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ZENworks
Database Management Reference

About This Guide

The information in this guide is organized as follows:

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 *comment on this topic* link 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 website (http://www.novell.com/documentation/zenworks/).

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Embedded Database Maintenance

1 Retrieving and Storing the Credentials of the Embedded PostgreSQL Database

If you have installed ZENworks with the embedded PostgreSQL database that is bundled with ZENworks, we recommend that you store the credentials of the database for future use.

1 Retrieve the credentials of the embedded database by entering one of the following commands at the server prompt:

```
zman database-get-credentials
```

or

```
zman dgc
```

The credentials are displayed on the console.

For more information about zman, view the zman man page (`man zman`) on the server or see zman(1) in the ZENworks Command Line Utilities Reference.

2 Copy the credentials and save them in a file.

To retrieve and store the credentials of Remote PostgreSQL, Oracle, or Microsoft SQL Server databases, refer to their documentation.

2 Changing the Ports Used by the Embedded PostgreSQL Database

PostgreSQL uses port 5432 by default. However, ZENworks uses 54327 port for PostgreSQL. You can change the port on which the database runs.

1. In the `zenworks_database.conf` file, specify the new port number on which the server listens to.

   The `zenworks_database.conf` file is located in `%ZENWORKS_HOME%\conf` on Windows and in `/etc/opt/novell/zenworks` on Linux.

2. In the `zdm.xml` and `zenaudit.xml` files on all the Primary Servers, specify the new port number in the following entry:

   `<entry key="Port">54327</entry>`

   By default, the entry lists the default port number, 54327.

   The `zdm.xml` and `zenaudit.xml` files are located in `%ZENWORKS_HOME%\conf\datamodel` on Windows and in `/etc/opt/novell/zenworks/datamodel` on Linux.

3. Restart the database service, ZENServer, and ZENLoader services on all Primary servers:

   ◆ **On Windows:**

      1. From the Windows desktop Start menu, click **Settings** > **Control Panel**.

      2. Double-click **Administrative Tools** > **Services**.

      3. Restart the following services: **Novell ZENworks Embedded Datastore**, **Novell ZENworks Loader Service**, and **Novell ZENworks Server**.

   ◆ **On Linux:** At the console prompt, enter the following commands in the order given:

      On SLES 11:

      ◆ `/etc/init.d/novell-zenmntr stop`

      ◆ `/etc/init.d/novell-zenserver stop`

      ◆ `/etc/init.d/novell-zenloader stop`

      ◆ `/etc/init.d/zenpostgresql restart`

      ◆ `/etc/init.d/novell-zenserver start`

      ◆ `/etc/init.d/novell-zenloader start`

      ◆ `/etc/init.d/novell-zenmntr start`

      On SLES 12:

      ◆ `systemctl stop novell-zenserver.service`

      ◆ `systemctl stop novell-zenloader.service`

      ◆ `systemctl restart zenpostgresql`

- systemctl start novell-zenserver.service
- systemctl start novell-zenloader.service

Even though the TCP and UDP ports are changed from 2638, the database server also listens on UDP port 2638. For more information, see the Sybase database documentation (http://www.ianywhere.com/developer/product_manuals/sqlanywhere/1001/en/html/dbdaen10/da-serverport-network-conparm.html).

PostgreSQL uses port 5432 by default. However, ZENworks uses 54327 port for PostgreSQL. You can change the port on which the database runs.

1 Before executing the following steps, stop the ZENworks Services on all Primary servers by running the following configure action:

`microfocus-zenworks-configure -c Start`

After running the command, under Action, select Stop.

2 In the `zenworks_database.confpostgresql.conf` file, specify the new port number on which the server listens to.

The `zenworks_database.conf` file is located in `%ZENSERVER_HOME%\conf` on Windows and in `/etc/opt/microfocus/zenworks` on Linux.

The `postgresql.conf` file `/var/opt/microfocus/pgsql/data`.

3 In the `zdm.xml` and `zenaudit.xml` files on all the Primary Servers, specify the new port number in the following entry:

`<entry key="Port">54327</entry>`

By default, the entry lists the default port number, 54327.

The `zdm.xml` and `zenaudit.xml` files are located in `/etc/opt/microfocus/zenworks/datamodel`.

4 Restart the database service, ZENServer, and ZENLoader services on all Primary servers:

- **On Windows:**

  1. From the Windows desktop Start menu, click **Settings** > **Control Panel**.

  2. Double-click **Administrative Tools** > **Services**.

  3. Restart the following services: **NovellMicro Focus ZENworks Embedded Datastore**, **Novell ZENworks Loader Service**, and **NovellMicro Focus ZENworks Server**.

- **On Linux:** At the console prompt, enter the following commands in the order given:

  On SLES 11:

  - `/etc/init.d/microfocus-zenmntr stop`
  - `/etc/init.d/microfocus-zenserver stop`
  - `/etc/init.d/microfocus-zenloader stop`
  - `/etc/init.d/zenpostgresql restart`
  - `/etc/init.d/microfocus-zenserver start`
  - `/etc/init.d/microfocus-zenloader start`
  - `/etc/init.d/microfocus-zenmntr start`

On SLES 12:

- ◆ `systemctl stop microfocus-zenserver.service`
- ◆ `systemctl stop microfocus-zenadmin-mgmt.service`
- ◆ `systemctl stop microfocus-zenloader.service`
- ◆ `systemctl restart zenpostgresql`
- ◆ `systemctl start microfocus-zenserver.service`
- ◆ `systemctl start microfocus-zenadmin-mgmt.service`
- ◆ `systemctl start microfocus-zenloader.service`

5 Start the ZENworks Services on all Primary servers by running the following configure action:

`microfocus-zenworks-configure -c Start`

6 Run `microfocus-zenworks-configure -c GenerateOSPProperties`

Even though the TCP and UDP ports are changed from 2638, the database server also listens on UDP port 2638. For more information, see the Sybase database documentation (http://www.ianywhere.com/developer/product_manuals/sqlanywhere/1001/en/html/dbdaen10/da-serverport-network-conparm.html).

3 Backing Up the Embedded PostgreSQL Database

The embedded Sybase SQL Anywhere database can be backed up to a directory on the local machine or to a network location.

- ◆ "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17
- ◆ "Backing up the Embedded PostgreSQL Database Running on a Windows Server to a Network Location on a Remote Windows Machine" on page 20
- ◆ "Backing up the Embedded PostgreSQL Database Running on a Linux Server to a Network Location on a Remote Linux Machine" on page 22

IMPORTANT: If you want to back up the ZENworks Server that hosts the ZENworks database, you must ensure that the ZENworks database is backed up at least once before backing up the ZENworks Server (which only needs to be done one time). You can also back up the ZENworks database on a regular basis. However, you can back up the server and the database in any order.

When restoring the ZENworks Server and the database, you must first restore the ZENworks Server, then restore the latest backed-up ZENworks database.

For more information about backing up and restoring the ZENworks Server, see "Backing Up and Restoring the ZENworks Server and Certificate Authority" in the *ZENworks Disaster Recovery Reference*.

Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server

1 Store the ZENworks administrator name and password by entering the following command at the command prompt:

```
zman admin-store-credential administrator
```

If you do not store the credentials, you must enter the ZENworks administrator name and password for each zman command.

2 You can immediately back up the embedded PostgreSQL database. To back up the embedded Sybase SQL Anywhere database immediately, continue with this step.

To immediately back up the embedded PostgreSQL database to a directory on the database server by using the zman command line utility, enter the following command at the database server console prompt:

```
zman database-backup
complete_path_of_the_backup_directory_on_database_server
```

For example, to back up the database to the `c:\dbbackup` directory on a Windows database server, execute `zman database-backup c:\dbbackup`. To back up the database to the `/root/dbBackup` directory on a Linux database server, execute `zman database-backup /root/dbBackup`.

To manually back up the embedded PostgreSQL database to a directory on the database server:

2a Stop the ZENworks services on all other ZENworks Servers in the Management Zone.

- ◆ **On Windows:**
  1. Execute the following command at the server prompt:

     `novell-zenworks-configure -c Start`

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

- ◆ **On Linux:**
  1. Execute the following command at the server prompt:

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

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

2b Manually copy the `pgsql` folder, `zenworks_<zone_name>.db`, `zen_audit_<zone_name>.db`, `zenworks_<zone_name>.log`, and `zen_audit_<zone_name>.log` from the database server to the new location where you want to back up the database.

By default, the files are located in `%ZENWORKS_HOME%\database` on a Windows Sybase database server, and in `/var/opt/novell/zenworks/database/` on a Linux Sybase database server.

2c Start the ZENworks services on all other ZENworks Servers in the Management Zone.

- ◆ **On Windows:**
  1. Execute the following command at the server prompt:

     `novell-zenworks-configure -c Start`

  2. Enter the number next to the `Start` action.

- ◆ **On Linux:**
  1. Execute the following command at the server prompt:

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

  2. Enter the number next to the `Start` action.

3 (Conditional) To schedule the backup to run at a specific time every day or on specific days of a month, you need to create a schedule file and run it.

3a Create a schedule file with the Create event, `backupschedule.sql`, with the following contents:

`CREATE EVENT` *backup_schedule_name*

`SCHEDULE`

specify_the_schedule

A sample schedule file to back up the database at a 11 P.M. everyday is as follows:

`CREATE EVENT ZENDBBackup`

```
SCHEDULE

START TIME '11:00 PM'

EVERY 24 HOURS
```

A sample schedule file to back up the database at 1:00 a.m. on the first, second, third, and fourth day of the month is as follows:

```
CREATE EVENT ZENDBBackup1

SCHEDULE

START TIME '1:00 AM'

ON (1,2,3,4)
```

Sample schedule files are available in the `ZENworks_Installation_directory:\Novell\Zenworks\share\zman\samples \database` directory on a Windows server, and in the `/opt/novell/zenworks/ share/zman/samples/database` directory on a Linux server.

3b Enter the following command at the command prompt:

```
zman database-backup complete_path_of_the_backup_directory
complete_path_of_backUpSchedule.sql -d SQL_function_call
```

For example, to back up the database to the `c:\dbbackup\day_of_the_week` directory on a Windows server as per the schedule in the `c:\backupschedule.sql` file, enter the following command:

```
zman database-backup c:\dbbackup c:\backUpSchedule.sql -d
"DAYNAME(now())"
```

For more information about this command, view the zman man page (man zman) on the device, or see zman(1) in the *ZENworks Command Line Utilities Reference*.

4 Clear the credentials stored in Step 1 by entering the following command at the command prompt:

```
zman admin-clear-credential
```

According to the backup schedule, the `zenworks_zone_name.db` database file and the `zenworks_zone_name.log` transaction log file are created in the database backup directory.

If you want to change the database backup location or the backup schedule at a later time, review the following sections:

Backing up the Embedded PostgreSQL Database Running on a Windows Server to a Network Location on a Remote Windows Machine

To back up an embedded PostgreSQL database that is installed and running on a Windows server to a network location on another Windows machine, you need a local machine and a remote machine. The local machine is a Windows server with the ZENworks server components and the embedded PostgreSQL database installed. The remote machine is a Windows machine that has the network location to which you want to back up the database.

1 Perform the following steps on the local machine:

    1a Create an administrative user and specify a password.

        For example, you could specify the administrative username as `Administrator` and the password as `novell`.

    1b From the desktop **Start** menu, click **Settings**, click **Control Panel**, double-click **Administrative Tools**, then double-click **Services**.

    1c Right-click the **Novell ZENworks Datastore** service, then click **Properties**.

    1d Click the **Log On** tab.

    1e Select **This account**, then specify the name and the password of the administrative user created in Step 1a.

        For example, specify the user as `Administrator` and the password as `novell`.

    1f Click **OK**.

2 Perform the following steps on the remote machine that has the network location where you want to save the backup:

    2a Create an account with the same credentials as the user you created in Step 1a.

        For example, specify user as `Administrator` and password as `novell`.

    2b Provide Read/Write permission on the network location to the user.

3 You can immediately back up the embedded PostgreSQL database or schedule the backup to run at a specific time. To immediately back up the database, continue with this step. To schedule the backup to run at a specific time every day or on specific days of a month, skip to Step 4.

To immediately back up the database to the network location on the remote machine by using the zman command line utility, enter the following command at the database server console prompt:

```
zman database-backup
\\IP_address_of_the_remote_machine\backup_directory\custom_directory
```

Where `\\IP_address_of_the_remote_machine\backup_directory` is the network location on the remote machine and `custom_directory_name` is a name that you specify for a directory to be newly created by zman and into which the database files are to be backed up.

To manually back up the database to the network location on the remote machine:

    3a Stop the ZENworks services on all the ZENworks Servers in the Management Zone.

        3a1 Execute the following command at the server prompt:

```
novell-zenworks-configure -c Start
```

    3a2 Enter the number next to the `Stop` action.

  3b Manually copy `zenworks_zone_name.db` and `zenworks_zone_name.log` from the database server to a required location on the remote machine.

    By default, the files are located in `%ZENWORKS_HOME%\database` on a Windows PostgreSQL database server.

  3c Start the ZENworks services on all the ZENworks Servers in the Management Zone.

    3c1 Execute the following command at the server prompt:

```
novell-zenworks-configure -c Start
```

    3c2 Enter the number next to the `Start` action.

4 (Conditional) To schedule the backup:

  4a Create a schedule file, `backupschedule.sql`, with the following contents:

```
CREATE EVENT backup_schedule_name

SCHEDULE

specify_the_schedule
```

    A sample schedule file to back up the database at a 11 p.m. every day is as follows:

```
CREATE EVENT ZENDBBackup

SCHEDULE

START TIME '11:00 PM'

EVERY 24 HOURS
```

    A sample schedule file to back up the database at 1:00 a.m on the first, second, third, and fourth day of the month is as follows:

```
CREATE EVENT ZENDBBackup1

SCHEDULE

START TIME '1:00 AM'

ON (1,2,3,4)
```

    Sample schedule files are available in the `ZENworks_Installation_directory\Novell\Zenworks\share\zman\samples\database` directory.

  4b Execute the following command at the command prompt:

```
zman database-backup
\\IP_address_of_the_remote_machine\backup_directory\custom_director
y c:\backUpSchedule.sql -d SQL_function_call
```

Where `\\`*`IP_address_of_the_remote_machine`*`\`*`backup_directory`* is the network location on the remote machine and *`custom_directory_name`* is a name that you specify for a directory to be newly created by zman and into which the database files are to be backed up.

For more information about the command, view the zman man page (man zman) on the device, or see zman(1) in the *ZENworks Command Line Utilities Reference*.

According to the backup schedule, `zenworks_`*`zone_name`*`.db` and `zenworks_`*`zone_name`*`.log` are created in the network location on the remote machine. The backed-up database is stored in `zenworks_`*`zone_name`*`.db`. The result of the database backup is logged in `zenworks_`*`zone_name`*`.log`.

If you want to change the database backup location or the backup schedule at a later time, review the following sections:

Backing up the Embedded PostgreSQL Database Running on a Linux Server to a Network Location on a Remote Linux Machine

To back up the embedded PostgreSQL database that is installed and running on a Linux server to a network location on a Linux machine, you need a local machine and a remote machine. The local machine is a Linux server with the ZENworks server components and the embedded Sybase SQL Anywhere database installed. The remote machine is a Linux machine that has the network location to which you want to back up the database.

You can back up the database on a Linux machine by using any Linux share such as Samba share or NFS share.

To back up the embedded PostgreSQL database that is installed and running on a Linux server to a network location on a Linux machine by using Samba share:

1 Create a Samba share on the remote machine:

    1a Create a user by entering the `useradd` *`user_name`* command at the command prompt.

    1b Log into the remote machine with the username created in Step 1a, and set the password by using the `passwd` *`specify_the_password`* command.

    1c Create a directory to save the database backup.

        For example, create a directory with the name `backup`.

    1d Open the Samba server settings by running the `yast2 samba-server` command.

    1e Click the **Shares** tab, then click **Add** to specify the share name and the path to the backup directory created in Step 1c.

        For example, specify the sharename as `dbbackup`.

    1f Select the `dbbackup` share, click **Edit**, then add the following attributes:

        ◆ create mask = 0640

        ◆ force user = *user_name_created_in_*Step 1a

        ◆ guest ok = yes

        ◆ public = yes

- ◆ wide links = no
- ◆ writeable = yes

2 Create a directory on the local machine.

For example, create a directory with the name `zenworks_dbbackup` in `/root`.

3 Mount the Samba share on the `zenworks_dbbackup` directory on the local machine by entering the following command at the command prompt:

```
mount -t smbfs //IP_address of the remote_machine/share_name -o
username=user_name_specified_in_Step1a,password=password_
specified_in_Step_1b
local_directory_name_with_complete_path_created_in_Step2
```

For example:

```
mount -t smbfs //IP_address of the remote_machine/dbbackup -o
username=user_name_specified_in_Step1a,password=password_
specified_in_Step_1b /root/zenworks_dbbackup
```

4 You can immediately back up the database or schedule the backup to run at a specific time.To immediately back up the database, continue with this step. To schedule the backup to run at a specific time every day or on specific days of a month, skip to .

To immediately back up the database to the network location on the remote machine by using the zman command line utility, enter the following command at the database server console prompt:

```
 zman database-backup database_backup_directory
```

For example:

```
 zman database-backup /root/zenworks_dbbackup
```

To manually back up the database to the network location on the remote machine:

4a Stop all the ZENworks services on the all the ZENworks Servers in the Management Zone.

4a1 Execute the following command at the server prompt:

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

4a2 Enter the number next to the `Stop` action.

4b Manually copy `zenworks_zone_name.db` and `zenworks_zone_name.log` from the database server to a required location on the remote machine.

By default, the files are located in `/var/opt/novell/zenworks/database/` on a Linux Sybase database server.

4c Start all the ZENworks services on the all the ZENworks Servers in the Management Zone.

4c1 Execute the following command at the server prompt:

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

4c2 Enter the number next to the `Start` action.

5 (Conditional) To schedule the backup:

5a Create a schedule file, `backupschedule.sql`, with the following contents:

```
CREATE EVENT backup_schedule_name

SCHEDULE

specify_the_schedule
```

A sample schedule file to back up the database at a 11 p.m. everyday is as follows:

```
CREATE EVENT ZENDBBackup

SCHEDULE

START TIME '11:00 PM'

EVERY 24 HOURS
```

A sample schedule file to back up the database at 1:00 a.m. on the first, second, third, and fourth days of the month is as follows:

```
CREATE EVENT ZENDBBackup1

SCHEDULE

START TIME '1:00 AM'

ON (1,2,3,4)
```

Sample schedule files are available in the `ZENworks_Installation_directory:\Novell\Zenworks\share\zman\samples\database` directory.

5b Enter the following command at the command prompt:

```
zman database-backup database_backup_directory
c:\backUpSchedule.sql -d SQL_function_call
```

For example:

```
zman database-backup /root/zenworks_dbbackup c:\backUpSchedule.sql
-d SQL_function_call
```

For more information about this command, view the zman man page (man zman) on the device, or see zman(1) in the *ZENworks Command Line Utilities Reference*.

According to the backup schedule, `zenworks_zone_name.db` and `zenworks_zone_name.log` are created in the network location on the remote machine (`/root/zenworks_dbbackup`). The backed-up database is stored in `zenworks_zone_name.db`. The result of the database backup is logged in `zenworks_zone_name.log`.

If you want to change the database backup location or the backup schedule at a later time, review the following sections:

4 Restoring the Embedded Sybase SQL Anywhere Database

The following sections provide information on restoring the backed-up embedded Sybase SQL Anywhere database:

* "Restoring the Embedded Sybase SQL Anywhere Database on a Windows Server" on page 25
* "Restoring the Embedded Sybase SQL Anywhere Database on a Linux Server" on page 27
* "Restoring the Embedded PostgreSQL Database on the ZENworks Appliance Server" on page 28

IMPORTANT: If the database is located on a ZENworks Server, you must first restore the ZENworks Server, then restore the ZENworks database. Ensure that you have backed up the ZENworks Server and the database (at least once). You can also back up the ZENworks database on a regular basis. However, you can back up the server and the database in any order.

For more information about backing up and restoring the ZENworks Server, see "Backing Up and Restoring the ZENworks Server and Certificate Authority" in the *ZENworks Disaster Recovery Reference*.

Restoring the Embedded Sybase SQL Anywhere Database on a Windows Server

1. Stop the ZENworks services on all the ZENworks Servers in the Management Zone. For more information, see Step 2a on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

2. At the Windows server prompt, go to *ZENworks_Installation_directory:*\novell\zenworks\bin, and enter the following command:

   ```
   ZenworksWindowsDBRestore.bat
   ZENworks_Installation_directory:\Novell\Zenworks\Database
   c:\dbBackup\zenworks_zone_name.db c:\dbBackup\zenworks_zone_name.log
   ```

   NOTE: For the Audit database, go to *ZENworks_Installation_directory:*\novell\zenworks\bin, and enter the following command:

   ```
   ZenworksWindowsDBRestore.bat
   ZENworks_Installation_directory:\Novell\Zenworks\Database
   c:\dbBackup\zenworks_zone_name.db c:\dbBackup\zen_audit_zone_name.log
   ```

3. Press any key when the following message is displayed:

```
Before proceeding, ensure  that you have backed up any files
in:<Installation directory>:\Novell\ZENworks\database Press any key to
continue.
```

4 Enter `Y` when the following message is displayed:

```
The following services are dependent on the Novell ZENworks Datastore
service. Stopping the Novell ZENworks Datastore service will also stop
these services: Novell ZENworks Loader, Novell ZENworks Agent Service,
Novell ZENworks Server. Do you want to continue this operation? (Y/N)
[N]:
```

5 Press any key when the following message is displayed:

```
The Novell ZENworks Datastore service was stopped successfully. Press
any key to continue.
```

6 Enter `Yes` when the following message is displayed:

```
Overwrite <installation
directory>:\Novell\ZENworks\database\zenworks_<zone_name>.db? (Yes/No/
All)
```

7 Enter `Yes` when the following message is displayed:

```
Overwrite <installation
directory>:\Novell\ZENworks\database\zenworks_<zone_name>.log? (Yes/No/
All):
```

The `backupFile` and the `backupLogFile` are copied to
ZENworks_Installation_directory:\Novell\ZENworks\database, and the database
is restored.

8 Run `ZenworksWindowsDBRestore.bat` for restoring Audit Database.
`ZenworksWindowsDBRestore.bat`
`ZsENworks_Installation_directory:\Novell\Zenworks\Database`
`c:\dbBackup\zen_audit_zone_name.db c:\dbBackup\zen_audit_zone_name.log`

9 Press any key when the following message is displayed: `Before proceeding, ensure that`
`you have backed up any files in:<Installation`
`directory>:\Novell\ZENworks\database Press any key to continue.`

10 Press any key when the following message is displayed: **The Novell ZENworks Embedded**
Datastore service is stopping.

  ◆ `The Novell ZENworks Embedded Datastore service is stopping.`

  ◆ `The Novell ZENworks Embedded Datastore service was stopped`
    `successfully.`

  ◆ `Press any key to continue.`

11 Enter `Yes` when the following message is displayed: `Overwrite <installation`
`directory>:\Novell\ZENworks\database\zen_audit_<zone_name>.db? (Yes/No/`
`All)`

12 Enter `Yes` when the following message is displayed: `Overwrite <installation`
`directory>:\Novell\ZENworks\database\zen_audit_<zone_name>.log? (Yes/`
`No/All)`

The `backupFile` and the `backupLogFile` are copied to `ZENworks_Installation_directory:\Novell\ZENworks\database,` and the database is restored.

13 (Conditional) If you restore the database to a location other than the one mentioned in the *zenworks_installation_directory*`\novell\zenworks\database\conf\zenworks _database.conf` and `zenworks_audit_database.conf` files to specify the new location of the database.

14 Start all the ZENworks services on all the ZENworks Servers in the Management Zone. For more information, see Step 2c on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

Restoring the Embedded Sybase SQL Anywhere Database on a Linux Server

1 Stop the ZENworks services on other ZENworks Servers in the Management Zone. For more information, see Step 2a on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

2 Log into the ZENworks server as `root`.

3 Change to `/opt/novell/zenworks/bin,` and enter the following command:

```
./ZenworksLinuxDBRestore.sh -F "/root/dbBackup/zenworks_zone_name.db"
```

NOTE: For the Audit database, change to `/opt/novell/zenworks/bin,` and enter the following command:

```
./ZenworksLinuxDBRestore.sh -F "/root/dbBackup/zen_audit_zone_name.db"
```

4 Enter `Y` when the following message is displayed:

```
The backup database file will OVERWRITE the existing database. Is that
OK? [y/n]
```

5 Enter `Y` when the following message is displayed:

```
The novell-zenmntr needs to be stopped for the database restore to be
performed. Would you like to proceed [y/n]?
```

6 Enter `Y` when the following message is displayed:

```
The novell-zenserver needs to be stopped for the database restore to be
performed. Would you like to proceed [y/n]?
```

7 Enter `Y` when the following message is displayed:

```
The novell-zenloader needs to be stopped for the database restore to be
performed. Would you like to proceed [y/n]?
```

The backup file is copied to `/var/opt/novell/zenworks/database,` and the restore log file to `/var/opt/novell/log/zenworks/dbrestore.log.` The database is restored.

8 Start the ZENworks services on other ZENworks Servers in the Management Zone. For more information, see Step 2c on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

Restoring the Embedded PostgreSQL Database on the ZENworks Appliance Server

1 Ensure that you have archived your database credentials.

To archive the credentials of an internal Sybase database, perform the following tasks on PSDB1:

   1a Ensure that the database services are running.

   On Windows: In the Windows Services, ensure that the status of Novell ZENworks Embedded Datastore and Novell ZENworks Embedded Datastore For Auditing are *Started*.

   On Linux: At the console prompt, enter `/etc/init.d/postgresql status` to verify the status of the Sybase database. If the databases are not running, start the Sybase database by running the `/etc/init.d/postgresql start` command.

   1b Execute the `zman dgc` command to get the PostgreSQL database credentials.

   1c Execute the `zman dgca` command to get the Audit database credentials.

   1d Specify the credentials of the ZENworks administrator when prompted.

   1e Copy and save the username and the password of the PostgreSQL database into a text file.

2 Stop the Novell ZENworks services, including the ZENworks Embedded Datastore service and the Novell ZENworks Embedded Datastore for Auditing service on PSDB1:

   2a **On Windows:**

      2a1 Execute the following command at the server prompt:

      ```
      novell-zenworks-configure -c Start
      ```

      2a2 Specify the number next to the `Stop` action, then press Enter.

