

Lenovo RackSwitch G8264CS

# Release Notes

For Networking OS 8.3

**Lenovo**<sup>TM</sup>

**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.

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## Release Notes

This release supplement provides the latest information regarding Lenovo Networking OS 8.3 for the Lenovo RackSwitch G8264CS (referred to as G8264CS throughout this document).

This supplement modifies and extends the following Lenovo N/OS documentation for use with *N/OS* 8.3:

- *Lenovo RackSwitch G8264CS Application Guide for Lenovo Networking OS 8.3*
- *Lenovo RackSwitch G8264CS Command Reference for Lenovo Networking OS 8.3*
- *Lenovo RackSwitch G8264CS 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

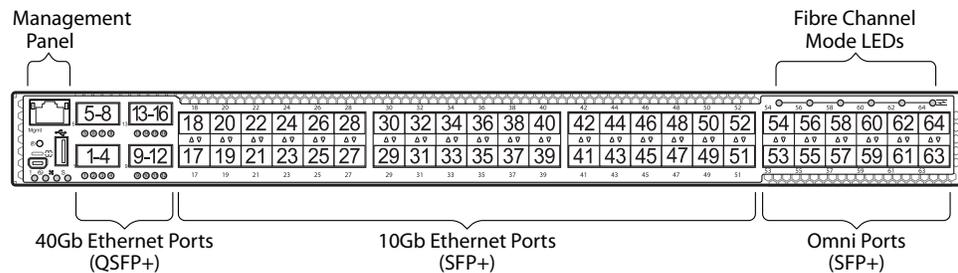
Lenovo N/OS 8.3 software is supported on the G8264CS, a high performance Layer 2-3 network switch.

The G8264CS is a 1U rack-mountable aggregation switch with unmatched line-rate Layer 2 performance. The G8264CS 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:

- Thirty-six 10 Gigabit Ethernet (GbE) Small Form Pluggable Plus (SFP+) ports which also support legacy 1 GbE connections
- Four 40 GbE Quad Small Form Pluggable Plus (QSFP+) ports, each of which can optionally be used as four 10 GbE SFP+ ports
- Twelve Omni Ports (port pairs selectable between 10 Gb SFP+ Ethernet mode or 4/8 Gbps Fibre Channel mode).

**Figure 1.** RackSwitch G8264CS front panel



QSFP+ ports can be populated with optical QSFP+ modules or Direct-Attach Cables (DACs), including those that allow the port to be used as four 10 GbE SFP+ ports. SFP+ ports can be populated with optical or copper transceiver modules or DACs.

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## Updating the Switch Software Image

The switch software image is the executable code running on the G8264CS. A version of the image comes pre-installed on the device. As new versions of the image are released, you can upgrade the software running on your switch. To get the latest version of software supported for your G8264CS, go to the following website:

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

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

```
RS G8264CS> show version
```

The typical upgrade process for the software image consists of the following steps:

- Load a new software image and boot image onto a SFTP, FTP or TFTP server on your network.
- Transfer the new images to your switch.
- Specify the new software image as the one which will be loaded into switch memory the next time a switch reset occurs.
- Reset the switch.

For instructions on the typical upgrade process, see “[Loading New Software to Your Switch](#)” on page 6.

## Loading New Software to Your Switch

The G8264CS can store up to two different switch software images (called `image1` and `image2`) as well as special boot software (called `boot`). When you load new software, you must specify where it should be placed: either into `image1`, `image2` or `boot`.

For example, if your active image is currently loaded into `image1`, you would probably load the new image software into `image2`. This lets you test the new software and reload the original active image (stored in `image1`), if needed.

**Attention:** When you upgrade the switch software image, always load the new boot image and the new software image before you reset the switch. If you do not load a new boot image, your switch might not boot properly (To recover, see [“Recovering from a Failed Image Upgrade” on page 10](#)).

