .dbf extension.) <p>For an existing user schema, specify the following information:</p> <ul style="list-style-type: none"> ◆ Tablespace name for Tables: Specify the tablespace name for the tables that are associated with the existing database user specified in the Username field. ◆ Tablespace name for Indexes: Specify the tablespace name for the indexes that are associated with the existing database user specified in the Username field.

Installation Information	Explanation
Review Database Information	Review the database configuration information.
Review SQL Scripts	Review the SQL scripts to be executed during the creation of the database.

6 Installing a ZENworks Primary Server on Windows

Perform the tasks in the following sections to install the ZENworks Primary Server software on a Windows server:

- ♦ “Installation Information” on page 37
- ♦ “Installing the Primary Server Software” on page 45
- ♦ “Performing an Unattended Installation” on page 46
- ♦ “Verifying the Installation” on page 48

NOTE: After installing the first Primary Server, ZooKeeper is automatically enabled on the first Primary Server. You need to ensure that ZooKeeper is up and running at all times. For more information, see [Installation Information](#).

Installation Information

Installation Information	Explanation
Installation path	<p>The default is %ProgramFiles%. You can change it to any path currently available on the server, except to the %systemdrive%/Program Files directory if the server is a 64-bit Windows device. However, the installation path that you specify must contain English characters only.</p> <p>NOTE: Installation from a mapped drive is not supported.</p> <p>The installation program creates the Micro Focus\ZENworks directory under this path for the installation of the ZENworks software files.</p> <p>If you need more disk space for your content repository than what is available in the Windows path during installation, you can change the path to another location after completing the installation. For more information, see “Content Repository” in ZENworks Primary Server and Satellite Reference.</p>
Response file path (optional)	<p>If you started the installation executable with the -s parameter in order to create a response file for unattended installations, you are required to provide a path for the file. The default path is C:\Documents and Settings\Administrator\.</p> <p>You can change this to any path available on the current server.</p> <p>The Primary Server software is not installed when you run the program to create a response file. It only displays the installation pages necessary to identify and create the response file.</p>

Installation Information	Explanation
Prerequisites	<p>If the required prerequisites are not met, you are not allowed to continue with the installation. The requirements that are not fulfilled are displayed. For more information, see Database Requirements in the ZENworks 2020 Update 2 System Requirements.</p> <p>If the .NET prerequisite is not fulfilled, you can click the ZENworks link in the description to install the runtime version that is bundled with ZENworks. After .NET is installed, the installation of ZENworks proceeds. This wizard might take a few seconds to launch.</p>

Installation Information	Explanation
Management Zone	<p>New Zone: If you are installing the first Primary Server, you need to know the name and password you want to use for the Management Zone. The password is used to log in to ZENworks Control Center.</p> <p>Zone Name: The zone name has a 20-character limit and should be a unique name. The zone name can contain only the following special characters: - (dash) _ (underscore) . (period). The zone name cannot contain special characters such as ~ . ` ! @ # % ^ & * + = () { } [] \ : ; " ' < > , ? / \$</p> <p>For Embedded PostgreSQL, ensure that the zone name is unique in your environment.</p> <p>IMPORTANT: While installing ZENworks in a non-English language operating system, ensure that the Management Zone name does not use special characters from any other non-English language. For example, while installing ZENworks on a simplified Chinese operating system, ensure that the Zone name does not use "üöä" from the German Character Set.</p> <p>Zone Password: By default, the installation creates a super administrator called Administrator. This super administrator has rights to perform all management tasks in your Management Zone and cannot be deleted. You must specify a password for Administrator. The password must contain a minimum of six characters and can include a maximum of 255 characters. The password can contain only one instance of the \$ character.</p> <p>After installation is complete, you can use ZENworks Control Center to create additional ZENworks administrator accounts for login to your Management Zone.</p> <p>Port Number: During the installation of subsequent Primary Servers, the server by default uses the ports used by first Primary Server. If the ports are in use on the second Primary Server, you are asked to specify another port. Note which port you specify because you will need to use it in the URL for accessing ZENworks Control Center from that Primary Server.</p> <p>Existing Zone: If you are installing to an existing Management Zone, you need to know the following information:</p> <ul style="list-style-type: none"> ♦ The DNS name or IP address of an existing Primary Server in the zone. We recommend using the DNS name to provide ongoing synchronization with certificates that are signed with DNS names. ♦ The SSL port used by the existing Primary Server in the Management Zone. If the Primary Server uses a different port than the default (443), specify that port. ♦ A ZENworks administrator user name to log in to the zone. The default is Administrator. After completing the installation, you can use ZENworks Control Center to add other administrator names that can be used to log in to the Management Zone. ♦ The password for the administrator you specified in the Username field.
Database Configuration Recommendation	<p>You can enter the number of devices used in thousands. For example enter 1 for 1000 devices, 2 for 2000, and so on. The range of devices is between 1 to 100. Based on the number of devices, the database recommendation is displayed.</p>

Installation Information	Explanation
Database options	<p>ZENworks requires a database. The database options are displayed only when installing the first Primary Server to the zone.</p> <p>You have the following database options:</p> <ul style="list-style-type: none"> ♦ Embedded PostgreSQL: Automatically installs the embedded database on the local server. <p>If you select the embedded database option, no further database installation pages are shown.</p> ♦ Remote PostgreSQL: This database must already exist on a server in your network. It can be on the current server. <p>To select this option, you should already have followed the steps in “Prerequisites for PostgreSQL” on page 25.</p> <p>You also use this option for installing to an existing remote PostgreSQL database.</p> ♦ Microsoft SQL Server: You can create a new SQL database or specify an existing database that resides on a server in your network. It can be on the current server. <p>Creating a new SQL database at this time provides the same results as the steps in “Prerequisites for Microsoft SQL Server” on page 26.</p> ♦ Oracle: Specifies a user schema that you can use to set up an external Oracle database schema for use with ZENworks. <p>You can either create a new user schema or specify an existing one that resides on a server in your network.</p> <p>To select this option, you should already have followed the steps in “Prerequisites for Oracle” on page 26.</p> <p>IMPORTANT: The following points must be considered for external databases:</p> <ul style="list-style-type: none"> ♦ The time on the server hosting the database must be synchronized with each of the Primary Servers in the Management Zone. The external database can also reside on the Primary Server machine. ♦ If you have specified the database hostname, it must be DNS resolvable.

Installation Information	Explanation
Database information	<p>For the external database options (PostgreSQL, Microsoft SQL Server, and Oracle), you need to know the information listed below. Defaults are provided for some of this information, which can be changed as necessary.</p> <ul style="list-style-type: none"> ♦ All Databases: The database server must have a PostgreSQL, Microsoft SQL, or Oracle database installed. <ul style="list-style-type: none"> ♦ Server's name. We recommend that you identify the server by its DNS name rather than its IP address, to be in sync with certificates that are signed with DNS names. <p>IMPORTANT: If you later change your database server's IP address or DNS name, ensure that your corporate DNS server is updated with this change to keep DNS for the database server in sync.</p> ♦ Port used by the database server. <p>Port 54327 is the default for PostgreSQL and port 1433 is the default for Microsoft SQL Server.</p> <p>Change the default port number if you have a conflict.</p> ♦ (Optional) SQL Server Only: Named instance that is the name of the SQL server instance that is hosting the existing ZENworks database. You must specify the named instance if you want it to be something other than the default of <code>mssqlserver</code>. ♦ Oracle Only: The name of the tablespace where you want the database to be created. The default is <code>USERS</code>. ♦ New Database: <ul style="list-style-type: none"> ♦ The database administrator (Username field) must have read/write permissions in order to successfully perform the required operations on the database. ♦ The administrator's database password. ♦ SQL Server or New Database: <ul style="list-style-type: none"> ♦ If you are using Windows authentication, specify the Windows domain where the user you specified in the Username field exists. If you are not using a Windows domain, specify the server's short name. ♦ Whether to use Windows or SQL Server authentication. For Windows authentication, provide the credentials for a user on the current device or in the domain. For SQL authentication, provide credentials that match those of a valid SQL user. <p>It is important to know whether you installed the SQL Server by using SQL authentication, Windows authentication, or mixed. Be sure to select the option that coincides with your SQL Server options; otherwise, the authentication will fail.</p>

Installation Information	Explanation
Database access	<p>For the external database options (Remote PostgreSQL, Microsoft SQL Server, and Oracle), you need to know the information listed below. Defaults are provided for some of this information, which can be changed as necessary.</p> <ul style="list-style-type: none"> ♦ All Databases: This server must have a PostgreSQL, Microsoft SQL, or Oracle database installed. <ul style="list-style-type: none"> ♦ Database name. Replace zenworks_MY_ZONE with either the desired database name or an existing database name. ♦ Database user name. This user must have read/write permissions to modify the database. <p>If Windows authentication is also selected, the specified user must already exist when you create a new SQL database. The user is granted login access to SQL Server and read/write access to the ZENworks database that is created.</p> <p>For an existing database, specify a user with sufficient permissions to the database.</p> ♦ Database password. For a new database, this password is automatically generated if SQL authentication is selected. For an existing database, specify the password of an existing user with read/write permissions to the database. ♦ PostgreSQL Only: The name of your PostgreSQL database server. ♦ Oracle Databases Only: The name of the tablespace where you want the database to be created. By default, it is USERS. ♦ Microsoft SQL Databases Only: <ul style="list-style-type: none"> ♦ If you are using Windows authentication, specify the Windows domain where the user you specified in the Username field exists. If you are not using a Windows domain, specify the server's short name. ♦ Whether to use Windows or SQL Server authentication. For Windows authentication, provide the credentials for a user on the current device or in the domain. For SQL authentication, provide credentials that match those of a valid SQL user. <p>It is important to know whether you installed the SQL Server by using SQL authentication, Windows authentication, or mixed. Be sure to select the option that coincides with your SQL Server options; otherwise, the authentication will fail.</p>

Installation Information	Explanation
SSL configuration (shown only for the first server installed in the Management Zone)	<p>In order to enable SSL communications, an SSL certificate must be added to the ZENworks server. Select whether to use an internal or external certificate authority (CA).</p> <p>For subsequent installations of Primary Servers to the Management Zone, the CA established by the first server's installation is used for the zone.</p> <p>IMPORTANT: After you install ZENworks 2020 Update 2, you can only change the internal certificate to an external certificate on Primary Servers. For more information, see “Reconfiguring the Certificate Authority before and after it Expires” in the <i>ZENworks Disaster Recovery Reference</i>.</p> <p>The Restore Default buttons restore the paths to those that were displayed when you first accessed this page.</p>
Signed SSL certificate and private key	<p>To enter a trusted CA-signed certificate and private key, click Choose to browse for and select the certificate and key files, or specify paths to the signed certificate to be used for this server (Signed SSL Certificate) and the private key associated with the signed certificate (Private Key).</p> <p>For subsequent installations of Primary Servers to the zone, the CA established for the zone by the first server's installation is used. If the zone is using an internal CA, you must provide the IP address or DNS name of the Primary Server with CA role. Otherwise, the wizard will not proceed further.</p> <p>For information on creating external certificates to select when installing to a Windows server, see Chapter 4, “Creating an External Certificate,” on page 21.</p> <p>For information on creating external certificates for installing to a server using a silent installation, see “Creating Your Response File” on page 46.</p>
Root certificate (optional)	To enter a trusted CA root certificate, click Choose to browse for and select it, or specify the path to the CA's public X.509 certificate (CA Root Certificate).
SSL Configuration	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.
Pre-installation summary	GUI Installation: To make changes to any information entered up to this point, click Previous . After you click Install , the installation of the files begins. During installation, you can click Cancel to stop, which leaves the files on your server that were installed up to that point.

Installation Information	Explanation
Installation complete (roll back option)	<p>If installation errors occurred, this page is displayed at this time; otherwise, it is displayed after the Post-Installation Actions page.</p> <p>Installation Recovery: If there are serious installation errors, you can roll back the installation to return your server to its previous state. This option is provided on a different installation page. Otherwise, you have two options:</p> <ul style="list-style-type: none"> ♦ If a previous installation was cut short and you install again, you might be given the option to reset the installation, depending on how far you got in the canceled installation. If you select to reset, this overwrites any configuration that might have occurred during the canceled installation. ♦ To undo a successfully completed installation, follow the instructions in the ZENworks Uninstall Guide. <p>If there were serious installation errors, select Roll Back, which returns your server to its previous state. Upon exiting the installation program, the server is not rebooted. However, to complete the installation, you must reboot the server.</p> <p>To determine whether to continue the installation or roll it back, review the log file that lists errors. This will help you determine whether any installation failures were significant enough for your action. If you select to continue, resolve the issues that are noted in the log after you have rebooted the server and completed the installation process.</p> <p>To access the log file in the GUI installation, click View Log.</p>
Post installation actions	<p>Options are presented for selecting actions to perform after the installation has successfully completed:</p> <p>For the GUI installation, a page displays the options listed below. Some items are selected by default. Click any check box to select or deselect the option, then click Next to continue.</p> <ul style="list-style-type: none"> ♦ Run ZENworks Control Center: (GUI installation only) Automatically opens ZENworks Control Center in your default web browser after rebooting (Windows only), or immediately if you select to reboot manually. For the Oracle database, the administrator names are case sensitive. The default ZENworks administrator account that was automatically created during installation uses an initial capital letter. In order to log in to ZENworks Control Center, you must enter <code>Administrator</code>. ♦ Place a shortcut to ZENworks Control Center on the Desktop: Places the shortcut on your desktop. ♦ Place a shortcut to ZENworks Control Center in the Start Menu: Places the shortcut in your Start menu. ♦ View Readme file: For GUI installations, opens the ZENworks 2020 Update 2 Readme in your default browser after rebooting, or immediately if you select to reboot manually. ♦ View Installation log: Displays the installation log in your default XML viewer (GUI installation) after rebooting, or immediately if you select to reboot manually.