   2b **On Linux:**

      2b1 Execute the following command at the server prompt:

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

      2b2 Specify the number next to the `Stop` action, then press Enter.

3 Stop the Novell ZENworks services on PSDB2:

   3a Execute the following command at the server prompt:

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

   3b Specify the number next to the `Stop` action, then press Enter.

4 Get the following file on PSDB2:

   * `novell-zenworks-postgresql-11.4-1.x86_64.rpm`

NOTE: If the Primary Servers exist, get the files from the existing msi/rpm install directories. Else, follow the steps listed below:

   4a Create a temporary directory named postgresql in `/tmp/` folder.

   4b Copy the following files from PSDB1 to the temporary location that you created on PSDB2 ().

      * **For Windows:**

         * `novell-zenworks-postgres-11.4.x86_64.msi`

If PSDB1 is a Windows server:

- ◆ The MSIs are located in the following directory:
  `%ZENWORKS_HOME%\install\downloads\msi`

- ◆ The RPMs are located in the following directory:
  `%ZENWORKS_HOME%\install\downloads\rpm`

- ◆ **For Linux:**

  - ◆ `novell-zenworks-postgresql-11.4-1.x86_64.rpm`

  If PSDB1 is a Linux server:

  - ◆ The MSIs are located in the following directory:

    `\opt\novell\zenworks\install\downloads\msi\`

  - ◆ The RPMs are located in the following directory:

    `\opt\novell\zenworks\install\downloads\rpm`

Or

Download the required PostgreSQL package to the temporary location that you created on PSDB2 (Step 4a on page 28).

- ◆ **For Windows:** Launch the shipped ISO file and extract the contents in the media drive. Download the PostgreSQL package from the MSI folder as shown below:

  `D:\Zenworks2020\Common\msi\novell-zenworks-postgres-11.4.x86_64.msi`

- ◆ **For Appliance:** Mount the shipped ISO file to any location (for example: `/tmp`) using the following command:

  `mount Zenworks2020 -o loop/tmp/ZCM`

  From the media root (for example: `/tmp/ZCM`), download the PostgreSQL package from the rpm folder as shown below:

  `/tmp/ZCM/Common/rpm/novell-zenworks-postgresql-11.4-1.x86_64.rpm`

5 On PSDB2, install `novell-zenworks-postgres-11.4.x86_64.msi` or `novell-zenworks-postgresql-11.4-1.x86_64.rpm`.

On an Appliance server: At the server prompt, execute the following command:

`rpm -Uvh <complete_path_of_directory_that_contains_PostgreSQL_MSI>/sybase-asa-12.0.1-3873.x86_64.rpm`

For example:

`rpm -Uvh /tmp/postgresql/novell-zenworks-postgresql-11.4-1.x86_64.rpm`

The PostgreSQL database is now installed on PSDB2.

6 On PSDB2, ensure that the installed EBF version is 12.0.1.3924 by running the `dblocate` utility.

The `dblocate` utility is located in the `%ZENWORKS_HOME%\share\ASA\BIN64` directory on a Windows database server and in the `/opt/novell/zenworks/share/sybase/bin32s` directory on a Linux database server.

7 On PSDB2, install `novell-zenworks-sybase-libs-12.0.1.3924.x86_64.msi` or `novell-zenworks-sybase-libs-12.0.1-3873.x86_64.rpm`.

On an Appliance server: At the server prompt, execute the following command:

```
rpm -Uvh <complete_path_of_directory_that_contains_Sybase-libs_MSI>/
novell-zenworks-sybase-libs-12.0.1-3873.x86_64.rpm --force
```

For example:

```
rpm -Uvh /tmp/sybase/novell-zenworks-sybase-libs-12.0.1-3873.x86_64.rpm
--force
```

8 Change the password of the *zenworks* user account by using the following command:

```
passwd zenworks
```

9 Copy the database files from PSDB1 to PSDB2:

   9a Create a directory with the name `database` in `/var/opt/novell/zenworks/` on an Appliance PSDB2.

   9b Copy all the files from `%ZENWORKS_HOME%\database\` on Windows PSDB1 to `%ZENWORKS_HOME%\database\` on Appliance PSDB2, and from `/var/opt/novell/zenworks/database/` on Linux PSDB1 to `/var/opt/novell/zenworks/database/` on Appliance PSDB2.

10 Copy the `zenworks_database.conf` file and the `zenworks_audit_database.conf` file from PSDB1 to PSDB2. The `zenworks_database.conf` file and the `zenworks_audit_database.conf` file are located in the `%ZENWORKS_HOME%\conf\` directory on a Windows Primary Server, and in the `/etc/opt/novell/zenworks/` directory on a Linux Primary Server.

11 On PSDB2, ensure that `zenworks_database.conf` and `zenworks_audit_database.conf` contain the correct database path.

For example, `/var/opt/novell/zenworks/database/zenworks_zone_name.db` is the database path on a Linux device.

12 On all the Primary Servers in the Management Zone, update `zdm.xml` with the correct address of PSDB2 (the new database server). The `zdm.xml` file is located in `ZENworks_installation_path\conf\datamodel` on a Windows Primary Server, and in `/etc/opt/novell/zenworks/datamodel` on a Linux Primary Server.

13 On the PSDB2 linux server, run the `permission.sh` command in the `/opt/novell/zenworks/bin` directory.

14 Reboot the PSDB2 server.

15 Start all the ZENworks Services except Novell ZENworks Embedded Datastore and Novell ZENworks Embedded Datastore For Auditing on PSDB1:

   15a **On Windows:** Perform the following steps:

      15a1 Execute the following command at the server prompt:

```
novell-zenworks-configure -c Start
```

      15a2 Specify the number next to the `Start` action, then press **Enter**.

   15b **On Linux:** Perform the following steps:

      15b1 Execute the following command at the server prompt:

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

      15b2 Specify the number next to the `Start` action, then press **Enter**.

16 Assign the database role to PSDB2 by running the following command in the DBISQL utility:

```
update zZenServerRoles set id=<0xNew DB servers GUID>, position=(select
max(position) from zZENServerRoles where id=<0xNew DB servers GUID>)+1
where Roles='Database'
```

5 Moving the Data from an Embedded Sybase Database to an External Sybase Database

ZENworks allows you move the data from a Sybase SQL Anywhere database (embedded Sybase database) to an OEM Sybase database (external Sybase database).

- "Preparing to Move the Data" on page 33
- "Moving the Data from the Internal Sybase to the External Sybase" on page 33

Preparing to Move the Data

Before moving the data from an internal Sybase database to an external Sybase database, perform the following:

- Ensure that ZENworks is installed with an internal Sybase database on a Windows or Linux device.
- Install the external Sybase database. For more information on how to install an external Sybase database, for Windows, see "" for Linux, see "Linux Installation Workflow"in the *ZENworks Server Installation*.

Moving the Data from the Internal Sybase to the External Sybase

1 On the device that has the external Sybase database installed, stop the Novell ZENworks Embedded Datastore service.

- **On Windows:**
  1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.
  2. Double-click **Administrative Tools** > **Services**.
  3. Right-click the **Novell ZENworks Embedded Datastore** service, then click **Stop**, or select the **Novell ZENworks Embedded Datastore** service, then click ▪ on the toolbar.

- **On Linux:** At the console prompt, enter
  - `/etc/init.d/sybase-asa stop` on SLES 11
  - `systemctl stop sybase-asa.service` on SLES 12

2 On the device that has the external Sybase database installed, stop the Novell ZENworks Embedded Datastore for auditing service.

- **On Windows:**
  1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

2. Double-click **Administrative Tools** > **Services**.

3. Right-click the **Novell ZENworks Embedded Datastore For Audit** service, then click **Stop**, or select the **Novell ZENworks Embedded Datastore For Audit** service, then click on the toolbar.

- **On Linux:** At the console prompt, enter

  - `/etc/init.d/sybase-audit-asa stop` on SLES 11

  - `systemctl stop sybase-audit-asa.service` on SLES 12

3 Stop the ZENworks services on all the ZENworks Servers in the Management Zone. For more information, see Step 2a on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

4 From the device that has the internal Sybase database installed, copy `zenworks_database.conf` and all files within the `database` directory to the appropriate directories on the device that has the external Sybase database.

The `zenworks_database.conf` is located in the *ZENworks_installation_path*\conf\ directory on Windows and in the `/etc/opt/novell/zenworks/` directory on Linux.

The `database` directory is located in *ZENworks_installation_path* on Windows and in the `/var/opt/novell/zenworks/` directory on Linux.

5 On the device that has the external Sybase database installed, open `zenworks_database.conf` and ensure that it contains the correct path of the database file.

6 On the device that has the internal Sybase database installed, edit `zdm.xml` and `zenaudit.xml` (located in *ZENworks_installation_path*\conf\datamodel on Windows and in `/etc/opt/novell/zenworks/datamodel` on Linux):

- Change the value of the `Embedded` entry key to `false`. By default, it is `true`.

- Set the value of the `Server` entry key to the IP address of the device that has the external Sybase database installed.

- ensure that the value of the `Port` entry key is the port number on which the external Sybase database is running.

7 On the device that has the external Sybase database installed, start the Novell ZENworks Embedded Datastore service.

- **On Windows:**

  1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

  2. Double-click **Administrative Tools** > **Services**.

  3. Right-click the **Novell ZENworks Embedded Datastore** service, then click **Start**, or select the **Novell ZENworks Embedded Datastore** service, then click ▶ on the toolbar.

- **On Linux:** At the console prompt, enter

  - `/etc/init.d/sybase-asa start` on SLES 11

  - `systemctl start sybase-asa.service` on SLES 12

8 On the device that has the external Sybase database installed, start the Novell ZENworks Embedded Datastore for auditing service.

- **On Windows:**

  1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

2. Double-click **Administrative Tools** > **Services**.

3. Right-click the **Novell ZENworks Embedded Datastore** service, then click **Start**, or select the **Novell ZENworks Embedded Datastore** service, then click ▶ on the toolbar.

   ◆ **On Linux:** At the console prompt, enter `/etc/init.d/sybase-audit-asa start`.

9 Delete the database role for the device that has the internal Sybase database installed by running the following command in the DBISQL utility on the external database server:

```
delete from zZenServerRoles where Roles = 'Database';
commit;
```

10 Remove the Novell ZENworks Embedded Datastore service from the device that has the internal Sybase database installed:

On the Windows device: Perform the following tasks:

1. At the server prompt, execute the following command:

   ```
   sc delete SQLANYs_ZENDatastore
   ```

2. Edit the `%ZENWORKS_HOME%\conf\monitor.conf` to remove `dbsrv10` from the line `highpriority=zenserver,casaserver,dbsrv10`.

On the Linux device: Perform the following tasks:

1. Stop the Novell ZENworks Embedded Datastore service by executing the following command at the console prompt:

   ◆ `/etc/init.d/sybase-asa stop` on SLES 11

   ◆ `systemctl stop sybase-asa.service` on SLES 12

2. Perform any of the following:

   ◆ On SLES 11:

     1. Rename sybase-asa to sybase-asa1 by executing the following command:

        ```
        mv sybase-asa sybase-asa1
        ```

     2. Edit the `/etc/opt/novell/zenworks/monitor.conf` to remove `sybase-asa` from the line `services=novell-zenserver novell-zenload sybase-asa`.

   ◆ On SLES 12:

     Rename `sybase-asa.service` to `sybase-asa.service1` in the `/usr/lib/systemd/system` folder.

11 Remove Novell ZENworks Embedded Datastore audit service from the device that has the internal Sybase database installed:

On the Windows device: Perform the following tasks:

1. At the server prompt, execute the following command:

   ```
   sc delete SQLANYs_ZENAuditDatastore
   ```

2. Edit the `%ZENWORKS_HOME%\conf\monitor.conf` to remove `dbsrv10` from the line `highpriority=zenserver,casaserver,dbsrv10`.

On the Linux device: Perform the following tasks:

1. Stop the Novell ZENworks Embedded Audit Datastore service by executing the following command at the console prompt:

   ```
   /etc/init.d/sybase-audit-asa stop
   ```

2. Rename sybase-asa to sybase-asa1 by executing the following command:

   `mv sybase-audit-asa sybase-audit-asa1`

3. Edit the to remove `sybase-audit-asa` from the line `services=novell-zenserver novell-zenload sybase-audit-asa`.

12 Start all the ZENworks services on all the ZENworks Servers in the Management Zone. For more information, see Step 2c on page 18 in the "Backing Up the Embedded PostgreSQL Database on a Windows or Linux Server" on page 17.

The ZENworks Server now points to new database.

6 Moving the Internal Sybase Database from One Primary Server to Another Primary Server

Assume that the Primary Server that currently hosts the internal Sybase database is called PSDB1. Assume that the Primary Server or the new device to which you want to move the internal Sybase database is called PSDB2.

1 Ensure that you have archived your database credentials.

   To archive the credentials of an internal Sybase database, perform the following tasks on PSDB1:

   1a Ensure that the database services are running.

      On Windows: In the Windows Services, ensure that the status of **Novell ZENworks Embedded Datastore** and **Novell ZENworks Embedded Datastore For Auditing** are *Started*.

      On Linux: At the console prompt,

      Enter `/etc/init.d/sybase-asa status` on SLES 11 or `systemctl status sybase-asa.service` on SLES 12 to verify the status of the Sybase database.

      Enter `/etc/init.d/sybase-audit-asa status` on SLES 11 or `systemctl status sybase-audit-asa.service` on SLES 12 to verify the status of the Audit database.

      If the databases are not running, start the

      Sybase database by running the:

         - `/etc/init.d/sybase-asa start` on SLES 11.
         - `systemctl start sybase-asa.service` on SLES 12.

      Audit database by running:

         - `/etc/init.d/sybase-audit-asa start` on SLES 11.
         - `systemctl status sybase-audit-asa.service` on SLES 12.

   1b Obtain the Sybase database credentials by running the `zman dgc` command.

   1c Obtain the Audit database credentials by running the `zman dgca` command.

   1d Provide the credentials of the ZENworks administrator when prompted.

   1e Copy and save the user name and the password of the Sybase database and the Audit database into a text file.

2 Stop the Novell ZENworks services, including the ZENworks Embedded Datastore service and the Novell ZENworks Embedded Datastore For Auditing service on PSDB1:

   2a **On Windows:** Perform the following steps:

      2a1 Execute the following command at the server prompt:

         `novell-zenworks-configure -c Start`

      2a2 Specify the number next to the `Stop` action, then press **Enter**.

2b On Linux: Perform the following steps:

    2b1 Execute the following command at the server prompt:

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

    2b2 Specify the number next to the `Stop` action, then press **Enter**.

3 Stop the Novell ZENworks services on PSDB2:

  3a On Windows: Perform the following steps:

    3a1 Execute the following command at the server prompt:

```
novell-zenworks-configure -c Start
```

    3a2 Specify the number next to the `Stop` action, then press **Enter**.

  3b On Linux: Perform the following steps:

    3b1 Execute the following command at the server prompt:

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

    3b2 Specify the number next to the `Stop` action, then press **Enter**.

4 Procure the following files on PSDB2 based on your operating system:

For Windows:

- `sybase-asa-17.0.0.26419.x86_64.msi`
- `novell-zenworks-sybase-libs-17.0.0.26419.x86_64.msi`

For Linux:

- `sybase-asa-17.0.0-26387.x86_64.rpm`
- `novell-zenworks-sybase-libs-17.0.0-26387.x86_64.rpm`

NOTE: If the primary servers exist, procure the files from the existing msi/rpm install directories. Otherwise, follow the steps listed below.

  4a Create a temporary directory named `sybase` in `c:` if PSDB2 is a Windows device, and in `/tmp/` if PSDB2 is a Linux device.

  4b Copy the following files from PSDB1 to the temporary location that you created on PSDB2 ().

    - **For Windows:**

      - `sybase-asa-17.0.0.26419.x86_64.msi`
      - `novell-zenworks-sybase-libs-17.0.0.26419.x86_64.msi`

    If PSDB1 is a Windows server:

      - The MSIs are located in the following directory:
        `%ZENWORKS_HOME%\install\downloads\msi`

      - The RPMs are located in the following directory:
        `%ZENWORKS_HOME%\install\downloads\rpm`

    - **For Linux:**

      - `sybase-asa-17.0.0-26387.x86_64.rpm`
      - `novell-zenworks-sybase-libs-17.0.0-26387.x86_64.rpm`

If PSDB1 is a Linux server:

  - The MSIs are located in the following directory:

    `\opt\novell\zenworks\install\downloads\msi\`

  - The RPMs are located in the following directory:

    `\opt\novell\zenworks\install\downloads\rpm`

Or

Download the required Sybase SQL Anywhere Embedded EBF package to the temporary location that you created on PSDB2 ().

  - **For Windows:** Launch the shipped ISO file and extract the contents in the media drive. Download the Sybase SQL Anywhere Embedded EBF 3924 package from the msi folder as shown below:

    `D:\Zenworks11SP4\Common\msi\sybase-asa-17.0.0.26419.x86_64.msi`

  - **For Linux:** Mount the shipped ISO file to any location (for example: `/tmp`) using the following command:

    `mount Zenworks11SP4 -o loop/tmp/ZCM`

    From the media root (for example: `/tmp/ZCM`), download the Sybase SQL Anywhere Embedded EBF 3873 package from the rpm folder as shown below:

    `/tmp/ZCM/Common/rpm/sybase-asa-17.0.0-26387.x86_64.rpm`

5 On PSDB2, install `sybase-asa-17.0.0.26419.x86_64.msi` or `sybase-asa-17.0.0-26387.x86_64.rpm`.

  - **On a Windows server:** At the server prompt, execute the following command:

    ```
    msiexec /i
    <complete_path_of_directory_that_contains_Sybase_ASA_MSI>\sybase-
    asa-17.0.0.26419.x86_64.msi TARGETDIR="%ZENWORKS_HOME%\share"
    ALLUSERS=2
    ```

    For example:

    ```
    msiexec /i c:\sybase-asa-17.0.0.26419.x86_64.msi
    TARGETDIR="%ZENWORKS_HOME%\share" ALLUSERS=2
    ```

  - **On a Linux server:** At the server prompt, execute the following command:

    ```
    rpm -Uvh <complete_path_of_directory_that_contains_Sybase_ASA_MSI>/
    sybase-asa-17.0.0-26387.x86_64.rpm --force
    ```

    For example:

    ```
    rpm -Uvh /tmp/sybase/sybase-asa-17.0.0-26387.x86_64.rpm --force
    ```

  The Sybase database is now installed on PSDB2.

6 On PSDB2, ensure that the installed EBF version is 17.0.0.26419 or higher by running the `dblocate` utility.

  The `dblocate` utility is located in the `%ZENWORKS_HOME%\share\ASA\BIN64` directory on a Windows database server and in the `/opt/novell/zenworks/share/sybase/bin32s` directory on a Linux database server.

7 On PSDB2, install `novell-zenworks-sybase-libs-17.0.0.26419.x86_64.msi` or `novell-zenworks-sybase-libs-17.0.0-26387.x86_64.rpm`.

  - **On a Windows server:** At the server prompt, execute the following command:

```
msiexec /i <complete_path_of_directory_that_contains_Sybase-
libs_MSI>\novell-zenworks-sybase-libs-17.0.0.26419.x86_64.msi
TARGETDIR="{Parent of the Novell\ZENworks directory structure}"
ALLUSERS=2 REBOOT=ReallySuppress/
l*v<complete_path_of_directory_that_contains_Sybase-
libs_MSI>\novell-zenworks-sybase-libslog.txt
```

For example:

```
msiexec /i c:\sybase\novell-zenworks-sybase-libs-
17.0.0.26419.x86_64.msi TARGETDIR="{C:\Program Files (x86)"
ALLUSERS=2 REBOOT=ReallySuppress/l*v c:\sybase\novell-zenworks-
sybase-libslog.txt
```

- ◆ **On a Linux server:** At the server prompt, execute the following command:

```
rpm -Uvh <complete_path_of_directory_that_contains_Sybase-
libs_MSI>/novell-zenworks-sybase-libs-17.0.0-26387.x86_64.rpm --
force
```

For example:

```
rpm -Uvh /tmp/sybase/novell-zenworks-sybase-libs-17.0.0-
26387.x86_64.rpm --force
```

8 (Conditional) If PSDB2 is a Windows Primary Server, import the registry keys that add the ZENworks Embedded Datastore service to PSDB2:

8a Download `embedded_datastore-edit_me_first.zip` from the Novell Downloads website (https://download.novell.com/Download?buildid=5XgKbcTLiss) to a temporary location on PSDB2, then extract the contents of the ZIP file.

The ZIP file contains the `embedded_database.reg` file and the `embedded_audit_database.reg` file.

8b Open `embedded_database.reg` and `embedded_audit_database.reg` in a text editor, then make the following changes:

- ◆ Change the value of `ObjectName` to the local _z_ username that is created after you install ZENworks. By default, the value of `ObjectName` is `.\\__z_10_2__`.

  To find the local _z_ username, do one of the following:

  - ◆ At the command prompt, enter `net user|find /i "__z"`.
  - ◆ Open the Windows Computer Management, then browse to **System Tools** > **Local User and Groups** > **Users**.

  For example, if the resultant value is `__z_0_244__   Administrator   ASPNET`, the local _z_ username is `__z_0_224__`. The value of `ObjectName` in `embedded_database.reg` must be changed from `__z_10_2__` to `__z_0_224__`. Ensure that the value is prepended with a period (.) and two backslashes (\\), such as `.\\__z_0_224__`

- ◆ On PSDB2, ensure that the value of `Parameters` contain the correct path of `zenworks_database.conf` in the `embedded_database.reg` file and `zenworks_audit_database.conf` in the `embedded_audit_database.reg` file.

> **IMPORTANT:** In the value for `Parameters`, the double quote (") and the backslash \ characters must be escaped by placing a backslash in front. For example, if `zenworks_database.conf` is located in `d:\novell\zenworks\conf\`, the value of `Parameters` is
>
> `"\"@d:\\Novell\\ZENworks\\conf\\zenworks_database.conf\""`

8c Double-click the `embedded_database.reg` file and the `embedded_audit_database.reg` file.

8d When you are prompted to add the content of the `embedded_database.reg` file and `embedded_audit_database.reg` file to the registry, click **Yes**.

8e Go to `HKLM\SYSTEM\CurrentControlSet\services\SQLANYs_ZENDataStore` and verify the ImagePath value to ensure it is pointing to `dbsrv17.exe`.

For example:

`C:\Program Files (x86)\Novell\ZENworks\share\ASA\BIN64\dbsrv17.exe -hvSQLANYs_ZENDatastore`

8f Go to `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SQLANYs_ZENAuditDatastore` and verify the ImagePath value to ensure it is pointing to `dbsrv17.exe`.

For example:

`C:\Program Files (x86)\Novell\ZENworks\share\asa\Bin64\dbsrv17.exe -hvSQLANYs_ZENAuditDatastore`

> **NOTE:** Sybase services are available only on first primary server. To start the Sybase service, you need to reboot all windows primary servers.

9 If PSDB2 is a Windows Primary Server, perform either of the following options:

* **Option 1:**

   1. Change the password of the local `_z_` user account.

      For more information about how to change the password of a user account, see the Microsoft Windows documentation.

   2. Change the password of the `Novell ZENworks Embedded Datastore`, `Novell ZENworks Embedded Datastore For Auditing`, `Novell ZENworks Join Proxy`, `Novell ZENworks Loader`, `Novell ZENworks Preboot Policy Service`, `Novell ZENworks Preboot Service`, `Novell ZENworks Server`, `Novell ZENworks services Monitor`, and `CasaAuthTokenSvc` services:

      a. On **Services (Local)**, right-click the service, then select **Properties**.

      b. On the property page, click **Log On** > **This account**, then specify a **Password**.

      c. Click **Apply**, then **OK**.

* **Option 2:**

   Change the `Log On` account of the `Novell ZENworks Embedded Datastore`, and `Novell ZENworks Embedded Datastore For Auditing` services:

   1. On **Services (Local)**, right-click the service, then select **Properties**.

2. On the property page, click **Log On** > **Local System account** > **Allow service to interact with desktop**.

3. Click **Apply**, then **OK**.

10 (Conditional) If PSDB 2 is a Linux Primary Server, change the password of the *zenworks* user account by using the following command:

`passwd zenworks`

11 Copy the database files from PSDB1 to PSDB2:

11a Create a directory with the name `database` in *%ZENWORKS_HOME%* on Windows PSDB2, and in `/var/opt/novell/zenworks/` on Linux PSDB2.

11b Copy all the files from `%ZENWORKS_HOME%\database\` on Windows PSDB1 to `%ZENWORKS_HOME%\database\` on Windows PSDB2, and from `/var/opt/novell/zenworks/database/` on Linux PSDB1 to `/var/opt/novell/zenworks/database/` on Linux PSDB2.

12 Copy the `zenworks_database.conf` file and the `zenworks_audit_database.conf` file from PSDB1 to PSDB2. The `zenworks_database.conf` file and the `zenworks_audit_database.conf` file are located in the `%ZENWORKS_HOME%\conf\` directory on a Windows Primary Server, and in the `/etc/opt/novell/zenworks/` directory on a Linux Primary Server.

13 On PSDB2, ensure that `zenworks_database.conf` and `zenworks_audit_database.conf` contain the correct database path.

For example, `/var/opt/novell/zenworks/database/zenworks_zone_name.db` is the database path on a Linux device.

14 On all the Primary Servers in the Management Zone, take a backup of the `zdm.xml` and `zenaudit.xml` files. Then, update the `Server` entry key (`<entry key=<"Server">`) in the `zdm.xml` and `zenaudit.xml` files with the correct address of PSDB2 (the new database server).

NOTE: If the `zdm.xml` and `zenaudit.xml` files reside within the Primary Server that contains the new database server, then it is recommended that you update the local host address `127.0.0.1` as the `Server` entry key.

These files are located in *ZENworks_installation_path*`\conf\datamodel` on a Windows Primary Server, and in `/etc/opt/novell/zenworks/datamodel` on a Linux Primary Server.

15 On the PSDB2 linux server, run the `permissions.sh` command in the `/opt/novell/zenworks/bin` directory.

16 If PSDB1 is a Linux Primary Server:

  ◆ Remove sybase-asa sybase-audit-asa entries in /etc/opt/novell/zenworks/monitor.conf.