To load a new software image to your switch, you will need the following:

- The image and boot software loaded on a SFTP, FTP or TFTP server on your network.

**Note:** Be sure to download both the new boot file and the new image file.

- The hostname or IP address of the SFTP, FTP or TFTP server.

**Note:** The DNS parameters must be configured if specifying hostnames.

- The name of the new software image or boot file.

When the software requirements are met, use the following procedures to download the new software to your switch.

1. In Privileged EXEC mode, enter the following command:

```
RS G8264CS(config)# copy {sftp|tftp|ftp} {image1|image2|boot-image}
```

2. Enter the hostname or IP address of the SFTP, FTP or TFTP server.

```
Address or name of remote host: <name or IP address>
```

3. Enter the name of the new software file on the server.

```
Source file name: <filename>
```

The exact form of the name will vary by server. However, the file location is normally relative to the SFTP, FTP or TFTP directory (for example, `tftpboot`).

4. If required by the SFTP, FTP or TFTP server, enter the appropriate username and password.
5. The switch will prompt you to confirm your request.

Once confirmed, the software will begin loading into the switch.

6. When loading is complete, use the following commands to enter Global Configuration mode to select which software image (image1 or image2) you want to run in switch memory for the next reboot:

```
RS G8264CS# configure terminal  
RS G8264CS(config)# boot image {image1|image2}
```

The system will then verify which image is set to be loaded at the next reset:

```
Next boot will use switch software image1 instead of image2.
```

7. Reboot the switch to run the new software:

```
RS G8264CS(config)# reload
```

The system prompts you to confirm your request. Once confirmed, the switch will reboot to use the new software.

**Note:** If you select “No” when asked to confirm the reload, any changes made to the configuration since the last reboot will be lost.

## Updating vLAG Switches with Lenovo Networking OS 8.x

Below are the steps for updating the software and boot images for switches configured with vLAG:

1. Save the configuration on both switches using the following command:

```
RS G8264CS# copy running-config startup-config
```

2. Use FTP, STFP or TFTP to copy the new Networking OS and boot images onto both vLAG switches. For more details, see [“Loading New Software to Your Switch” on page 6](#).
3. Shutdown all ports except the ISL ports and the health check port on the primary switch (Switch 1).  
**Note:** Do not save this configuration.
4. Reload Switch 1. Switch 2 will assume the vLAG primary role. Once Switch 1 has rebooted, Switch 1 will take the vLAG secondary role.
5. Shutdown all ports except the ISL ports and the health check port on Switch 2.  
**Note:** Do not save this configuration.
6. Reload Switch 2. Switch 1 will assume the vLAG primary role. Once Switch 2 has rebooted, make sure that Switch 1 is now the vLAG primary switch and Switch 2 is now the vLAG secondary switch.
7. Verify the all the vLAG clients have converged using the following command:

```
RS G8264CS> show vlag information
```

---

## Supplemental Information

This section provides additional information about configuring and operating the G8264CS and Lenovo N/OS.

### 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 the System ...
Memory Test .....

Boot Management Menu
  I - Change booting image
  C - Change configuration block
  R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
  Q - Reboot
  E - Exit
Please choose your menu option:
```

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

- To change the booting image, press **I** and follow the screen prompts.
- To change the configuration block, press **C**, and follow the screen prompts.
- To perform a TFTP/Xmodem download, press **R** 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 Image Upgrade

The Boot Management menu allows you to perform fundamental device management operations, such as selecting which software image will be loaded, resetting the G8264CS to factory defaults or recovering from a failed image download.

Use the following procedure to recover from a failed image 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 or PuTTY) and select the following serial port characteristics:
  - Speed: 9,600 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 G8264CS and when the system begins displaying Memory Test progress (a series of dots), press **<Shift + B>**.

The Boot Management menu will display:

```
Resetting the System ...
Memory Test .....