Installation Information	Explanation
ZENworks System Status Utility	Allows you to launch a ZENworks services heartbeat check prior to closing the installation program. Results are posted in the installation log.
Rebooting (or not)	<p>Upon a successful installation, you can select between rebooting immediately or later:</p> <ul style="list-style-type: none"> ♦ Yes, Restart the System: If you select this option, log in to the server when prompted. The first time you log in to the server, it takes a few minutes because the database is being populated with inventory data. ♦ No, I Will Restart the System Myself: If you select this option, the database is immediately populated with inventory data. <p>The process of populating the database can cause high CPU utilization during a reboot or immediately after the installation program closes if you select not to reboot. This database updating process can slow down the starting of the services and access to ZENworks Control Center.</p> <p>The Patch Management downloads might also cause high CPU utilization, usually shortly after rebooting.</p>
Installation completion	The actions you selected previously are performed after all of the files have been installed for ZENworks 2020 Update 2 (if selected).

NOTE: After installing 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.

```
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](#).

Installing the Primary Server Software

- 1 Log in to the installation server as a Windows administrator.
- 2 Download and mount the ISO.
- 3 Run `setup.exe`.

- 4 During installation, refer to the information in [“Installation Information” on page 37](#) for details on the installation data that you need to know.

You can also click the **Help** button for information.

- 5 After installation is complete, do one of the following on the server:
 - ♦ If you selected to reboot automatically (you selected the **Yes, restart the system** option during installation; see [“Rebooting \(or not\)” on page 45](#)), continue with [Verifying the Installation](#) after the booting process has completed and the services have started.
 - ♦ If you selected to reboot manually (you selected the **No, I will restart the system myself** option during installation; see [“Rebooting \(or not\)” on page 45](#)), you must wait for the installation to complete and the services to start in order to verify it in [Verifying the Installation](#).

NOTE: Part of completing the installation process is for the database to be updated and for the Product Recognition Update (PRU) to be downloaded and installed, both of which cause high CPU utilization during their processes. This can cause the services to start up slowly, which can also affect how long it takes for ZENworks Control Center to open.

Performing an Unattended Installation

You can use a response file to perform an unattended installation of ZENworks 2020 Update 2. You can either edit the default response file (provided at `DVD_drive:\Disk1\InstData\silentinstall.properties`), or perform an installation to create your own version of the response file that contains the basic installation information and edit that copy as needed.

For an embedded PostgreSQL database, you must create a response file to perform an unattended installation; you cannot reuse the response file generated for a server that uses an external database.

Do the following to create the response file, and then use it to perform an unattended installation:

- ♦ [“Creating Your Response File” on page 46](#)
- ♦ [“Performing the Installation” on page 48](#)

Creating Your Response File

- 1 Run the ZENworks 2020 Update 2 installation executable on a server by using the following command:

```
DVD_drive:\setup.exe -s
```

For more information, see [Appendix A, “Installation Executable Arguments,” on page 97](#).

- 2 Ensure that during the installation you select the **Yes, Generate the Response File with Restart Enabled** option is selected so that server is automatically rebooted after the silent installation has completed.

A silent installation does not provide an installation progress bar.

- 3 When prompted, provide a path for your custom response file.

When you use the `-s` argument by itself, the installation program prompts you for a path for the response file. The default file name is `silentinstall.properties`, which you can rename later (see [Step 4g](#)).

4 Add the Management Zone and external database passwords to your custom response file.

Because the external database password that you enter during creation of the custom response file not saved in the response file, you must add the database and the Management Zone passwords in each copy of the response file in order for it to be correctly provided during an unattended installation.

Optionally, you can create an environment variable to pass the password into the unattended installation. Instructions for this are contained in the response file where the password information is stored.

While you are editing the response file, you can make any other changes necessary to customize it for your unattended installation. The response file contains instructions for its various sections.

To add the external database and Management Zone passwords into the response file:

4a Open the response file in a text editor.

Your custom response file is in the location that you specified in [Step 3](#).

If you are editing the default response file, it is located at

`DVD_drive:\Disk1\InstData\silentinstall.properties`.

4b Search for `ADMINISTRATOR_PASSWORD=`.

4c Replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

For example, if the password is `novell`, the entry will be:

```
ADMINISTRATOR_PASSWORD=novell
```

4d (Conditional) If you are using an external database, search for the line, `DATABASE_ADMIN_PASSWORD=`, and replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

4e (Conditional) If you are using an external database, search for the line, `DATABASE_ACCESS_PASSWORD=`, and replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

4f Save the file and exit the editor.

4g Make as many uniquely named copies as you need for your various installation scenarios, modify each copy as necessary, then copy each one to the server where it will be used.

If you want to add another Primary Server to the existing Management Zone, you must provide the following information in the response file:

```
PRIMARY_SERVER_ADDRESS=$Primary_Server_IPaddress$
```

```
PRIMARY_SERVER_PORT=$Primary_Server_port$
```

```
PRIMARY_SERVER_CERT=-----BEGIN CERTIFICATE-----
```

```
MIID9DCCLotsOfEncryptedCharactersSja+bY05Y=-----END CERTIFICATE-----
```

-

where

`PRIMARY_SERVER_ADDRESS` is the IP address or DNS name of the parent Primary Server if the secondary server is being installed to an existing Management Zone.

PRIMARY_SERVER_PORT is the SSL port used by the parent Primary Server if the secondary server is being installed to an existing Management Zone. The default port is 443.

PRIMARY_SERVER_CERT= is the certificate you specified on the parent Primary Server if the secondary server is being installed to an existing Management Zone. The certificate must be in the base64 encoded string format of an x509 certificate, and the certificate string must be specified in one line. The above is just an example of the certificate information.

- 5 After you have completed modifications to your custom response file, copy it from the path that you specified in [Step 3](#) to a location on each server where you will use it for the unattended installation.
- 6 To use the updated response file, continue with [“Performing the Installation” on page 48](#).

NOTE: If you want to install Microsoft .NET when using a response file, you need to manually set the value in the file to `INSTALL_DOT_NET=1`.

Performing the Installation

- 1 On the Windows server where you want to perform the unattended installation, insert the *ZENworks 2020 Update 2* installation DVD.

If the installation page where you can select the language is displayed, click **Cancel** to exit the GUI installation.

- 2 To start the unattended installation, use the `-f` option in the command:

```
DVD_drive:\setup.exe -s -f path_to_file.
```

where *path_to_file* is either the full path to the response file that you created in [“Creating Your Response File” on page 46](#), or a directory containing the `silentinstall.properties` file (it must use that file name).

If you renamed the updated response file, include its new name with the path.

If a file name is not given, or if either the path or file does not exist, the `-f` parameter is ignored and the default installation is run instead of an unattended installation.

- 3 After the installation has completed, continue with [“Verifying the Installation” on page 48](#).

Verifying the Installation

Perform the following steps to verify a successful installation.

- 1 After the server has rebooted, do any of the following to verify that the Primary Server is running:

- ♦ **Run ZENworks Control Center**

If ZENworks Control Center does not automatically start, use the following URL to open it in a Web browser:

`https://DNS_name_or_IP_address_of_Primary_Server/zenworks`

If the Primary Server is not using the default HTTPS port, you must add the port to the URL:
`https://DNS_name_or_IP_address_of_Primary_Server:port_number/zenworks`

This can be done either on the Primary Server or on a qualified workstation.

- ♦ **Check the Windows services in the Windows Services list**

On the server, click **Start**, select **Administrative Tools > Services**, then review the status of the **Micro Focus ZENworks Loader** and **Micro Focus ZENworks Server** services.

If they are not running, start the ZENworks services. Right-click the **Micro Focus ZENworks Server** service, then select **Start**. Right-click the **Micro Focus ZENworks Loader** service, then select **Start**.

The **Restart** option stops all related services that are already running and starts each of them in their correct order, including **Micro Focus ZENworks Loader**.

- ♦ **Check the Windows services by using a command line**

Run the following command at the server command prompt:

```
ZENworks_installation_path\bin\microfocus-zenworks-configure  
-c SystemStatus
```

This lists all ZENworks services and their statuses.

To start the services, run the following command:

```
ZENworks_installation_path\bin\microfocus-zenworks-configure  
-c Start
```


7 Completing Post-Installation Tasks

After successfully installing the ZENworks Primary Server software, you might need to perform some of the following post-installation tasks. Not all tasks are required for all installations. However, we recommend that you review each section to ensure that you complete any tasks required for your installation.

- ♦ [“Licensing Products” on page 51](#)
- ♦ [“Enabling Access to a Primary Server Behind a NAT Firewall” on page 52](#)
- ♦ [“Adding Imaging Applications as Firewall Exceptions” on page 52](#)
- ♦ [“Backing Up ZENworks Components” on page 53](#)
- ♦ [“Customizing ZENworks Control Center” on page 53](#)
- ♦ [“Supporting a Primary Server on VMware ESX” on page 53](#)

Licensing Products

During the installation of your first ZENworks Primary Server and the creation of your Management Zone, the ZENworks installation program installs the following products and sets their license state as listed in the table.

Product	License State
Asset Inventory for Linux	Evaluation
Asset Inventory for Windows/Macintosh	Deactivated
Asset Management	Evaluation
Configuration Management	Evaluation
Endpoint Security Management	Deactivated
Full Disk Encryption	Deactivated
Patch Management	Activated

You activate a product by supplying a valid product license. If you do not have a valid license, you can evaluate the product for 60 days.

To change the license state of a product:

- 1 Log in to ZENworks Control Center.
- 2 Click **Configuration**.
- 3 In the **Licenses** panel, click a suite if you have a suite license key.

or

Click a product to provide a product license key or to turn on the product evaluation.

For more information about activating and deactivating products, see the [ZENworks Product Licensing Reference](#).

Enabling Access to a Primary Server Behind a NAT Firewall

If the Primary Server is behind a NAT firewall, the devices on the Internet or public network cannot communicate with it. To resolve the issue, you must configure additional IP addresses or DNS names for the Primary Server through ZENworks Control Center.

For more information, see “[Configuring Additional Access to a ZENworks Server](#)” in the [ZENworks Primary Server and Satellite Reference](#).

Adding Imaging Applications as Firewall Exceptions

The ZENworks installation program cannot add exceptions to a Windows server firewall. Therefore, you must manually complete this task under the following conditions:

- ♦ The Primary Server will be an Imaging Server.
- ♦ The Primary Server will be the parent Primary Server of an Imaging Satellite Server.

Refer to the appropriate section for the Primary Server’s operating system:

- ♦ “[Adding Imaging Applications as Firewall Exceptions on Windows Server 2012 and 2016](#)” on [page 52](#)

Adding Imaging Applications as Firewall Exceptions on Windows Server 2012 and 2016

- 1 Open Control Panel, and then open Windows Firewall.
- 2 In the left pane, click the **Allow an app or feature through Windows Firewall** option.
- 3 In the Allowed apps window, click **Allow another app**.
- 4 In the Add an app window, click **Browse** and select the `novell-pbserv.exe` application.

All Imaging applications, are located in the
`%zenworks_home%\novell\zenworks\bin\preboot` directory.

- 5 After selecting the application, click **Add**.
- 6 Repeat [Step 4](#) and [Step 5](#), add the following Imaging applications to the Allowed apps and features list, and then click **OK**:
 - ♦ `novell-proxydhcp.exe`
 - ♦ `novell-tftp.exe`
 - ♦ `novell-zmgprebootpolicy.exe`

Backing Up ZENworks Components

We recommend that you implement the following backup best practices:

- ♦ Take reliable backups of the ZENworks database and Audit database on a regular basis. For instructions, see the [ZENworks Database Management Reference](#).
- ♦ Procure and note the credentials of the databases:
 - ♦ For the embedded PostgreSQL ZENworks database, use the following command:

```
zman dgc -U administrator_name -P administrator_password
```
 - ♦ For the embedded PostgreSQL Audit database, use the following command:

```
zman dgca -U admimistrator_name -P administrator_password
```
 - ♦ For an external database, contact the database administrator.
- ♦ Take a reliable backup of the Primary Server (this only needs to be done one time). For instructions, see “[Backing Up and Restoring the ZENworks Server and Certificate Authority](#)” in the [ZENworks Disaster Recovery Reference](#).
- ♦ Take a reliable backup of the Certificate Authority. For instructions, see “[Backing Up the Certificate Authority](#)” in the [ZENworks Disaster Recovery Reference](#).

Customizing ZENworks Control Center

ZENworks Control Center provides a configuration file that you can use to customize how it functions. For example, you can change the default timeout from 30 minutes to another value.

For instructions, see “[Customizing ZENworks Control Center](#)” in the [ZENworks Control Center Reference](#).

Supporting a Primary Server on VMware ESX

If you installed the Primary Server software on a virtual machine running on VMware ESX, complete the following tasks:

- ♦ “[Adjusting the Reserved Memory Size](#)” on page 53
- ♦ “[Enabling Large Page Support](#)” on page 54

Adjusting the Reserved Memory Size

For optimal performance, set the reserved memory size to the size of the guest operating system memory. For more information, see TID 7005382 in [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp).

Enabling Large Page Support

For optimal performance of large dataset handling, you should enable Java large page support:

- 1 At the server's command prompt, run the following command to launch the Novell ZENworks Server Properties dialog box:

```
zenworkserverw
```

- 2 In the **Java** tab, add the following option to the Java Options box:

```
-XX:+UseLargePages
```

Ensure that you add the option on its own line.

- 3 Restart the Primary Server:

3a Click **Start > Settings > Control Panel > Administrative Tools > Services**.

3b Select **Micro Focus ZENworks Server**, then click **Restart** in the left pane.

If the Primary Server fails to start, there is either a compatibility problem with the newly added option or the syntax is incorrect. To troubleshoot the service startup, run `zenworkserverw` and enable the logging options on the **Logging** tab:

- ♦ Set the log path. For example, `C:\`
- ♦ Set the Redirect Stdout.log. For example, `c:\stdout.log`
- ♦ Set the Redirect Stderr.log. For example, `c:\stderr.log`



Linux Installation

The following section provides information and instructions to help you install the ZENworks Primary Server software on a Linux server:

- ♦ [Chapter 8, “Linux Installation Workflow,” on page 57](#)
- ♦ [Chapter 9, “Understanding What the ZENworks Installation Does,” on page 61](#)
- ♦ [Chapter 10, “Updating Linux Server Software,” on page 63](#)
- ♦ [Chapter 11, “Creating the SSL Certificate,” on page 65](#)
- ♦ [Chapter 12, “Installing and Configuring an External ZENworks Database,” on page 69](#)
- ♦ [Chapter 13, “Installing a ZENworks Primary Server on Linux,” on page 73](#)
- ♦ [Chapter 14, “Completing Post-Installation Tasks,” on page 91](#)

8 Linux Installation Workflow

The tasks you must complete to install your first ZENworks Primary Server are different from the tasks required for additional Primary Servers. The following sections provide the workflows for both processes:

- ♦ [“Installation Workflow for Your First Primary Server” on page 57](#)
- ♦ [“Installation Workflow for Additional Primary Servers” on page 59](#)

Installation Workflow for Your First Primary Server

To install the first ZENworks Primary Server and create your ZENworks Management Zone, complete the tasks in the order listed below.

To add a Primary Server to an existing ZENworks Management Zone, see [“Installation Workflow for Additional Primary Servers” on page 59](#).

Task	Details
<input type="checkbox"/> Review what the ZENworks installation program does when installing the first Primary Server and Management Zone.	<p>When installing the first Primary Server, the installation program performs operations to install the Primary Server software, set up the ZENworks databases, and establish the Management Zone.</p> <p>After installing the first Primary Server, ZooKeeper is automatically enabled on the first Primary Server. You need to ensure that ZooKeeper is up and running at all times. For more information, see Installation Information.</p> <p>For more information, see Chapter 9, “Understanding What the ZENworks Installation Does,” on page 61.</p>
<input type="checkbox"/> Download and mount the ISO.	<p>You cannot extract the ISO image and use it to install.</p>
<input type="checkbox"/> Update the software on the Linux server where you will install the ZENworks Primary Server.	<p>Ensure that the Linux server software is up to date and that any software, such as anti-virus software, that might interfere with the Primary Server installation is updated and configured correctly.</p> <p>For more information, see Chapter 10, “Updating Linux Server Software,” on page 63.</p>

Task	Details
<input type="checkbox"/> (Optional) Create an external certificate for your Primary Server.	<p>ZENworks Primary Servers communicate with ZENworks managed devices using the HTTPS protocol. This secure communication requires that the ZENworks Management Zone have a defined Certificate Authority (CA) and that each Primary Server have its own server certificate issued by the zone's CA.</p> <p>ZENworks includes an internal ZENworks CA. If you use the internal ZENworks CA, it is created during installation of the first Primary Server, and each subsequent Primary Server you install is issued a certificate signed by the ZENworks CA.</p> <p>We recommend that you use the internal ZENworks CA unless your corporate security policies do not allow you to do so. The internal ZENworks CA lasts 10 years and simplifies use of various ZENworks features such as Remote Management.</p> <p>If you cannot use the internal ZENworks CA, you can use an external CA and provide external server certificates for each Primary Server you install.</p> <p>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.</p> <p>If you want to use external certificates, see Chapter 11, "Creating the SSL Certificate," on page 65.</p>
<input type="checkbox"/> Install external database software to use for the ZENworks databases.	<p>ZENworks requires two databases, one for general data and another for audit data. For these databases, you can use the embedded PostgreSQL database software provided with ZENworks, or you can use supported external database software (see Database Requirements in the ZENworks 2020 Update 3 System Requirements).</p> <p>If you want to use an external database, see Chapter 12, "Installing and Configuring an External ZENworks Database," on page 69.</p>
<input type="checkbox"/> Install the ZENworks Primary Server software on a supported Linux server.	<p>For instructions, see "Installing the Primary Server Software" on page 85.</p>
<input type="checkbox"/> Verify that the Primary Server is running.	<p>There are specific checks you can perform to ensure that installation of the software was successful and that the Primary Server is running.</p> <p>For instructions, see "Verifying the Installation" on page 88.</p>

Task	Details
<input type="checkbox"/> Activate the ZENworks products for which you are licensed or that you want to evaluate.	<p>All ZENworks products are installed. However, you need to provide the license keys the products that you have licensed. If desired, you can also activate unlicensed products for a 60-day evaluation period.</p> <p>For instructions, see “Licensing Products” on page 91.</p>
<input type="checkbox"/> Back up the ZENworks Primary Server and other ZENworks components.	<p>You should back up the Primary Server at least one time and schedule regular back ups of the ZENworks databases.</p> <p>For instructions, see “Backing Up ZENworks Components” on page 92.</p>
<input type="checkbox"/> Review the post-installation tasks and complete any that apply to your Primary Server installation.	<p>There are several post-installation tasks that you might need to perform for your Primary Server. Review the list of tasks and complete any that apply.</p> <p>For instructions, see Chapter 14, “Completing Post-Installation Tasks,” on page 91.</p>

Installation Workflow for Additional Primary Servers

To install a ZENworks Primary Server and add it to your existing ZENworks Management Zone, complete the tasks in the order listed below.

IMPORTANT: If your zone is upgraded to ZENworks 2020 Update 2, and when you add the second Primary Server, the Security setting will be enabled by default. If the Security setting is enabled, then the communication with the server and agent with the earlier version of ZENworks (2020 Update 1 and earlier) will fail. For more information, see [Securing ZENworks Devices in the ZENworks 2020 Online Documentation site](#).

Task	Details
<input type="checkbox"/> Review what the ZENworks installation program does when adding a Primary Server to an existing Management Zone.	<p>When installing an additional Primary Server in a Management Zone, the installation program performs operations to install the Primary Server software, add the Primary Server to the existing Management Zone, install ZENworks Control Center, start the ZENworks services.</p> <p>For more information, see Chapter 9, “Understanding What the ZENworks Installation Does,” on page 61.</p>
<input type="checkbox"/> Download and mount the ISO.	<p>You cannot extract the ISO image and use it to install.</p>

Task	Details
<input type="checkbox"/> Update the software on the Linux server where you will install the ZENworks Primary Server.	<p>Ensure that the Linux server software is up to date and that any software, such as anti-virus software, that might interfere with the Primary Server installation is updated and configured correctly.</p> <p>For more information, see Chapter 10, “Updating Linux Server Software,” on page 63.</p>
<input type="checkbox"/> (Optional) Create an external certificate for your Primary Server.	<p>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.</p> <p>If your zone is using an external CA, you must provide the new Primary Server with a valid certificate issued from the external CA.</p> <p>For instructions about creating a certificate from an external CA, see Chapter 11, “Creating the SSL Certificate,” on page 65.</p>
<input type="checkbox"/> Install the ZENworks Primary Server software on a supported Linux server.	<p>Installation of an additional Primary Server is less complex than installation of the first Primary Server. The installation program only requires you to provide a target location for the software files, authentication information for the Management Zone (Primary Server address and Administrator login credentials), and files for the external certificate (if the zone is using an external CA).</p> <p>For instructions about running the installation program, see “Installing the Primary Server Software” on page 85.</p>
<input type="checkbox"/> Verify that the Primary Server is running.	<p>There are specific checks you can perform to ensure that installation of the software was successful and that the Primary Server is running.</p> <p>For instructions, see “Verifying the Installation” on page 88.</p>
<input type="checkbox"/> Back up the ZENworks Primary Server.	<p>You should back up the Primary Server at least one time.</p> <p>For instructions, see “Backing Up ZENworks Components” on page 92.</p>
<input type="checkbox"/> Review the post-installation tasks and complete any that apply to your Primary Server installation.	<p>There are several post-installation tasks that you might need to perform for your Primary Server. Review the list of tasks and complete any that apply.</p> <p>For instructions, see Chapter 14, “Completing Post-Installation Tasks,” on page 91.</p>

9 Understanding What the ZENworks Installation Does

The ZENworks installation program does the following during installation of your first Primary Server:

- ♦ Creates the Management Zone
- ♦ Generates a password that you supply for the default ZENworks Administrator account
- ♦ Establishes and populates the ZENworks database and Audit database

The ZENworks installation program does the following during installation of any Primary Server:

- ♦ Installs the ZENworks Agent so that the server can be managed
- ♦ Installs ZENworks Control Center, the web console used to manage your ZENworks System
- ♦ Installs the zman command line utility
- ♦ Installs and starts the ZENworks services

10 Updating Linux Server Software

Before installing ZENworks Primary Server software to a Linux server, ensure that you update the software on the server:

- ♦ [“All Linux Platforms” on page 63](#)

All Linux Platforms

- ♦ ZENworks installation on a Linux server requires that certain RPM packages are already installed on the server. For more information on the RPM packages required on the Linux devices, see [Dependent Linux RPM Packages](#).
- ♦ Run Linux Update on the server to ensure that all available updates are installed. When finished, disable Linux Update to prevent failure of the Primary Server software installation due to parallel installation of updates.
- ♦ Update other software (for example, anti-virus) to prevent failure of the Primary Server software installation due to parallel installation of updates.
- ♦ If you are testing or reviewing ZENworks , we recommend that you deploy the product in a non-production environment.

11 Creating the SSL Certificate

ZENworks Primary Servers communicate with ZENworks managed devices using the HTTPS protocol. This secure communication requires that the ZENworks Management Zone have a defined Certificate Authority (CA) and that each Primary Server have its own server certificate issued by the zone's CA.

ZENworks includes an internal ZENworks CA. If you use the internal ZENworks CA, it is created during installation of the first Primary Server. Each subsequent Primary Server you install is issued a certificate signed by the ZENworks CA.

We recommend that you use the internal ZENworks CA unless your corporate security policies do not allow you to do so. The internal ZENworks CA lasts 10 years and simplifies use of various ZENworks features such as Remote Management. 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 you cannot use the internal ZENworks CA, you can use an external CA and provide external server certificates for each Primary Server you install. See the following sections for detailed instructions on using external certificates:

- ♦ [“Generating a Certificate Signing Request \(CSR\)” on page 66](#)
- ♦ [“Generating a Certificate by Using NetIQ ConsoleOne” on page 66](#)
- ♦ [“Generating a Certificate by Using NetIQ iManager” on page 67](#)

The following are the acceptable formats for 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.

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
```

Generating a Certificate Signing Request (CSR)

For each Linux server where you will install the ZENworks Primary Server software, you need to create an individual server certificate with the subject being the server's Fully Qualified Domain Name (FQDN).

- 1 Install OpenSSL.
- 2 To generate a private key that is needed to create a certificate signing request (CSR), enter the following command:

```
openssl genrsa -out zcm.pem 2048
```

- 3 To create a CSR that can be signed by the external Certificate Authority, enter the following command:

```
openssl req -new -key zcm.pem -out zcm.csr
```

When you are asked for "YOUR name," enter the full DNS name assigned to the server where you are installing the Primary Server software domain names include *www.company.com*, *payment.company.com* and *contact.company.com*.

- 4 To convert the private key from PEM format to DER format, enter the following command:

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

The private key must be in the PKCS8 DER format. You can use the OpenSSL command line tool to convert your keys to the proper format. This tool can be obtained as part of the Cygwin toolkit, or as part of your Linux distribution.

- 5 Use the CSR and generate a certificate by using Novell ConsoleOne, Novell iManager or a true external CA such as Verisign.
 - ♦ "Generating a Certificate by Using NetIQ ConsoleOne" on page 66
 - ♦ "Generating a Certificate by Using NetIQ iManager" on page 67

Generating a Certificate by Using NetIQ ConsoleOne

- 1 Ensure that eDirectory is configured as the CA.
- 2 Issue the certificate for the Primary Server.
 - 2a Launch ConsoleOne.
 - 2b Log in to the eDirectory tree as an administrator with the appropriate rights.

For more information about the appropriate rights, see the [Entry Rights Needed to Perform Tasks \(https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html\)](https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html) section in the *NetIQ Certificate Server 3.3* documentation.
 - 2c From the **Tools** menu, click **Issue Certificate**.
 - 2d Browse for and select the `zcm.csr` file, then click **Next**.
 - 2e Complete the wizard by accepting the default values.
 - 2f Specify the certificate basic constraints, then click **Next**.
 - 2g Specify the validity period and the effective and expiration dates, then click **Next**.

- 2h Click **Finish**.
- 2i Choose to save the certificate in the DER-format, then specify a name for the certificate.
- 3 Export the Organizational CA's self-signed certificate.
 - 3a Log in to eDirectory from ConsoleOne.
 - 3b In the **Security** container, right-click the **CA**, then click **Properties**.
 - 3c In the **Certificates** tab, select the self-signed certificate.
 - 3d Click **Export**.
 - 3e When prompted to export the private key, click **No**.
 - 3f Export the certificate in DER format and choose the location where you want to save the certificate.
 - 3g Click **Finish**.

You should now have the three files that you need to install ZENworks using an external CA.

Generating a Certificate by Using NetIQ iManager

- 1 Ensure that eDirectory is configured as the CA.
- 2 Issue the certificate for the Primary Server.
 - 2a Launch iManager.
 - 2b Log in to the eDirectory tree as an administrator with the appropriate rights.
For more information about the appropriate rights, see the [Entry Rights Needed to Perform Tasks \(https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html\)](https://www.netiq.com/documentation/crt33/crtadmin/data/a2zibyo.html) section in the *NetIQ Certificate Server 3.3* documentation.
 - 2c From the **Roles and Tasks** menu, click **Novell Certificate Server > Issue Certificate**.
 - 2d Click **Browse** to browse for and select the CSR file, `zcm.csr`.
 - 2e Click **Next**.
 - 2f Accept the default values for the key type, the key usage, and the extended key usage, then click **Next**.
 - 2g Accept the default certificate basic constraints, then click **Next**.
 - 2h Specify the validity period, the effective and expiration dates then click **Next**. Depending upon your needs, change the default validity period (10 years).
 - 2i Review the parameters sheet. If it is correct, click **Finish**. If it is incorrect, click **Back** until you reach the point where you need to make changes.
When you click **Finish**, a dialog box is displayed explains that a certificate has been created. This exports the certificate into the binary DER-format.
 - 2j Download and save the issued certificate
- 3 Export the Organizational CA's self-signed certificate.
 - 3a Log in to eDirectory from iManager.
 - 3b From the **Roles and Tasks** menu, click **Novell Certificate Server > Configure Certificate Authority**.