  ◆ Disable the Sybase database services:

    ◆ **SLES 11:** `chkconfig sybase-asa sybase-audit-asa off`

    ◆ **SLES 12:** `systemctl disable sybase-asa sybase-audit-asa`

17 On the PSDB2 linux server, run the following commands:

  ◆ **On SLES 11**

    `etc/int.d/Sybase-asa start`

    `/etc/int.d/sybase-audit-asa start`

◆ **On SLES 12**

```
systemctl enable sybase-asa.service

systemctl enable sybase-audit-asa.service
```

18 Reboot the PSDB2 server.

19 Start all the ZENworks services except Novell ZENworks Embedded Datastore and Novell ZENworks Embedded Datastore For Auditing on PSDB1:

    19a **On Windows:** Perform the following steps:

        19a1 Execute the following command at the server prompt:

```
novell-zenworks-configure -c Start
```

        19a2 Specify the number next to the `Start` action, then press **Enter**.

    19b **On Linux:** Perform the following steps:

        19b1 Execute the following command at the server prompt:

            /opt/novell/zenworks/bin/novell-zenworks-configure -c Start

        19b2 Specify the number next to the `Start` action, then press **Enter**.

20 Assign the database role to PSDB2 by running the following command in the DBISQL utility:

```
update zZenServerRoles set id=<0xNew DB servers GUID>, position=(select
max(position) from zZENServerRoles where id=<0xNew DB servers GUID>)+1
where Roles='Database'
```

Moving the Internal Sybase Database from One Primary Server to Another Primary Server

7 Migrating the Data from an Internal Sybase Database to an External Oracle Database

ZENworks allows you migrate the data from an internal Sybase database running on a ZENworks Primary Server to an Oracle database installed on a device that does not have the ZENworks installed.

Review the following to migrate the database:

Preparing to Move the Data

Before migrating the data from the Sybase database to Oracle database, perform the following:

- Ensure that the license state of ZENworks is Active. The product must be installed and running either in the licensed version or the evaluation version.
- Save all the reports, `rights.xml`, and `ownership.xml` by using the `report-save (rpsv) (destination folder)` command. The XML files contain rights and ownership details of all the reports.
- Ensure that the Primary Server to which the Sybase database is configured has been upgraded to ZENworks.
- Ensure that the ZENworks Primary Server has an internal Sybase database installed.
- Ensure that the Oracle database is installed on a device that does not have ZENworks installed.
- Ensure that the USERS tablespace has sufficient space to create and store the ZENworks database schema. The tablespace requires a minimum of 100 MB to create ZENworks database schema without any data in it and an appropriate additional space depending upon the size of the database to be migrated. The database migration utility uses only the USERS tablespace by default. You cannot manually specify any other tablespace during the migration.
- Ensure that the NLS_CHARACTERSET parameter is set to AL32UTF8 and the NLS_NCHAR_CHARACTERSET parameter to AL16UTF16 by running the following query at the database prompt:

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

- Ensure that the **sharename**, **filename**, and **path columns** do not contain blank strings in the **NC_VRBSOFTWARE** table. In case these column have blank strings, delete those records from the table. Deleting these records will remove the usage of these software from database.

  Query to delete the records from **NC_VRBSOFTWARE**:

```
DELETE FROM NC_VRBSOFTWARE WHERE SHARENAME='' OR PATH='' OR FILENAME=''
OR SHARENAME IS NULL OR PATH IS NULL OR FILENAME IS NULL;
```

* (Conditional) If you want to migrate the database by creating a new user schema, ensure that the following additional requirements are met:
    * You must be aware of the database administrator credentials.
    * A tablespace must already exist for associating to the Oracle access user
* You can choose to migrate the database by using an existing user schema that resides on a server in your network in the following scenarios:
    * The database administrator creates a user schema with the necessary rights and you get the credentials for that user schema from the database administrator. In this case, the database administrator credentials are not required to migrate the database.
    * You create a user schema in the Oracle database and choose to use it during the database migration.

    If you want to migrate the database by using an existing user schema, ensure that the following additional requirements are met:

    * Ensure that the user schema has the following rights to create the database.

    ```
    CREATE SESSION
    CREATE_TABLE
    CREATE_VIEW
    CREATE_PROCEDURE
    CREATE_SEQUENCE
    CREATE_TRIGGER
    ```

    * Ensure that the quota for the user schema is set to Unlimited on the USERS tablespace.
* Manually stop the ZENworks services running on all the ZENworks Servers in the Management Zone.
    * **On Windows:**
        1. Execute the following command at the server prompt:

           ```
           novell-zenworks-configure -c Start
           ```
        2. Enter the number next to the `Stop` action.
    * **On Linux:**
        1. Execute the following command at the server prompt:

           ```
           /opt/novell/zenworks/bin/novell-zenworks-configure -c Start
           ```
        2. Enter the number next to the `Stop` action.

NOTE: If external Sybase database is installed by using Sybase installer instead of OEM installer from ZCM iso, then "Novell ZENworks Embeded Datastore Service" does not exists in database server. The external database service should be running before initiating the database migration.

---

* Ensure that the Novell ZENworks Embedded Datastore service on the Primary Server is running.
    * **On Windows:**
        1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

2. Double-click **Administrative Tools** > **Services**.

3. Ensure that the status of the **Novell ZENworks Embedded Datastore** service is **Started**.

◆ **On Linux:** At the console prompt, enter:

 ◆ `/etc/init.d/sybase-asa status` on SLES 11.

 ◆ `systemctl status sybase-asa.service` on SLES 12.

◆ Ensure that the Novell ZENworks Embedded Datastore for auditing service on the Primary Server is running.

 ◆ **On Windows:**

 1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

 2. Double-click **Administrative Tools** > **Services**.

 3. Ensure that the status of the **Novell ZENworks Embedded Datastore For Auditing** service is **Started**.

 ◆ **On Linux:** At the console prompt, enter

 ◆ `/etc/init.d/sybase-audit-asa status` on SLES 11.

 ◆ `systemctl status sybase-audit-asa.service` on SLES 12.

◆ (Optional) The status of database migration is logged into the `novell-zenworks-configure.log` file. By default, only the messages of the type Info and Severe are logged. If you want other message types (such as Finer, Finest, and Warning) to also be logged into the file, do the following in the `novell-zenworks-configure.properties` file:

 1. Set the value of `Logger.logLevel` to the appropriate message type.

 For example, if you want messages of the type Finest to be logged:

 `#Logger.logLevel   = FINEST`

 2. Uncomment the line by removing the "#" as follows:

 `Logger.logLevel   = FINEST`

 The `novell-zenworks-configure.properties` file is located in `%ZENWORKS_HOME%\conf\` on Windows and in `/etc/opt/novell/zenworks/` on Linux.

Migrating the Data from the Internal Sybase Database to an Oracle Database

Migrating the Data from the Internal Sybase Database to an Oracle Database

1 Ensure that all the tasks listed in "Preparing to Move the Data" on page 45 are completed.

2 Run the database migration utility.

◆ **On the Windows Primary Server:** At the command prompt, go to *ZENworks_installation_path*\bin\, then enter the following command:

```
novell-zenworks-configure.bat -c DBMigrateConfigureAction
```

    ◆ **On the Linux Primary Server:** At the console prompt, go to `/opt/novell/zenworks/`
`bin`, then enter the following command:

```
novell-zenworks-configure -c DBMigrateConfigureAction
```

3 Enter the target database type as Oracle.

4 Choose the purging option for data before database migration.

5 Enter the IP address or host name of the Oracle database server.

6 Enter the port used by the Oracle database server.

7 Enter the fully qualified net service name for the Oracle database.

8 You can choose to create a new user schema or use an existing user schema.

If you choose to create a new schema, continue with Step 9.

If you choose to use an existing user schema, skip to Step 10.

9 Enter the database server administrator's user name and password.

10 Enter the database schema name when prompted for the database user name.

11 Enter the database schema password when prompted for the database user's password.

12 Perform the steps from Step 5 to Step 11 for ZENworks audit database. The database migration
starts.

13 When the database migration is complete, you can check the `novell-zenworks-`
`configure.log` file. The log file is located in `%ZENWORKS_HOME%\log\` on Windows and in `/`
`var/opt/novell/log/zenworks/` on Linux.

14 Remove the Novell ZENworks Embedded Datastore service from the device that has the internal
Sybase database installed:

On the Windows device: Perform the following tasks:

    1. At the server prompt, execute the following command:

```
sc delete SQLANYs_ZENDatastore
```

```
sc delete SQLANYs_ZENAuditDatastore
```

    2. Edit the `%ZENWORKS_HOME%\conf\monitor.conf` to remove `dbsrv10` from the line
`highpriority=zenserver,casaserver,dbsrv10`.

On the Linux device: Perform the following tasks:

    1. At the console prompt execute the following command:

        ◆ Sybase Database:

            ◆ `/etc/init.d/sybase-asa stop` on SLES 11

            ◆ `systemctl stop sybase-asa.service` on SLES 12.

        ◆ Audit Database

            ◆ `/etc/init.d/sybase-audit-asa stop` on SLES 11

            ◆ `systemctl stop sybase-audit-asa.service` on SLES 12.

    2. Perform any of the following:

        ◆ On SLES 11:

            1. Rename sybase-asa to sybase-asa1 by executing the following command:

```
mv sybase-asa sybase-asa1
```

2. Edit the `/etc/opt/novell/zenworks/monitor.conf` to remove `sybase-asa` from the line `services=novell-zenserver novell-zenload sybase-asa`.

- On SLES 12:

   Rename `sybase-asa.service` to `sybase-asa.service1` in the `/usr/lib/systemd/system` folder.

15 After the database is successfully migrated, continue with the following steps:

15a Perform post-migration tasks. See "Post-Migration Tasks" on page 50.

15b Re-configure the ZENworks Reporting Server to point to the Oracle database, because it will still be pointing to the Sybase database.

Resuming the Database Migration

If the migration of the database is stopped for any reason, the ZENworks migration utility allows you to resume the migration if the `dbmigration.xml` file has been created. The file is located in the `%ZENWORKS_HOME%\bin` directory on Windows, and in the `/opt/ novell/zenworks/bin` directory on Linux.

1 Run the database migration utility. For more information, see Step 2 on page 48 in the "Migrating the Data from the Internal Sybase Database to an Oracle Database" on page 48.

2 Enter the target database type as Oracle.

3 Enter the IP address or host name of the Oracle database server.

   You must specify the IP address or host name of the Oracle database server used while migrating the database. For example, if you had specified the IP address of the database server while migrating the database, then you must specify the same IP address while resuming the database migration. You cannot specify the host name of the database server.

4 Enter the port used by the Oracle database server.

5 Enter the fully qualified net service name for the Oracle database.

6 Choose to use an existing schema.

7 Enter the schema name when prompted for the database user name specified before stopping the database migration.

8 Enter the database schema password when prompted for the database user's password specified before stopping the database migration.

9 Choose to resume the database migration.

   The database migration starts.

10 After the database is successfully migrated, continue with "Post-Migration Tasks" on page 50.

Post-Migration Tasks

If there is only one server in the Management Zone, all ZENworks services are automatically started after the data is successfully migrated to an Oracle database.

If there are multiple servers in the Management Zone:

1 On the device where you ran the migration utility, copy the following files to the appropriate directory on all the servers:

```
zdm.xml
dmaccounts.properties
dmmappings.properties
zenaudit.xml
zenaudit_dmaccounts.properties
```

The files are located in the *ZENworks_installation_path*\conf\datamodel directory on Windows and in the /etc/opt/novell/zenworks/datamodel directory on Linux.

Ensure that you run permissions.sh script located at /opt/novell/zenworks/bin on the Linux server after copying the above listed files.

2 Start all the ZENworks services on all the ZENworks Servers in the Management Zone.

Stop the ZENworks services on all other ZENworks Servers in the Management Zone.

- **On Windows:**

  1. Execute the following command at the server prompt:

     ```
     novell-zenworks-configure -c Start
     ```

  2. Enter the number next to the Stop action.

- **On Linux:**

  1. Execute the following command at the server prompt:

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

  2. Enter the number next to the Stop action.

The ZENworks Server now points to the new database.

For the Oracle 10g database, any administrator name is case sensitive, including login names from user sources. The default ZENworks administrator account automatically created during installation uses an initial capital, so in order to log into ZENworks Control Center, you must enter Administrator.

NOTE: Ensure not to delete the ZENworks Sybase database files if you want to revert to ZENworks Sybase database later.

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8 Migrating the Data from an Internal Sybase Database to an MS SQL Database

ZENworks allows you migrate the data from an internal Sybase database running on a ZENworks Primary Server to an MS SQL database installed on a device that does not have the ZENworks installed.

Review the following to migrate the database:

Preparing to Move the Data

Before migrating the data from the Sybase database to the MS SQL database, perform the following:

* Ensure that the license state of ZENworks is Active. The product must be installed and running either in the licensed version or the evaluation version.
* Save all the reports, `rights.xml`, and `ownership.xml` by using the `zman report-save (rpsv) (destination folder)` command. The XML files contain rights and ownership details of all the reports.
* Ensure that the Primary Server to which the Sybase database is configured has been upgraded to ZENworks.
* Ensure that the ZENworks Primary Server has an internal Sybase database installed.
* Ensure that the MS SQL database is installed on a device that does not have ZENworks installed.
* (Conditional) If you want to create a new database on MS SQL Server, and migrate the Sybase data into the new database, you must be aware of the database administrator credentials.
* (Conditional) If you want to migrate the data to an existing database that resides on the MS SQL server in your network, the newly created user must be assigned the db_owner database role and you must procure the database credentials of the newly created user from the database administrator.
* Manually stop the ZENworks services running on all other ZENworks Servers in the Management Zone.

  Stop the ZENworks services on all other ZENworks Servers in the Management Zone.

  * **On Windows:**
    1. Execute the following command at the server prompt:

       `novell-zenworks-configure -c Start`
    2. Enter the number next to the `Stop` action.

- **On Linux:**

    1. Execute the following command at the server prompt:

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

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

- Ensure that the Novell ZENworks Embedded Datastore service on the Primary Server is running.

    - **On Windows:**

        1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

        2. Double-click **Administrative Tools** > **Services**.

        3. Ensure that the status of the **Novell ZENworks Embedded Datastore** service is **Started**.

    - **On Linux:** At the console prompt, enter

        - `/etc/init.d/sybase-asa status` on SLES 11.

        - `systemctl status sybase-asa.service` on SLES 12.

- Ensure that the Novell ZENworks Embedded Datastore for auditing service on the Primary Server is running.

    - **On Windows:**

        1. From the Windows desktop **Start** menu, click **Settings** > **Control Panel**.

        2. Double-click **Administrative Tools** > **Services**.

        3. Ensure that the status of the **Novell ZENworks Embedded Datastore For Auditing** service is **Started**.

    - **On Linux:** At the console prompt, enter

        - `/etc/init.d/sybase-audit-asa status` on SLES 11.

        - `systemctl status sybase-audit-asa.service` on SLES 12.

- (Optional) The status of database migration is logged into the `novell-zenworks-configure.log` file. By default, only the messages of the type Info and Severe are logged. If you want other message types (such as Finer, Finest, and Warning) to also be logged into the file, perform the following in the `novell-zenworks-configure.properties` file:

    1. Set the value of `Logger.logLevel` to the appropriate message type.

       For example, if you want messages of the type Finest to be logged:

       `#Logger.logLevel   = FINEST`

    2. Uncomment the line by removing the "#" as follows:

       `Logger.logLevel    = FINEST`

    The `novell-zenworks-configure.properties` file is located in `%ZENWORKS_HOME%\conf\` on Windows and in `/etc/opt/novell/zenworks/` on Linux.

Migrating the Data from the Internal Sybase Database to an MS SQL Database

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Migrating the Data from the Internal Sybase Database to an MS SQL Database

1 Ensure that all the tasks listed in "Preparing to Move the Data" on page 51 are completed.

2 Run the database migration utility. For more information, see Step 2 on page 48 in the "Migrating the Data from the Internal Sybase Database to an Oracle Database" on page 48.

3 Select the target database type as sql-server.

4 Choose the purging option for data before database migration.

5 Enter the IP address or host name of the MS SQL database server.

6 Enter the port used by the MS SQL database server.

7 (Optional) Enter the named instance for the MS SQL Server engine.

8 Choose to create a new database or use an existing database on the MS SQL server.

If you choose to create a new database, continue with Step 9.

If you choose to use an existing database, skip to Step 10.

9 (Conditional) If you choose to create a new database in Step 8, perform the following tasks:

   9a Select the authentication type (Windows or SQL Server) to be used for the database administrator user.

   9b Enter the database server administrator user name.

   9c Enter the database server administrator password.

   9d (Conditional) If you choose Windows authentication in Step 9a, enter the database administrator's domain name.

10 Select the authentication type (Windows or SQL Server) to be used for the database access user.

11 Enter the database access user name.

12 Enter the database access user password.

13 (Conditional) If you choose Windows authentication in Step 10, enter the database access user's domain name.

14 Enter the name of the database on the MS SQL server to which you want to migrate the data. If you choose to create a new database in Step 8, the database is created on the MS SQL server with the name that you specify in this step.

15 (Conditional) If you choose to create a new database in Step 8, enter the complete path where you want the database to be created. You must select the existing folder.

16 Perform the steps from Step 5 to Step 15 for ZENworks audit database. The database migration starts.

17 When the database migration is complete, you can verify the `novell-zenworks-configure.log` file to see if the migration was successful. The log file is located in `%ZENWORKS_HOME%\log\` on the Windows Primary Server and in `/var/opt/novell/log/zenworks/` on the Linux Primary Server.

18 Remove the Novell ZENworks Embedded Datastore service from the device that has the internal Sybase database installed:

On the Windows device: Perform the following tasks:

   1. At the server prompt, execute the following command:

```
sc delete SQLANYs_ZENDatastore

sc delete SQLANYs_ZENAuditDatastore
```

2. Edit the `%ZENWORKS_HOME%\conf\monitor.conf` to remove `dbsrv10` from the line `highpriority=zenserver,casaserver,dbsrv10`.

On the Linux device: Perform the following tasks:

1. At the console prompt execute the following:

   ◆ On Sybase Database

      ◆ `/etc/init.d/sybase-asa stop` on SLES 11

      ◆ `systemctl stop sybase-asa.service` on SLES 12

   ◆ On Audit Database

      ◆ `/etc/init.d/sybase-audit-asa stop` on SLES 11

      ◆ `systemctl stop sybase-audit-asa.service` on SLES 12.

2. Perform any of the following:

   ◆ On SLES 11:

      1. Rename sybase-asa to sybase-asa1 by executing the following command:

         `mv sybase-asa sybase-asa1`

      2. Edit the `/etc/opt/novell/zenworks/monitor.conf` to remove `sybase-asa` from the line `services=novell-zenserver novell-zenload sybase-asa`.

   ◆ On SLES 12:

      Rename `sybase-asa.service` to `sybase-asa.service1` in the `/usr/lib/systemd/system` folder.

19 After the database is migrated, continue with the following steps:.

   19a Perform post-migration tasks. See “Post-Migration Tasks” on page 55.

   19b Re-configure the ZENworks Reporting Server to point to the MS SQL database, because it will still be pointing to the Sybase database.

Resuming the Database Migration

If the migration of the database is stopped for any reason, the ZENworks migration utility allows you to resume the migration if the `dbmigration.xml` file has been created. The file is located in the `%ZENWORKS_HOME%\bin` directory on the Windows Primary Server, and in the `/opt/ novell/ zenworks/bin` directory on the Linux Primary Server.

1 Run the database migration utility. For more information, see Step 2 on page 48 in the “Migrating the Data from the Internal Sybase Database to an Oracle Database” on page 48.

2 Enter the target database type as sql database server.

3 Enter the IP address or host name of the MS SQL database server.

You must specify the IP address or host name of the MS SQL database server used while migrating the database. For example, if you had specified the IP address of the database server while migrating the database, then you must specify the same IP address while resuming the database migration. You cannot specify the host name of the database server.

4 (Optional) Enter the named instance of the MS SQL Server engine.

5 Choose to use an existing database.

6 Enter the credentials of the database user depending on the authentication mode selected.

7 Enter the database name.

8 Choose to resume the database migration.

The database migration starts.

9 After the database is successfully migrated, continue with .

Post-Migration Tasks

If there is only one server in the Management Zone, all ZENworks services are automatically started after the data is successfully migrated to an MS SQL Server database.

If there are multiple servers in the Management Zone:

1 On the device where you ran the migration utility, copy the following files to the appropriate directory on all the servers:

```
zdm.xml
dmaccounts.properties
dmmappings.properties
zenaudit.xml
zenaudit_dmaccounts.properties
```

The files are located in the `%ZENWORKS_HOME%`\conf\datamodel directory on Windows and in the `/etc/opt/novell/zenworks/datamodel` directory on Linux.

Ensure that you run `permissions.sh` script located at `/opt/novell/zenworks/bin` on the Linux server after copying the above listed files.

2 Start all the ZENworks services on all the ZENworks Servers in the Management Zone.

Stop the ZENworks services on all other ZENworks Servers in the Management Zone.

- ◆ **On Windows:**

  1. Execute the following command at the server prompt:

     `novell-zenworks-configure -c Start`

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

- ◆ **On Linux:**

  1. Execute the following command at the server prompt:

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

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

The ZENworks Server now points to the new database.

NOTE: Ensure not to delete the ZENworks Sybase database files if you want to revert to ZENworks Sybase database later.

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9 Configuring PostgreSQL

Each Primary Server on PostgreSQL can consume up to 500 database connections. If you want to add more than one Primary Server, you should change the property values in the postgresql.conf file.

For the embedded database, the postgresql.conf file is available at the following location:

`/etc/opt/microfocus/zenworks/datamodel//var/opt/microfocus/pgsql/data`

Use the following formula to calculate the property values.

max_connections = Number of primary severs * 500

max_prepared_transactions = Number of primary severs * 500

After changing the property values in `postgresql.conf`, restart the ZENworks and PostgreSQL service.

To restart the PostgreSQL service:

Run the `systemctl restart zenpostgresql.service` command.

10 Migrating the OEM PostgreSQL Database to an External PostgreSQL Database

If you are using the OEM PostgreSQL database in ZENworks 2017 Update x, then ensure that you migrate to an external PostgreSQL database before upgrading your zone to ZENworks 2020.

Using the database migration script, you can migrate the database. The script file can be downloaded from the following locations:

Download the OEM PostgreSQL to External PostgreSQL Migration script

You can download the script file, and then perform the following steps to migrate to an external PostgreSQL database:

1. Take a backup of the database.

2. Stop all services in ZENworks Primary Server.

3. On the database server, download and extract the `migrate_postgres.sh.zip` file.

4. Download and install the PostgreSQL version supported by ZENworks.

   If you are planning to upgrade to ZENworks 2020 Update 22020 Update 324.2, ensure that you install PostgreSQL 11.412.412.14.

5. Change the permission for the script by running the `chmod 755 migrate_script.sh` command.

6. The script log will be saved in the `/tmp/migrate_postgres.log` location.

7. Run the following script:

   `./migrate_postgres.sh -p <PostgreSQL_Installed_Directory> --database <zenworks_db_name> --password <superuser password>`

   Example: `./migrate_postgres.sh -p /usr/pgsql-11/ --database zenworks_database --password novell`

NOTE: ◆ To see all the available options, run the script without any argument. (Example: ./migrate_postgres.sh)

 ◆ After migrating to the external PostgreSQL, ensure that you manually clean the OEM PostgreSQL installation.

---

11 Migrating the Data from an Internal Sybase Database to an External PostgreSQL Database

ZENworks 2020 onwards, the Sybase database will no longer be supported, and the Sybase data will have to be migrated to any ZENworks supported database. Using the new Database Migration tool, you can migrate the Sybase database to the PostgreSQL database. For more information, see Database Migration from Sybase to PostgreSQL.

The migration tool can be downloaded from the ZENworks 2020 downloads in the Micro Focus Customer Center.

NOTE: Ensure that you download the latest version of the database migration tool.

12 Moving the Data from an Embedded PostgreSQL Database to an External PostgreSQL Database

ZENworks allows you move the data from an embedded PostgreSQL to an external PostgreSQL database:

Preparing to Move the Data

Before moving the data from an embedded PostgreSQL database to an external PostgreSQL database, perform the following:

- Ensure that ZENworks is installed with an embedded PostgreSQL database on a Linux device.
- Install the external PostgreSQL database. For more information on how to install an external PostgreSQL database, see Installing PostgreSQL in the Database Migration from Microsoft SQL to PostgreSQL.

Important Commands and Locations

This section provides some of the command and locations that will be used quite frequently while moving the data. Ensure that you keep the following information handy while initiating the data migration:

- The ZENworks database and Audit database names on the embedded PostgreSQL database are available in `zdm.xml` and `zenaudit.xml` files. These files are available in the following location:

  Check the **Database** key to get the database name.

  `/etc/opt/microfocus/zenworks/datamodel/`

  On Windows: `%ZENWORKS_HOME%\conf\datamodel\`

  On Linux: `/etc/opt/novell/zenworks/datamodel/`

  Example:

  <entry key="Database">zenworks</entry>

  <entry key="Database">zenworksaudit</entry>

- The database details can be retrieved by running the following commands:
  - `zman dgc`: Retrieves the database credentials used to connect to the embedded database.
  - `zman dgca`: Retrieves the database credentials used to connect to the audit embedded database.
  - `zman dgcs`: Retrieves the database credentials of super user that is used to connect to the embedded database.
  - `zman dgcam`: Retrieves the database credentials of the Antimalware database.

- **IMPORTANT:** The user that should be used in the following steps (unless explicitly mentioned) should be any user (administrator) who has privileges to control and monitor ZENworks services.

Moving the Data from an Embedded PostgreSQL to an External PostgreSQL

Moving the data from an embedded PostgreSQL server to an external PostgreSQL server is a two step process:

Step 1: Backup the Database on the Embedded Primary Server

NOTE: ZENworks no longer supports Windows Server as a Primary Server from version 24.2 onwards. For more information, see End of Support Windows Primary Server.

1. Before executing the following steps, ensure that you have reviewed the information documented in the section Important Commands and Locations.

2. Stop the ZENworks Services on all the Primary Servers by running the following configure action:

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

   After running the command, under Action, select Stop.

3. On the Primary Server on which the Embedded Database is installed, Start the **NovellMicro Focus ZENworks Embedded Datastore** service using the following steps:

   On Windows: Press the **Win + R** keys on the keyboard to open the Run window. Type *services. msc* and then hit Enter.

   Start the *NovellMicro Focus ZENworks Embedded Datastore – PostgreSQL* service.

