Lenovo Network

Release Notes

For Lenovo Cloud Network Operating System 10.1

Lenovo™

Note: Before using this information and the product it supports, read the general information in the *Safety information and Environmental Notices and User Guide* documents on the Lenovo *Documentation* CD and the *Warranty Information* document that comes with the product.

Release Notes

This release supplement provides the latest information regarding Cloud Network OS 10.1 for the Lenovo RackSwitch G8272 (referred to as G8272 throughout this document).

This supplement modifies and extends the following Cloud NOS documentation for use with *CNOS* 10.1:

- *Cloud Network OS* 10.1 *Application Guide*
- *Cloud Network OS* 10.1 *ISCLI Reference*
- *Lenovo RackSwitch G8272 Installation Guide*

The publications listed above are available from the following website:

http://publib.boulder.ibm.com/infocenter/systemx/documentation/index.jsp

Please keep these release notes with your product manuals.

Hardware Support

CNOS 10.1 software is supported on the G8272, a high performance Layer 2-3 network switch.

The G8272 is a 1U rack-mountable aggregation switch with unmatched line-rate Layer 2 performance. The G8272 uses a wire-speed, non-blocking switching fabric that provides simultaneous wire-speed transport of multiple packets at low latency on all ports.

The switch unit contains the following switching ports:

- Forty-eight 10 Gigabit Ethernet (GbE) Small Form Pluggable Plus (SFP+) ports which also support legacy 1 GbE connections
- Six 40 GbE Quad Small Form Pluggable Plus (QSFP+) ports, each of which can optionally be used as four 10 GbE SFP+ ports

Figure 1. RackSwitch G8272 front panel

Management Panel   SFP+ Ports   QSFP+ Ports
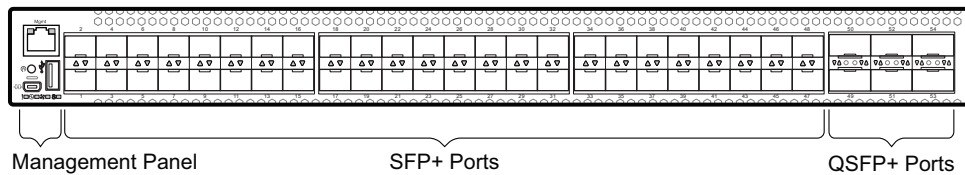
Updating the Switch Software Image

The new Cloud Network OS image can coexist on the switch with your legacy 8.x Lenovo NOS. When you install the 10.x image, the previous 8.x installation will be preserved in its original state and can be returned to by the steps outlined. The newly installed 10.x installation will start from a default configuration.

To download all necessary software images, go to the following website:

> http://www.ibm.com/support

Follow these directions to upgrade your switch software image from Lenovo NOS 8.x to Lenovo Network Cloud Operating System.

1. Make sure you are running Lenovo NOS 8.2.5.0.

   To determine the software version currently used on the switch, use the following switch command:

   ```
   RS 8272# display version
   ```

   If you are running a different version of Lenovo NOS, download and install the Lenovo NOS version 8.2.5.0 image.

2. From the 8.2.5 image, download the Cloud NOS image:

   ```
   RS 8272# cp tftp image1 address <TFTP server address> filename <location on TFTP
   server relative to tftpboot location>/G8272-CNOS-10.1.1.0.imgs mgt-port
   ```

   Note: CNOS consists of a single image to install that contains all components, including boot and operating system.

   During the download, you are presented with the message "WARNING: This operation will overlay the currently booting image." and are asked to confirm the download operation.

   Enter y to continue.