This displays the property pages for the Organizational CA, which include a General page, a CRL Configuration page, a Certificates page, and other eDirectory-related pages.

3c Click **Certificates**, then select **Self Signed Certificate**.

3d Click **Export**.

This starts Certificate Export wizard.

3e Deselect the **Export the Private Key** option, and choose the export format as **DER**.

3f Click **Next**, then save the exported certificate.

3g Click **Close**.

You should now have the three files that you need to install ZENworks using an external CA.

12 Installing and Configuring an External ZENworks Database

ZENworks requires two databases, one for general data and another for audit data. For these databases, you can use the embedded PostgreSQL database software provided with ZENworks, or you can use a supported external database software (see [Database Requirements](#) in the [ZENworks 2020 Update 3 System Requirements](#)).

If you want to use the embedded database, skip the remainder of this section. You will install the embedded database during the installation of the ZENworks Primary Server software (see [Installing the Primary Server Software](#)).

- ♦ “Prerequisites for External Databases” on page 69

Prerequisites for External Databases

Review the applicable sections:

- ♦ “Prerequisites for PostgreSQL” on page 69
- ♦ “Prerequisites for Microsoft SQL Server” on page 70
- ♦ “Prerequisites for Oracle” on page 70

Prerequisites for PostgreSQL

Before installing and configuring the PostgreSQL database for ZENworks, ensure that the following prerequisites are met:

- ♦ Install and set up the PostgreSQL database so that it can be updated during ZENworks installation. For more information, see [Installing PostgreSQL](#).
- ♦ During ZENworks installation, you must specify a database user. Ensure that the database user has read/write permissions to create and modify the tables on the database server.

NOTE: For this database, ZENworks Support provides problem determination, provision of compatibility information, installation assistance, usage support, ongoing maintenance, and basic troubleshooting. For additional support, including extended troubleshooting and error resolution, see the [PostgreSQL Support web site \(https://www.postgresql.org/support/\)](https://www.postgresql.org/support/).

Prerequisites for Microsoft SQL Server

To use the Microsoft SQL Server database for ZENworks, ensure that the Microsoft SQL Server software is installed on the database server so that the ZENworks installation program can create the new Microsoft SQL database. For instructions on installing the Microsoft SQL Server software, refer to the Microsoft documentation.

For MS SQL, set the `READ_COMMITTED_SNAPSHOT` setting to `ON` so that it allows read access to information in the database while data is being written or modified.

To set the `READ_COMMITTED_SNAPSHOT` setting to `ON`, execute the following command at the database server prompt:

```
ALTER DATABASE database_name SET READ_COMMITTED_SNAPSHOT ON;
```

Prerequisites for Oracle

During the installation of the ZENworks database on Oracle, you can choose to create a new user schema or specify an existing one that resides on a server in your network.

- ♦ **Create a new user schema:** Ensure that the following requirements are met:

- ♦ You must have the database administrator credentials. Ensure that the administrator has Data Definition Language (DDL) and Redefinition rights with the Grant option (`DBMS_LOCK`, `DBMS_REDEFINITION`, and `DBMS_DDL`) enabled.

NOTE: Ensure that the database administrator has the following privileges:

- ♦ `GRANT ALL on DBMS_REDEFINITION TO system GRANT option;`
 - ♦ `GRANT ALL on DBMS_DDL TO system GRANT option;`
 - ♦ `GRANT ALL ON DBMS_LOCK TO system WITH GRANT OPTION;`
-

- ♦ A tablespace is needed for the Oracle access user. A tablespace is a storage location where the actual data underlying database objects can be kept. It provides a layer of abstraction between physical and logical data, and serves to allocate storage for all DBMS managed segments. (A database segment is a database object which occupies physical space such as table data and indexes.) Once created, a tablespace can be referred to by name when creating database segments.
- ♦ The tablespace can be created by ZENworks or can be created by the Database Administrator.
- ♦ The tablespace has sufficient space to create and store the ZENworks database schema. The tablespace requires a minimum of 10 GB to create ZENworks database schema.
- ♦ **Use an existing user schema:** You can install to an existing Oracle user schema in the following scenarios:
 - ♦ The database administrator creates a user schema with the necessary rights, and you receive the credentials for that user schema from the database administrator. Database administrator credentials are not required to install to an existing Oracle user schema.
 - ♦ You create a user in the Oracle database and choose to use it during ZENworks installation.

If you choose to use an existing user schema, ensure that the following requirements are met:

- ♦ The tablespace has sufficient space to create and store the ZENworks database schema. The tablespace requires a minimum of 10 GB to create the ZENworks database schema.
 - ♦ The quota for the user schema is set to Unlimited on the tablespace that is required during installation.
- ♦ **Rights to create the database:** Ensure that the user schema has the following rights to create the database:

```
CREATE SESSION
CREATE TABLE
CREATE VIEW
CREATE PROCEDURE
CREATE SEQUENCE
CREATE TYPE
CREATE TRIGGER
ALTER ANY TABLE
DROP ANY TABLE
LOCK ANY TABLE
SELECT ANY TABLE
CREATE ANY TABLE
CREATE ANY TRIGGER
CREATE ANY INDEX
CREATE ANY DIMENSION
CREATE ANY EVALUATION CONTEXT
CREATE ANY INDEXTYPE
CREATE ANY LIBRARY
CREATE ANY MATERIALIZED VIEW
CREATE ANY OPERATOR
CREATE ANY PROCEDURE
CREATE ANY RULE
CREATE ANY RULE SET
CREATE ANY SYNONYM
CREATE ANY TYPE
CREATE ANY VIEW
DBMS_DDL
DBMS_REDEFINITION
DBMS_LOCK (Execute and Debug)
```

IMPORTANT: The above privileges are used to modify tables only in ZENworks schema and not in any other schema. The DBMS_DDL and DBMS_REDEFINITION packages are used to restructure some of the tables as partitioning tables during fresh installation of ZENworks.

You can give the DBMS_DDL and DBMS_REDEFINITION rights to the user at the time of installation or upgrade. After the installation or upgrade is successful, you can revoke the DBMS_DDL and DBMS_REDEFINITION rights and also those privileges with ANY option.

For more details, see the [Oracle database documentation \(http://docs.oracle.com/cd/B28359_01/server.111/b28310/tables007.htm#i1006801\)](http://docs.oracle.com/cd/B28359_01/server.111/b28310/tables007.htm#i1006801).

For Oracle databases, performance can be affected by whether you configure your database to use a shared server or dedicated server processes. Each ZENworks Primary Server is configured with a database connection pool whose size fluctuates with the ZENworks system load. This pool can grow at peak loads to a maximum of 300 concurrent database connections per Primary Server. If your Oracle database is configured to use dedicated server processes, it is possible that your database server resource usage can reach undesirable levels that affect performance when there are multiple Primary Servers in your zone. If you encounter this problem, consider changing your ZENworks database to use shared server processes.

- ♦ **Day-to-Day Operations for Databases:** Ensure that the ZENworks and Audit users have the minimum rights to function during database operations.

```
CREATE TRIGGER
```

```
CREATE SESSION
```

```
CREATE SEQUENCE
```

```
CREATE TYPE
```

```
CREATE PROCEDURE
```

```
CREATE VIEW
```

```
CREATE TABLE
```

```
DBMS_LOCK (Execute & Debug)
```

Prerequisites for Oracle RAC

- ♦ Oracle database and Real Application Clusters (RAC) version must be 12c R1 or above.
- ♦ Tablespaces must be created by your database administrator manually (do not use ZENworks to create the tablespaces).
- ♦ Shut down ZENworks services on all Primary Servers and Reporting Server before upgrading ZENworks.

13 Installing a ZENworks Primary Server on Linux

Perform the tasks in the following sections to install the ZENworks software:

- ♦ “Installation Information” on page 73
- ♦ “Installing Docker and Docker Compose” on page 82
- ♦ “Zocker” on page 84
- ♦ “Installing the Primary Server Software” on page 85
- ♦ “Performing an Unattended Installation” on page 86
- ♦ “Verifying the Installation” on page 88

NOTE: After installing the first Primary Server, ZooKeeper is automatically enabled on the first Primary Server. You need to ensure that ZooKeeper is up and running at all times. For more information, see [Installation Information](#).

Installation Information

Installation Information	Explanation
Install Docker and Docker Compose	<p>Before installing ZENworks on a Linux Primary Server, you are required to install Docker and Docker Compose on the server. For more information on Dockers, see https://docs.docker.com/.</p> <p>For more information on Installing Docker and Docker Compose see, Installing Docker and Docker Compose.</p>
DNS Server is Configured	<p>Ensure that a DNS server has been set on the server on which the ZENworks 2020 Update 3 Primary Server will be installed. Also, the hostname of the local machine should be resolvable over DNS.</p>
Installation path	<p>Several fixed installation paths are used:</p> <ul style="list-style-type: none">/opt/microfocus/zenworks/etc/opt/microfocus/zenworks/var/opt/microfocus/zenworks/var/opt/microfocus/log/zenworks <p>If you are concerned about disk space on the Linux server, the /var/opt directory is where the database and content repository reside.</p>

Installation Information	Explanation
Response file path (optional)	<p>If you started the installation executable with the <code>-s</code> parameter, you are required to provide a path for the file. The default path is <code>/root</code>, which you can change to any path available on the current server.</p> <p>The Primary Server software is not installed when you run the program to create a response file. It only displays the installation pages necessary to identify and create the response file.</p>
Prerequisites	<p>If the required prerequisites are not installed, you are not allowed to continue with the installation. The requirements that are not fulfilled are displayed (GUI) or listed (command line).</p> <ul style="list-style-type: none"> ◆ Ensure that you have installed Docker and Docker Compose before installing the ZENworks 2020 Update 3 Primary Server software. For more information on Installing Docker and Docker Compose see, Installing Docker and Docker Compose. ◆ Ensure that the Docker Service is enabled at all times. <ol style="list-style-type: none"> 1. To check the status of the Docker service, run the following command: <pre>\$ sudo systemctl status docker.service</pre> 2. To enable the service, run the following command: <pre>\$ sudo systemctl enable docker.service</pre> ◆ Ensure that the Docker service has started. To start the service run the following command: <pre>\$ sudo systemctl start docker.service</pre> ◆ Ensure that a DNS server has been set on the server on which the ZENworks 2020 Update 3 Primary Server will be installed. Also, the hostname of the local machine should be resolvable over DNS. ◆ (Conditional) If you are using a shared content repository, ensure that you have mounted the shared content repository to the new Micro Focus path, that is, <code>/var/opt/microfocus/zenworks/content-repo</code>. ◆ Ensure that you review the system requirements, before proceeding with the installation. For more information, see ZENworks 2020 Update 3 System Requirements ◆ If you are using the embedded PostgreSQL database, review the prerequisites before proceeding with the installation. For more information, see “Prerequisites for PostgreSQL” on page 69. <p>If the .NET prerequisite is not fulfilled, you can click the ZENworks link in the description to install the runtime version that is bundled with ZENworks. After .NET is installed, the installation of ZENworks proceeds. This wizard might take a few seconds to launch.</p>

Installation Information	Explanation
Management Zone	<p>New Zone: If you are installing to the first server in the zone, you need to know the name and password you want to use for the Management Zone. The password is used to log in to ZENworks Control Center.</p> <p>Zone Name: The zone name has a 20-character limit and should be a unique name. The zone name can contain only the following special characters: - (dash) _ (underscore) . (period). The zone name cannot contain special characters such as ~ . ` ! @ # % ^ & * + = () { } [] \ : ; " ' < > , ? / \$</p> <p>For Embedded PostgreSQL, ensure that the zone name is unique in your environment.</p> <p>IMPORTANT: While installing ZENworks in a non-English language operating system, ensure that the Management Zone name does not use special characters from any other non-English language. For example, while installing ZENworks on a simplified Chinese operating system, ensure that the Zone name does not use "üöä" from the German Character Set.</p> <p>Zone Password: By default, the login user name is Administrator. After completing the installation, you can use ZENworks Control Center to add other administrator names that can be used to log in to the Management Zone. The zone administrator password must contain at least six characters and is limited to a maximum of 255 characters. The password can contain only one instance of the \$ character.</p> <p>Port Number: During the installation of subsequent Primary Servers, the server by default uses the ports used by first Primary Server. If the ports are in use on the second Primary Server, you are asked to specify another port. Note which port you specify because you will need to use it in the URL for accessing ZENworks Control Center from that Primary Server.</p> <p>Existing Zone: If you are installing to an existing Management Zone, you need to know the following information:</p> <ul style="list-style-type: none"> ♦ The DNS name or IP address of an existing Primary Server in the zone. We recommend using the DNS name to provide ongoing synchronization with certificates that are signed with DNS names. ♦ The SSL port used by the existing Primary Server in the Management Zone. If the Primary Server uses a different port than the default (443), specify that port. ♦ A ZENworks administrator user name to log in to the zone. The default is Administrator. After completing the installation, you can use ZENworks Control Center to add other administrator names that can be used to log in to the Management Zone. ♦ The password for the administrator you specified in the Username field.
Database Configuration Recommendation	<p>You can enter the number of devices used in thousands. For example enter 1 for 1000 devices, 2 for 2000, and so on. The range of devices is between 1 to 100. Based on the number of devices, the database recommendation is displayed.</p>

Installation Information	Explanation
Database options	<p>ZENworks requires a database. The database options are displayed only when installing the first Primary Server to the zone.</p> <p>You have the following database options:</p> <ul style="list-style-type: none"> ♦ Embedded PostgreSQL: Automatically installs the embedded database on the local server. <p>If you select the embedded database option, no further database installation pages are shown.</p> ♦ Remote PostgreSQL: This database must already exist on a server in your network. It can be on the current server. <p>To select this option, you should already have followed the steps in “Prerequisites for PostgreSQL” on page 69.</p> <p>You also use this option for installing to an existing remote PostgreSQL database.</p> ♦ Microsoft SQL Server: You can create a new SQL database or specify an existing database that resides on a server in your network. It can be on the current server. <p>Creating a new SQL database at this time provides the same results as the steps in “Prerequisites for Microsoft SQL Server” on page 70.</p> ♦ Oracle: Specifies a user schema that you can use to set up an external Oracle database schema for use with ZENworks. <p>You can either create a new user schema or specify an existing one that resides on a server in your network.</p> <p>To select this option, you should already have followed the steps in “Prerequisites for Oracle” on page 70.</p> <p>IMPORTANT: The following points must be considered for external databases:</p> <ul style="list-style-type: none"> ♦ The time on the server hosting the database must be synchronized with each of the Primary Servers in the Management Zone. The external database can also reside on the Primary Server machine. ♦ If you have specified the database hostname, it must be DNS resolvable.