   On Linux: Run the following command to start the NovellMicro Focus ZENworks Embedded Datastore – PostgreSQL service.
   - **On SLES 12 and later:** `systemctl start zenpostgresql.service`
   - **On SLES 11:** `/etc/init.d/zenpostgresql start`

4. Login to the Primary Server that has the database role.

5. Initiate the backup by setting the following variables:
   - PGPORT: <existing source DB port configured>

     By default, ZENworks uses 54327
   - PGDATA: <embedded_database_location>
   - PGUSER: <existing super user for ZENworks postgres DB> The default user for ZENworks is zenpostgres.
   - PGDATABASE: <existing database name> ZENworks default is postgres
   - PGPASSWORD: <password for the above super user PGUSER>

Example 12-1   *Example for Windows Primary Server*

Set the following environment variables:
   - Set the PATH for PostgreSQL installation.
   - Set the PATH for PostgreSQL bin folder.

Open the command prompt and set the following variables based on the existing configuration.
   - SET PGPORT=54327
   - SET `PGDATA=%ZENWORKS_HOME%\database\pgsql\data`
   - SET `PGDATA=%ZENSERVER_HOME%\database\pgsql\data`
   - SET PGUSER=<super user retrieved from zman dgcs>
   - SET PGDATABASE=postgres
   - SET PGPASSWORD=<password retrieved from zman dgcs>;

Example 12-2   *Example for Linux Primary Server:*

Open the terminal and set the following variables based on the existing configuration.
   - export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib;`

     export LD_LIBRARY_PATH=`/opt/novell/zenworks/share/pgsql/lib;`
   - export PATH=$PATH:`/opt/novell/zenworks/share/pgsql/bin;`

     export PATH=$PATH:`/opt/microfocus/zenworks/share/pgsql/bin;`

     On SLES 15: export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib:/opt/microfocus/zenworks/share/pgsql/stackbuilder/lib; export LD_LIBRARY_PATH`

     On SLES 15, the *no version information available* error message can be ignored.
   - export PGPORT=54327;
   - export PGDATA=`/var/opt/novell/pgsql/data;`

     export PGDATA=`/var/opt/microfocus/pgsql/data;`
   - export PGUSER=<super user retrieved from zman dgcs>;
   - export PGDATABASE=postgres;
   - export PGPASSWORD=<password retrieved from zman dgcs>;

Moving the Data from an Embedded PostgreSQL Database to an External PostgreSQL Database   **65**

6. Run the following commands to back up both the databases (ZENworks and Audit):

- **On Linux:**

    - cd `/opt/novell/zenworks/share/pgsql/bin/`

      cd `/opt/microfocus/zenworks/share/pgsql/bin/`

    - `./pg_dumpall > "<path to sql file>"`

      Example: `./pg_dumpall > /tmp/postgres_dump.sql`

    - docker exec -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres pg_dumpall > /tmp/dump.sql

      Example: docker exec -e PGUSER=zenpostgres -e PGDATABASE=postgres -e PGPASSWORD=Zw0#43cf4525d0f5df6395bbbec9c zenpostgres pg_dumpall > /tmp/dump.sql

      NOTE: You can ignore the no version information available error message.

7. On the Primary Server on which the Embedded Database is installed (source database), Stop the **NovellMicro Focus ZENworks Embedded Datastore** service using the following steps:

    On Linux: Run the following command to start the NovellMicro Focus ZENworks Embedded Datastore – PostgreSQL service.

    - **On SLES 12:** `systemctl stop zenpostgresql.service`
    - **On other SLES versions:** `/etc/init.d/zenpostgresql stop`

Step 2: Restore the Database on an External Server

NOTE: ZENworks no longer supports Windows Server as a Primary Server from version 24.2 onwards. For more information, see End of Support Windows Primary Server.

Perform the following steps on an external server on which you want to move the PostgreSQL database. After installing PostgreSQL on an external server, ensure that the PostgreSQL database service is running.

To restore the database on an external database server, perform the following steps:

1. Set the following environment variables:

    - PGPORT: <target DB port>
    - PGUSER: <target super user for postgres DB>
    - PGDATABASE: <target initial connection database name> default is postgres
    - PGPASSWORD: <password for the above super user i.e. PGUSER>

      Example 12-3 Example for Linux Primary Server:

      Open the terminal and set the following variables based on the existing configuration.

      - export LD_LIBRARY_PATH=`<postgres installation path>/lib;`
      - export PATH=$PATH:`<postgres installation path>/bin;`
      - export PGPORT=<Port on which PostgreSQL is configured>;

- export PGUSER=<Postgres super user>;
- export PGDATABASE=postgres;
- export PGPASSWORD=<PostgreSQL super user password>;

2. Login as PostgreSQL super user and manually create the database using the following query for the databases that should be restored:

   `create database <DB name> with template=template0 encoding='UTF8';`

   For example:

   - **ZENworks Database:** `create database zenworks with template=template0 encoding='UTF8';`
   - **Audit Database:** `create database zenworksaudit with template=template0 encoding='UTF8';`

3. Copy the `postgres_dump.sql` file that was created in Step 1: Backup the Database on the Embedded Primary Server to the target device.

4. Restore the database from the backup taken in Step 1: Backup the Database on the Embedded Primary Server, by running the following commands:

   - In the Terminal, run the following commands as PostgreSQL user:

     - `cd <postgres installation path>/bin`
     - `./psql -v ON_ERROR_STOP=0 -f /tmp/postgres_dump.sql -o /tmp/postgres_dump _log.txt -L /tmp/postgres_dump_log.log > /tmp/postgres_dump_log.err 2>&1`
     - docker exec -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres pg_dumpall > /tmp/dump.sql

       Example: docker exec -e PGUSER=zenpostgres -e PGDATABASE=postgres -e PGPASSWORD=Zw0#43cf4525d0f5df6395bbbec9c zenpostgres pg_dumpall > /tmp/dump.sql

       NOTE: You can ignore the no version information available error message.

5. After Restoring the database, log into the ZENworks database, and run the below query to delete the database role for the device that has the embedded PostgreSQL database installed by running the following query on the external database server:

   `delete from zZenServerRoles where Roles = 'Database';`

   `commit;`

6. Update the following changes in `zdm.xml` and `zenaudit.xml` for all the Primary Servers in the zone:

   - Delete the `<entry key="Embedded">true</entry>`.
   - Update the value of the Port key with the port on which the external PostgreSQL database is configured.

     `<entry key="Port"><PORT-of-target-DB-device></entry>`

7. Update the server key value in the `zdm.xml` and `zenaudit.xml` files as shown below:

   - In the target database server, add the loopback IP address.

     `<entry key="Server"><target_database_server-IP></entry>`

- In all the other Primary Server, add the IP of the target database server.

    ```
    <entry key="Server"><target_database_server-IP></entry>
    ```

8. In the new database server, run the following configure actions: `microfocus-zenworks-configure -c GenerateOSPProperties`

9. Run `microfocus-zenworks-configure -c`

`GenerateContentDatasourceConfigureAction` on all the content servers.

10. After updating the changes, restart all the ZENworks services by running the `novell-zenworks-configure -c Startmicrofocus-zenworks-configure -c Start` configure action.

11. Ensure that the **NovellMicro Focus ZENworks Embedded Datastore** service is disabled and not running on the Primary Server that hosted the Embedded PostgreSQL database.

12. The ZENworks Server now points to new database.

    Ensure that you can successfully log into ZCC. After logging into ZCC, go to the Diagnostics page and in the ZENworks Databases panel, verify the Host IP addresses and also verify that the Audit database is connected.

IMPORTANT: Before migrating the database, if you had configured the Vertica database in your zone, then after migration, ensure that you re-create the Kafka connectors in the zone, to resume the syncing of data from the new database to Vertica. To re-create the connectors, you need to run the command `zman server-role-kafka-recreate-connectors -f` on one of the servers in which Kafka is installed. While executing this command, ensure that the source database is up and running. After the Kafka connectors are created successfully, you can then disable the source database. For more information, see the .

---

13 Moving an Embedded PostgreSQL Database from One Primary Server to another Primary Server

ZENworks enables you to move the embedded database from one Primary Server to another Primary Server or Appliance. Perform the steps provided in the following section to move the database from one Primary Server to another Primary Server.

- "Important Commands and Locations" on page 69
- "Moving an Embedded PostgreSQL Database from One Primary Server to another Primary Server" on page 70

NOTE: ZENworks no longer supports Windows Server as a Primary Server from version 24.2 onwards. For more information, see End of Support Windows Primary Server.

Important Commands and Locations

This section provides some of the command and locations that will be used quite frequently while moving the data. Ensure that you keep the following information handy while initiating the data migration:

- The ZENworks database and Audit database names on the embedded PostgreSQL database are available in `zdm.xml` and `zenaudit.xml` files. These files are available in the following location:

  Check the **Database** key to get the database name.

  `%ZENWORKS_HOME%\conf\datamodel\`

  `/etc/opt/microfocus/zenworks/datamodel`

  `/etc/opt/novell/zenworks/datamodel/`

  Example:

  <entry key="Database">zenworks</entry>

  <entry key="Database">zenworksaudit</entry>

- The database details can be retrieved by running the following commands:
  - `zman dgc`: Retrieves the database credentials used to connect to the embedded database.
  - `zman dgca`: Retrieves the database credentials used to connect to the audit embedded database.

- **zman dgcs**: Retrieves the database credentials of super user that is used to connect to the embedded database.

- **zman dgcam**: Retrieves the database credentials of the Antimalware database.

◆ **IMPORTANT:** The user that should be used in the following steps (unless explicitly mentioned) should be any user (administrator) who has privileges to control and monitor ZENworks services.

◆ To connect to the database, see Connecting to the Embedded PostgreSQL Database.

Moving an Embedded PostgreSQL Database from One Primary Server to another Primary Server

Moving the data is a two step process:

◆ "Step 1: Backup the Database" on page 70

◆ "Step 2: Restoring the Database" on page 74

IMPORTANT: While moving the database, we refer the source database server as PSDB1 and the destination database server as PSDB2.

NOTE: ZENworks no longer supports Windows Server as a Primary Server from version 24.2 onwards. For more information, see End of Support Windows Primary Server.

Step 1: Backup the Database

Backup the Database on the Embedded Windows Primary Server (PSDB1)

1. Before executing the following steps, ensure that you have reviewed the information documented in the section Important Commands and Locations.

   Ensure that you have noted the database username, password of the source Primary Server by running the zman dgcs command.

2. Stop the ZENworks Services on all the Primary Servers by running the following configure action:

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

   After running the command, under Action, select Stop.

3. On the Primary Server on which the Embedded Database is installed (PSDB1), start the **NovellMicro Focus ZENworks Embedded Datastore** service using the following steps:

   On Windows: Press the **Win + R** keys on the keyboard to open the Run window. Type *services. msc* and then hit Enter.

   Start the *NovellMicro FocusZENworks Embedded Datastore – PostgreSQL* service.

4. Login to the Primary Server that has the database role.

To know the Primary Server that has the database role, log into ZCC and click Diagnostics.

5. On the Primary Server on which the Embedded Database is installed (PSDB1), initiate the backup by setting the following variables:

NOTE: This step is required for Windows only.

- PGPORT: <existing source DB port configured>

  By default, ZENworks uses 54327

- PGDATA: <embedded_database_location>

- PGUSER: <existing super user for ZENworks postgres DB> The default user for ZENworks is zenpostgres.

- PGDATABASE: <existing database name> ZENworks default is postgres

- PGPASSWORD: <password for the above super user PGUSER>

Example 13-1   *Example for Windows Primary Server*

Open the command prompt and set the following variables based on the existing configuration.

- SET PGPORT=54327

- SET PGDATA=%ZENWORKS_HOME%\database\pgsql\data%ZENSERVER_HOME%\database\pgsql\data

- SET PGUSER=<super user retrieved from zman dgcs>

- SET PGDATABASE=postgres

- SET PGPASSWORD=<password retrieved from zman dgcs>;

6. Run the following commands to back up both the databases (ZENworks and Audit):

- cd "%ZENWORKS_HOME%\share\postgres\bin\"

  cd "%ZENSERVER_HOME%\share\postgres\bin\"

- pg_dumpall.exe > "<path to sql file>"

  Example: pg_dumpall.exe > c:\postgres_dump.sql

7. On the Primary Server on which the Embedded Database is installed, Stop the **NovellMicro Focus ZENworks Embedded Datastore** service using the following steps:

   On Windows: Press the **Win + R** keys on the keyboard to open the Run window. Type *services. msc* and then hit Enter.

   Stop the *Novell ZENworks Embedded Datastore – PostgreSQL* service.

   Stop the *Micro Focus ZENworks Embedded Datastore – PostgreSQL* service.

8. Copy the postgres_dump.sql file to the target Primary Server.

9. Copy the dmsuperaccount.properties file from source Primary Server to the target Primary Server.

   The dmsuperaccount.properties file is available in the following location:

- On Linux: /etc/opt/novell/zenworks/datamodel/

- On Windows: %zenworks_home%\conf\datamodel\

Backup the Database on the Embedded Primary Server (PSDB1)

1. Before executing the following steps, ensure that you have reviewed the information documented in the section Important Commands and Locations.

   Ensure that you have noted the database username, password of the source Primary Server by running the `zman dgcs` command. Also, copy the target Primary Server's GUID details, which is required while restoring the database.

2. Stop the ZENworks Services on all the Primary Servers by running the following configure action:

   `novell-zenworks-configure -c Start`

   `microfocus-zenworks-configure -c Start`

   After running the command, under Action, select Stop.

3. Log in to the Primary Server that has the database role.

4. On the Primary Server on which the Embedded Database is installed (PSDB1), start the Micro Focus ZENworks Embedded Datastore service using the following command on SLES 12 and later:

   `systemctl start zenpostgresql.service`

5. Run the following commands to back up the databases (ZENworks and Audit):

   `docker exec -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres pg_dumpall > /tmp/dump.sql`

   Example: `docker exec -e PGUSER=zenpostgres -e PGDATABASE=postgres -e PGPASSWORD=Zw0#3dde8547adb388306de141850 zenpostgres pg_dumpall > /tmp/dump.sql`

   NOTE: You can ignore the no version information available error message.

   ---

6. Start the Micro Focus ZENworks Embedded Datastore service using the following command:

   - **On SLES 12 and later**: `systemctl start zenpostgresql.service`

   NOTE: Keep the `/tmp/dump.sql` in a safe place as it has the database backup.

Backup the Database on the Embedded Linux Primary Server (PSDB1)

1. Before executing the following steps, ensure that you have reviewed the information documented in the section Important Commands and Locations.

   Ensure that you have noted the database username, password of the source Primary Server by running the `zman dgcs` command. Also, copy the target Primary Server's GUID details, which is required while restoring the database.

2. Stop the ZENworks Services on all the Primary Servers by running the following configure action:

   `novell-zenworks-configure -c Start`

   `microfocus-zenworks-configure -c Start`

   After running the command, under Action, select Stop.

3. Log in to the Primary Server that has the database role.

4. On the Primary Server on which the Embedded Database is installed (PSDB1), start the **NovellMicro FocusZENworks Embedded Datastore** service using the following steps:

   Run the following command to start the NovellMicro FocusZENworks Embedded Datastore – PostgreSQL service.

   - **On SLES 12 and later:** `systemctl start zenpostgresql.service`
   - **On SLES 11:** `/etc/init.d/zenpostgresql start`

5. Login to the Primary Server that has the database role.

6. Initiate the backup by setting the following variables:

   NOTE: This step is required for Windows only.

   - PGPORT: <existing source DB port configured>

     By default, ZENworks uses 54327

   - PGDATA: <embedded_database_location>

   - PGUSER: <existing super user for ZENworks postgres DB> The default user for ZENworks is zenpostgres.

   - PGDATABASE: <existing database name> ZENworks default is postgres

   - PGPASSWORD: <password for the above super user PGUSER>

   Example 13-2 *Example for Linux Primary Server:*

   Open the terminal and set the following variables based on the existing configuration.

   - export LD_LIBRARY_PATH=`/opt/novell/zenworks/share/pgsql/lib;`

     export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib;`

   - export PATH=`$PATH:/opt/novell/zenworks/share/pgsql/bin;`

     On SLES 15: export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib:/opt/microfocus/zenworks/share/pgsql/stackbuilder/lib; export LD_LIBRARY_PATH`

     On SLES 15, the *no version information available* error message can be ignored.

   - export PGPORT=`54327;`

   - export PGDATA=`/var/opt/novell/pgsql/data;`

     export PGDATA=`/var/opt/microfocus/pgsql/data;`

   - export PGUSER=`<super user retrieved from zman dgcs>;`

   - export PGDATABASE=`postgres;`

   - export PGPASSWORD=`<password retrieved from zman dgcs>;`

7. Run the following commands to back up both the databases (ZENworks and Audit):

   - cd `/opt/novell/zenworks/share/pgsql/bin/`

     cd `/opt/microfocus/zenworks/share/pgsql/bin/`

   - `./pg_dumpall > "<path to sql file>"`

     Example: `./pg_dumpall > /tmp/postgres_dump.sql`

- docker exec -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres pg_dumpall > /tmp/dump.sql

  Example: docker exec -e PGUSER=zenpostgres -e PGDATABASE=postgres -e PGPASSWORD=Zw0#43cf4525d0f5df6395bbbec9c zenpostgres pg_dumpall > /tmp/dump.sql

  NOTE: You can ignore the no version information available error message.

8. On the Primary Server on which the Embedded Database is installed, Stop the **NovellMicro Focus ZENworks Embedded Datastore** service using the following steps:

   Run the following command to start the NovellMicro Focus ZENworks Embedded Datastore – PostgreSQL service.

   - **On SLES 12 and later:** `systemctl stop zenpostgresql.service`
   - **On SLES 11:** `/etc/init.d/zenpostgresql stop`

9. Copy the `postgres_dump.sql` file to the target Primary Server.

10. Copy the dmsuperaccount.properties file from source Primary Server to the target Primary Server.

    The `dmsuperaccount.properties` file is available in the following location:

    - On Linux: /etc/opt/novell/zenworks/datamodel/
    - On Windows: %zenworks_home%\conf\datamodel\

Step 2: Restoring the Database

Depending on the target database platform, refer to the following section to restore the database:

Restore the Database on a Windows Primary Server (PSDB2)

If you are planning to restore the database on a Windows server, then perform the following steps:

NOTE: While restoring the database, if the following error is displayed, then install the `vc_redist.x64.exe` and try again.
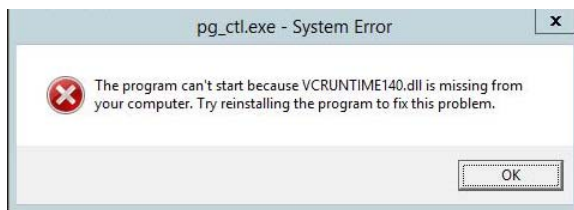
The `vc_redist.x64.exe` file is available in the following location:

`<zenworks_mount_directory>: \Common\include`

1 Install PostgreSQL by running the following command:

`msiexec /i <postgresql_MSI_FILE> TARGETDIR="%ZENWORKS_HOME%\share" ALLUSERS=2`

```
msiexec /i <postgresql_MSI_FILE>
TARGETDIR="%ZENSERVER_HOME%\install\downloads\msi" ALLUSERS=2
```

For example:

```
msiexec /i "%ZENWORKS_HOME%\install\downloads\msi\novell-zenworks-
postgres-11.4.x86_64.msi" TARGETDIR="%ZENWORKS_HOME%\share" ALLUSERS=2
```

```
msiexec /i "%ZENSERVER_HOME%\install\downloads\msi\microfocus-zenworks-
postgres-12.412.14.x86_64.msi" TARGETDIR="%ZENSERVER_HOME%\share"
ALLUSERS=2
```

2 After installing the PostgreSQL, if the database folder is not available, create the folder as shown below folder structure, and ensure that you give write permission to the folder:

`%ZENWORKS_HOME%\database\pgsql\data`

`%ZENSERVER_HOME%\database\pgsql\data`

To provide write permissions, perform the following steps:

1. In Windows Explorer, right-click a file or folder and select Properties.
2. In the Properties window, click the Security tab.
3. In Group or user names, select a user, and then click Edit.
4. In the Permissions window, select the logged in user.
5. Select Allow for the Write permission and then click OK or Apply.

3 Open the command prompt, and then set the following environment variables:

- PGDATA: <embedded_database_location>
- PGPORT: <existing source DB port configured> ZENworks default is 54327
- PGDATABASE: <existing database name> ZENworks default is postgres

Example:

- PGDATA=%ZENSERVER_HOME%\database\pgsql\data
- PGPORT=54327
- PGDATABASE=postgres

4 Go to `%ZENWORKS_HOME%\share\postgres\bin%ZENSERVER_HOME%\share\postgres\bin`, and then run the `pg_ctl.exe initdb` command.

5 In PSDB2, edit the `pg_hba.conf` and `postgresql.conf` files as shown below:

The `pg_hba.conf` and `postgresql.conf` files are available in the following location:

`%ZENWORKS_HOME%\database\pgsql\data`

`%ZENSERVER_HOME%\database\pgsql\data`

On Linux:

`/etc/opt/novell/zenworks/datamodel/`

`/etc/opt/microfocus/zenworks/datamodel/`

- In the `pg_hba.conf` file, update the content as shown below:

```
# TYPE DATABASE   USER    ADDRESS        METHOD
# IPv4 local connections:
host    all             all             127.0.0.1/32             trust
# IPv6 local connections:
host    all             all             ::1/128                  trust
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                      trust
host    replication     all             127.0.0.1/32             trust
host    replication     all             ::1/128                  trust
host    all     all     0.0.0.0/0    trust
host    all     all     ::0/0    trust
```

NOTE: Ensure that you replace trust with to md5 value in the pg_hba.conf.

- In the `postgresql.conf` file, uncomment the *listen_addresses* and *Port* entry keys and update the values as shown below:

  listen_addresses = ''*

  Port= 54327

  max_connections = 500

6 Restart the server.

7 After restarting the server, open the command prompt, go to `%ZENWORKS_HOME%\share\postgres\bin%ZENSERVER_HOME%\share\postgres\bin`, and then set the following environment variables:

SET PGDATA=`%ZENWORKS_HOME%\database\pgsql\data%ZENSERVER_HOME%\database\pgsql\data`

SET PGPORT=54327

SET PGDATABASE=postgres

NOTE: Since the device was restarted, you need to set these environment variables again.

8 Run the `pg_ctl.exe start` command.

9 To connect to the destination database server (PSDB2), run the `psql.exe -w postgres` command. By default, postgres is the database name.

In the same window, you will be logged into the PostgreSQL database.

The get the database details, see "Important Commands and Locations" on page 69.

10 Run the following command:

```
create user zenpostgres with password '<password that was obtained
using zman dgcs>';
```

Example:

```
create user zenpostgres with password 'Zw0#dd5352592267b601daa85cb39';
```

11 Create the database for ZENworks and Audit databases, run the following command:

```
create database <DB name> with template=template0 encoding='UTF8';
```

For Example:

ZENworks Database:

```
create database zenworks with template=template0 encoding='UTF8';
```

Audit Database:

```
create database zenworksaudit with template=template0 encoding='UTF8';
```

If you have enabled Antimalware, then run the following:

NOTE: ◆ Names of the databases that are being created should exactly match (considering case) with the source database names.

  ◆ The source database names can be retrieved from the zdm.xml and zenaudit.xml files in the source database server. For more information on the file location, see "Important Commands and Locations" on page 69

---

12 Quit `psql`.

To quit `psql`, you use `\q` command and press enter to exit psql.

13 Copy the '`postgres_dump.sql`' file that was created in "Step 1: Backup the Database" on page 70 to PSDB2.

14 Restore the database by running the following command:

```
psql.exe -v ON_ERROR_STOP=0 -f <dump_location> -o <log_location> -L
<log_location> > <error_log_location> 2>&1
```

  ◆ `-f <filename>`: Uses the file filename as the source of SQL commands.

  ◆ `-L <filename>`: Writes all query output into the file, in addition to the normal output destination.

  ◆ `-o <filename>`: Logs all query output into the file.

  ◆ All the errors will be redirected to `<error_log_location>`.

For Example:

```
psql.exe -v ON_ERROR_STOP=0 -f c:\tmp\postgres_dump.sql -o
c:\tmp\postgres_log.txt -L c:\tmp\postgres_log.log
>c:\postgres\postgres_log.err 2>&1
```

NOTE: The database was already created in Step 11 of the Restore process. Hence, ERROR about invalid locale should be ignored.

---

15 In the destination database server (PSDB2), change the server key in `zdm.xml` and `zenaudit.xml`, available in the following location with the local host address 127.0.0.1:

```
%ZENWORKS_HOME%\database\pgsql\data
```

```
%ZENSERVER_HOME%\database\pgsql\data
```

Example: <entry key="Server">127.0.0.1</entry>

16 In the new database server (PSDB2), run the following configure actions:

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

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

17 In all the other Primary Server (except destination database server (PSDB2)), update the value of the server key with the IP address of the new database server in `zdm.xml` and `zenaudit.xml` and `amedatasource.properties`.

```
<entry key="Server"><IP-of-PSDB2></entry>
```

Example: `<entry key="Server">10.1.1.2</entry>`

18 On the destination database server (PSDB2), create the database service by running the following command:

```
"%ZENSERVER_HOME%\share\postgres\bin\pg_ctl.exe" register -N "Micro
Focus ZENworks Embedded Datastore - PostgreSQL" -U LocalSystem -D
"%ZENSERVER_HOME%\database\pgsql\data" -S auto

"%ZENWORKS_HOME%\share\postgres\bin\pg_ctl.exe" register -N "Novell
ZENworks Embedded Datastore - PostgreSQL" -U LocalSystem -D
"%ZENWORKS_HOME%\database\pgsql\data" -S auto
```

19 Set the description of the service by running the following command:

```
sc description "Novell ZENworks Embedded Datastore - PostgreSQL"
"Embedded datastore used for storing ZENworks objects and resources."

sc description "Micro Focus ZENworks Embedded Datastore - PostgreSQL"
"Embedded datastore used for storing ZENworks objects and resources."
```

20 Go to the `"%ZENWORKS_HOME%\share\postgres\bin\"` location and run the `pg_ctl.exe stop` command.

Go to the `"%ZENSERVER_HOME%\share\postgres\bin\"` location and run the `pg_ctl.exe stop` command.

You can also Stop the PostgreSQL Embedded Datastore service.