3. When the download has completed, reset the switch:

   ```
   RS 8272# reload
   Reset will use software "image1" and the active config block.
   >> Note that this will RESTART the Spanning Tree,
   >> which will likely cause an interruption in network service.
   Confirm reload (y/n) ?
   ```

4. Enter y to continue the reload.

5. When the switch finishes rebooting, log in and verify the image to make sure it is the correct image running the correct version of the software:

```
RS 8272 login: admin
Password: <password>
Last login: Tue May 24 12:19:34 2016 from 10.42.1.100
<build note>

NOS version 10.1.1.0 LENOVO G8272, Wed May 18 15:01:20 PDT 2016

RS 8272# enable
RS 8272# display boot
Current FLASH software:
  active image: version 10.1.1.0, downloaded 02:05:34 UTC Sun May 15 2016
  standby image: version 10.1.1.0, downloaded 01:22:52 UTC Mon May 16
2016
  Uboot: version 10.1.1.0, downloaded 02:05:36 UTC Sun May 15 2016
Currently set to boot software active image
Currently scheduled reboot time: none
Current port mode: default mode
```

Note: If this is first time switching NOS versions the image version may appear as unknown. To fix this:

1. 1.Reinstall the CNOS image again following standard image install methods:

```
RS 8272# cp tftp tftp:/<TFTP server address>/G8272-CNOS-10.1.1.0.imgs
system-image all vrf management
Confirm download operation? (y/n) [n] y
```

2. When prompted to change the active boot image to the standby image, enter **y** to confirm:

```
Boot loader now contains Software Version 10.1.1.0
Standby image now contains Software Version 10.1.1.0
Switch is currently set to boot active image.
Do you want to change that to the standby image? (y/n) [n] y
Switch is to be booted with standby image.
Currently profile is default, set to boot with default profile next time.
Current FLASH software:
  image1: version 10.1.1.0, downloaded 12:13:52 Mon Jan 11, 2016
  image2: version 10.1.1.0, downloaded 16:49:37 Wed May 4, 2016
  boot kernel: version 10.1.1.0
Currently scheduled reboot time: none
```

Note: Because both NOS version 8.x and CNOS 10.x use the same boot kernel, the 10.x version will be reflected in the boot kernel version displayed if you switch to NOS 8.x.

Reloading the NOS 8.2.5 Image

Follow these steps to reload the NOS 8.2.5 image:

1. Reload the switch, confirming the reboot when prompted:

```
RS 8272# reload
reboot system (y/n) ? y
```

2. When the phrase "Booting Lenovo NOS" appears, quickly press **B** (**Shift-b**) to call the Boot Management Menu

```
Boot Management Menu
        M - Change boot mode (Legacy vs NextGen)
        I - Change booting image
        R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
        P - Password reset
        O - ONIE boot menu
        Q - Reboot
        E - Exit
Please choose your menu option:
```

3. Enter **M** to change the boot mode.

```
Please choose your menu option: M
Currently booting in NextGen mode
Enter boot mode: Legacy or NextGen:
```

4. Enter **L** to switch to Legacy Boot Mode.

```
Enter boot mode: Legacy or NextGen: L
Boot Management Menu
        M - Change boot mode (Legacy vs NextGen)
        I - Change booting image
        C - Change configuration block
        R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
        O - ONIE boot menu
        Q - Reboot
        E - Exit
Please choose your menu option:
```

5. At the Boot Management Menu, enter **Q** to reboot.

6. After the switch reboots, log in and verify that the switch is running NOS version 8.2.5:

```
RS RS 8272# display boot

Current running image version: 8.2.5
Currently set to boot software image2, unknown config block.
NetBoot: disabled, NetBoot tftp server:  , NetBoot cfgfile:
Current boot Openflow protocol version: 1.0
USB Boot: disabled
Currently profile is default, set to boot with default profile next time.
Current FLASH software:
  image1: version 10.1.1.0, downloaded 12:13:52 Mon Jan 11, 2016
  image2: version 10.1.1.0, downloaded 16:49:37 Wed May 4, 2016
  boot kernel: version 10.1.1.0
Currently scheduled reboot time: none
```

Note: Because both NOS version 8.x and CNOS 10.x use the same boot kernel, the 10.x version will be reflected in the boot kernel version displayed if you switch to NOS 8.x.

Supplemental Information

This section provides additional information about configuring and operating the G8272 and CNOS.

The Boot Management Menu

The Boot Management menu allows you to switch the software image, reset the switch to factory defaults, or to recover from a failed software download.