Installation Information	Explanation
Database information	<p>For the external database options (Remote PostgreSQL, Microsoft SQL Server, and Oracle), you need to know the information listed below. Defaults are provided for some of this information, which can be changed as necessary.</p> <ul style="list-style-type: none"> ♦ All Databases: The database server must have a PostgreSQL, Microsoft SQL, or Oracle database installed. <ul style="list-style-type: none"> ♦ Server's name. We recommend that you identify the server by its DNS name rather than its IP address, to be in sync with certificates that are signed with DNS names. <p>IMPORTANT: If you later change your database server's IP address or DNS name, ensure that your corporate DNS server is updated with this change to keep DNS for the database server in sync.</p> ♦ Port used by the database server. <p>Port 54327 is the default for PostgreSQL and port 54327 is the default for Microsoft SQL Server.</p> <p>Change the default port number if you have a conflict.</p> ♦ (Optional) SQL Server Only: Named instance that is the name of the SQL server instance that is hosting the existing ZENworks database. You must specify the named instance if you want it to be something other than the default of <code>mssqlserver</code>. ♦ Oracle Only: The name of the tablespace where you want the database to be created. The default is <code>USERS</code>. ♦ New Database: <ul style="list-style-type: none"> ♦ The database administrator (Username field) must have read/write permissions in order to successfully perform the required operations on the database. ♦ The administrator's database password. ♦ SQL Server or New Database: <ul style="list-style-type: none"> ♦ If you are using Windows authentication, specify the Windows domain where the user you specified in the Username field exists. If you are not using a Windows domain, specify the server's short name. ♦ Whether to use Windows or SQL Server authentication. For Windows authentication, provide the credentials for a user on the current device or in the domain. For SQL authentication, provide credentials that match those of a valid SQL user. <p>It is important to know whether you installed the SQL Server by using SQL authentication, Windows authentication, or mixed. Be sure to select the option that coincides with your SQL Server options; otherwise, the authentication will fail.</p>

Installation Information	Explanation
Database access	<p>For the external database options (Remote PostgreSQL, Microsoft SQL Server, and Oracle), you need to know the information listed below. Defaults are provided for some of this information, which can be changed as necessary.</p> <ul style="list-style-type: none"> ♦ All Databases: This server must have a PostgreSQL, Microsoft SQL, or Oracle database installed. <ul style="list-style-type: none"> ♦ Database name. Replace zenworks_MY_ZONE with either the desired database name or an existing database name. ♦ Database user name. This user must have read/write permissions to modify the database. <p>If Windows authentication is also selected, the specified user must already exist when you create a new SQL database. The user is granted login access to SQL Server and read/write access to the ZENworks database that is created.</p> <p>For an existing database, specify a user with sufficient permissions to the database.</p> ♦ Database password. For a new database, this password is automatically generated if SQL authentication is selected. For an existing database, specify the password of an existing user with read/write permissions to the database. ♦ PostgreSQL Databases Only: The name of your PostgreSQL database server. ♦ Oracle Databases Only: The name of the tablespace where you want the database to be created. By default, it is USERS. ♦ Microsoft SQL Databases Only: <ul style="list-style-type: none"> ♦ If you are using Windows authentication, specify the Windows domain where the user you specified in the Username field exists. If you are not using a Windows domain, specify the server's short name. ♦ Whether to use Windows or SQL Server authentication. For Windows authentication, provide the credentials for a user on the current device or in the domain. For SQL authentication, provide credentials that match those of a valid SQL user. <p>It is important to know whether you installed the SQL Server by using SQL authentication, Windows authentication, or mixed. Be sure to select the option that coincides with your SQL Server options; otherwise, the authentication will fail.</p>

Installation Information	Explanation
SSL configuration (shown only for the first server installed in the Management Zone)	<p>In order to enable SSL communications, an SSL certificate must be added to the ZENworks server. Select whether to use an internal or external certificate authority (CA).</p> <p>For subsequent installations of Primary Servers to the Management Zone, the CA established by the first server's installation is used for the zone.</p> <p>IMPORTANT: After you install ZENworks, you can only change the internal certificate to an external certificate on Primary Servers. For more information, see “Reconfiguring the Certificate Authority before and after it Expires” in the <i>ZENworks Disaster Recovery Reference</i>.</p> <p>The Restore Default buttons restore the paths to those that were displayed when you first accessed this page.</p>
Signed SSL certificate and private key	<p>To enter a trusted CA-signed certificate and private key, click Choose to browse for and select the certificate and key files, or specify paths to the signed certificate to be used for this server (Signed SSL Certificate) and the private key associated with the signed certificate (Private Key).</p> <p>For subsequent installations of Primary Servers to the zone, the CA established for the zone by the first server's installation is used. If the zone is using an internal CA, you must provide the IP address or DNS name of the Primary Server with CA role. Otherwise, the wizard will not proceed further.</p> <p>For information on creating external certificates to select when installing to a Linux server, see Section 12, “Installing and Configuring an External ZENworks Database,” on page 69.</p> <p>For information on creating external certificates for installing to a server using a silent installation, see “Creating Your Response File” on page 86.</p>
Root certificate (optional)	To enter a trusted CA root certificate, click Choose to browse for and select it, or specify the path to the CA's public X.509 certificate (CA Root Certificate).
SSL Configuration	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.
Pre-installation summary	<p>GUI Installation: To make changes to any information entered up to this point, click Previous. After you click Install, the installation of the files begins. During installation, you can click Cancel to stop, which leaves the files on your server that were installed up to that point.</p> <p>Command Line Installation: If you want to make changes to any information entered up to this point, you can type <code>back</code> and press Enter as many times as necessary. As you progress forward through the commands again, press Enter to accept the decisions that you previously made.</p>

Installation Information	Explanation
Installation complete (roll back option)	<p>If installation errors occurred, this page is displayed at this time; otherwise, it is displayed after the Post-Installation Actions page.</p> <p>Installation Recovery: For both the GUI and command line installations, if there are serious installation errors, you can roll back the installation to return your server to its previous state. This option is provided on a different installation page. Otherwise, you have two options:</p> <ul style="list-style-type: none"> ♦ If a previous installation was cut short and you install again, you might be given the option to reset the installation, depending on how far you got in the canceled installation. If you select to reset, this overwrites any configuration that might have occurred during the canceled installation. ♦ To undo a successfully completed installation, follow the instructions in the ZENworks Uninstall Guide. <p>If there were serious installation errors, select Roll Back, which returns your server to its previous state. Upon exiting the installation program, the server is not rebooted. However, to complete the installation, you must reboot the server.</p> <p>To determine whether to continue the installation or roll it back, review the log file that lists the errors to determine if any installation failures were significant enough for your action. If you select to continue, resolve the issues that are noted in the log after you have rebooted the server and completed the installation process.</p> <p>To access the log file in the GUI installation, click View Log. In the command line installation, the path to the log file is displayed.</p>

Installation Information	Explanation
Post installation actions	<p>Options are presented for selecting actions to perform after the installation has successfully completed:</p> <ul style="list-style-type: none"> ♦ For the GUI installation, a page displays the options listed below. Some items are selected by default. Click any check box to select or deselect the option, then click Next to continue. ♦ For a command line installation, the options are listed with option numbers. Select or deselect an option by typing its number to toggle its selection status. After configuring the selections, press Enter without typing a number to continue. <p>Select from the following possible actions:</p> <ul style="list-style-type: none"> ♦ Run ZENworks Control Center: Opens ZENworks Control Center immediately if you select to reboot manually or you installed to a Linux server. For a Linux installation without a GUI, a GUI-enabled device must be used to run ZENworks Control Center. <p>For the Oracle database, the administrator names are case sensitive. The default ZENworks administrator account that was automatically created during installation uses an initial capital letter. In order to log in to ZENworks Control Center, you must enter <i>Administrator</i>.</p> <ul style="list-style-type: none"> ♦ View Readme file: For GUI installations, it opens the ZENworks Readme in your default browser. For a Linux command line installation, the URL to the Readme is listed. ♦ View Installation log: Displays the installation log in your default XML viewer (GUI installation) after rebooting, or immediately if you select to reboot manually. For a Linux command line installation, the information is simply listed.
ZENworks System Status Utility	Allows you to launch a ZENworks services heartbeat check prior to closing the installation program. Results are posted in the installation log.
Rebooting (or not)	<p>Upon a successful installation, you can select between rebooting immediately or later:</p> <ul style="list-style-type: none"> ♦ Yes, Restart the System: If you select this option, log in to the server when prompted. The first time you log in to the server, it takes a few minutes because the database is being populated with inventory data. ♦ No, I Will Restart the System Myself: If you select this option, the database is immediately populated with inventory data. <p>NOTE: This option is displayed only for Windows devices.</p> <p>The process of populating the database can cause high CPU utilization during a reboot or immediately after the installation program closes if you select not to reboot. This database updating process can slow down the starting of the services and access to ZENworks Control Center.</p> <p>The Patch Management downloads might also cause high CPU utilization, usually shortly after rebooting.</p>

Installation Information	Explanation
Installation completion	<p>The actions you selected previously are performed after all of the files have been installed for ZENworks (if selected).</p> <p>IMPORTANT: If you installed to a Linux server using the command line, and if you plan to run any zman commands in the current session, you need to get the newly installed <code>/opt/microfocus/zenworks/bin</code> directory into your session's path. Log out of your session and log back in to reset the PATH variable.</p>

NOTE: After installing 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.

```
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](#).

Installing Docker and Docker Compose

As ZENworks aims to adopt a more robust and flexible architecture, you are required to install Docker and Docker Compose on the Linux Primary Server on which the ZENworks server software will be installed.

- ♦ **Docker Version:** Docker v19.x or higher should be installed on the server on which the ZENworks Primary Server software will be installed.
- ♦ **Docker Compose Version:** Docker Compose v1.28.x or higher should be installed on the server on which the ZENworks Primary Server software will be installed.

NOTE: When docker is installed on a ZENworks Primary Server, it generates internal IP addresses. ZENworks Primary Server prior to ZENworks 2020 Update 2 does not filter out these IP addresses while generating Closest Server Rules. Consequently, when managed devices attempt to communicate to the ZENworks Primary Server with the server's internal IP addresses, they will time out and cause delay in communicating with the Primary Server and sharing data. The issue is

resolved in ZENworks 2020 Update 2 as the internal IP addresses are filtered out in the Closest Server Rules. Hence, it is recommended to install docker on the ZENworks Primary Server just prior to upgrade to ZENworks 2020 Update 2.

Installing Docker

The procedure detailed in this section will enable you to download the latest version of Docker.

- 1 After registering to Suse Customer Center, generate a registration key for the operating system version of your Primary Server and register the device with the [Suse Customer Center](#).
- 2 Start YaST.
- 3 In the Administrator Settings window, select **Software > Software Repositories**.
- 4 Click **Add** to open the **Add On Product** dialog box.
- 5 Select **Extensions and Modules from the Registration Server...** Click **Next**.
- 6 From the list of **Available Extensions and Modules**, based on the platform version, select one of the following container modules. Click **Next** and **Finish** the wizard. The modules and its repositories will be added to your system.
 - ♦ **SLES 12 SP3, SLES 12 SP4, SLES 12 SP5: Containers Module 12 x86_64**
 - ♦ **SLES 15: Containers Module 15 x86_64**
 - ♦ **SLES 15 SP1: Containers Module 15 SP1 x86_64**
- 7 On the Linux terminal, execute the following command to install the Docker package:

```
$ sudo zypper install docker
```

NOTE: If the `zypper install docker` command fails to install docker, then run the following command to check whether the container module has been added to the repository:

```
$ sudo zypper ls
```

If the container module has not been added, then run the following command to add the container module:

For SLES 12 SP3, SLES 12 SP4, SLES 12 SP5:

```
$ sudo SUSEConnect -p sle-module-containers/12/x86_64
```

For SLES 15:

```
$ sudo SUSEConnect -p sle-module-containers/15/x86_64
```

For SLES 15 SP1:

```
$ sudo SUSEConnect -p sle-module-containers/15.1/x86_64
```

- 8 Execute the following command to enable the Docker services:

```
$ sudo systemctl enable docker.service
```

- 9 Execute the following command to start the Docker service:

```
$ sudo systemctl start docker.service
```

- 10 Execute the following command to test whether Docker has been installed properly:

```
$ docker run hello-world
```

If the message `Hello from Docker!` is displayed, then it indicates that Docker has been installed successfully.

Installing Docker Compose

Before installing Docker Compose, ensure that you have already installed the Docker engine as elaborated in the previous section.

- 1 On the Linux terminal, run the following command to download the latest release of Docker Compose, in this case Docker Compose version 1.28.2:

```
$ sudo curl -L "https://github.com/docker/compose/releases/download/1.28.2/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

NOTE: If the server does not have Internet access and communicates through a proxy server, then refer to the curl man page for configuring curl to use proxy.