21 In PSDB2, update the `pg_hba.conf` file, and the file should be similar to as shown below:

```
# TYPE  DATABASE          USER              ADDRESS                    METHOD

# IPv4 local connections:
host    all               all               127.0.0.1/32               md5
# IPv6 local connections:
host    all               all               ::1/128                    md5
# Allow replication connections from localhost, by a user with the
# replication privilege.
host    replication       all               127.0.0.1/32               md5
host    replication       all               ::1/128                    md5
host    all     all       0.0.0.0/0    md5
host    all     all       ::0/0    md5
```

Now, you will be able to log into PostgreSQL using the `psql.exe -W postgres`, with the password that was obtained by running the `zman dgcs` command.

22 Start the NovellMicro Focus ZENworks Embedded Datastore service by performing the following steps:

   ◆ Press **Win + R** shortcut keys on the keyboard. In the Run dialogue, type *services.msc*, and then click **OK**.

   ◆ Select the `Novell ZENworks Embedded Datastore - PostgreSQLMicro Focus ZENworks Embedded Datastore - PostgreSQL` service and then click **Start**.

23 Start the ZENworks services by running the `novell-zenworks-configure -c Startmicrofocus-zenworks-configure -c Start` command.

   Ensure that Embedded PostgreSQL service is listed before Starting the services.

24 In the new database server (PSDB2), run the following configure actions:

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

25 Run `microfocus-zenworks-configure -c`
`GenerateContentDatasourceConfigureAction` on all the ZENworks servers.

26 Start the ZENworks services on the PSDB1 server by running the `novell-zenworks-`
`configure -c Startmicrofocus-zenworks-configure -c Start` command.

> **NOTE:** Ensure that the ~~Novell~~Micro Focus ZENworks Embedded Datastore service is not running anymore on the source database server (PSDB1) device. You can either rename the service file, or unregister or remove the PSDB1 server.
>
> To disable the service, perform the following steps:
>
> 1. Press Windows + R keys
>
> 2. Type services.msc.
>
> 3. Search for the Novell ZENworks Embedded Datastore - PostgreSQL service.
>
> 4. Right-click the option and then select Properties.
>
> 5. In the Startup type drop-down, select Disabled, and then click OK.
>
> After disabling, the service will not start after the system restart.

27 Assign the database role to PSDB2 by running the query command in the pgadmin or any other client that can connect to PostgreSQL database server:

```
update zZenServerRoles set id='\x<PSDB2_GUID>', position=(select
max(position)+1 from zZENServerRoles where id='\x<PSDB2_GUID>') where
Roles='Database'
commit;
```

Example:

```
update zZenServerRoles set id='\xB66A9EA0D88A53B0801C07D5B44A5FE9',
position=(select max(position)+1 from zZENServerRoles where
id='\xB66A9EA0D88A53B0801C07D5B44A5FE9') where Roles='Database';
```

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

```
MigrateServerRoleConfigureAction -DsourceGuid=<First PS GUID> -
DdestGuid=<second PS GUID> -Drole= Database
```

28 Assign the database role to PSDB2 by running the query command in the pgadmin or any other client that can connect to PostgreSQL database server:

```
microfocus-zenworks-configure -c MigrateServerRoleConfigureAction -
DsourceGuid=<First PS GUID> -DdestGuid=<second PS GUID> -Drole=
Database
```

Example: `microfocus-zenworks-configure -c`
`MigrateServerRoleConfigureAction -`
`DsourceGuid=d1632252c35422d79d715b1e24b6de03 -`
`DdestGuid=8d1878f8062c3ab74baf713bc8b0ccd8 -Drole=Database`

29 The ZENworks Server now points to new database.

Ensure that you can successfully log into ZCC. After logging into ZCC, go to the Diagnostics page and in the ZENworks Databases panel, verify the Host IP addresses and also verify that the Audit database is connected.

Restore the Database on a Linux Primary Server or Appliance Server (PSDB2)

On a Linux Primary Server or an Appliance Server, perform the following steps:

1 Install PostgreSQL by performing the following steps:

On Appliance, perform the steps as a root user.

  ◆ Open the terminal in the following path:

    `/opt/novell/zenworks/install/downloads/rpm`

    `/opt/microfocus/zenworks/install/downloads/rpm`

  ◆ Run `rpm -Uvh <Postgre_RPM_File>`

    For example,

    `rpm -Uvh novell-zenworks-postgresql-11.4-1.x86_64.rpm`

    `rpm -Uvh microfocus-zenworks-postgresql-<version>.rpm`

NOTE: For setting the environment variables and running the database commands, ensure that you switch to the zenpostgres user (su zenpostgres).

---

2 Load zenpostgres docker by running the following command:

```
docker load -i /opt/microfocus/zenworks/docker-images/
zenpostgres.tar.gz
```

3 Set the following environment variables:

  ◆ **PGPORT**:<target DB port>
  ◆ **PGDATA**:<database_path>
  ◆ **PGDATABASE**:<target initial connection database name> preferable is postgres

---

NOTE: It is recommended that you run the database commands in one terminal and other operations such as file edit (`pg_hba.conf` and `postgresql.conf`) in another terminal.

Example 13-3   Open the terminal prompt and set the following variables based on the existing configuration.

  ◆ export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib;`
    export LD_LIBRARY_PATH=`/opt/novell/zenworks/share/pgsql/lib;`
  ◆ export PATH=$PATH:`/opt/microfocus/zenworks/share/pgsql/bin;`
    export PATH=$PATH:`/opt/novell/zenworks/share/pgsql/bin;`
  ◆ export PGPORT=54327;
  ◆ export PGDATA=`/var/opt/microfocus/pgsql/data;`
    export PGDATA=`/var/opt/novell/pgsql/data;`
  ◆ export PGDATABASE=postgres;

After setting the variables, open terminal in the following location perform the next steps:

`/opt/microfocus/zenworks/share/pgsql/bin`

4 Create postgres data directory by running the following command:

```
mkdir -p /var/opt/microfocus/pgsql/data
```

5 Open a terminal as Linux, and run the `./pg_ctl initdb` command.

6 Enable and start `zenpostgresql` service by running the following commands:

 ◆ `systemctl enable zenpostgresql.service`

 ◆ `systemctl start zenpostgresql.service`

NOTE: Wait for postgres database to start. Running the following command displays if the database system is ready to accept connections:

```
docker logs zenpostgres
```

---

7 Edit the `pg_hba.conf` and `postgresql.conf` files file as shown below:

The `pg_hba.conf` and `postgresql.conf` files arefile is available in the following location:

```
/var/opt/microfocus/pgsql/data
```

```
/var/opt/microfocus/pgsql/data
```

 ◆ In the `pg_hba.conf` file, update the content as shown below:

```
# TYPE DATABASE   USER    ADDRESS        METHOD
# "local" is for Unix domain socket connections only
local   all             all                                     trust
# IPv4 local connections:
host    all             all             127.0.0.1/32            trust
# IPv6 local connections:
host    all             all             ::1/128                 trust
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                     trust
host    replication     all             127.0.0.1/32            trust
host    replication     all             ::1/128                 trust
host    all     all     0.0.0.0/0    trust
host    all     all     ::0/0    trust
```

 ◆ In the `postgresql.conf` file, uncomment the *listen_addresses* and *Port* entry keys and update the values as shown below:

 listen_addresses = ''*

 Port= 54327

 max_connections = 500

8 Open command prompt, and go to `/opt/novell/zenworks/share/pgsql/bin`, and then run the `./pg_ctl start` command.

Open command prompt, and go to `/opt/microfocus/zenworks/share/pgsql/bin`, and then run the `./pg_ctl start` command.

Restart postgres by running the following command for changes to take effect:

```
systemctl restart zenpostgresql.service
```

9 To log into the database, run `docker exec -it zenpostgres psql -w postgres`.

10 To log into the database, run `./psql -w postgres`. By default, postges is the database name.

11 After login, run the `ALTER USER zenpostgres with PASSWORD '<zenpostgres_password>';` command.

> **NOTE:** Ensure that you are a zenpostgres user before restoring as PostgreSQL user.

Example:

```
ALTER USER zenpostgres with PASSWORD 'Zw0#ff511c5b77e3fe97a4337431b';
```

12 Drop the following databases and users:

```
drop database zenworks;
```
```
drop database zenworksaudit;
```
```
drop user zenadmin;
```
```
drop user zenauditadmin;
```

13 Manually create the database using the following query:

```
create database <DB name> with template=template0 encoding='UTF8';
```

For Example:

- ◆ **ZENworks Database:**

  create database zenworks with template=template0 encoding='UTF8';

- ◆ **Audit Database:**

  create database zenworksaudit with template=template0 encoding='UTF8';

> **NOTE:** ◆Names of the databases that are being created should exactly match (considering case) with the source database names.
>
> ◆ The source database names can be retrieved from the zdm.xml and zenaudit.xml files in the source database server. For more information on the file location, see "Important Commands and Locations" on page 69

14 Manually create the database using the following query:

```
create database <DB name> with template=template0 encoding='UTF8';
```

For Example:

ZENworks Database:

```
create database zenworks with template=template0 encoding='UTF8';
```

Audit Database:

```
create database zenworksaudit with template=template0 encoding='UTF8';
```

If you have enabled Antimalware, then run the following:

Antimalware Database:

```
create database zenamdatabase with template=template0 encoding='UTF8'
```

> **NOTE:**
>
> - ◆ Names of the databases that are being created should exactly match (considering case) with the source database names.
>
> - ◆ The source database names can be retrieved from the zdm.xml and zenaudit.xml files in the source database server. For more information on the file location, see "Important Commands and Locations" on page 69.

15 Ensure that the PostgreSQL user has access to the dump being imported.

16 Quit psql.

To quit psql, you use \q command and press enter to exit psql.

17 Copy the `postgres_dump.sql` to `/var/opt/microfocus/pgsql/data`.

Ensure that all users have read access to the dump being imported.

18 Go to the `/opt/novell/zenworks/share/pgsql/bin/opt/microfocus/zenworks/share/pgsql/bin` location and run the following command to restore the database as PostgreSQL user:

Run the following command to restore the database as PostgreSQL user:

```
./psql -v ON_ERROR_STOP=0 -f <dump_location> -o <log_location> -L
<log_location> > <error_log_location> 2>&1
```

```
docker exec zenpostgres psql -w postgres -v ON_ERROR_STOP=0 -f /var/
opt/microfocus/pgsql/data/<dump_file> -o /var/opt/microfocus/pgsql/
data/<log_file> -L /var/opt/microfocus/pgsql/data/<log_file> >
<error_log_location> 2>&1
```

* `-f <filename>`: Uses the file filename as the source of SQL commands.
* `-L <filename>`: Writes all query output into the file, in addition to the normal output destination.
* `-o <filename>`: Logs all query output into the file.
* All the errors will be redirected to `<error_log_location>`.

NOTE: Only /var/opt/microfocus/pgsql/data is accessible by zenpostgres. Hence, keep dump and logs in the same path.

For example:

```
./psql -v ON_ERROR_STOP=0 -f /tmp/postgres_dump.sql -o /tmp/
postgres_log.txt -L /tmp/postgres_log.log > /tmp/postgres_log.err 2>&1
```

NOTE: The database was already created in Step 8 of the Restore process. Hence, ERROR about invalid locale should be ignored.

```
docker exec zenpostgres psql -w postgres -v ON_ERROR_STOP=0 -f /var/
opt/microfocus/pgsql/data/dump.sql -o /var/opt/microfocus/pgsql/data/
postgres_log.txt -L /var/opt/microfocus/pgsql/data/postgres_log.log > /
var/opt/microfocus/pgsql/data/postgres_log.err 2>&1
```

19 In the destination database server (PSDB2), change the server key in `zdm.xml` and `zenaudit.xml` available in the following location with the localhost address 127.0.0.1:

`/etc/opt/novell/zenworks/datamodel`

Example: `<entry key="Server">127.0.0.1</entry>`

20 In the PSDB2, edit the `pg_hba.conf` file, and the file should be similar to as shown below:

```
# TYPE  DATABASE        USER            ADDRESS                 METHOD

# "local" is for Unix domain socket connections only
local   all             all                                     md5
# IPv4 local connections:
host    all             all             127.0.0.1/32            md5
# IPv6 local connections:
host    all             all             ::1/128                 md5
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                     md5
host    replication     all             127.0.0.1/32            md5
host    replication     all             ::1/128                 md5
host    all     all     0.0.0.0/0    md5
```

Now, you will be able to log into PostgreSQL using the `./psql -W postgres`, with the password that was obtained by running the `zman dgcs` command.

21 In all the other Primary Server (except destination database server (PSDB2)), update the value of the server key with the IP address of the destination database server in `zdm.xml` and `zenaudit.xml`.

`<entry key="Server"><PSDB2_IP></entry>`

Example: `<entry key="Server">10.1.1.2</entry>`

22 Restart postgres by running the `systemctl restart zenpostgresql.service` command for changes to take effect.

23 In the destination database server (PSDB2), change the server key in `zdm.xml` and `zenaudit.xml` available in the following location with the localhost address 127.0.0.1:

`/etc/opt/novell/zenworks/datamodel`

Example: `<entry key="Server">127.0.0.1</entry>`

`/etc/opt/microfocus/zenworks/datamodel`

`docker exec -it zenpostgres psql -W postgres`

24 Run the following configure action:

`microfocus-zenworks-configure -c GenerateOSPProperties`

`microfocus-zenworks-configure -c RegenerateOSPAuthCfgXml`

25 (Conditional) If Antimalware is configured run the following:

`microfocus-zenworks-configure -c ZENServicesFirewallConfigureAction -Dservice=antimalware -Doperation=ADD`

`microfocus-zenworks-configure -c AntimalwareServiceConfigureAction -Dam.service.action=start`

26 In the new database server (PSDB2), run the following configure action:

`microfocus-zenworks-configure -c GenerateOSPProperties`

`microfocus-zenworks-configure -c RegenerateOSPAuthCfgXml`

27 Run `microfocus-zenworks-configure -c GenerateContentDatasourceConfigureAction` on all the ZENworks servers.

28 Start ZENworks services on the destination database server (PSDB2) by running the `novell-zenworks-configure –c Startmicrofocus-zenworks-configure –c Start` command.

NOTE: Ensure that the ~~Novell~~Micro Focus ZENworks Embedded Datastore service is disabled and not running on the source database server (PSDB1). You can either rename the service file, or unregister or remove the PSDB1 server.

To disable the service, run the following command:

- **On SLES 11:** `chkconfig zenpostgresql off`
- **On SLES 12 and later:** `systemctl disable zenpostgresql.service`

After disabling, the service will not start after the system restart.

---

29 On all the Primary Servers, restart the ZENworks services by running the following command:

`novell-zenworks-configure -c Start`

`microfocus-zenworks-configure -c Start`

30 Assign the database role to destination database server (PSDB2) by running the following configure action:

`microfocus-zenworks-configure -c MigrateServerRoleConfigureAction -DsourceGuid=<First PS GUID> -DdestGuid=<second PS GUID> -Drole=Database`

Example: `microfocus-zenworks-configure -c MigrateServerRoleConfigureAction -DsourceGuid=d1632252c35422d79d715b1e24b6de03 -DdestGuid=8d1878f8062c3ab74baf713bc8b0ccd8 -Drole=Database`

31 On the Primary Server on which the Embedded Database is installed, stop the Micro Focus ZENworks Embedded Datastore service using the following steps:

Run the following command to start the Micro Focus ZENworks Embedded Datastore – PostgreSQL service.

On SLES 12 and later: `systemctl stop zenpostgresql.service`

32 In the PSDB2, edit the `pg_hba.conf` file, and the file should be similar to as shown below:

```
# TYPE  DATABASE        USER            ADDRESS                 METHOD

# "local" is for Unix domain socket connections only
local   all             all                                     md5
# IPv4 local connections:
host    all             all             127.0.0.1/32            md5
# IPv6 local connections:
host    all             all             ::1/128                 md5
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                     md5
host    replication     all             127.0.0.1/32            md5
host    replication     all             ::1/128                 md5
host    all     all     0.0.0.0/0    md5
```

Now, you will be able to log into PostgreSQL using the `./psql -W postgres`, with the password that was obtained by running the `zman dgcs` command.

33 Assign the database role to destination database server (PSDB2) by running the query command in the pgadmin or any other client that can connect to PostgreSQL database server:

```
update zZenServerRoles set id='\x<PSDB2_GUID>', position=(select
max(position)+1 from zZENServerRoles where id='\x<PSDB2_GUID>') where
Roles='Database'
commit;
```

Example:

```
update zZenServerRoles set id='\xB66A9EA0D88A53B0801C07D5B44A5FE9',
position=(select max(position)+1 from zZENServerRoles where
id='\xB66A9EA0D88A53B0801C07D5B44A5FE9') where Roles='Database';
```

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

```
MigrateServerRoleConfigureAction -DsourceGuid=<First PS GUID> -
DdestGuid=<second PS GUID> -Drole= Database
```

34 The ZENworks Server now points to new database.

Ensure that you can successfully log into ZCC. After logging into ZCC, go to the Diagnostics page and in the ZENworks Databases panel, verify the Host IP addresses and also verify that the Audit database is connected.

Restore the Database on a Primary Server or Appliance Server (PSDB2)

On a Linux Primary Server or an Appliance Server, perform the following steps:

1 Before executing the following steps, ensure that you have reviewed the information documented in the section Important Commands and Locations.

Ensure that you have noted the database username, password of the source Primary Server by running the zman dgcs command.

2 Stop all the ZENworks services on all Primary Servers by running the following configure action:

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

3 Load zenpostgres docker by running the following commands:

- ◆ `docker load -i /opt/microfocus/zenworks/docker-images/`
  `zenpostgres.tar.gz`
- ◆ `docker run --name tmp_postgres -d zenpostgres`
- ◆ `docker cp /tmp/dump.sql tmp_postgres:/var/opt/microfocus/pgsql/`

NOTE: The /tmp/dump.sql file is created in the backup step 5 of the "Backup the Database on the Embedded Primary Server (PSDB1)" on page 72

4 Get into the temporary postgres container by running the following command:

```
docker exec -it tmp_postgres bash
```

5 To check whether the database server is ready to accept connections, run the following commands:

- ◆ `cd /var/opt/microfocus/pgsql/data`
- ◆ `cat postmaster.log`

After executing the commands, the last line should say "Database system is ready to accept connections". If you did not see this message, wait for some time, and then execute the "cat postmaster.log" command again.

6 Perform the following steps to prepare the default database, for restore.

Run the `psql -W postgres` command. When prompted for a password, enter *novell* as the password.

> **6a** To change the default password, run the following SQL query:
>
> ```
> ALTER USER zenpostgres with PASSWORD '<Password>';
> ```
>
> Replace the `<Password>` in the above SQL query with the password you noted down in step 1 of the "Backup the Database on the Embedded Primary Server (PSDB1)" on page 72.
>
> Example: `ALTER USER zenpostgres with PASSWORD 'Zw0#3dde8547adb388306de141850';`

> **6b** Drop the following default databases and users:
>
> ```
> drop database zenworks;
> drop database zenworksaudit;
> drop user zenadmin;
> drop user zenauditadmin;
> drop database zenamdatabase;
> drop user zenamadmin;
> ```
>
> **NOTE:** Ignore errors related to missing database or users if any.

7 Exit the Postgres interactive terminal by executing the `exit` command.

8 To restore the database, run the following commands:

- `export PGPASSWORD= <password retrieved from zman dgcs>`

- `psql -w postgres -v ON_ERROR_STOP=0 -f /var/opt/microfocus/pgsql/ dump.sql -o /var/opt/microfocus/pgsql/dump.log -L /var/opt/ microfocus/pgsql/dump.log >/var/opt/microfocus/pgsql/dump.err 2>&1`

  NOTE: Execution of the above command may take time depending on the amount of data in the database.

9 Once the restore is completed successfully, exit the docker container by running the `exit` command.

10 To copy the database folder from the container to the host, run the following commands:

- `rm -rf /var/opt/microfocus/pgsql`

- `docker cp tmp_postgres:/var/opt/microfocus/pgsql/ /var/opt/ microfocus/`

- `rm -f /var/opt/microfocus/pgsql/data/postmaster.pid /var/opt/ microfocus/pgsql/data/postmaster.log`

11 To clean up the temporary container, run the following commands:

- `docker kill tmp_postgres`

- `docker container rm tmp_postgres`

12 To change the ownership of the data directory, run the following command:

```
chown -R 1026:1026 /var/opt/microfocus/pgsql/data
```

13 In the `postgresql.conf` file, under `/var/opt/microfocus/pgsql/data/`, uncomment the `listen_addresses` and `port` entry keys, and update the values as shown below:

```
listen_addresses = '*'

Port= 54327

max_connections = Number of primary severs * 500
```

14 Edit the `pg_hba.conf` and `postgresql.conf` files file as shown below:

The `pg_hba.conf` and `postgresql.conf` files arefile is available in the following location:

```
/var/opt/novell/pgsql/data
```

```
/var/opt/microfocus/pgsql/data
```

-   In the `pg_hba.conf` file, update the content as shown below:

    ```
    # TYPE DATABASE   USER    ADDRESS        METHOD
    # "local" is for Unix domain socket connections only
    local   all             all             md5
    # IPv4 local connections:
    host    all             all             127.0.0.1/32        md5
    # IPv6 local connections:
    host    all             all             ::1/128            md5
    # Allow replication connections from localhost, by a user with the
    # replication privilege.
    local   replication     all             md5
    host    replication     all             127.0.0.1/32       md5
    host    replication     all             ::1/128            md5
    host    all     all     0.0.0.0/0   md5
    ```

-   In the `postgresql.conf` file, uncomment the *listen_addresses* and *Port* entry keys and update the values as shown below:

    listen_addresses = ''*

    Port= 54327

    max_connections = 500

15 In the local primary server, change the server key in `zdm.xml` and `zenaudit.xml`, available in `/etc/opt/microfocus/zenworks/datamodel` folder with the local host address 127.0.0.1Jdbc_Url:

-   `<entry key="Server">127.0.0.1Jdbc_Url</entry>`
-   `<entry key="Embedded">true</entry>`

16 Manually create the database using the following query:

```
create database <DB name> with template=template0 encoding='UTF8';
```

For Example:

-   **ZENworks Database:**

    create database zenworks with template=template0 encoding='UTF8';

-   **Audit Database:**

    create database zenworksaudit with template=template0 encoding='UTF8';

NOTE: ◆Names of the databases that are being created should exactly match (considering case) with the source database names.

- ◆ The source database names can be retrieved from the zdm.xml and zenaudit.xml files in the source database server. For more information on the file location, see "Important Commands and Locations" on page 69

17 Ensure that the PostgreSQL user has access to the dump being imported.

18 If you have configured antimalware in the zone, modify the `database.server.address` property in `/etc/opt/microfocus/zenworks/antimalware/amedatasource.properties` file to have the server IP as 127.0.0.1

19 To create the Postgres service, create the file in `/usr/lib/systemd/system/zenpostgresql.service` with the following contents:

```
[Unit]

Description=PostgreSQL Daemon for ZENworks Databases

After=syslog.target network.target docker.service

[Service]

Type=simple

ExecStart=/opt/microfocus/zenworks/lib/systemd/system/zenpostgresql-
systemd

Restart=on-failure

RestartSec=20

StartLimitBurst=5

StartLimitInterval=120

[Install]

WantedBy=multi-user.target
```

20 To reset the file/folder permissions, run the following command:

```
permissions.sh
```

21 Start ZENworks services on the destination database server (PSDB2) by running the `novell-zenworks-configure –c Startmicrofocus-zenworks-configure –c Start` command.

NOTE: Ensure that the NovellMicro Focus ZENworks Embedded Datastore service is disabled and not running on the source database server (PSDB1). You can either rename the service file, or unregister or remove the PSDB1 server.

To disable the service, run the following command:

- ◆ **On SLES 11:** `chkconfig zenpostgresql off`
- ◆ **On SLES 12 and later:** `systemctl disable zenpostgresql.service`

After disabling, the service will not start after the system restart.

22 Assign the database role to destination database server (PSDB2) by running the query command in the pgadmin or any other client that can connect to PostgreSQL database server:

```
update zZenServerRoles set id='\x<PSDB2_GUID>', position=(select
max(position)+1 from zZENServerRoles where id='\x<PSDB2_GUID>') where
Roles='Database'
commit;
```

Example:

```
update zZenServerRoles set id='\xB66A9EA0D88A53B0801C07D5B44A5FE9',
position=(select max(position)+1 from zZENServerRoles where
id='\xB66A9EA0D88A53B0801C07D5B44A5FE9') where Roles='Database';
```

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

```
MigrateServerRoleConfigureAction -DsourceGuid=<First PS GUID> -
DdestGuid=<second PS GUID> -Drole= Database
```

23 Start the `zenpostgres` service by running the following commands:

```
systemctl enable zenpostgresql.service
```

```
systemctl start zenpostgresql.service
```

24 Run the following configure actions to update OSP/Content Configurations:

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

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

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

25 (Conditional) If Antimalware is configured, run the following commands:

```
microfocus-zenworks-configure -c ZENServicesFirewallConfigureAction -
Dservice=antimalware -Doperation=ADD
```

```
microfocus-zenworks-configure -c AntimalwareServiceConfigureAction -
Dam.service.action=start
```

26 On the Primary Server (PSDB2), start the ZENworks services by running the following command:

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

27 Assign the database role to the destination database server (PSDB2) by running the following configure action:

```
microfocus-zenworks-configure -c MigrateServerRoleConfigureAction -
DsourceGuid=<GUID of PSDB1> -DdestGuid=<GUID of PSDB2> -Drole=Database
```

28 To setup Automatic Maintenance, run the following configure action:

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

29 (Conditional) If you have enabled Kafka, then run `zman server-role-kafka-recreate-connectors -f true` command to recreate the Kafka connectors.

For more information, see Server Commands in the ZENworks Command Line Utilities guide.

30 If you have the firewall enabled on the server, ensure that port 54327 is open.

NOTE: With this, we complete the Restoring of the Database to the Target Primary Server (PSBD2). Continue further to update other Primary Servers in the zone.

---

31 Do the following on all the other primary servers in the zone:

31a Change the server key in `zdm.xml` and `zenaudit.xml`, available in `/etc/opt/microfocus/zenworks/datamodel` folder with the IP address of PSDB2:

```
<entry key="Server">IP OF PSDB2</entry>
```

31b If you have configured Antimalware in the zone, modify the `database.server.address` property in `/etc/opt/microfocus/zenworks/antimalware/amedatasource.properties` file to have the server IP as IP of PSDB2.