Boot Management Menu
  I - Change booting image
  C - Change configuration block
  R - Boot in recovery mode (tftp and xmodem download of images to
recover switch)
  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)
  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 115,200 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:

```
... Waiting for the <Enter> key to be hit before the download can
start...
CC
```

- b. When you see the following message, change the Serial Port characteristics to 9,600 bps:

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

- c. Press **<Enter>** to start installing the image. If the file is a software image, enter the image number:

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

The image install will begin. After the procedure is complete, the Recovery Mode menu will be re-displayed.

```
Extracting images ... Do *NOT* power cycle the switch.
Installing Root Filesystem:
Image signature verified. 100%
Installing Kernel:
Image signature verified. 100%
Installing Device Tree:
Image signature verified. 100%
Installing Boot Loader: 100%
Updating install log. File image installed from xmodem at 18:06:02 on
13-3-2015
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)
    R) Reboot
    E) Exit

Option?:
```

Continue to [Step 7](#).

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>**. 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 G8264CS-8.3.0_OS.img from TFTP server 10.10.98.100
```

- b. If the file is a software image, you will be prompted to enter an image number:

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

The following message is displayed when the image download is complete:

```
Image2 updated succeeded
Updating install log. File G8264CS-8.3.0_OS.img installed from
10.10.98.100 at 15:29:30 on 12-3-2015
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)
  R) Reboot
  E) Exit