- 2 Run the following command to apply executable permissions to the binary:

```
$ sudo chmod +x /usr/local/bin/docker-compose
```

NOTE: If the `docker-compose` command fails after installation, check the path. You can also create a symbolic link to `/usr/bin` or any other directory in your path.

Example:

```
$ sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
```

- 3 Test the installation by running the following command. The Docker Compose version will be displayed.

```
$ docker-compose --version
```

NOTE: The latest release versions of Docker Compose is published in <https://github.com/docker/compose/releases>. To upgrade to the latest release, follow the steps displayed under the **Linux** tab in <https://docs.docker.com/compose/install/>. However, before upgrading Docker Compose to the latest version, ensure that you stop the ZENworks services. For more information on stopping these services, see [Stopping the ZENworks Services](#).

Zocker

Zocker is used for patching the Primary Servers in the zone.

Applying the Zocker Patch

The patch can be applied on both Windows and Linux. To apply the patch run the following command:

zocker patch apply -file <location_patch.tar>

Example: zocker patch apply -file D:\patchfile20.2.0.567.tar

Reverting the Patch

Using the revert command, you can revert to the last good-known version or a specific version. To revert the patch, run the following command:

- ♦ To revert to a last known good version: zocker patch revert -image zenserver
- ♦ To revert to a specific version: zocker patch revert -image zenserver:<version>

Example: zocker patch revert -image zenserver:20.2.0.567

The server will be reverted to the 20.2.0.567 version.

Installing the Primary Server Software

- ♦ [“Using the Graphical User Interface \(GUI\) Installation Program to Install the Primary Server Software” on page 85](#)
- ♦ [“Using the Command Line Interface \(CLI\) Installation Program to Install the Primary Server Software” on page 86](#)

Using the Graphical User Interface (GUI) Installation Program to Install the Primary Server Software

- 1 Log in to the installation server as a Linux administrator.
- 2 Download the ISO.
- 3 Mount the ISO by running the command `mount -o loop <ISO path including name> <mount_path>`.

When installing ZENworks, Strawberry Perl is installed in the root directory to meet the Perl runtime requirement for the `ppkg_to_xml` tool that should run on both Windows and Linux. This tool is required to read the RPM package files to extract the package metadata and to create Linux bundles or Dependency bundles with these packages.

- 4 `cd` to the mounted location and run `./setup.sh`
- 5 During installation, refer to the information in [Installation Information](#) for details on the installation data that you need to know.

NOTE: Part of completing the installation process is for the database to be updated and for the Product Recognition Update (PRU) to be downloaded and installed, both of which cause high CPU utilization during their processes. This can cause the services to start up slowly, which can also affect how long it takes for ZENworks Control Center to open.

Using the Command Line Interface (CLI) Installation Program to Install the Primary Server Software

- 1 Log in to the installation server as a Linux administrator.
- 2 Download the ISO to a specific location.
- 3 Mount the ISO by running the command `mount -o loop <ISO path including name> <mount_path>`.
- 4 To start the installation, run the following command:

```
sh /mount_location/setup.sh -e
```

IMPORTANT: When you use the `-e` option to execute a Linux CLI installation, the next, back, and quit keywords cannot be used as input, because the configuration framework interprets these keywords as commands.

- 5 During installation, refer to the information in [Installation Information](#) for details on the installation data that you need to know.

Performing an Unattended Installation

You can use a response file to perform an unattended installation of ZENworks . You can either edit the default response file (provided at `DVD_drive:\Disk1\InstData\silentinstall.properties`), or perform an installation to create your own version of the response file that contains the basic installation information and edit that copy as needed.

For an embedded PostgreSQL database, you must create a response file to perform an unattended installation; you cannot reuse the response file generated for a server that uses an external database.

Do the following to create the response file, and then use it to perform an unattended installation:

- ♦ [“Creating Your Response File” on page 86](#)
- ♦ [“Performing the Installation” on page 88](#)

Creating Your Response File

- 1 Run the ZENworks installation executable on a server by using one of the following methods:

- ♦ **Linux GUI:** `sh /media/cdrom/setup.sh -s`
Using the `sh` command resolves rights issues.
- ♦ **Linux command line:** `sh /media/cdrom/setup.sh -e -s`

For more information on the installation arguments, see [“Installation Executable Arguments” on page 97](#).

- 2 When prompted, provide a path for your custom response file.

When you use the `-s` argument by itself, the installation program prompts you for a path for the response file. The default file name is `silentinstall.properties`, which you can rename later (see [Step 3f](#)).

3 Add the Management Zone and external database passwords to your custom response file.

Because the external database password that you enter during creation of the custom response file is not saved in the response file, you must add the database and the Management Zone passwords in each copy of the response file in order for it to be correctly provided during an unattended installation.

Optionally, you can create an environment variable to pass the password into the unattended installation. Instructions for this are contained in the response file where the password information is stored.

While you are editing the response file, you can make any other changes necessary to customize it for your unattended installation. The response file contains instructions for its various sections.

To add the external database and Management Zone passwords into the response file:

3a Open the response file in a text editor.

Your custom response file is in the location that you specified in [Step 2](#).

If you are editing the default response file, it is located at
`DVD_drive:\Disk1\InstData\silentinstall.properties`.

3b Search for `ADMINISTRATOR_PASSWORD=`.

3c Replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

For example, if the password is `novell`, the entry will be

```
ADMINISTRATOR_PASSWORD=novell
```

3d (Conditional) If you are using an external database, search for the line `DATABASE_ADMIN_PASSWORD=`, and replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

3e (Conditional) If you are using an external database, search for the line `DATABASE_ACCESS_PASSWORD=`, and replace `$lax.nl.env.ADMIN_PASSWORD$` with the actual password.

3f If you want to add another Primary Server to the existing Management Zone, you must provide the following information in the response file:

```
PRIMARY_SERVER_ADDRESS=$Primary_Server_IPaddress$
```

```
PRIMARY_SERVER_PORT=$Primary_Server_port$
```

```
PRIMARY_SERVER_CERT=-----BEGIN CERTIFICATE-----
```

```
MIID9DCCLotsOfEncryptedCharactersSja+bY05Y=-----END CERTIFICATE-----
```

```
-
```

where

`PRIMARY_SERVER_ADDRESS` is the IP address or DNS name of the parent Primary Server if the secondary server is being installed to an existing Management Zone.

`PRIMARY_SERVER_PORT` is the SSL port used by the parent Primary Server if the secondary server is being installed to an existing Management Zone. The default port is 443.

PRIMARY_SERVER_CERT= is the certificate you specified on the parent Primary Server if the secondary server is being installed to an existing Management Zone. The certificate must be in the base64 encoded string format of an x509 certificate, and the certificate string must be specified in one line. This is just an example of the certificate information.

- 3g Save the file and exit the editor.
- 4 After you have completed modifications to your custom response file, copy it from the path that you specified in [Step 2](#) to a location on each server where you will use it for the unattended installation.
- 5 To use the updated response file, continue with [“Performing the Installation” on page 88](#).

Performing the Installation

- 1 On the installation server where you will perform an unattended installation, insert the *Novell ZENworks* installation DVD and mount it.
 - 2 To start the unattended installation, run the following command:
 - ♦ `sh /media/cdrom/setup.sh -s -f path_to_file.`where *path_to_file* is either the full path to the response file that you created in [“Creating Your Response File” on page 86](#), or a directory containing the `silentinstall.properties` file (it must use that file name).
- Using the `sh` command resolves rights issues.
- If you renamed the updated response file, include its new name with the path.
- If a file name is not given, or if either the path or file does not exist, the `-f` parameter is ignored and the default installation (GUI or command line) is run instead of an unattended installation.
- 3 To create another Primary Server for the Management Zone by performing an unattended installation, return to [Step 1](#); otherwise, continue with [Step 4](#).
 - 4 After the installation has completed, continue with [“Verifying the Installation” on page 88](#).

Verifying the Installation

Perform the following steps if you want to verify a successful installation.

- 1 After the installation has completed and the server has been rebooted, do any of the following to verify that ZENworks is running:
 - ♦ **Run ZENworks Control Center**

If ZENworks Control Center did not automatically start, use the following URL to open it in a web browser:

`https://DNS_name_or_IP_address_of_Primary_Server/zenworks`

NOTE: If the Primary Server is not using the default HTTPS port, you must add the port to the URL: `https://DNS_name_or_IP_address_of_Primary_Server:port_number/zenworks`

This can be done either on the server where you just installed ZENworks, or on a qualified workstation.
 - ♦ **Check the Linux services by using the configuration command**

On the server, run the following command:

```
/opt/microfocus/zenworks/bin/microfocus-zenworks-configure  
-c SystemStatus
```

This lists all ZENworks services and their statuses.

To start the services, run the following command:

```
/opt/microfocus/zenworks/bin/microfocus-zenworks-configure -c Start
```

- ♦ **Check the Linux services by using the specific services' commands**

On the server, run the following commands:

```
systemctl status microfocus-zenserver.service
```

```
systemctl status microfocus-zenloader.service
```

If the services are not running, run the following commands to start the ZENworks services:

```
systemctl status microfocus-zenserver.service
```

```
systemctl status microfocus-zenloader.service
```


14 Completing Post-Installation Tasks

After successfully installing the ZENworks Primary Server software, you might need to perform some of the following post-installation tasks. Not all tasks are required for all installations. However, we recommend that you review each section to ensure that you complete any tasks required for your installation.

- ♦ [“Licensing Products” on page 91](#)
- ♦ [“Adding Imaging Applications as Firewall Exceptions” on page 92](#)
- ♦ [“Supporting ZENworks 11.x Device Upgrades” on page 92](#)
- ♦ [“Backing Up ZENworks Components” on page 92](#)
- ♦ [“Customizing ZENworks Control Center” on page 93](#)
- ♦ [“Tasks for VMware ESX” on page 93](#)

Licensing Products

During the installation of your first ZENworks Primary Server and the creation of your Management Zone, the ZENworks installation program installs the following products and sets their license state as listed in the table.

Product	License State
Asset Inventory for Linux	Evaluation
Asset Inventory for Windows/Macintosh	Deactivated
Asset Management	Evaluation
Configuration Management	Evaluation
Endpoint Security Management	Deactivated
Full Disk Encryption	Deactivated
Patch Management	Activated

You activate a product by supplying a valid product license. If you do not have a valid license, you can evaluate the product for 60 days.

To change the license state of a product:

- 1 Log in to ZENworks Control Center.
- 2 Click **Configuration**.
- 3 In the **Licenses** panel, click a suite if you have a suite license key.

or

Click a product to provide a product license key or to turn on the product evaluation.

For more information, see the [ZENworks Product Licensing Reference](#).

Adding Imaging Applications as Firewall Exceptions

The ZENworks installation program cannot add exceptions to a Linux server firewall. Therefore, you must manually complete this task under the following conditions:

- ♦ The Primary Server will be an Imaging Server.
- ♦ The Primary Server will be the parent Primary Server of an Imaging Satellite Server.

If you turn on the firewall on the Primary Server, you must configure the server to allow the following ZENworks Configuration Management Imaging applications through the firewall by adding them to the Firewall Exceptions list:

- ♦ `novell-pbserv.exe`
- ♦ `novell-proxydhcp.exe`
- ♦ `novell-tftp.exe`
- ♦ `novell-zmgprebootpolicy.exe`

Supporting ZENworks 11.x Device Upgrades

If you have ZENworks 11.x managed devices or Satellite Servers in your network and want to register the devices to a new ZENworks Management Zone so that they can be automatically upgraded to ZENworks, you must import the ZENworks System Update into the zone from the ZENworks installation media.

Backing Up ZENworks Components

We recommend that you implement the following backup best practices:

- ♦ Take a reliable backup of the ZENworks database and Audit database on a regular basis. For more information on how to back up the ZENworks database, see the [ZENworks Database Management Reference](#).
- ♦ Procure and note down the credentials of the database.
 - ♦ For an internal database, use the following commands:

```
zman dgc -U administrator_name -P administrator_password
```
 - ♦ For the embedded PostgreSQL audit database, use the following commands:

```
zman dgca -U admimistrator_name -P administrator_password
```
 - ♦ For an external database, contact the database administrator.
- ♦ Take a reliable backup of the ZENworks Server (this only needs to be done one time). For instructions, see “[Backing Up and Restoring the ZENworks Server and Certificate Authority](#)” in the [ZENworks Disaster Recovery Reference](#).
- ♦ Take a reliable backup of the Certificate Authority. For instructions, see “[Backing Up the Certificate Authority](#)” in the [ZENworks Disaster Recovery Reference](#).

Customizing ZENworks Control Center

ZENworks Control Center provides a configuration file that you can use to customize how it functions. For example, you can change the default timeout from 30 minutes to another value.

For instructions, see “[Customizing ZENworks Control Center](#)” in the *ZENworks Control Center Reference*.

Tasks for VMware ESX

- ♦ For optimal performance of the Primary Servers running on VMware ESX, set the reserved memory size to the size of the guest operating system memory. For more information, see TID 7005382 in [Novell Support Knowledgebase \(http://support.novell.com/search/kb_index.jsp\)](http://support.novell.com/search/kb_index.jsp).
- ♦ In addition, if the ZENworks guest operating system supports VMware ESX, enable additional Java commands to set large pages, as follows:

```
-XX:+UseLargePages
```

For more information on memory reservation and large memory pages, refer to the Enterprise Java Applications on VMware Best Practices Guide.