You can interrupt the boot process and enter the Boot Management menu from the serial console port. When the system displays Memory Test, press **<Shift B>**. The Boot Management menu appears.

```
Resetting at 10:55:49 Sun Apr 19, 2015…
Memory Test ...............................
Boot Management Menu
        M - Change boot mode (Legacy vs NextGen)
        I - Change booting image
        R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
        P - Password reset
        Q - Reboot
        E - Exit
Please choose your menu option: I
Current boot image is 1. Enter image to boot: 1 or 2: 2
Booting from image 2
```

The Boot Management menu allows you to perform the following actions:

- To change the startup mode, press **M** and follow the screen prompts. Legacy refers to Lenovo Enterprise Network OS (8.3 or prior) and NextGen refers to Lenovo Cloud Network OS (10.1 or later).

- To change the booting image, press **I** and follow the screen prompts.

- To boot in recovery mode, press **R**.

- To reset the default user password, press **P** and follow the screen prompts.

- To reboot the switch, press **Q**. The booting process restarts

- To exit the Boot Management menu, press **E**. The booting process continues.

Recovering from a Failed Software Upgrade

Use the following procedure to recover from a failed software upgrade.

1. Connect a PC to the serial port of the switch.

2. Open a terminal emulator program that supports XModem Download (for example, HyperTerminal, SecureCRT, PuTTY) and select the following serial port characteristics:

   - Speed: 9600 bps

   - Data Bits: 8

   - Stop Bits: 1

- Parity: None

- Flow Control: None

3. To access the Boot Management menu, you must interrupt the boot process from the Console port. Boot the G8272, and when the system begins displaying Memory Test progress (a series of dots), press **<Shift B>**. The Boot Management menu will display:

```
Resetting at 10:55:49 Sun Apr 19, 2015…
Memory Test ................................
Boot Management Menu
        M - Change boot mode (Legacy vs NextGen)
        I - Change booting image
        R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
        P - Password reset
        Q - Reboot
        E - Exit
Please choose your menu option:
```

4. Select **R** for **Boot in recovery mode**. You will see the following display:

```
Entering Rescue Mode.
Please select one of the following options:
        T) Configure networking and tftp download an image
        X) Use xmodem 1K to serial download an image
        P) Physical presence (low security mode)
        F) Filesystem check
        R) Reboot
        E) Exit

Option?:
```

- If you choose option **X** (Xmodem serial download), go to step 5.

- If you choose option **T** (TFTP download), go to step 6.

5. **Xmodem download**: When you see the following message, change the Serial Port characteristics to 115200 bps:

```
Change the baud rate to 115200 bps and hit the <ENTER> key before
initiating the download.
```

a. Press <**Enter**> to set the system into download accept mode. When the readiness meter displays (a series of "C" characters), start XModem on your terminal emulator.

b. When you see the following message, change the Serial Port characteristics to 9600 bps:

```
Change the baud rate back to 9600 bps, hit the <ESC> key.
```

c. When you see the following prompt, enter the image number where you want to install the new software and press <**Enter**>.

```
Install image as image 1 or 2 (hit return to just boot image): 1
```

d. The following message is displayed when the image download is complete. Continue to step 7.

```
Entering Rescue Mode.
Please select one of the following options:
        T) Configure networking and tftp download an image
        X) Use xmodem 1K to serial download an image
        P) Physical presence (low security mode)
        F) Filesystem check
        R) Reboot
        E) Exit

Option?:
```

6. **TFTP download**: The switch prompts you to enter the following information:

```
Performing TFTP rescue. Please answer the following questions (enter 'q'
to quit):
IP addr    :
Server addr:
Netmask    :
Gateway    :
Image Filename:
```

a. Enter the required information and press <**Enter**>.

b. You will see a display similar to the following:

```
        Host IP    : 10.10.98.110
        Server IP  : 10.10.98.100
        Netmask    : 255.255.255.0
        Broadcast  : 10.10.98.255
        Gateway    : 10.10.98.254
Installing image G8272-10.1.1.0_OS.imgs from TFTP server 10.10.98.100
```

c. When you see the following prompt, enter the image number where you want to install the new software and press <**Enter**>.

```
Install image as image 1 or 2 (hit return to just boot image): 1
```

d. The following message is displayed when the image download is complete. Continue to step 7.

```
Entering Rescue Mode.
Please select one of the following options:
        T) Configure networking and tftp download an image
        X) Use xmodem 1K to serial download an image
        P) Physical presence (low security mode)
        F) Filesystem check
        R) Reboot
        E) Exit

Option?:
```

7. Image recovery is complete. Perform one of the following steps:

- Press **r** to reboot the switch.