Option?:
```

Continue to [Step 7](#).

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.

## VLAGs

For optimal VLAG operation, adhere to the following configuration recommendations:

- Any port-related configuration, such as applied ACLs, must be the same for all ports included in the same VLAG, across both peer switches.
- Configure VLAG health checking as shown in the *Application Guide*.

After configuring VLAG, if you need to change any configuration on the VLAG ports, you must adhere to the following guidelines:

- If you want to change the STP mode, first disable VLAG on both the peers. Make the STP mode-related changes and re-enable VLAG on the peers.
- If you have MSTP on, and you need to change the configuration of the VLAG ports, follow these steps:

### On the VLAG Secondary Peer:

1. Shutdown the VLAG ports on which you need to make the change.
2. Disable their VLAG instance using the command:  
RS G8264CS (config)# **no vlag adminkey <key> enable**  
or  
RS G8264CS (config)# **no portchannel <number> enable**
3. Change the configuration as needed.

### On the VLAG Primary Peer:

4. Disable the VLAG instance.
5. Change the configuration as needed.
6. Enable the VLAG instance.

### On the VLAG Secondary Peer:

7. Enable the VLAG instance.
8. Enable the VLAG ports.

**Note:** This is not required on non-VLAG ports or when STP is off or when STP is PVRST.

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## New and Updated Features

Lenovo N/OS 8.3 for the G8264CS has been updated to include several new features, summarized in the following sections. For more detailed information about configuring G8264CS features and capabilities, refer to the complete Lenovo N/OS 8.3 documentation as listed on [page 3](#).

### 4xVRRP w/VLAG

VRRP can work as Full Active-Active or Half Active-Active under a two tier vLAG topology. Full Active-Active means both two tier vLAGs can route L3 traffic for the related VRRP domain. Half Active-Active means vLAGs will do L2/L3 forwarding for the related VRRP domain based on the local and peer VRRP role.

### ACL boot profiles

The boot profile changes some of the basic switch behavior, shifting switch resources to optimize capacity levels to meet the needs of different types of networks.

### Allow any port Native VLAN ID to be used for the FIP VLAN Discovery Protocol

This feature removes restriction of having native VLAN 1 on FCoE ports. With this feature, user will be able to configure FCoE ports with any native VLAN (other than FCoE VLAN).

### Certificate Signing Request (CSR)

This feature enhances the certificate management capabilities on the switch by incorporating the ability to generate a Certificate Signed Request which can be submitted to an external Certificate Authority (CA) for obtaining a signed certificate. The capability to support CSR and process the CA signed certificate thereof is made available from multiple user interfaces including BBI, SNMP and CLI.

### Dual Speed 1/10G SFP+ Transceiver

SFP+ ports are supporting now dual speed transceivers (1G/10G). The user is able to configure the speed which will be used.

### IPv6 health check for vLAGs

vLAG health check now supports IPv6 address.

### LDAP configurable user name

This feature enables the switch's Lightweight Directory Access Protocol (LDAP) Remote Authentication feature to function with the Microsoft Server LDAP Authentication. This support is implemented by allowing a user to override the default Username Attribute passed in with the LDAP authentication request with a configured string.

## Management ACLs

Management ACLs filter traffic that goes to switch CPU.

## Microburst detection

Microburst or congestion detection and control per port basis from ingress point of view based on shared memory usage and statistics logs per port per queue basis from egress point of view.

## No terminal prompting

This feature implements a new CLI command “[no] **terminal dont-ask**” to turn off prompting for all CLI commands that would ask for user confirmation to proceed. This command will disable CLI confirmation prompts for the current session only.

## NPV - Support for automatic disruptive load balancing

This feature triggers NPV load balancing automatically when FC uplinks are recovered from failure or new FC uplinks are introduced.

## STP range enhancement

Existing STP commands are enhanced to support configuration of a range of STP groups at a time.

## Tech support enhancement

Adds CLI command line text before each corresponding output section in the **show tech-support** dump.

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## Known Issues

This section describes known issues for Lenovo N/OS 8.3 on the Lenovo RackSwitch G8264CS.

**Note:** Please review the Change History documentation posted with the Switch Firmware to check if any of these issues have been fixed in the latest release.

### FCoE

VMware command causes FCoE host to lose connectivity with storage. (ID: 7400)

- FCOE connections are lost when the `/sbin/lldpnetmap` script is run on the server, resulting in detection of multiple LLDP peers on the port.
- The connections are no restored until the port is shutdown/no shutdown.

### Omni Ports

- For timing-sensitive Ethernet protocols and latency-sensitive Ethernet data traffic, we recommend you use the native Ethernet ports instead of the Omni Ports in Ethernet mode.

Omni Ports are optimized for Fibre Channel (FC) traffic. When in Ethernet mode, the Omni Ports exhibit the following sub-optimal characteristics:

- Higher latency
- Slower link event detection

During heavy activity in the module handling Omni Port processing, additional delays in link event detection times could potentially impact link timing sensitive protocols (including but not limited to VRRP, OSPF, BGP, LACP, VLAG, and IGMP). Extended periods of heavy Omni Port activity is not a normal scenario, but when it happens in conjunction with link timing sensitive protocol usage, unpredictable performance results may be observed. (ID: 64746)

- Egress packets contribute to statistics on Omni Ports even when link is down or transceivers are not present. (ID: 62639)

### Statistics

The unicast traffic counter is not incremented for member unit port when sending tagged traffic. (ID: 37800)

- Packets that have invalid length in EtherType/Length field from Ethernet header are counted as multicast packets even though they are unicast packets (invalid means that the length specified is not the same as packet length).

### STP

A topology change incorrectly appears when port goes down after disabling STP Portfast. (ID: 38072)

- If STP mode is MSTP, shutting down a port which state is operational spanning tree portfast and not administrative portfast may cause spanning tree topology change and messages will be prompted on console. This topology change will not influence the traffic.

Not all 16 STGs converge simultaneously after a root bridge change. (ID: 7478)

- On a setup with 16 active STGs, 3-5 of them converge after 30 seconds instead of 2 sec as normal behavior.

## **Virtual Aggregation Link Groups (vLAG)**

Mrouter/IGMP group synchronization fails after primary or secondary DUT reload in a vLAG scenario. (ID: 40177)

- When topology change occurs on the STP root which is a VLAG switch and it is rebooted, IGMP groups are removed.
- IGMP groups are removed when STP Root bridge, which is also a vLAG switch, recovers after a reboot.