- ♦ Finally, you need to perform the following tasks:

1 Create a backup, then open `/etc/init.d/microfocus-zenserver`.

2 In the `CATALINA_OPTS` string, add the appropriate options, separated by spaces, before the `-XX:PermSize` option.

`CATALINA_OPTS` is used to configure the Tomcat container options. For more information on Tomcat, see the Tomcat online documentation.

3 To start the ZENworks Server services, run the following command:

```
systemctl start microfocus-zenserver.service
```

4 To stop the ZENworks Server services, run the following command:

```
systemctl stop microfocus-zenserver.service
```

NOTE: If the ZENworks Server fails to start, there is a compatibility problem with the newly added option, or the syntax is incorrect. To troubleshoot the service startup, run the following command:

```
/etc/init.d/microfocus-zenserver debug
```

The following log file is displayed:

```
/opt/microfocus/zenworks/share/tomcat/logs/catalina.out
```



Appendixes

The following section provide information related to installing the ZENworks Primary Server software:

- ♦ [Appendix A, “Installation Executable Arguments,” on page 97](#)
- ♦ [Appendix B, “Dependent Linux RPM Packages,” on page 99](#)
- ♦ [Appendix C, “Oracle Enterprise with Partitioning,” on page 105](#)
- ♦ [Appendix D, “Keywords Not to Be Used in Database Creation,” on page 107](#)
- ♦ [Appendix E, “Installation Troubleshooting,” on page 109](#)

A

Installation Executable Arguments

To install ZENworks , the following arguments can be used with the `setup.exe` and `setup.sh` executable files that are located at the root of the installation DVD. You can run these files from a command line.

You should use the `sh` command with `setup.sh` in order to prevent rights issues.

Argument	Long Form	Explanation
-e	--console	(Linux only) Forces a command line installation.
-l	--database-location	Specifies a custom OEM (embedded) database directory.
-c	--create-db	Launches a database administration tool. It cannot be used at the same time as the -o argument.
-s	--silent	If this is not used with the -f argument, it causes the installation that you are performing to create a response file (with a <code>.properties</code> file name extension) that you can edit, rename, and use for an unattended installation to another server. If this is used with the -f argument, an unattended installation on the server is started, using the response file that you specify with the -f argument.
-f [path to file]	--property-file [path to file]	Used with the -s argument, performs an unattended (silent) installation using the response file that you specify. If you do not specify a response file, or if the path or file name is incorrect, the default non-silent GUI or command line installation is used instead.

Some examples:

- ♦ To perform a command line installation on a Linux server:

```
sh unzip_location/Disk1/setup.sh -e
```

- ♦ To specify a database directory:

```
unzip_location\disk1\setup.exe -l d:\databases\PostgreSQL
```

- ♦ To create a response file:

```
unzip_location\disk1\setup.exe -s
```

- ♦ To perform an unattended installation:

```
unzip_location\disk1\setup.exe -s -f c:\temp\myinstall_1.properties
```

For more information, see [“Performing an Unattended Installation” on page 46](#).

B Dependent Linux RPM Packages

ZENworks installation on a Linux server requires that certain RPM packages are already installed on the server. Review the following sections for more information on the RPM packages required on the Linux devices:

- ♦ [“SUSE Linux Enterprise Server” on page 99](#)

SUSE Linux Enterprise Server

You can use the SUSE Linux Enterprise Server installation media to install the packages on the SUSE Linux Enterprise Server before starting the ZENworks installation on the server:

SLES 12 - 64 Bit	SLES 15 - 64 Bit
xinetd	xinetd
bash	bash
libxml2	libxml2
glibc-32bit	glibc-32bit
libjpeg-32bit	libjpeg-32bit
zlib-32bit	zlib-32bit
libgcc43-32bit	libgcc43-32bit
libstdc++43-32bit	libstdc++43-32bit
perl	perl
coreutils	coreutils
fillup	fillup
gawk	gawk
glibc	glibc
grep	grep
insserv	insserv
pwdutils	pwdutils
sed	sed
sysvinit	sysvinit
diffutils	diffutils
logrotate	logrotate

SLES 12 - 64 Bit	SLES 15 - 64 Bit
perl-base	perl-base
tcpd	tcpd
libreadline5	libreadline5
libncurses5	libncurses5
zlib	zlib
libglib-2_0-0	libglib-2_0-0
libgmodule-2_0-0	libgmodule-2_0-0
libgthread-2_0-0	libgthread-2_0-0
gdbm	gdbm
libdb-4_5	libdb-4_5
coreutils-lang	coreutils-lang
info	info
libacl	libacl
libattr	libattr
libselineux1	libselineux1
pam	pam
filesystem	filesystem
aaa_base	aaa_base
libldap-2_4-2	libldap-2_4-2
libnscd	libnscd
libopenssl0_9_8	libopenssl0_9_8
libxcrypt	libxcrypt
opensslp	opensslp
pam-modules	pam-modules
libsepol1	libsepol1
findutils	findutils
mono-core	mono-core
bzip2	bzip2
cron	cron
popt	popt
terminfo-base	terminfo-base
glib2	glib2

SLES 12 - 64 Bit	SLES 15 - 64 Bit
pcrc	pcrc
libbz2-1	libbz2-1
libzio	libzio
audit-libs	audit-libs
cracklib	cracklib
cpio	cpio
login	login
mingetty	mingetty
ncurses-utils	ncurses-utils
net-tools	net-tools
psmisc	psmisc
sles-release	sles-release
udev	udev
cyrus-sasl	cyrus-sasl
permissions	permissions
glib2-branding-SLES	glib2-branding-SLES
glib2-lang	glib2-lang
libgcc43	libgcc43
libstdc++43	libstdc++43
cracklib-dict-full	cracklib-dict-full
cpio-lang	cpio-lang
sles-release-DVD	sles-release-DVD
libvolume_id1 (applicable only for SLES 11 SP2)	libvolume_id1 (applicable only for SLES 11 SP2)
licenses	licenses
libavahi-client3	libavahi-client3
libavahi-common3	libavahi-common3
libjpeg	libjpeg
xorg-x11-libX11	xorg-x11-libX11
xorg-x11-libXext	xorg-x11-libXext
xorg-x11-libXfixes	xorg-x11-libXfixes

SLES 12 - 64 Bit	SLES 15 - 64 Bit
xorg-x11-libs	xorg-x11-libs
dbus-1	dbus-1
xorg-x11-libXau	xorg-x11-libXau
xorg-x11-libxcb	xorg-x11-libxcb
fontconfig	fontconfig
freetype2	freetype2
libexpat1	libexpat1
xorg-x11-libICE	xorg-x11-libICE
xorg-x11-libSM	xorg-x11-libSM
xorg-x11-libXmu	xorg-x11-libXmu
xorg-x11-libXp	xorg-x11-libXp
xorg-x11-libXpm	xorg-x11-libXpm
xorg-x11-libXprintUtil	xorg-x11-libXprintUtil
xorg-x11-libXrender	xorg-x11-libXrender
xorg-x11-libXt	xorg-x11-libXt
xorg-x11-libXv	xorg-x11-libXv
xorg-x11-libfontenc	xorg-x11-libfontenc
xorg-x11-libxkbfile	xorg-x11-libxkbfile
libuuid1	libuuid1
libsqlite3-0	libsqlite3-0
libgobject-2_0-0	libgobject-2_0-0
rpm	rpm
util-linux	util-linux
libblkid1	libblkid1
util-linux-lang	util-linux-lang
update-alternatives	update-alternatives
postfix	postfix
netcfg	netcfg
openldap2-client	openldap2-client
lsb-release	lsb-release
libXtst6-32bit-1.2.2-3.60.x86_64	libXtst6-32bit-1.2.2-3.60.x86_64

SLES 12 - 64 Bit	SLES 15 - 64 Bit
libpango-1_0-0-32bit	libpango-1_0-0-32bit
libXi6-32bit	libXi6-32bit



Oracle Enterprise with Partitioning

ZENworks support Oracle Partitioning, if the partitioning feature is enabled in the Oracle database. Oracle Partitioning is a separately licensed option available with the Oracle Enterprise edition only. For Oracle Standard edition, the partitioning option is not supported.

During the ZENworks installation with the Oracle database, select one of the following:

- ♦ **Yes, let ZENworks use partitioning with the Oracle database.**
- ♦ **No, do not use partitioning with Oracle database.**

IMPORTANT: It is recommended that you use Oracle Partitioning since it improves the application performance and manageability.

If you are using Oracle Enterprise with partitioning, you need to verify whether the Oracle partition feature is enabled with the required license.

Execute the following:

```
Select Value from v$option where parameter='Partitioning';
```

The query output value is displayed as "TRUE". This indicates that the partition is enabled. ZENworks will automatically run the partition table scripts.

D Keywords Not to Be Used in Database Creation

When you create databases during installation, upgrade or database migration, the following keywords should not be used as-is in fields such as the zone name, user name, password, database name, schema names:

all	compress	false	level
alter	connect	fetch	like
and	constant	float	limited
any	create	for	lock
array	current	forall	long
as	curval	from	loop
asc	cursor	function	max
at	date	goto	min
audit	day	group	minus
authid	decimal	having	minute
avg	declare	heap	mlslabel
begin	default	hour	mod
between	delete	if	mode
binary_integer	desc	immediate	month
body	distinct	in	natural
boolean	do	index	naturaln
bulk	drop	indicator	new
by	else	insert	nextval
char	elsif	integer	nocopy
char_base	end	interface	not
check	exception	intersect	nowait
close	exclusive	label	null
cluster	execute	interval	nullif
coalesce	exists	into	number
collect	exit	is	number_base

comment	extends	isolation	ocirowid
commit	extract	java	of
on	range	sqlcode	update
opaque	raw	sqlerrm	use
open	real	start	user
operator	record	stddev	validate
option	ref	subtype	values
or	release	successful	varchar
order	return	sum	varchar2
organization	reverse	table	variance
others	rollback	then	view
out	row	time	when
package	rowid	timestamp	whenever
partition	rownum	timezone_abbr	where
pctfree	rowtype	timezone_hour	while
pls_integer	savepoint	timezone_minute	with
positive	second	timezone_region	work
positiven	select	to	write
pragma	separate	trigger	year
prior	set	true	zone
private	share	type	
procedure	smallint	ui	
public	space	union	
raise	sql	unique	

E Installation Troubleshooting

The following sections provide solutions to the problems you might encounter while installing or uninstalling ZENworks :

- ♦ [“Troubleshooting Installation” on page 109](#)
- ♦ [“Post Installation Troubleshooting” on page 118](#)

Troubleshooting Installation

This section provides solutions to problems you might encounter when installing ZENworks .

- ♦ [“Unable to log in to ZCC if a cross-signed certificate is used” on page 110](#)
- ♦ [“ZENworks Agent install progress does not display toast messages on Windows” on page 110](#)
- ♦ [“Unable to create database schema on a Primary Server” on page 110](#)
- ♦ [“ZENworks installation fails on a SLES device with the BTRFS file system” on page 111](#)
- ♦ [“Installing from the root directory on a Linux device fails to create the self-signed certificates” on page 111](#)
- ♦ [“Configuring the ZENworks Server to an Oracle database fails” on page 111](#)
- ♦ [“Unable to establish a remote desktop session with a Windows device running the ZENworks Configuration Management installation program” on page 111](#)
- ♦ [“Installing a second server gives an error message” on page 112](#)
- ♦ [“Installation on Linux fails” on page 112](#)
- ♦ [“Configure Action fails because of an error detected by HotSpot Virtual Machine” on page 112](#)
- ♦ [“Unable to install NetIdentity from Novell Client 32 on a device that has ZENworks installed” on page 113](#)
- ♦ [“Unable to open the ZENworks Configuration Management Installation logs by using a web browser on a non-English Primary Server” on page 113](#)
- ♦ [“Unable to install .NET 3.5 SP1 on Windows Server 2008” on page 114](#)
- ♦ [“Unable to install the ZENworks Agent on a McAfee fully protected device” on page 115](#)
- ♦ [“ZENworks-related files might be reported as malicious software during the ZENworks Agent installation” on page 115](#)
- ♦ [“Installation of ZENworks Agent on a Terminal Server hangs” on page 115](#)
- ♦ [“ZENworks installation on an RHEL device might fail” on page 116](#)
- ♦ [“On Windows XP, installing the ZENworks Agent with the Remote Management component through Remote Desktop Connection hangs” on page 116](#)
- ♦ [“ZENworks installation fails on a Linux server” on page 116](#)
- ♦ [“ZENworks installation does not proceed while using Microsoft SQL named instance” on page 117](#)

- ♦ “The error message Prune workstation procedure call failed with the exception/object schemaname.SP_ZSOFTDELETEINVENTORY is invalid is displayed in the ZENLoader log” on page 117
- ♦ “The install XML log file is not displayed properly in Google Chrome and Firefox” on page 117

Unable to log in to ZCC if a cross-signed certificate is used

Explanation: When configuring a zone, if the root CA certificate that is cross-signed by an additional CA is used, the zone configuration was successfully completed but the user was not able to log into ZCC as ZENworks failed to recognize this behavior.

Action: Modify the certificate received from CA to include the latest self-signed root certificate. Perform the following steps:

1. Open the full chain certificate in a text editor and replace the last cross-signed Root CA certificate with a self-signed Root CA certificate.
2. Import the modified server certificate manually.

For example: A certificate from *Let's Encrypt* contains two Root CAs. They are:

- ♦ Self-Signed ISRG Root X1
- ♦ ISRG Root X1 cross-signed by DST Root CA X3

If the certificate chain includes 2nd certificate as a root, it should be removed and replaced by the first certificate.

ZENworks Agent install progress does not display toast messages on Windows

Source: ZENworks, ZENworks Agent

Explanation: The ZENworks agent install progress is not displayed as toast messages on Windows managed devices. However, when the progress notifications are displayed in the notification area.