31c To update OSP/Content Configurations, run the following configure actions:

```
microfocus-zenworks-configure -c GenerateOSPProperties

microfocus-zenworks-configure -c RegenerateOSPAuthCfgXml

microfocus-zenworks-configure -c
GenerateContentDatasourceConfigureAction
```

31d (Conditional) If Antimalware is configured, run the following:

```
microfocus-zenworks-configure -c ZENServicesFirewallConfigureAction
-Dservice=antimalware -Doperation=ADD

microfocus-zenworks-configure -c AntimalwareServiceConfigureAction
-Dam.service.action=start
```

31e Run the following commands:

- `systemctl stop zenpostgresql.service`
- `systemctl disable zenpostgresql.service`

NOTE: This step is applicable only on PSDB1.

31f Start all the zenworks services by running the following command:

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

14 Backing up an Embedded PostgreSQL Database on One Primary Server and Restoring it on another Primary Server

ZENworks enables you to backup the embedded database from one Primary Server and restore it in another Primary Server. This procedure can be followed if you want to replace the existing Primary Server with a new server or if you want to move from a Linux to an Appliance server.

Important Commands and Locations

This section provides some of the command and locations that will be used quite frequently while moving the data. Ensure that you keep the following information handy while initiating the data migration:

- The ZENworks database and Audit database names on the embedded PostgreSQL database are available in `zdm.xml` and `zenaudit.xml` files. These files are available in the following location:

  Check the **Database** key to get the database name.

  On Windows: `%ZENWORKS_HOME%\conf\datamodel\`

  On Linux: `/etc/opt/novell/zenworks/datamodel/`

  On Linux: `/etc/opt/microfocus/zenworks/datamodel/`

  Example:

  <entry key="Database">zenworks</entry>

  <entry key="Database">zenworksaudit</entry>

- The database details can be retrieved by running the following commands:
  - `zman dgc`: Retrieves the database credentials used to connect to the embedded database.
  - `zman dgca`: Retrieves the database credentials used to connect to the audit embedded database.
  - `zman dgcs`: Retrieves the database credentials of super user that is used to connect to the embedded database.
  - `zman dgcam`: Retrieves the database credentials of the Antimalware database.

Backing up the Database on the Embedded Primary Server

1. Run the following commands and note down the ZENworks database credentials of the source machine:

   — zman dgv

   — zman dgca

   — zman dgcs

   — zman dgcam

2. Stop the ZENworks Services on all the Primary Servers by running the following configure action:

   `microfocus-zenworks-configure -c Start`

   After running the command, under **Action**, select **Stop**.

3. On the Primary Server on which the Embedded Database is installed, start the **Micro Focus ZENworks Embedded Datastore** service using the following steps:

   Run the following command to start the Micro Focus ZENworks Embedded Datastore – PostgreSQL service.

   * **On SLES 12 and later:** `systemctl start zenpostgresql.service`
   * **On SLES 11:** `/etc/init.d/zenpostgresql start`

4. Login to the Primary Server that has the database role.

5. Initiate the backup by setting the following variables:

   NOTE: This step is required for Windows only.

   ---

   * PGPORT: <existing source DB port configured>

     By default, ZENworks uses 54327

   * PGDATA: <embedded_database_location>

   * PGUSER: <existing super user for ZENworks postgres DB> The default user for ZENworks is zenpostgres.

   * PGDATABASE: <existing database name> ZENworks default is postgres

   * PGPASSWORD: <password for the above super user PGUSER>

   Example 14-1 *Example for Linux Primary Server:*

   Open the terminal and set the following variables based on the existing configuration.

   * export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib$LD_LIBRARY_PATH;`
   * export PATH=`$PATH:/opt/microfocus/zenworks/share/pgsql/bin;`
   * export PGPORT=`54327;`
   * export PGDATA=`/var/opt/microfocus/pgsql/data;`
   * export PGUSER=<super user retrieved from zman dgcs>;
   * export PGDATABASE=postgres;
   * export PGPASSWORD=<password retrieved from zman dgcs>;

6. Run the following commands to back up both the databases (ZENworks and Audit):

   - cd `/opt/microfocus/zenworks/share/pgsql/bin/`
   - `./pg_dumpall > "<path to sql file>"`

     Example: `./pg_dumpall > /tmp/postgres_dump.sql`
   - docker exec -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres /opt/microfocus/zenworks/share/pgsql/bin/pg_dumpall > /tmp/dump.sql

     Example: docker exec -e PGUSER=zenpostgres -e PGDATABASE=postgres -e PGPASSWORD=Zw0#43cf4525d0f5df6395bbbec9c zenpostgres /opt/microfocus/zenworks/share/pgsql/bin/pg_dumpall > /tmp/dump.sql

   ---

   NOTE: You can ignore the no version information available error message.

Restoring the Database on another Server

1. Stop the ZENworks Services on the Primary Servers where the database is to be restored, by running the following configure action:

   `microfocus-zenworks-configure -c Start`

   After running the command, under Daemons, deselect **Micro Focus ZENworks Embedded PostgreSQL**, under **Action**, select **Stop**.

2. **On the Linux server:**

   a. Switch the user to **zenpostgres** by running the command `su zenpostgres`

   b. Open the terminal and set the following variables based on the existing configuration.

      - export LD_LIBRARY_PATH=`//opt/novell/zenworks/share/pgsql/lib:$LD_LIBRARY_PATH`
      - export PATH=$PATH:`opt/novell/zenworks/share/pgsql/bin;`
      - export PGPORT=54327;
      - export PGUSER=<Postgres super user retrieved from zman dgcs of the target database device>;
      - export PGDATABASE=postgres;
      - export PGPASSWORD=<password retrieved from zman dgcs of the target database device>;

3. **On the Primary Server:**

   a. Switch the user to **zenpostgres** by running the command `su zenpostgres`

   b. Open the terminal and set the following variables based on the existing configuration.

      - export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib:$LD_LIBRARY_PATH;`
      - export PATH=$PATH:`/opt/microfocus/zenworks/share/pgsql/bin;`
      - export PGPORT=54327;
      - export PGUSER=<Postgres super user retrieved from zman dgcs of the target database device>;

- export PGDATABASE=postgres;
- export PGPASSWORD=<password retrieved from zman dgcs of the target database device>;

c. Enter zenpostgres container prompt by running below command:

```
docker exec -it -e PGUSER=<super user retrieved from zman dgcs> -e
PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman
dgcs> zenpostgres bash
```

d. `cd /opt/microfocus/zenworks/share/pgsql/bin`

4. Start PSQL connection by running ./psql.

5. Close the database dangling connections by running the following command:

```
SELECT pg_terminate_backend(pid) FROM pg_stat_activity WHERE pid =
pg_backend_pid();
```

6. Drop the following databases and users:

- DROP DATABASE ZENWORKS;
- DROP DATABASE ZENWORKSAUDIT;
- DROP USER ZENAUDITADMIN;
- DROP USER ZENADMIN;

7. Create the database using the following query for the databases that should be restored:

```
create database <DB name> with template=template0 encoding='UTF8';
```

For example:

- **ZENworks Database:** `create database zenworks with template=template0 encoding='UTF8';`
- **Audit Database:** `create database zenworksaudit with template=template0 encoding='UTF8';`

8. Run following command to change the password for user 'zenpostgres':

```
ALTER ROLE zenpostgres WITH PASSWORD '<password retrieved from zman
dgcs of the source db machine>';
```

9. Exit PSQL.

15 Migrating an OEM Sybase database from one Primary Server to a PostgreSQL database in an another Primary Server

To migrate an OEM Sybase database from one Primary Server to a PostgreSQL database in an another Primary Server, perform the following steps:

1. Move the OEM Sybase database from one Primary Server to another Primary Server. For more information, see Moving the Internal Sybase Database from One Primary Server to Another Primary Server.

2. Use the database migration tool to migrate to the PostgreSQL database. For more information, see .

16 Backing Up and Restoring the PostgreSQL Database

- "Important Commands and Locations" on page 99
- "Backing Up the PostgreSQL Database" on page 100
- "Backing Up and Vacuuming the PostgreSQL Database" on page 101
- "Using the zman command to Take a Backup of the Database" on page 103
- "Using the pg_dump Command to Take a Backup of the Database" on page 104
- "Restoring the PostgreSQL Database" on page 104

Important Commands and Locations

This section provides some of the command and locations that will be used quite frequently while backing-up the data. Ensure that you keep the following information handy while initiating the data migration:

- The ZENworks database and Audit database names on the embedded PostgreSQL database are available in `zdm.xml` and `zenaudit.xml` files. These files are available in the following location:

  Check the **Database** key to get the database name.

  `/etc/opt/microfocus/zenworks/datamodel/`

  On Windows: `%ZENWORKS_HOME%\conf\datamodel\`

  On Linux: `/etc/opt/novell/zenworks/datamodel/`

  Example:

  <entry key="Database">zenworks</entry>

  <entry key="Database">zenworksaudit</entry>

- The database details can be retrieved by running the following commands:
  - `zman dgc`: Retrieves the database credentials used to connect to the embedded database.
  - `zman dgca`: Retrieves the database credentials used to connect to the audit embedded database.
  - `zman dgcs`: Retrieves the database credentials of super user that is used to connect to the embedded database.

Backing Up the PostgreSQL Database

By default, ZENworks automatically backs up the PostgreSQL database every week. By using the AutomaticPostgresMaintenanceConfigureAction, you can schedule the automatic backup of the database. By default, the database backup schedule is set to Sunday midnight. However, you can use the pgsqlDBbackupConf.xml file to customize the backup schedule.

NOTE: ◆ The AutomaticPostgresMaintenanceConfigureAction takes backup only the Embedded PostgreSQL database.

- ◆ Ensure that you take the backup of the database at a regular intervals.
- ◆ It is recommended that you do not disable the backup. This might ensure that you have a backup of the database in case of a disaster.
- ◆ VACUUM reclaims storage occupied by dead tuples. In normal PostgreSQL operation, tuples that are deleted or obsoleted by an update are not physically removed from their table; they remain present until a VACUUM is done. Therefore it is necessary to VACUUM periodically, especially on frequently-updated tables.
- ◆ In ZENworks 2020 Update 2 and earlier, pgsqlDBbackupConf.xml was used to configure backups of the PostgreSQL database. While upgrading from Update 2 to the latest version, pgsqlDBbackupConf.xml is replaced with pgsql-maintenance.xml. If customer has enabled backup only for audit, vacuum will also be done only for the audit database. If the backup is done for both databases, the vacuum will also be done for both databases.
- ◆ Database backup directory for Linux should be under /var/opt/microfocus/zenworks
- ◆ The custom JDBC URL cannot be used for automatic database maintenance.

After successfully running the configure action, the backup (PGDUMP) is saved in the following location:

- ◆ **On Windows:** `%ZENWORKS_HOME%\work\pgsql`
- ◆ **On Windows:** `%ZENSERVER_HOME%\work\pgsql`
- ◆ **On Linux:** `/var/opt/novell/zenworks/`
- ◆ **On Linux:** `/var/opt/microfocus/zenworks/`

Based on requirements, you can customize the pgsqlDBbackupConf.xml file and then run the novellmicrofocus-zenworks-configure -c AutomaticPostgresMaintenanceConfigureAction command.

The pgsqlDBbackupConf.xml file is located in the following location:

- ◆ **On Windows:** `%ZENWORKS_HOME%\conf\pgsql`
- ◆ **On Windows:** `%ZENSERVER_HOME%\conf\pgsql`
- ◆ **On Linux:** `/etc/opt/novell/zenworks/pgsql`
- ◆ **On Linux:** `/etc/opt/microfocus/zenworks/pgsql`

NOTE: By default, only ZENworks database is backed up. If required, you can enable the backup of audit database by setting the AuditEnabled parameter to true in the pgsqlDBbackupConf.xml file.

The ZENworks and Audit databases will be created under ZCMDB_pg_dump and AuditDB_pg_dump folders respectively.

Following is an example of the pgsqlDBbackupConf.xml file:

```
<Schedule>
        <DailySchedule>
            <DaysOfWeek>
                <Sunday>true</Sunday>
                <Monday>false</Monday>
                <Tuesday>false</Tuesday>
                <Wednesday>false</Wednesday>
                <Thursday>false</Thursday>
                <Friday>false</Friday>
                <Saturday>false</Saturday>
            </DaysOfWeek>
            <StartTime Hour="23" Minute="55" Second="0"/>
        </DailySchedule>
    </Schedule>
    <ns2:BackupDir>C:\Program Files (x86)\Novell\ZENworks\work</
ns2:BackupDir>
    <ns2:AuditEnabled>false</ns2:AuditEnabled>
    <ns2:ZenEnabled>true</ns2:ZenEnabled>
</ns2:BackupConfig>
```

IMPORTANT: In case you have your own mechanism of taking backup of the databases, and do not want ZENworks to take a backup, you can run the following command:

```
microfocus-zenworks-configure -c
AutomaticPostgresMaintenanceConfigureAction -
Dpgsql.delete.maintenance.queue=yes
```

Backing Up and Vacuuming the PostgreSQL Database

By default, ZENworks automatically backs up and vacuums the PostgreSQL database every week. By using the AutomaticPostgresMaintenanceConfigureAction, you can schedule the automatic backup and vacuum of the database. The default database backup and vacuum schedule is set to Sunday midnight. However, you can use the pgsql-maintenance.xml file to customize the schedule.

NOTE: ◆ The AutomaticPostgresMaintenanceConfigureAction takes backup only the Embedded PostgreSQL database.

- Ensure that you take the backup of the database at a regular intervals.

- Before taking the backup, ensure that you stop all the services, except PostgreSQL service. Use microfocus-zenworks-configure -c Start to start or stop the services.

- In ZENworks 2020 Update 2 and earlier, pgsqlDBbackupConf.xml was used to take a backup of the PostgreSQL database. While upgrading from Update 2 to the latest version, pgsqlDBbackupConf.xml is replaced with pgsql-maintenance.xml. If customer has enabled backup only for audit, vacuum will also be done only for the audit database. If the backup is done for both databases, the vacuum will also be done for both databases.

- Database backup directory for Linux should be under /var/opt/microfocus/zenworks

- If you have configured your zone to use custom JDBC URL for connecting to database, automatic database maintenance actions will not be performed.

After successfully running the configure action, the backup (PGDUMP) is saved in the following location:

```
/var/opt/microfocus/zenworks/common/pgsql/ZCMDB_pg_dump/
currentBackupFolder
```

```
/var/opt/microfocus/zenworks/common/pgsql/AuditDB_pg_dump/
currentBackupFolder
```

Based on requirements, you can customize the pgsql-maintenance.xml file and then run the microfocus-zenworks-configure -c AutomaticPostgresMaintenanceConfigureAction command.

The pgsql-maintenance.xml file is located in the following location:

```
/etc/opt/microfocus/zenworks/pgsql
```

NOTE: By default, only ZENworks database is backed up. If required, you can enable the backup of audit database by setting the AuditEnabled parameter to true in the pgsql-maintenance.xml file.

Following is an example of the pgsql-maintenance.xml file:

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<PostgresMaintenanceInputsType xmlns:ns2="http://www.novell.com/ZENworks/
v1.0/Backup" xmlns:ns3="http://www.novell.com/ZENworks/v1.0">
    <ns2:PostgresBackupInputs>
        <ns2:backupDir>/var/opt/microfocus/zenworks</ns2:backupDir>
        <ns2:backupZen>true</ns2:backupZen>
        <ns2:backupAudit>false</ns2:backupAudit>
    </ns2:PostgresBackupInputs>
    <ns2:PostgresVacuumInputs>
        <ns2:vacuumZen>true</ns2:vacuumZen>
        <ns2:vacuumAudit>false</ns2:vacuumAudit>
    </ns2:PostgresVacuumInputs>
    <ns3:Schedule>
        <ns3:DailySchedule>
            <ns3:DaysOfWeek>
                <ns3:Sunday>true</ns3:Sunday>
                <ns3:Monday>false</ns3:Monday>
                <ns3:Tuesday>false</ns3:Tuesday>
                <ns3:Wednesday>false</ns3:Wednesday>
                <ns3:Thursday>false</ns3:Thursday>
                <ns3:Friday>false</ns3:Friday>
                <ns3:Saturday>false</ns3:Saturday>
            </ns3:DaysOfWeek>
            <ns3:StartTime Hour="23" Minute="55" Second="0"/>
        </ns3:DailySchedule>
    </ns3:Schedule>
</PostgresMaintenanceInputsType>
```

IMPORTANT: In case you have your own mechanism of taking backup of the databases, and do not want ZENworks to take a backup, you can run the following command:

```
novellmicrofocus-zenworks-configure -c
AutomaticPostgresMaintenanceConfigureAction -
Dpgsql.delete.maintenance.queue=yes
```

Using the zman command to Take a Backup of the Database

To back up an embedded database, run the zman db <backup_directory>`zman qa -t "pgsql.maintenance.queue" -d "{"backupParams":{"backupDir":"/var/opt/ microfocus/zenworks/ common","backupZen":`***true***`,"backupAudit":false},"vacuumParams":{"vacuumZen": false,"vacuumAudit":`***false***`}}"` command on the server that has the database role.

In the above command, depending on which database you want to backup change the parameter to ***true*** or ***false***.

NOTE: Ensure that the backup directory is already created.

Example: zman db c:\pg_dbbackup

To back up an embedded database, run the zman db command on the server that has the database role.

The backup is created in the following location:

`/var/opt/microfocus/zenworks/common`

To configure the backup location and automatic backup schedule, go through the following steps:

1. Go to the backup folder location.

   ◆ `/var/opt/microfocus/zenworks/common`

   By default, the backup should be available in the *ZCMDB_pg_dump* or *AuditDB_pg_dump* folder.

2. Go to the following location:

   On Linux: `/etc/opt/microfocus/zenworks/pgsql/pgsql-maintenance.xml`

3. Edit the backup location in the pgsql-maintenance.xml file.

4. After editing the XML file, run microfocus-zenworks-configure -c AutomaticPostgresMaintenanceConfigureAction

5. Restart the PostgreSQL service.

   Run the `systemctl restart zenpostgresql.service` command.

6. Run the command zman db. The database backup should be created in the location that was updated in the `pgsql-maintenance.xml` file.

7. Modify the schedule in the `pgsql-maintenance.xml` file, and restart the ZENworks PostgreSQL service.

   Automatically the backup will be created in the location and schedule specified in the `pgsql-maintenance.xml` file.

In this example, pg_dbbackup should be created in the C drive.

Using the `pg_dump` Command to Take a Backup of the Database

You can use the PostgreSQL pg_dump command to do a full online backup of both Embedded and External database.

Before executing the PostgreSQL pg_dump command, ensure that you update the LD_LIBRARY_PATH variable as shown below:

export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/opt/novell/zenworks/share/pgsql/lib/opt/microfocus/zenworks/share/pgsql/lib

 For more information, see pg_dump (https://www.postgresql.org/docs/11/backup-dump.html).

Restoring the PostgreSQL Database

Restoring an archived database is performed by using the pg_restore command. Using the pg_restore command, you can restore the backup taken by both pg_dump and AutomaticPostgresMaintenanceConfigureAction.

To restore a backup, use the following command:

```
pg_restore [connection-option...] [option...] [filename]
```

For more information on options, see pg_restore (https://www.postgresql.org/docs/11/app-pgrestore.html).

Restoring the Database Backup Taken Using the ZMAN Command

To restore a backup that was taken using the zman command (zman db), perform the following:

On Linux

1. Stop the Services by running the following configure action:

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

   After running the command, under Action, select Stop.

2. Stop the services using the following commands:
   - `systemctl stop novell-zenserver.service`
   - `systemctl stop novell-zenloader.service`
   - `systemctl stop microfocus-zenserver.service`
   - `systemctl stop microfocus-zenloader.service`

3. (conditional) If Vertica is enabled in your zone, then stop the following services in ZENworks Appliance, using following command:
   - `systemctl stop zenworks-connect.service`
   - `systemctl stop zenworks-kafka.service`

4. Close the database dangling connections by running the following commands:

```
SELECT pg_terminate_backend(pid) FROM pg_stat_activity WHERE pid =
pg_backend_pid();
```

5. Change the user by running the `su zenpostgres` command.

6. Set the super user password for pg_restore and dropdb using the following command:

```
$ PGPASSWORD=<<set superuser password>>; export PGPASSWORD
```

7. Set the library path and BIN path as shown below:

- `LD_LIBRARY_PATH=/opt/microfocus/zenworks/share/pgsql/lib; export LD_LIBRARY_PATH`

- `PATH=$PATH:/opt/microfocus/zenworks/share/pgsql/bin; export PATH`

- `LD_LIBRARY_PATH=/opt/novell/zenworks/share/pgsql/lib; export LD_LIBRARY_PATH`

- `PATH=$PATH:/opt/novell/zenworks/share/pgsql/bin; export PATH`

8. Drop the existing database, the database name can be zenworks or audit database.

```
$ dropdb --host=localhost --dbname=<<database_name>> --port=54327 --
username=<<superuser_name>> <<database_name>>
```

```
docker exec -it zenpostgres dropdb $ dropdb --host=localhost --
dbname=<<database_name>> --port=54327 --username=<<superuser_name>>
<<database_name>>
```

```
$ dropdb --host=localhost --dbname=<<database_name>> --port=54327 --
username=<<superuser_name>> <<database_name>>
```

9. Restore the database by running the following command:

```
$ pg_restore --host=localhost --port=54327 --
username=<<superuser_name>>  --format=directory --
dbname=<<database_name>> -C <<full path to zenDB_pg_dump>>
```

```
$ pg_restore --host=localhost --port=54327 --
username=<<superuser_name>>  --format=directory --
dbname=<<database_name>> -C <<full path to zenDB_pg_dump>>
```

```
docker exec -it zenpostgres pg_restore $ pg_restore --host=localhost --
port=54327 --username=<<superuser_name>>  --format=directory --
dbname=<<database_name>> -C <<full path to zenDB_pg_dump>>
```

NOTE: Ensure that the dump directory is accessible from zenpostgres or postgres user.

17 Updating the Remote PostgreSQL database

Prerequisites:

- Before updating the zone, update the database server.
- Ensure all ZENworks services are stopped.

To upgrade the remote PostgreSQL database, perform the following:

On SLES 11 Database Server

1. After importing ZENworks into the zone, copy `novell-zenworks-postgresql-<version>.rpm` from the following location:

   On Windows Primary Server: `%ZENWORKS_HOME%\work\content-repo\system-update\<update-UID>\rpm\novell-zenworks-postgresql-11.4-1.x86_64.rpm`

   On Linux Primary Server `/var/opt/novell/zenworks/content-repo/system-update/<update-UID>/rpm/novell-zenworks-postgresql-11.4-1.x86_64.rpm`

   Where *<update-UID>* is the ZENworks 2020 GUID.

2. Stop the database service by running the following command:

   `/etc/init.d/zenpostgresql stop`

3. Run the following RPM package upgrade command:

   `/bin/rpm  -U  -vv  <rpm-file-path>`

   Where *<rpm-file-path>* is path where the RPM file is saved.

4. Run to following script to add the zenpostgres users

   `/opt/novell/zenworks/share/pgsql/bin/zenpostgres_useradd.sh`

5. Start the database service by running the following command:

   `/etc/init.d/zenpostgresql start`

On SLES 12 Database Server

1. After importing ZENworks into the zone, copy `novell-zenworks-postgresql-11.4-1.x86_64.rpm` from the following location:

   On Windows Primary Server: `%ZENWORKS_HOME%\work\content-repo\system-update\<update-UID>\rpm\novell-zenworks-postgresql-11.4-1.x86_64.rpm`

   On Linux Primary Server `/var/opt/novell/zenworks/content-repo/system-update/<update-UID>/rpm/novell-zenworks-postgresql-11.4-1.x86_64.rpm`

   Where *<update-UID>* is the ZENworks 2020 GUID.

2. Stop the database service by running the following command:

```
/bin/rpm  -U  -vv  --replacefiles <rpm-file-path>
```

3. Run the RPM package upgrade command:

    ```
    bin/rpm  -U  -vv  --replacefiles <rpm-file-path>
    ```

    Where *<rpm-file-path>* is path where the RPM file is saved.

4. Run to following script to add the zenpostgres users.

    ```
    /opt/novell/zenworks/share/pgsql/bin/zenpostgres_useradd.sh
    ```

5. Start the database service by running the following command:

    ```
    systemctl start zenpostgresql.service
    ```

On Windows Database Server

1. After importing ZENworks 2020 into the zone, copy `novell-zenworks-postgresql-11.4-1.x86_64.msi` from the following location:

    On Windows Primary Server: `%ZENWORKS_HOME%\work\content-repo\system-update\<update-UID>\msi\novell-zenworks-postgresql-11.4-1.x86_64.msi`

    On Linux Primary Server `/var/opt/novell/zenworks/content-repo/system-update/<update2-UID>/msi/nnovell-zenworks-postgresql-11.4-1.x86_64.msi`

    Where *<update-UID>* is the ZENworks 2020 GUID.

2. Stop the database service:

    From Command Prompt: `net stop "Novell ZENworks Embedded Datastore – PostgreSQL"`

    or

    From the Windows Service Manager stop the Novell ZENworks Embedded Datastore - PostgreSQL service

3. Run the MSI package upgrade command:

    ```
    C:\Windows\system32\msiexec.exe -i "<msi-file-path>"
    TARGETDIR="<zenworks-share-directory>" REBOOT=ReallySuppress ALLUSERS=1
    /lvx*+ "<msi-log-file>" /qn
    ```

    Where

    *   <msi-file-path> is the path where the MSI file is saved.
    *   <zenworks-share-directory> is the location of ZENworks share folder.

        For example: %ZENWORKS_HOME%\share
    *   <msi-log-file> is the location when you want to save the log file.

4. Start the database service by any one of the following:

    From Command Prompt: `net start "Novell ZENworks Embedded Datastore – PostgreSQL"`

    or

    From the Windows Service Manager start the Novell ZENworks Embedded Datastore - PostgreSQL service

NOTE: If the PostgreSQL database is embedded, then update the first Primary Server and deploy to other servers.

18 Connecting to the Embedded PostgreSQL Database

To connect to the embedded PostgreSQL database, based on the existing configurations, set the following environment variables:

NOTE: 1.The parameter values are available in the `zdm.xml` file.

The `zdm.xml` file is available in the following location:

/etc/opt/microfocus/zenworks/datamodel

  ◆ **On Windows** %ZENWORKS_HOME%\conf\datamodel
  ◆ **On Linux / Appliance** /etc/opt/novell/zenworks/datamodel

2. Use the zman dgc commands to get the user name and password. For more information, see ZENworks Command Line Utilities Reference.

  ◆ "On Linux / Appliance" on page 111

On Linux / Appliance

Open the terminal and execute the following commands:

  ◆ su zenpostgres
  ◆ LD_LIBRARY_PATH=/opt/novell/zenworks/share/pgsql/lib; export LD_LIBRARY_PATH
  ◆ LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib; export LD_LIBRARY_PATH`

    On SLES 15: export LD_LIBRARY_PATH=`/opt/microfocus/zenworks/share/pgsql/lib:/opt/microfocus/zenworks/share/pgsql/stackbuilder/lib; export LD_LIBRARY_PATH`

    On SLES 15, the *no version information available* error message can be ignored.
  ◆ PATH=$PATH:/opt/novell/zenworks/share/pgsql/bin; export PATH
  ◆ PATH=$PATH:/opt/microfocus/zenworks/share/pgsql/bin; export PATH
  ◆ PGPORT=<port_number>; export PGPORT
  ◆ PGUSER=<user_name>; export PGUSER
  ◆ PGDATABASE=<database_name>; export PGDATABASE
  ◆ PGPASSWORD=<password>; export PGPASSWORD
  ◆ cd /vastorage/opt/novell/zenworks/share/pgsql/bin/
  ◆ cd /opt/microfocus/zenworks/share/pgsql/bin/

- ./psql
- docker exec -it -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres psql

Type **quit** to exit from the prompt.

19 Cleaning Database and Generating Internal Statistics

PostgreSQL required a strong maintenance mechanism to deal with these DEAD tuples and statistics. VACUUM is the maintenance process which takes care of DEAD tuples along with it analyzes the contents of a tables and collects statistics about the distribution of values in each column of every table.

NOTE: ZENworks no longer supports Windows Server as a Primary Server from version 24.2 onwards. For more information, see End of Support Windows Primary Server.

Perform the following steps to clean the PostgreSQL database:

1. Login to the Primary Server that has the database role.

2. Initiate the VACUUM by setting the following variables:
    - PGPORT: <existing source DB port configured>

      By default, ZENworks uses 54327
    - PGDATA: <embedded_database_location>
    - PGUSER: <existing super user for ZENworks postgres DB> The default user for ZENworks is zenpostgres.
    - PGDATABASE: <existing database name> ZENworks default is postgres
    - PGPASSWORD: <password for the above super user PGUSER>

   Example for Linux Primary Server: Open the terminal and set the following variables based on the existing configuration.
    - export LD_LIBRARY_PATH=/opt/microfocus/zenworks/share/pgsql/lib;
    - export PATH=$PATH:/opt/microfocus/zenworks/share/pgsql/bin;
    - export PGPORT=54327;
    - export PGDATA=/var/opt/microfocus/pgsql/data;
    - export PGUSER=<super user retrieved from zman dgcs>;
    - export PGDATABASE=postgres;
    - export PGPASSWORD=<password retrieved from zman dgcs>;

3. Run the following commands to VACUUM on all databases:
    - cd /opt/microfocus/zenworks/share/pgsql/bin/
    - ./vacuumdb --analyze --full --skip-locked --verbose --all
    - docker exec -it -e PGUSER=<super user retrieved from zman dgcs> -e PGDATABASE=postgres -e PGPASSWORD=<password retrieved from zman dgcs> zenpostgres vacuumdb --analyze --full --skip-locked --verbose --all

NOTE: Micro Focus recommends to run these steps every week during the low activity on the database (non-business hours).

For more information, see https://www.postgresql.org/docs/current/app-vacuumdb.html

II External Database Maintenance

20 Configuring the ZENworks Server to Point to the New MS SQL Database Containing Data Moved from Another MS SQL Database

If you move the data from one MS SQL database to another MS SQL database, the Linux ZENworks Server must be configured to point to the new MS SQL database.

The following sections provide detailed information:

Preparing to Move the Data

Before configuring the server to point the new MS SQL database, do the following:

* Run the ZENworks Diagnostic Center (ZDC) and check for schema differences.

  If the ZENworks database tables are not present under the default database schema DBO, then to avoid any issues, contact Micro Focus Customer Center before upgrading your zone.

  To find out the database scheme, run the following query in the Microsoft SQL database: `SELECT distinct(SCHEMA_NAME(schema_id)) as OWNER FROM sys.objects WHERE type='U'`

* Ensure that the ZENworks Server is configured to an MS SQL database. Assume that the device that currently host the MS SQL database is called MSDB1.

* Ensure that you have another device with an MS SQL database installed. Assume that this device is called MSDB2. For more information on how to install an MS SQL database, see "Prerequisites for External Database".

* Stop all the ZENworks services on all the ZENworks Servers in the Management Zone.

    * **On the Primary Server:**
        1. Execute the following command at the server prompt:

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

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

* Move the data from MSDB1 to MSDB2. For more information about moving the data, see the MS SQL database documentation.

Configuring the ZENworks Server to Point to the New MS SQL Database

To configure the ZENworks Server to point to the new database (MSDB2), perform the following tasks on the ZENworks Server:

1 Take back up, and edit the `zdm.xml` and `zenaudit.xml` files located in `/etc/opt/microfocus/zenworks/datamodel` and `amedatasource.properties` located in `/etc/opt/microfocus/zenworks/antimalware` to do the following:

   ◆ Ensure that the value of the `Port` entry key is the port number on which the MS SQL database is running.

   ◆ Set the value of the `Server` entry key to the IP address of the MSDB2 device.

   ◆ Set the value of the `Database` entry key to path of the database directory of the MSDB2 device.

   ◆ If user name or password of the database is changed, then you must change the user name and password in the following locations:

      1. `dmaccounts.properties` and `zenaudit_dmaccounts.properties` files. (located in `/etc/opt/microfocus/zenworks/datamodel` on Linux). It is recommended that do not use the SA user for ZENworks database access.

         `username=password`

         The password will be encrypted automatically when you restart the ZENworks services.

      2. `dmmappings.properties` located in `/etc/opt/microfocus/zenworks/datamodel` on Linux.

         If you have changed the ZEN user name, then update `readonly` and `superuser` fields. If you have changed audit user, then change the `audit` field.

2 Run the `microfocus-zenworks-configure -c GenerateOSPProperties` command on all the ZENworks Servers.

3 (Conditional) If you have enabled Kafka, then Run `zman server-role-kafka-recreate-connectors -f true` command to recreate the Kafka connectors.

   For more information, See Server Commands in the ZENworks Command Line Utilities.

4 Run `microfocus-zenworks-configure -c GenerateContentDatasourceConfigureAction` on all the ZENworks servers.

5 Restart the ZENworks services on all other ZENworks Servers in the Management Zone.

   On Primary Server:

      1. Execute the following command at the server prompt:

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

      2. Enter the number next to the `Start` action.

21 Configuring the ZENworks Server to Point to the New Oracle Database Containing Data Moved from Another Oracle Database

If you move the data from one Oracle database to another Oracle database, the Linux ZENworks Server must be configured to point to the new Oracle database.

The following sections provide detailed information:

- "Preparing to Move the Data" on page 119
- "Configuring the ZENworks Server to Point to the New Oracle Database" on page 120

Preparing to Move the Data

Before configuring the server to point the new Oracle database, do the following:

- Ensure that the ZENworks Server is configured to an Oracle database. The database can be installed on the ZENworks Server or on a different device. Assume that the device that currently host the Oracle database is called ORDB1.

- Ensure that you have another device with an Oracle database installed with the same database credentials as the ORDB1. Assume that this device is called ORDB2. For more information on how to install an Oracle database, see "Prerequisites for External Database".

- Move the data from ORDB1 to ORDB2. For more information about moving the data, see the Oracle database documentation.

- Stop the ZENworks services on the ZENworks Servers in the Management Zone.

    - **On Primary Server:**

        1. Execute the following command at the server prompt:

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

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

Configuring the ZENworks Server to Point to the New Oracle Database

To configure the ZENworks Primary Server to point to the new Oracle database (ORDB2), perform the following tasks on the ZENworks Primary Server:

1 Take back up, and edit the `zdm.xml` and edit `zenaudit.xml` files (located in `/etc/opt/microfocus/zenworks/datamodel`), and `amedatasource.properties` (located in `/etc/opt/microfocus/zenworks/antimalware` to do the following:

   ◆ Ensure that the value of the `Port` entry key is the port number on which the Oracle database is running.

   ◆ Set the value of the `Server` entry key to the IP address of the ORDB2 device.

   ◆ Set the value of the `Database` entry key to net service name of the Oracle database installed on the ORDB2 device.

2 Run the `microfocus-zenworks-configure -c GenerateOSPProperties` command.

3 Run `microfocus-zenworks-configure -c GenerateContentDatasourceConfigureAction` on all the ZENworks servers.

4 Start the ZENworks services on all the ZENworks Servers in the Management Zone.

   ◆ **On the Primary Server:**

      1. Execute the following command at the server prompt:

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

      2. Enter the number next to the `Start` action.

ZENworks Server should now point to the new database.

22 Configuring PostgreSQL

Each Primary Server on PostgreSQL can consume up to 500 database connections. If you want to add more than one Primary Server, you should change the property values in the postgresql.conf file.

For the external database, the postgresql.conf file is available at the following location:

- **On the Primary Server:** `/var/lib/pgsql/<version>/data`

Use the following formula to calculate the property values.

max_connections = Number of primary severs * 500

max_prepared_transactions = Number of primary severs * 500

After changing the property values in `postgresql.conf`, restart the ZENworks and PostgreSQL service.

To start the PostgreSQL service:

To start the service, run the `systemctl start postgresql.service` command.

For more information, see PostgreSQL Tuning and Maintenance in the ZENworks Best Practices Guide.

23 Creating External PostgreSQL Database Schema

To create external or Remote OEM PostgreSQL schema, perform the following:

1. Insert or mount the ZENworks installation ISO on the server where you want to install the Remote OEM or External PostgreSQL database.

2. Open the command prompt and run the following command:

   ```
   setup.sh -c
   ```

3. In the Select the database to be configured page, select ZENworks Database, Audit Database or both, and then click Next.

4. In the Select Database type page, select Remote OEM or External PostgreSQL database.

5. Specify the following for both the ZENworks and Audit databases:

   - Server Name
   - Port Number
   - Database Name
   - User Name
   - Password

24 Configuring a ZENworks Server using an Existing Schema

You can configure a ZENworks Server to point to the Microsoft SQL or Oracle database using an existing schema. For information on creating the schema for Microsoft SQL or Oracle, see Configuring the First Primary Server with an Existing Schema.

25 Backing Up and Restoring the PostgreSQL Database

For more information on Back-up and restore of the PostgreSQL database, see "Backing Up and Restoring the PostgreSQL Database" on page 99.

26 Migrating from md5 to scram authentication in PostgreSQL

From PostgreSQL 13 onwards, the default password encryption is changed from "md5" to "scram-sha-256". This document provides the complete information on how to migrate from md5 to scram authentication.

To avoid any connection issues with password encryption, ensure that you perform one of the following processes:

MD5

The method md5 uses a custom and less secure challenge-response mechanism. It prevents password sniffing, and storing passwords on the server in plain text, but it provides no protection if an attacker manages to steal the password hash from the server, the MD5 hash algorithm is nowadays no longer considered secure against determined attacks.

 To continue using the md5 encryption, change the method in pg_hba.conf file for all entries to md5 and restart the PostgreSQL database server services.

SCRAM-SHA-256

The method scram-sha-256 performs SCRAM-SHA-256 authentication, as described in RFC 7677. It is a challenge-response scheme that prevents password sniffing on untrusted connections and supports storing passwords on the server in a cryptographically hashed form which is thought to acquire.

 ◆ By default, the freshly installed PostgreSQL user scram-sha=256 authentication. Hence, no modifications are required.

 ◆ If you are migrating the database to PostgreSQL 13.x from an older version, then perform the following:

NOTE: Ensure that you upgrade the ZENworks Management Zone after performing the following steps.

---

1. Modify the method in pg_hba.conf file for all entries to md5.
2. Modify the "password_encryption" parameter in postgresql.conf file to "md5".
3. Restart the PostgreSQL database services.
4. Migrate old data (OR) restore old data from backup, along with the users which are encrypted in "md5".

5. Connect the PostgreSQL using from psql/sql-client with super user (postgres/zenpostgres user) and run the following commands:

    a. alter system set password_encryption = 'scram-sha-256';

    b. select pg_reload_conf();

    c. run below command for all database users including superuser/zenworks/audit, etc..

       ALTER USER <<user_name>> WITH PASSWORD '<<existing (or) new password>>';

    d. To verify if the password is encrypted to scram-sha-256 run the below query.

       select usename,passwd from pg_shadow;

    e. Exit

6. Modify the method in pg_hba.conf file for all entries to scram-sha-256.

7. Restart the PostgreSQL database services.

27 Database Activities

This section provides the steps that database administrators should perform after successfully completing any of the below mentioned database activities:

- Migrate the database from one server to another.
- Migrate database from one provider to another (Example: MS SQL to Oracle)
- Update the External PostgreSQL database version.

If your Management Zone has multiple servers, only then perform the following steps:

NOTE: If there is only one server in the Management Zone, all ZENworks services starts automatically after the database activities are completed.

---

1. From the device where you performed the database activity as mentioned, copy the following files, and paste them into the appropriate directory, on all the other Primary Servers in the zone:

   - `zdm.xml`
   - `dmaccounts.properties`
   - `dmmappings.properties`
   - `zenaudit.xml`
   - `zenaudit_dmaccounts.properties`

   Ensure that these files have appropriate rights. The files are in the following location:

   - `/etc/opt/microfocus/zenworks/datamodel`
   - Ensure that you run `permissions.sh` script located at `/opt/microfocus/zenworks/bin` on the Linux server after copying the above listed files.

2. (Optional) If Antimalware is enabled in your zone, then update the amedatasource.properties file:

   `/etc/opt/microfocus/zenworks/antimalware`

3. Run the `microfocus-zenworks-configure -c GenerateOSPProperties` command.

4. Run the following command on all the content servers:

   `microfocus-zenworks-configure -c GenerateContentDatasourceConfigureAction`

5. Restart all the ZENworks services on all the ZENworks Servers in the Management Zone.

6. (*Optional*) If you have configured ZENworks Reporting in your zone, then you must reconfigure the ZENworks Reporting Server.

III Database Management - Best Practices, Tips, Troubleshooting

This section includes some tips and best practices for database management:

28 Database Ports

Following are the default ZENworks database ports:

Port Number	Description
1433	Default port to connect with the MS SQL database. Based on your configuration, the port number might vary.
1521	Default port to connect with the Oracle database. Based on your configuration, the port number might vary.
54327	Default port to connect with the Embedded and Remote OEM PostgreSQL database.

29 Database Tips

Changing the ZENworks Database User Password

Use system administrator or user with DBA privileges to execute the below commands.

Before changing the password ensure that you shutdown all Primary Servers and Reporting Server.

◆ **For Oracle:** After you log into Oracle database, run the below SQL statement to change the password for existing user.

```
ALTER USER <<username>> IDENTIFIED BY <<new password>>
```

◆ **For Microsoft SQL Server:** Users with SQL Server authentication, might run the below SQL statement to change the password for existing user.

```
ALTER LOGIN <<username>> WITH PASSWORD = 'new password' OLD_PASSWORD = 'old password'
```

Users with authentication, might change the Windows user account password and no changes required in SQL Server.

After changing the database user password, perform the following steps to change the password in all the Primary Servers:

1 Go to the following path;

```
/etc/opt/microfocus/zenworks/datamodel
```

2 Back up the `dmaccounts.properties` and `zenaudit_dmaccounts.properties` files.

3 Open the `dmaccounts.properties` and `zenaudit_dmaccounts.properties` files.

4 Change the existing password that is in encrypted form.

For example, the existing value is `ZENWORKS=@OB@6a7278626bba`

and the changed value is `ZENWORKS=<<new password>>`

5 Run the `microfocus-zenworks-configure -c GenerateOSPProperties` command.

6 Run the `microfocus-zenworks-configure -c GenerateContentDatasourceConfigureAction` command on all the ZENworks servers.

7 On all the Primary Servers in the zone, restart the ZENworks services by running the following command: `microfocus-zenworks-configure -c Start`.

IMPORTANT: Do not encrypt the new password. The new password is encrypted automatically when you restart the ZENworks services.

Maximum Pool Size

The MaxPoolSize value configured in the `zdm.xml` file governs the maximum number of connections allowed in a database connection pool from a Primary Server.

The `zdm.xml file` is located on the Primary Server:

`/etc/opt/microfocus/zenworks/datamodel`

With the default MaxPoolSize value of 100, the ZENServer and ZENLoader services currently create a single thread pool. As a result, under the peak load, there are 100 possible connections each from ZENloader and ZENserver.

However, the database server should be able to accept and serve 200*<*N*> concurrent connections from the ZENworks context, where *N* is the number of Primary Servers in the ZENworks Zone.

The current default value is sufficient for most configurations and loads. It is recommended not to customize the MaxPoolSize value; to closely monitor the database, functionality and performance of ZENworks.

If you want to configure a higher value for the MaxPoolSize parameter, ensure that the number of concurrent connections that can be accepted or served by the database server is greater than or equal to 2*<*Configured MaxPoolSize*> * <*Number of Primary Servers*>.

NOTE: The default MinPoolSize value is 5.

Verifying Invalid Objects and Indexes in the Oracle Database

If you encounter Invalid Objects or Invalid Index in ZENworks Control Center or ZENworks logs, you can use the following queries to verify if there are any Invalid objects and Indexes in the Oracle database

NOTE: ◆Do NOT use SQuirreL

```
SELECT * FROM USER_OBJECTS WHERE STATUS!='VALID';
SELECT * FROM USER_INDEXES WHERE FUNCIDX_STATUS='DISABLED';
SELECT * FROM USER_INDEXES WHERE STATUS NOT IN ('VALID','USABLE', 'N/A');
SELECT * FROM USER_IND_PARTITIONS WHERE STATUS NOT IN ('N/A','USABLE');
SELECT * FROM USER_IND_SUBPARTITIONS WHERE STATUS NOT IN ('USABLE');
SELECT * FROM USER_CONSTRAINTS WHERE STATUS!='ENABLED';
```

The above queries should NOT return any records.

If these queries return any records, then you need to run the below scripts in the respective schema:

```
DECLARE
  V_CNT NUMBER;
BEGIN
  SELECT COUNT(1)
  INTO V_CNT
  FROM USER_OBJECTS
  WHERE STATUS      ='INVALID'
  AND OBJECT_TYPE IN ('PROCEDURE','TRIGGER','FUNCTION','VIEW');
  WHILE V_CNT       > 0
  LOOP
    FOR REC IN
    (SELECT  *
    FROM USER_OBJECTS
    WHERE STATUS      ='INVALID'
    AND OBJECT_TYPE IN ('PROCEDURE','TRIGGER','FUNCTION','VIEW')
    )
    LOOP
      BEGIN
        EXECUTE IMMEDIATE 'ALTER '||REC.OBJECT_TYPE||'
"'||REC.OBJECT_NAME||'" COMPILE';
      EXCEPTION
      WHEN OTHERS THEN
        NULL;
      END;
    END LOOP;
    SELECT COUNT(1)
    INTO V_CNT
    FROM USER_OBJECTS
    WHERE STATUS      ='INVALID'
    AND OBJECT_TYPE IN ('PROCEDURE','TRIGGER','FUNCTION','VIEW');
  END LOOP;
END;
/


DECLARE
  V_CNT NUMBER;
BEGIN
  SELECT COUNT(1)
  INTO V_CNT
  FROM USER_INDEXES
  WHERE FUNCIDX_STATUS='DISABLED'
  AND TEMPORARY       ='N'
  AND INDEX_TYPE!     ='LOB'
  AND PARTITIONED     ='NO'
  AND TABLE_NAME      IN
    (SELECT TABLE_NAME FROM USER_TABLES WHERE TEMPORARY='N'
    )
  AND TABLE_NAME NOT IN ('PLAN_TABLE','ZENUPGRADELOG','ZENUPG_INDEX');
  WHILE V_CNT         > 0
  LOOP
    FOR REC IN
    (SELECT  *
    FROM USER_INDEXES
    WHERE FUNCIDX_STATUS='DISABLED'
```

```
            AND TEMPORARY          ='N'
            AND INDEX_TYPE!        ='LOB'
            AND PARTITIONED        ='NO'
            AND TABLE_NAME      IN
              (SELECT TABLE_NAME FROM USER_TABLES WHERE TEMPORARY='N'
              )
            AND TABLE_NAME NOT IN ('PLAN_TABLE','ZENUPGRADELOG','ZENUPG_INDEX')
            )
            LOOP
              EXECUTE IMMEDIATE 'ALTER INDEX '||REC.INDEX_NAME||' ENABLE';
            END LOOP;
            SELECT COUNT(1)
            INTO V_CNT
            FROM USER_INDEXES
            WHERE FUNCIDX_STATUS='DISABLED'
            AND TEMPORARY          ='N'
            AND INDEX_TYPE!        ='LOB'
            AND PARTITIONED        ='NO'
            AND TABLE_NAME      IN
              (SELECT TABLE_NAME FROM USER_TABLES WHERE TEMPORARY='N'
              )
            AND TABLE_NAME NOT IN ('PLAN_TABLE','ZENUPGRADELOG','ZENUPG_INDEX');
          END LOOP;
        END;
        /

        BEGIN
          FOR REC1 IN
          (SELECT   *
          FROM USER_INDEXES
          WHERE PARTITIONED='YES'
          AND TABLE_NAME  IN
            (SELECT TABLE_NAME FROM USER_TABLES WHERE TEMPORARY='N'
            )
          AND TABLE_NAME NOT IN ('PLAN_TABLE','ZENUPGRADELOG','ZENUPG_INDEX')
          )
          LOOP
            IF REC1.STATUS='N/A' THEN
              FOR REC2 IN
              (SELECT    *
              FROM USER_IND_PARTITIONS
              WHERE INDEX_NAME=REC1.INDEX_NAME
              AND STATUS!      ='USABLE'
              )
              LOOP
                IF REC1.STATUS='N/A' THEN
                  FOR REC3 IN
                  (SELECT    *
                  FROM USER_IND_SUBPARTITIONS
                  WHERE INDEX_NAME  =REC2.INDEX_NAME
                  AND PARTITION_NAME=REC2.PARTITION_NAME
                  AND STATUS!        ='USABLE'
                  )
                  LOOP
                    EXECUTE IMMEDIATE 'ALTER INDEX '||REC3.INDEX_NAME||' REBUILD
```

```
SUBPARTITION '||REC3.SUBPARTITION_NAME;
            END LOOP;
          ELSE
            EXECUTE IMMEDIATE 'ALTER INDEX '||REC2.INDEX_NAME||' REBUILD
PARTITION '||REC2.PARTITION_NAME;
          END IF;
        END LOOP;
      END IF;
    END LOOP;
    FOR REC IN
    (SELECT * FROM USER_INDEXES WHERE FUNCIDX_STATUS!='ENABLED'
    )
    LOOP
      EXECUTE IMMEDIATE 'ALTER INDEX '||REC.INDEX_NAME||' ENABLE';
    END LOOP;
END;
/
```

Verify the invalid objects after executing above scripts. The following queries should NOT return any records:

```
SELECT * FROM USER_OBJECTS WHERE STATUS='INVALID';
SELECT * FROM USER_INDEXES WHERE FUNCIDX_STATUS='DISABLED';
SELECT * FROM USER_INDEXES WHERE STATUS='INVALID';
SELECT * FROM USER_IND_PARTITIONS WHERE STATUS NOT IN ('N/A','USABLE');
SELECT * FROM USER_IND_SUBPARTITIONS WHERE STATUS NOT IN ('USABLE');
SELECT * FROM USER_CONSTRAINTS WHERE STATUS!='ENABLED';
```

30 Troubleshooting Database Migration

After database migration ZEUS is unable to contact the new database server

If you have added the database.conf file to override the default JDBC URL and drivers values. After database migration, the content of the database.conf file might not be updated with the latest database information. Hence, ZEUS might not be able to contact the new database server.

Workaround:

By default, the details in the `ZDM.xml` file is used to communicate between database server and ZEUS. If you want to override the default JDBC driver class and JDBC URL values, then updated the database.conf file with the new database information.

To use the default values for driver class and JDBC URL, delete the database.conf, else value in this file will be used to communicate with ZEUS.

The database.conf file is available in the following location:

`/etc/opt/microfocus/zenworks/datamodel`

During Appliance deployment, configuring External PostgreSQL using the New Schema option fails to create Audit database

While deploying the ZENworks 2017 Appliance, if you configure external PostgreSQL as the database (ZENworks and Audit) using the New Schema option, then the Audit database might not be created.

Workaround: Create a PostgreSQL database schema and then deploy the appliance. During the appliance deployment, configure the external PostgreSQL database using the Existing Schema option.

For more information on creating PostgreSQL schema, see the "Creating External PostgreSQL Database Schema" on page 123 section.

Troubleshooting a Java Heap Space Exception

If you encounter a Java heap space exception during the database migration because of low memory:

1 Edit the `ZENworks_installation_path\bin\novell-zenworks-configure.bat` file on `/opt/novell/zenworks/bin/novell-zenworks-configure` on Linux to change the heap space value in the following line, depending upon the RAM of the device where the migration utility is running:

```
"%JAVA_HOME%\bin\java" -Djava.library.path=%ZENLIB% -cp "%MYCP%"
%DEBUG_OPTS% %JAVA_OPTS% -Xmx1024m
com.novell.zenworks.configure.ConfigureLoader %CONFIG_OPTS%
```

The heap space value is represented in megabytes (MB) within `-Xmx1024m`. By default, it is 1024.

For example, if the RAM of the device is 2048 MB, then the line in the `novell-zenworks-configure.bat` file can be updated as follows:

```
"%JAVA_HOME%\bin\java" -Djava.library.path=%ZENLIB% -cp "%MYCP%"
%DEBUG_OPTS% %JAVA_OPTS% -Xmx2048m
com.novell.zenworks.configure.ConfigureLoader %CONFIG_OPTS%
```

IMPORTANT: The heap space value must be either equivalent to or less than the RAM of the device. It is recomended to have a minimum 2048 MB to continue with database migration.

---

2 At the console prompt, run the `\bin\novell-zenworks-configure.bat` file on `/opt/novell/zenworks/bin/novell-zenworks-configure`.

3 Follow the prompts.

When you are prompted to enter the location of the file required for resuming the migration, enter the complete path of `DBMigration.xml`. The file is located in the `/opt/novell/zenworks/bin` directory.

The XML file contains a list of tables and a flag indicating whether the table was successfully migrated or not. When the database migration resumes, only the tables with flag value set to False are migrated.

Troubleshooting an Oracle Database Crash

If the Oracle database crashes during the database migration:

1 At the console prompt, run the `ZENworks_installation_path`\bin\novell-zenworks-configure.bat file on /opt/novell/zenworks/bin/novell-zenworks-configure.

2 Follow the prompts.

When you are prompted to enter the location of the file required for resuming the migration, enter the complete path of DBMigration.xml. The file is located in the /opt/novell/zenworks/bin directory on Linux.

The XML file contains a list of tables and a flag indicating whether the table was successfully migrated or not. When the database migration resumes, only the tables with flag value set to False are migrated.

IMPORTANT: Do not edit the contents of DBMigration.xml.

Troubleshooting an Oracle Tablespace Issue

If the Oracle USERS tablespace does not have sufficient space to create and store the ZENworks database schema, the database migration fails with the following error messages while trying to create the tables:

```
SEVERE: Terminating the database migration.
SEVERE: An error has occurred while migrating the database.
```

To resolve this issue, perform the following:

◆ The Oracle database administrator must increase the size of the USERS tablespace.

◆ Ensure that the tablespace has a minimum of 100 MB to create ZENworks database schema without any data in it.

◆ Ensure to have some extra space depending upon the size of the database to be migrated.

Troubleshooting the Database Migration Failure Issue

If the NLS_CHARACTERSET parameter is not set to AL32UTF8 and the NLS_NCHAR_CHARACTERSET parameter is not set to AL16UTF16, the database migration 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 Ãªtre 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],
[],
[], [], [], [], []
```

To resolve the issue of database migration failure:

◆ Set the NLS_CHARACTERSET parameter to AL32UTF8 and the NLS_NCHAR_CHARACTERSET parameter to AL16UTF16..