- Press **e** to exit the Boot Management menu

- Press the Escape key (<**Esc>**) to re-display the Boot Management menu.

Recovering from a Failed Boot Image Upgrade

Use the following procedure to recover from a failed boot image upgrade.

1. Connect a PC to the serial port of the switch.

2. Open a terminal emulator program that supports Xmodem download (such as HyperTerminal, CRT, or PuTTY) and select the following serial port characteristics:

   - Speed: 9600 bps
   - Data Bits: 8
   - Stop Bits: 1
   - Parity: None
   - Flow Control: None

3. Boot the switch and access the Boot Management menu by pressing <**Shift B**> while the Memory Test is in progress and the dots are being displayed.

4. Select **R** to boot in recovery mode. Then choose option **X** (Xmodem serial download). You will see the following display:

```
Perform xmodem download
To download an image use 1K Xmodem at 115200 bps.
```

5. When you see the following message, change the Serial Port characteristics to 115200 bps:

```
Change the baud rate to 115200 bps and hit the <ENTER> key before
initiating the download.
```

   a. Press <**Enter**> to set the system into download accept mode. When the readiness meter displays (a series of "C" characters), start Xmodem on your terminal emulator.You will see a display similar to the following:

```
Extracting images ... Do *NOT* power cycle the switch.
**** RAMDISK ****
Un-Protected 38 sectors
Erasing Flash...
.................................... done
Erased 38 sectors
Writing to Flash...9....8....7....6....5....4....3....2....1....done
Protected 38 sectors
**** KERNEL ****
Un-Protected 24 sectors
Erasing Flash...
....................... done
Erased 24 sectors
Writing to Flash...9....8....7....6....5....4....3....2....1....
```

   b. When you see the following message, change the Serial Port characteristics to 9600 bps:

```
Change the baud rate back to 9600 bps, hit the <ESC> key.
```

Boot image recovery is complete.

Known Issues

This section describes known issues for CNOS 10.1 on the RackSwitch G8272.

BGP

MD5 authentication is not supported with BGP dynamic peers. (ID: 45970)

ECMP Routes

Recursive ECMP routes are not counted in ECMP route statistics. (ID: 43134)

FDB

When deleting all the VLANs associated with a specific interface, a large number of MAC addresses learnt on that trunk interface will be removed with a delay. (ID: 49673)

IGMP Snooping

An IGMPv2 Leave packet is not always sent to the multicast router interface(s) when an IGMPv2 group expires. (ID: 48562)

Infra Commands

Running the following commands in Configuration Mode will take the prompt to Privileged EXEC Mode:

- **ping**
- **traceroute**
- **remove**

To work around the issue, type **do** before the actual **ping**/**traceroute**/**remove** commands under Configuration Mode. (ID: 55067)

NRG

QSFP+ ports are set to 40G fixed (non auto-negotiate) mode. The link partner needs to meet the same requirements for the link to be fully functional. (ID: 52025)

OSFP

In a multi-area adjacency topology, **remove ip ospf process** command takes a short while to take effect. (ID: 52353)

QoS

The ranges displayed for the following QoS parameters are not accurate:

- *Committed information rate*;
- *Peak information rate*.

The displayed range is `1bps-1gbps`, but the user can configure rates beyond the 1gbps upper limit using the kbps, mbps, and gbps options. (ID: 47847)

STP

Regional root cannot be correctly selected after changing the CIST priority with configured MSTP regions. (ID: 50845)

VLAG

In case of a MSTP region mismatch in a VLAG scenario, syslog will display that the ports will be disabled in spanning-tree due to configuration (region) mismatch. However, these ports can be re-enabled in spanning-tree and participate in spanning-tree calculation. (ID: 48971)