Action: Set the registry key to force the toast notifications ON. On the Windows device, go to the following registry key:

HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\PushNotifications , create a DWORD ToastEnabled with value 1.

Restart the device for the setting to be effective.

Unable to create database schema on a Primary Server

Source: ZENworks

Explanation: While creating the database schema for ZENworks, Audit, or Antimalware database, then it is always recommended that you run `setup.exe -c` or `setup.sh -c` on a device, which is not a Primary Server.

If you run the command on a Primary Server, then the switch `-c` will be discarded and ZENworks installation will be initiated.

Action: None

ZENworks installation fails on a SLES device with the BTRFS file system

Source: ZENworks 2020

Explanation: When you install ZENworks 2020 on a SLES device with BTRFS file system, the installation fails.

Possible Cause: ZENworks installation on SLES device with BTRFS file system is not supported.

Installing from the root directory on a Linux device fails to create the self-signed certificates

Source: ZENworks ; Installation.

Action: On the Linux device, download and copy the ZENworks installation ISO image to a temporary location to which all users have the Read and Execute permissions.

Configuring the ZENworks Server to an Oracle database fails

Source: ZENworks ; Installation.

Explanation: If the NLS_CHARACTERSET parameter is not set to AL32UTF8 and the NLS_NCHAR_CHARACTERSET parameter is not set to AL16UTF16, the database installation fails with the following error messages:

```
Failed to run the sql script: localization-updater.sql,
message:Failed to execute the SQL command: insert into
zLocalizedMessage(messageid,lang,messagestr)
values('POLICYHANDLERS.EPE.INVALID_VALUE_FORMAT','fr','La
stratÃ©gie {0} n'a
pas pu Ã©tre appliquÃ©e du fait que la valeur de la variable
"{1}" n'est pas
dans un format valide. '),
message:ORA-00600: internal error code, arguments:
[ktfbbsearch-7], [8], [],
[], [], [], [], []
```

Action: Set the NLS_CHARACTERSET parameter to AL32UTF8 and the NLS_NCHAR_CHARACTERSET parameter to AL16UTF16.

To ensure that the character set parameters are configured with the recommended values, run the following query at the database prompt:

```
select parameter, value from nls_database_parameters where
parameter like '%CHARACTERSET%';
```

Unable to establish a remote desktop session with a Windows device running the ZENworks Configuration Management installation program

Source: ZENworks ; Installation.

Explanation: If you try to use a Remote Desktop Connection to connect to a Windows server on which the ZENworks Configuration Management installation program is running, the session terminates with the following error message:

The RDP protocol component "DATA ENCRYPTION" detected an error in the protocol stream and has disconnected the client.

Action: See the [Microsoft Help and Support web site \(http://support.microsoft.com/kb/323497\)](http://support.microsoft.com/kb/323497).

Installing a second server gives an error message

Source: ZENworks ; Installation.

Explanation: When you are installing the second server into a Management Zone, an error message might be displayed at the end of the installation that contains the following text:

```
... FatalInstallException Name is null
```

However, the installation otherwise seems to complete successfully.

This error is being displayed erroneously because the program thinks that the server needs to be reconfigured.

Action: Review the installation log file. If there are no errors there related to this error message, you can ignore it.

Installation on Linux fails

Source: ZENworks; Installation.

Possible Cause: If the directory path to which you have extracted the ZENworks installation ISO image contains spaces, the installation fails on Linux.

Action: Ensure that the directory path to which you want to extract the installation ISO image does not contain spaces.

Configure Action fails because of an error detected by HotSpot Virtual Machine

Source: ZENworks; Installation.

Explanation: If you are installing the first Primary Server on a Linux device, and if at the end of the process that configures the database you see an error has occurred and you are given the option of continuing or rolling back, you should check the log file at `/var/opt/microfocus/log/zenworks/ZENworks_Install_[date].log.xml`. If you see the error specified below, it is safe to continue with the install.

```
ConfigureAction failed!:
```



```
select tableName, internalName, defaultValue from Adf where
inUse =?#
An unexpected error has been detected by HotSpot Virtual
Machine:
#SIGSEGV (0xb) at pc=0xb7f6e340, pid=11887, tid=2284317600
#
#Java VM: Java HotSpot(TM) Server VM (1.5.0_11-b03 mixed
mode)

#Problematic frame:
#C [libpthread.so.0+0x7340] __pthread_mutex_lock+0x20
```

Action: Ignore the error message.

Unable to install NetIdentity from Novell Client 32 on a device that has ZENworks installed

Source: ZENworks; Installation.

Explanation: When you try to install the NetIdentity agent that ships with Novell Client32 on a device that has ZENworks installed, the installation fails with the following error message:

```
An incompatible version of Novell ZENworks Desktop
Management Agent has been detected
```

Possible Cause: The NetIdentity agent is not installed before installing ZENworks.

Action: Do the following:

- 1 Uninstall ZENworks .

For more information, see [ZENworks Uninstall Guide](#).

- 2 Install the NetIdentity agent from Novell Client32.

- 3 Install ZENworks .

For more information, see [Chapter 6, "Installing a ZENworks Primary Server on Windows," on page 37](#).

Unable to open the ZENworks Configuration Management Installation logs by using a web browser on a non-English Primary Server

Source: ZENworks ; Installation.

Explanation: On a non-English Primary Server that has ZENworks Configuration Management installed, you are unable to open the Installation logs by using a web browser. However, you can still open the Installation logs in a text editor.

The Installation logs are located at `/var/opt/microfocus/log/zenworks/` on Linux and `zenworks_installation_directory\microfocus\zenworks\logs` on Windows.

Action: Before opening the Installation logs (.xml) in a web browser, change the encoding for all the Installation LogViewer files:

- 1 Using a text editor, open one of the following LogViewer files located at /var/opt/microfocus/log/zenworks/logviewer on Linux and zenworks_installation_directory\microfocus\zenworks\logs\logviewer on Windows:
 - ♦ message.xml
 - ♦ sarissa.js
 - ♦ zenworks_log.html
 - ♦ zenworks_log.js
 - ♦ zenworks_log.xml
 - ♦ zenworks_log_text.xml
- 2 Click **File > Save As**.

The Save As dialog box is displayed.
- 3 In the **Encoding** list, select **UTF-8**, then click **Save**.

Do not change the filename and file type.
- 4 Repeat [Step 1](#) through [Step 3](#) for the remaining LogViewer files.

Unable to install .NET 3.5 SP1 on Windows Server 2008

Source: ZENworks ; Installation.

Explanation: The installation of Microsoft .NET 3.5 SP1 on Windows Server 2008 fails with the following error message:

```
Microsoft .NET Framework 2.0SP1 (x64) (CBS): [2] Error:
Installation failed for component Microsoft .NET Framework
2.0SP1 (x64) (CBS). MSI returned error code 1058
```

Possible Cause: The device does not have the Windows Update Service enabled.

Action: Enable the Windows Update service on the device:

- 1 From the Windows desktop **Start** menu, click **Settings > Control Panel**.
- 2 Double-click **Administrative Tools > Services**.
- 3 Double-click **Windows Update Service**.

The Windows Update Service Properties dialog box is displayed.
- 4 In the **General** tab, select one of the following options from the **Startup type** list:
 - ♦ **Manual**
 - ♦ **Automatic**
 - ♦ **Automatic (Delayed Start)**
- 5 Click **Start** to start the service.
- 6 Click **OK**.

Unable to install the ZENworks Agent on a McAfee fully protected device

Source: ZENworks ; Installation

Explanation: When you try to install ZENworks Agent on a McAfee fully protected device, the antivirus software prevents the creation of new executable files in Windows and program files.

Possible Cause: The device is protected by McAfee VirusScan and therefore does not allow the installation of any applications.

Action: Do the following on the device that has the McAfee software installed:

- 1 Click **Start > All Programs > McAfee > VirusScan Console**.
- 2 Double-click **Access Protection**.
- 3 In the Access Protection Properties dialog box, do the following:
 - 3a In the Categories panel, click **Common Maximum Protection**.
 - 3b In the **Block** column, deselect all the rules.
 - 3c Click **OK**.
- 4 Install the ZENworks Agent.

For more information, see [“ZENworks Agent Deployment”](#) in the [ZENworks Discovery, Deployment, and Retirement Reference](#).

ZENworks-related files might be reported as malicious software during the ZENworks Agent installation

Source: ZENworks ; Installation.

Explanation: During the ZENworks Agent installation, some ZENworks-related files might be reported as malicious software by anti-virus software. Consequently, the installation abruptly stops.

Action: Do the following on the managed device where you want to install the ZENworks Agent:

- 1 Manually add `System_drive:\windows\microfocus\zenworks` to the Exclusion list of the anti-virus software installed on the managed device.
- 2 Install the ZENworks Agent.

Installation of ZENworks Agent on a Terminal Server hangs

Source: ZENworks; Installation

Possible Cause: Installation of ZENworks Agent on a Terminal Server hangs because the default mode in the Terminal Server is Execute.

Action: Change the mode in the Terminal Server to Install:

- 1 From the Command Prompt:
 - 1a To change the mode, execute the following command:

```
change user /install
```

1b Type **exit**, then press **ENTER**.

2 Install the ZENworks Agent.

For more information, see “[ZENworks Agent Deployment](#)” in the *ZENworks Discovery, Deployment, and Retirement Reference*.

ZENworks installation on an RHEL device might fail

Source: ZENworks; Installation

Explanation: ZENworks installation on an RHEL device might fail and prompt you to roll back. The following message is reported in the install log file:

```
RPM returned 1: warning: /opt/novell/zenworks/install/
downloads/rpm/novell-zenworks-jre-links-1.7.0_3-
1.noarch.rpm: Header V3 DSA signature: NOKEY, key ID
7e2e3b05
```

```
Failed dependencies: jre >= 1.7 is needed by novell-
zenworks-jre-links-1.7.0_3-1.noarch
```

Action: Perform the following tasks:

1 Roll back the ZENworks installation.

2 Manually install JRE by running the following command at the terminal:

```
rpm -ivh <BUILD_ROOT>/Common/rpm/jre-<VERSION>.rpm
```

3 Install ZENworks. For more information, see “[Installing the Primary Server Software](#)” on page 45.

On Windows XP, installing the ZENworks Agent with the Remote Management component through Remote Desktop Connection hangs

Source: ZENworks; Installation

Explanation: If you remotely connect to a managed device by using Remote Desktop Connection (RDP) and install ZENworks Agent, the installation hangs.

Action: To fix the issue, download the patch from the [Microsoft Support web site \(http://support.microsoft.com/kb/952132\)](http://support.microsoft.com/kb/952132) and install it on the managed device prior to installing the ZENworks Agent.

ZENworks installation fails on a Linux server

Source: ZENworks; Installation.

Explanation: ZENworks installation on a Linux server requires that certain RPM packages are already installed on the server.

Action: Install the required RPM packages on the Linux server.

ZENworks installation does not proceed while using Microsoft SQL named instance

Source: ZENworks; Installation.

Explanation: While using named instance for Microsoft SQL, the install wizard will not proceed even after providing the correct information in the database panel. This occurs if Checksum offloading is enabled on the NIC card of the machine.

Action: Ensure that Checksum offloading is disabled on the NIC card. For more information, refer to the applicable manuals for SLES, RHEL, or VMware.

The error message Prune workstation procedure call failed with the exception/object schemaname.SP_ZSOFTDELETEINVENTORY is invalid is displayed in the ZENLoader log

Explanation: During installation or upgrade, the following error messages are displayed in ZENloader logs:
`java.sql.SQLException: ORA-06550: line 1, column 13: PLS-00905: object schemaname.SP_ZSOFTDELETEINVENTORY is invalid. ORA-06550: line 1, column 7: PL/SQL: Statement ignored`

or

`Prune workstation procedure call failed with the exception :ORA-06550: line 1, column 13: PLS-00905: object schemaname.SP_ZSOFTDELETEINVENTORY is invalid. ORA-06550: line 1, column 7.`

These errors indicate that execute permission for the user or the schema before running upgrade or install has not been granted. Therefore, the user or schema does not have access to the DBMS_LOCK package.

Action: Before install or upgrade, the Oracle database administrator must grant Execute permission for DBMS_LOCK package to ZENworks user schema. For more information, see [“Prerequisites for Oracle” on page 70](#).

The install XML log file is not displayed properly in Google Chrome and Firefox

Explanation: When you try to view the install XML log file in Google Chrome and Firefox, the log file is not displayed properly.

Action: Run the following configure action to convert the XML log file to HTML and view the log file in a web browser:

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

```
ConvertLogToHTMLConfigureAction -DlogFile=<LogFilePath>
```

Alternatively, you can view the log file using any text editor.

Post Installation Troubleshooting

This section provides solutions to problems you might encounter after installing ZENworks .

- ♦ [“Unable to access ZENworks Control Center on a ZENworks Primary Server running on SLES” on page 118](#)
- ♦ [“Auto Launch ZENworks Control Center configuration does not work in SLES machine” on page 118](#)

Unable to access ZENworks Control Center on a ZENworks Primary Server running on SLES

Source: ZENworks; Installation.

Explanation: During the installation of ZENworks Server on a SLES device, if you have specified the port as 8080, the installation is successful. However, you might not be able to access the ZENworks Control Center.

Action: Perform the following steps on the SLES device on which you have installed the ZENworks Server:

- 1 Start YaST.
- 2 Click **Firewall**.
- 3 In the Firewall Configuration Window, click **Allowed Services**.
- 4 Click **Advanced**.
- 5 In the Additional Allowed Ports dialog box, replace **http-alt** in the **TCP Ports** and **UDP Ports** options with 8080, then complete the Wizard.

Auto Launch ZENworks Control Center configuration does not work in SLES machine

Source: ZENworks; Installation.

Explanation: In the Post installation configuration, if the Auto launch ZCC option is selected, after installation, ZENworks Control Center does not launch automatically in SLES machines.

Action: Manually launch ZENworks Control Center.