◆ 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%';
```

Troubleshooting the Database Migration by Using An Existing User Schema

If you choose to migrate the database by using an existing user schema, the database migration utility creates the ZENworks database but it might fail to migrate the data.

To resolve this issue:

1 Ensure that the ZENworks tables, views, and user sequence are deleted from the newly created ZENworks database by the database administrator. Later on, clear the `user_recyclebin` database table.

2 Start the database migration again by using the same user schema.

Troubleshooting the ORA-01652: unable to extend temp segment by 128 in tablespace TEMP

The ORA-01652: unable to extend temp segment by 128 in tablespace TEMP error appears, when the temp tablespace have default size and the current transaction involves more number of records with `clob` data type.

To troubleshoot this scenario, perform either of the following or both:

1. Add extra `dbf` file for temp tablespace.

2. Reduce the number of records for the transaction (For Database Migration if you are using default batch size 10,000 that can be reduced to 100 or 500 or 1000 based on the nature of each record having clob data.).

IMPORTANT: For better performance depending on the database size and resource availability, you can increase the `batchsize` in the `db-migration-mssql-to-oracle.properties` file. It is located in `/etc/opt/novell/zenworks/conf/` on Linux.

Troubleshooting the ORA-01400: cannot insert NULL

The **cannot insert NULL** error appears, when you are migrating MS SQL to Oracle database.

To troubleshoot this scenario, perform the following:

1. Go to the `database-table-column-mapping.properties` file located at the following path:

   `/etc/opt/novell/zenworks/conf`

2. Open the `database-table-column-mapping.properties` file.

3. Append the Table name, Column, and the Replacement value according to the the `database-table-column-mapping.properties` file format.

IMPORTANT: If you donot provide a replacement value, then it will take an empty character as a replacement value.

Troubleshooting the ORA-12516, TNS: listener could not find available handler with matching protocol stack

The **TNS: listener could not find available handler with matching protocol stack** error appears, when you are migrating MS SQL to Oracle database.

To troubleshoot this scenario, increase the oracle processes by using the below SQL statement and bounce the database to reflect the changes.

`SQL> alter system set processes=500 scope=spfile`

Troubleshooting the database migration failure, duplication of serial numbers in the zDevice table

In the ZENworks database on the Microsoft SQL server, if the unique constraint is not created on the serial number column of the zDevice table, duplicate serial numbers might be assigned to the devices that are connected to the Management Zone. Because of the duplicate serial numbers, the database migration from the Microsoft SQL database to the Oracle database might fail.

To identify and remove the duplicate serial number in the zDevice table, perform the following steps in the Microsoft SQL database:

1. Use the following query to identify the duplicate serial numbers in the Microsoft SQL database:

   `SELECT * FROM zDevice WHERE serialnumber IN (SELECT serialnumber FROM zDevice GROUP BY serialnumber HAVING COUNT(1) > 1)`

2. If the duplicate serial numbers are found on the zDevice table, do one of the following:
   - Remove the device from the Management Zone and register the device again.
   - Modify the duplicate serial numbers so that each serial number is unique.

To resume the database migration, perform the following in the Oracle database:

1. Use the following query to identify the duplicate serial numbers in the Oracle database:

   ```
   SELECT * FROM zDevice WHERE serialnumber IN (SELECT serialnumber FROM
   zDevice GROUP BY serialnumber HAVING COUNT(1) > 1)
   ```

2. Run the following SQL query to remove the duplicate entry from the target Oracle database:

   ```
   begin

   for rec in (select zuid from zDevice where serialnumber is null)

   loop

   update zDevice

   set serialnumber=NVL(serialnumber,'_')||'_'||dbms_random.string('U',
   10)

   where zuid=rec.zuid;

   commit;

   end loop;

   for rec in (select serialnumber from zDevice group by serialnumber
   having count(1) > 1)

   loop

   update zDevice

   set serialnumber=serialnumber||'_'||dbms_random.string('U', 10)

   where serialnumber=rec.serialnumber;

   commit;

   end loop;
   ```

3. If there are any duplicate serial numbers, run the following query to verify.

   If there are any duplicate numbers, run `select serialnumber from zDevice group by serialnumber having count(1) > 1;` and remove the duplicate serial numbers.

   If there are no duplicates serial numbers, resume with the migration process.

NOTE: It is recommends that you clean up the duplicate serial numbers data before starting the database migration. You can continue to use the existing Management Zone without any loss functionality.

Configure action fails with exception `ZEN configure action container is not responding`

The configure action completes with the following warning:

```
com.novell.zenworks.configure.NonFatalConfigureException: ZEN configure
action container is not responding
```

This issue occurred because the ZENConfigure container failed initialize within the wait time.

To resolve this issue, increase the wait time of ZENConfigure container by using the `max-retries-for-configure-server=<number of retries>` configuration property in the `/etc/opt/microfocus/zenworks/host-configure-action.properties` directory. The default value for max-retries-for-configure-server is 60.

NOTE: Create the file with the entry if it does not exist.

---

31 Customizing JDBC URL for ZENworks

ZENworks provides a way to configure customized JDBC URLs. After providing the URLs, the newer JDBC URL will be used to establish a connection with the database. ZENworks, Audit, and Antimalware databases can be configured to use the customized JDBC URLs.

Perform the following steps to customize the JDBC URLs:

For the ZENworks database, add the following entry in the zdm.xml file:

<entry key="Jdbc_Url">JDBC URL HERE</entry>

/etc/opt/microfocus/zenworks/datamodel/zdm.xml

For the Audit database, add the following entry in the zenaudit.xml file:

<entry key="Jdbc_Url">JDBC URL HERE</entry>

/etc/opt/microfocus/zenworks/datamodel/zenaudit.xml

NOTE: Replace JDBC URL HERE with the actual JDBC URL. The URLs can be obtained from your database administrator.

Antimalware is not enabled, and you want to configure a custom JDBC URL:

In this scenario, you need to apply the FTF (20.2.0.996 or later) and update the 'database.jdbc.url' key in the amedatasource.properties file available in the following location:

/etc/opt/microfocus/zenworks/datamodel/zenaudit.xml

 For example:

database.jdbc.url=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[SCAN_VIP])(PORT=[SCAN_PORT])))(CONNECT_DATA=(SERVICE_NAME=[SERVICE_NAME]))), even before enabling and starting Antimalware enablement(The other key-value pairs in the file should be empty at this point). If this step is performed, the jdbcUrl will be given preference during and after Antimalware enablement.

Antimalware is already enabled and you want to configure a custom JDBC URL:

In this scenario, you just need to update the in the amedatasource.properties.

However, if you perform a forced migration to the Antimalware database at a later point, then you need to apply the patch and restart the Antimalware service.

After adding the URLs, restart ZENAdmin, ZENClient and ZENLoader services.

NOTE: ◆If you have multiple primary servers in the zone, and you are configuring a custom JDBC URL, then you need to manually modify the config files on all the primaries.

   ◆ If you are adding a new Primary Server to the zone (which is already configured with custom JDBC URL), then ZENworks takes care of updating the config file with the custom JDBC URL.

For example, this ability can be used to configure ZENworks to use Oracle DataGuard.

Following is the DataGuard JDBC driver URL format:

jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=[SCAN_VIP])(
PORT=[SCAN_PORT])))(CONNECT_DATA=(SERVICE_NAME=[SERVICE_NAME])))

32 Using DBeaver to Export SQL Query Results

The following section explains how to use DBeaver with ZENworks zone database to query and export the data into a CSV file.

1. Install DBeaver on a workstation (not on the ZENworks Primary Server).

2. Open the DBeaver, click Connections, and then select Create Connection.

3. Select PostgreSQL.

   Edit the connection properties as shown in the below image.
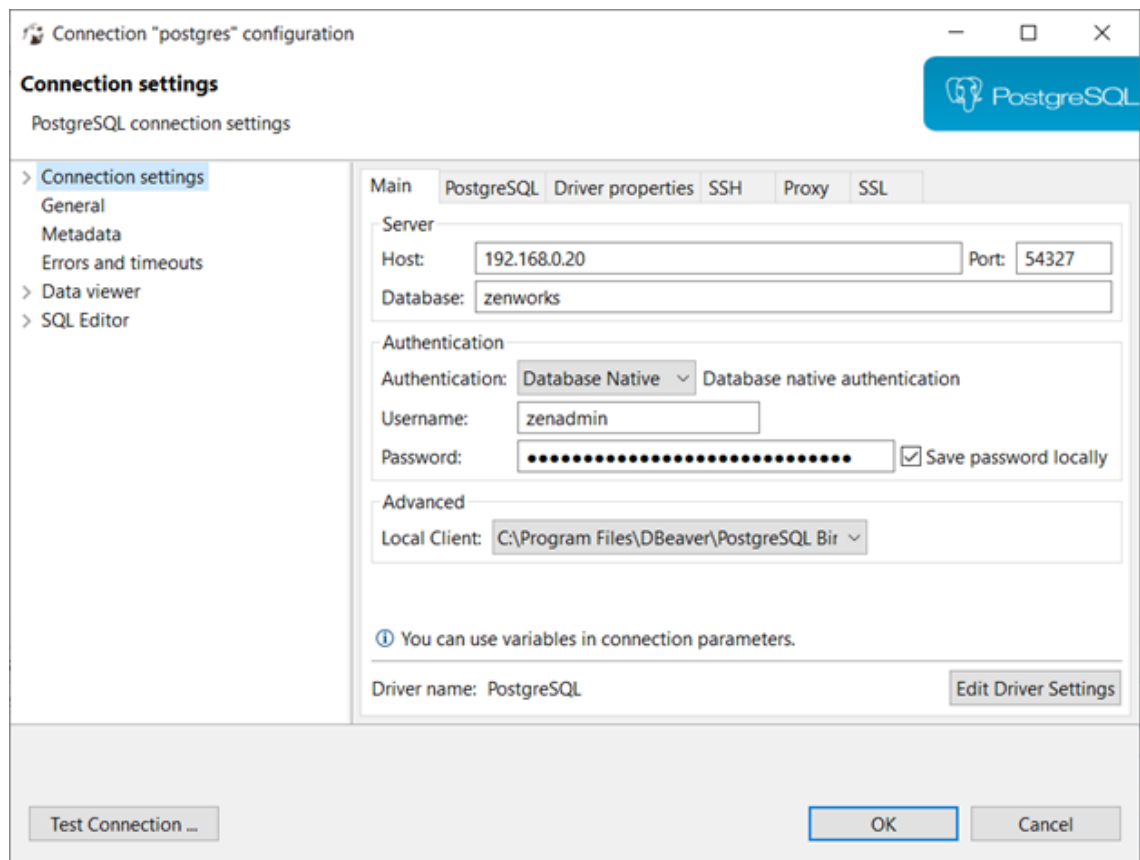
   On the Primary Server, run `zman dgc` to get the zenadmin and password.

   Go to zdm.xml to collect the database name.

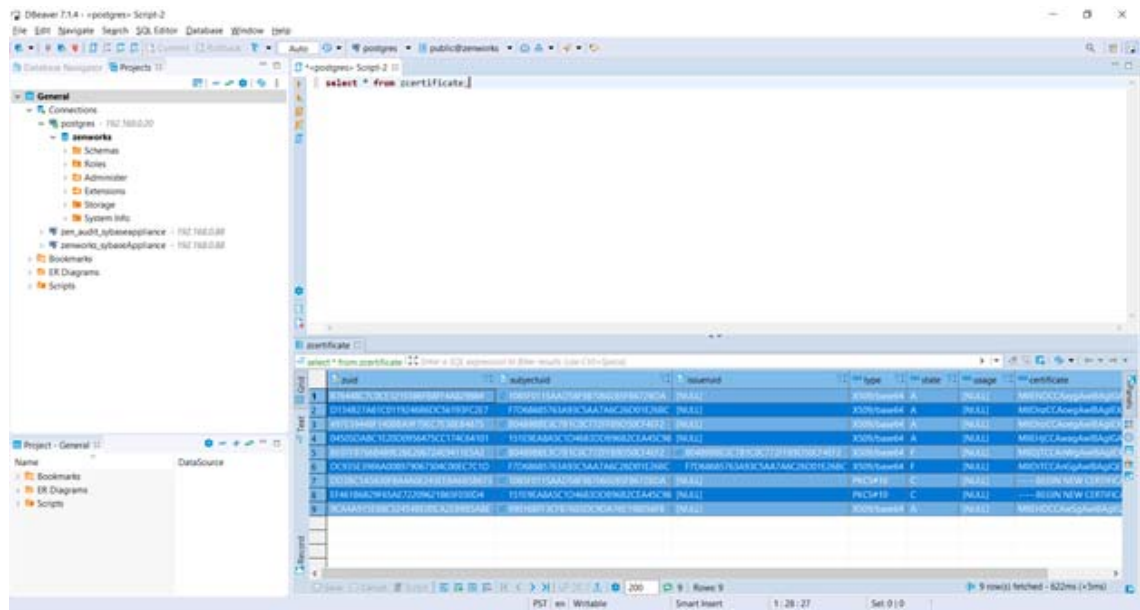   On Linux: `/etc/opt/microfocus/zenworks/datamodel`

4. After connecting, right click on the database on the left side and select SQL Editor > Open SQL Script as show in the below image, and start executing SQL queries.
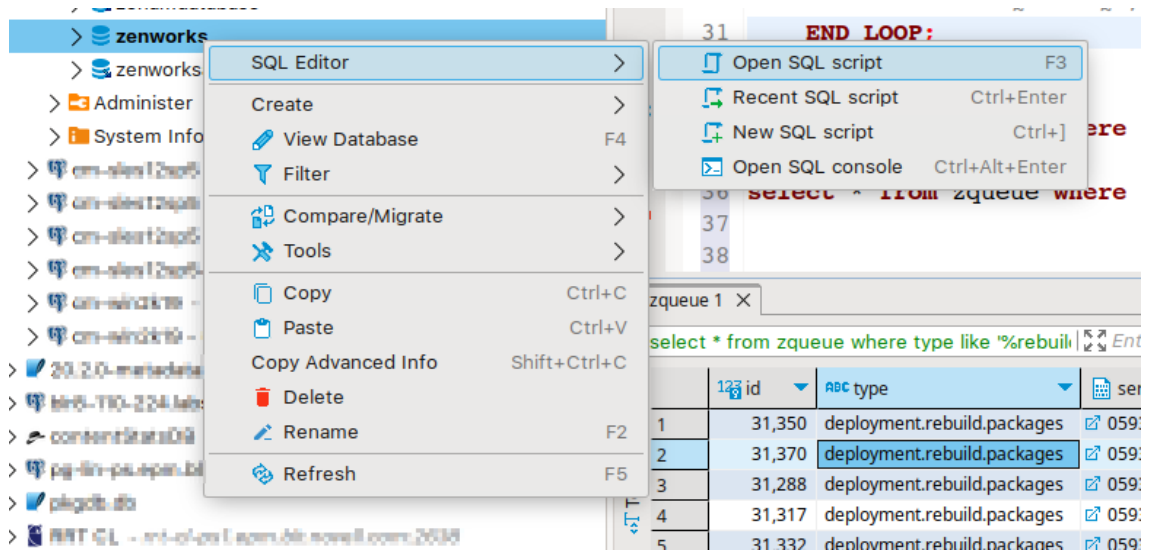
5. Go to > Window > Preferences > DBeaver > Editors > Data Editor > Lob Editors > Binary data formatter and then select "Hex".
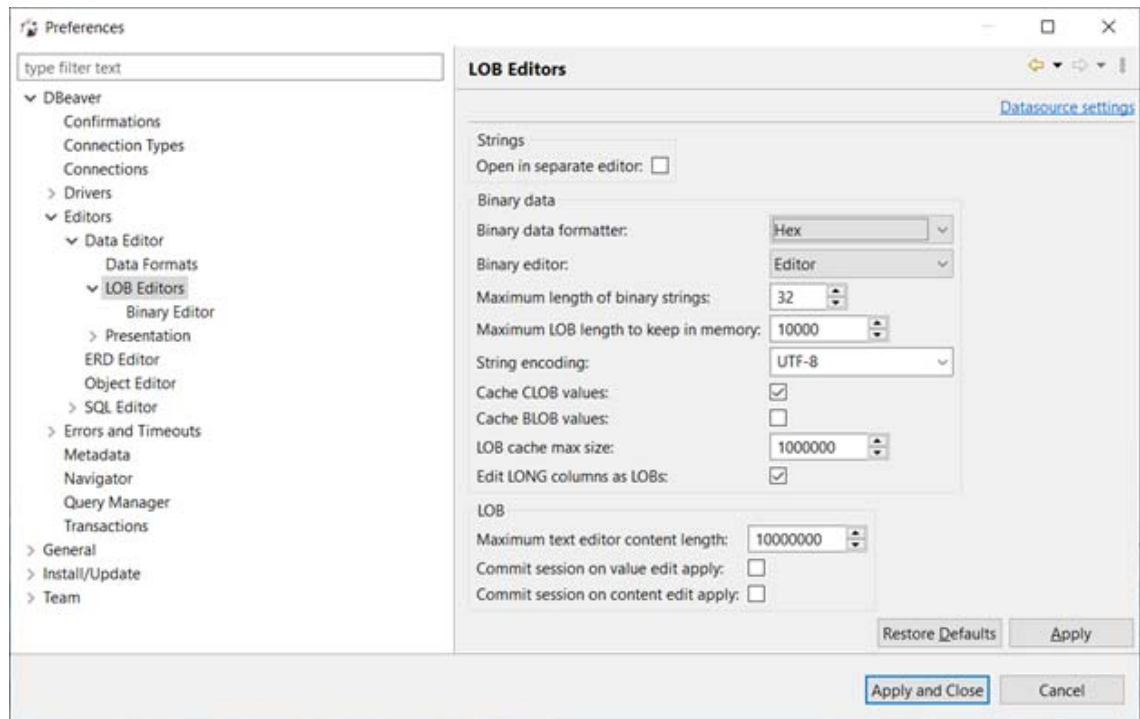
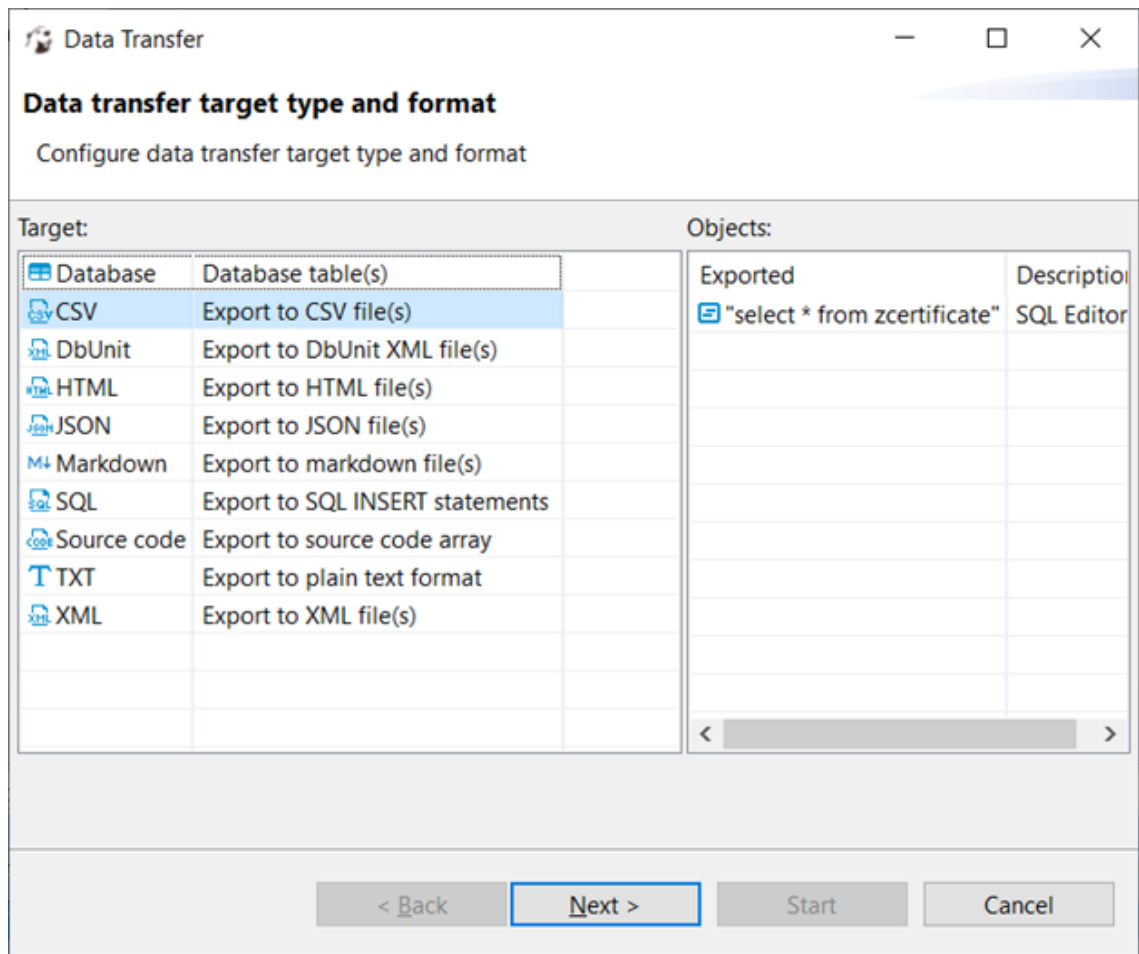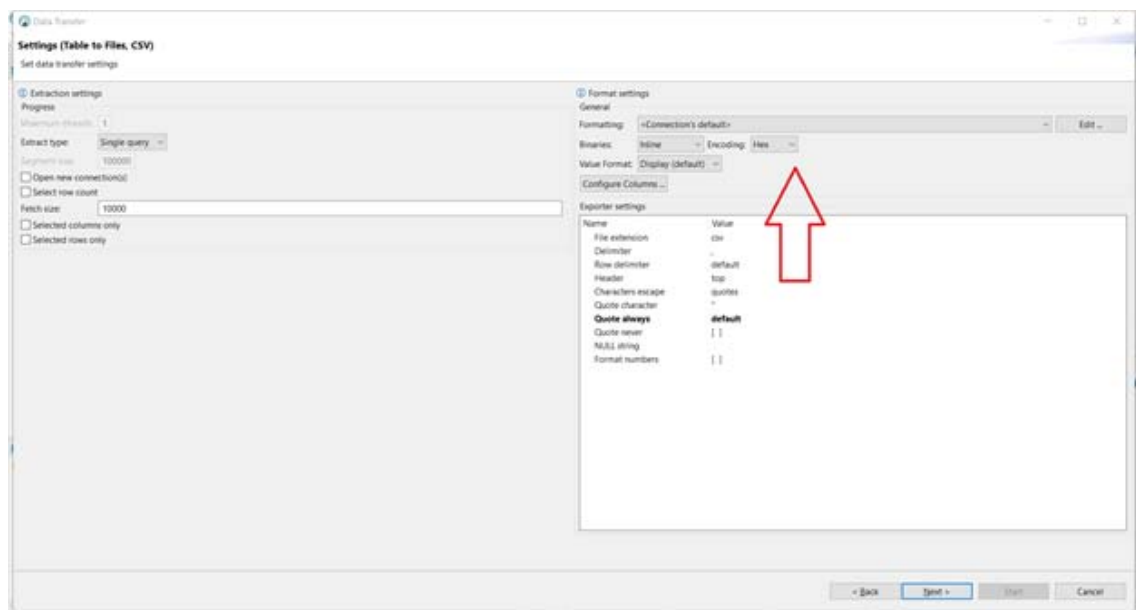6. Right click on all the results of the query.

NOTE: For some tables where comma delimited is not useful (example inventory tables) just copy the results and paste into Excel.

7. Select Export Data, and then select CSV.

Ensure that the output includes hex formatting for the binary fields.

8. Send the resulting CSV file.

A Documentation Updates

This section contains information on documentation content changes that were made in this *Database Management Reference* for ZENworks Configuration Management after the initial release. The information can help you to keep current on updates to the documentation.

The documentation for this product is provided on the web in two formats: HTML and PDF. The HTML and PDF documentation are both kept up-to-date with the changes listed in this section.

If you need to know whether a copy of the PDF documentation that you are using is the most recent, the PDF document includes a publication date on the title page.

April 2023: ZENworks 2020 Update 3

Updates were made to the following sections:

Location	Change
Using the zman command to Take a Backup of the Database	Updated the section with the latest zman command to take backup of the database.