

Lenovo RackSwitch G7028/G7052

Release Notes

For Enterprise Network Operating System 8.4

LenovoTM

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 Enterprise Network Operating System 8.4 for the Lenovo RackSwitch G7028 (referred to as G7028 throughout this document).

This supplement modifies and extends the following Enterprise NOS documentation for use with NOS 8.4:

- *Lenovo RackSwitch G7028/G7052 Application Guide for Lenovo Enterprise Network Operating System 8.4*
- *Lenovo RackSwitch G7028/G7052 Command Reference for Lenovo Enterprise Network Operating System 8.4*
- *Lenovo RackSwitch G7028/G7052 Installation Guide*

The publications listed here 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

Enterprise NOS 8.4 software is supported on the G7028 and the G7052.

The G7028 and the G7052 are 1U rack-mountable switches. The G7028 and the G7052 use a wire-speed, non-blocking switching fabric that provides simultaneous wire-speed transport of multiple packets at low latency on all ports.

The G7028 contains the following switching ports:

- Four SFP+ 10 GbE ports
- Twenty-four fixed 10/100/1000 megabits per second (Mbps) auto-sensing, auto-MDIX on all RJ45 data ports

The G7052 contains the following switching ports:

- Four SFP+ 10 GbE ports
- Forty-eight fixed 10/100/1000 megabits per second (Mbps) auto-sensing, auto-MDIX on RJ-45 ports

Figure 1. RackSwitch G7028 front panel

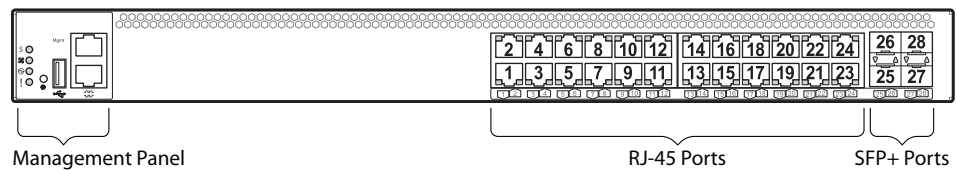
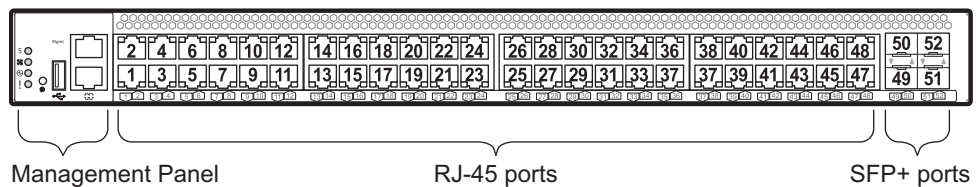


Figure 2. Rackswitch G7052 front panel



Updating the Switch Software Image

The switch software image is the executable code running on the G7028. 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 G7028, go to the following website:

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

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

```
RS G7028> show version
```

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

- Load a new software image and boot image onto an 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 G7028 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 OS Image Upgrade” on page 9](#)).

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

- The image and boot software loaded on an 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 G7028# 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.

- 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 G7028# configure terminal  
RS G7028(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.
```

- Reboot the switch to run the new software:

```
RS G7028(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.

Supplemental Information

This section provides additional information about configuring and operating the G7028 and Enterprise NOS.

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 OS 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 G7028 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 G7028 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. When you see the following prompt, 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): 1
```

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

```
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 G7028-8.4.1.0_OS.imgs 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): 2
```

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

```
Image2 updated succeeded
Updating install log. File G7028-8.4.1.0_OS.imgs 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.

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 ****
UnProtected
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 ****
UnProtected
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.

New and Updated Features

Enterprise NOS 8.4 for the G7028 has been updated to include several new features, summarized in the following sections. For more detailed information about configuring G7028 features and capabilities, refer to the complete Enterprise NOS 8.4 documentation as listed on [page 3](#).

TACACS+ Two Level Authentication

When TACACS+ is used to control switch access and the CLI Enable Mode is configured to require a password, a second authentication for the Enable command will be required.

Security Feature Support

This feature supports Secure I/O Module (SIOM) framework by managing security policies based on the IOM mode (Secure/Legacy). A secure version of LDAP using startTLS and LDAPS is supported. Cryptographic Provisioning is also supported.

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.

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.

Password Encryption

This feature enables all passwords in the switch to be encrypted using industry-standard encryption methods.

SNMPv1 Default Community String Removal

This feature removes the default read/write community string for SNMP v1/2c from the factory default configuration.

Default UserID with Default Password That Must Be Reset at First Login

This feature adds a default user "USERID" at UID 1 with default password "PASSW0RD" and prompts for a change of the default password at first login.

STP Debugging Enhancement

The STP display has been enhanced to display the current and previous STP STG root information.

SLP IPv6 Support

SLP has been enhanced with support for IPv6.

Decoupling Active VLANs from MSTP Configuration

This feature enables the decoupling of VLAN configuration from MSTP configuration and changes the MSTP configuration menu to a more simplified one. By doing so, specifying a mapping between VLANs and MSTI will not create any VLANs, and the participation of VLANs in MSTP will not depend on VLANs being created.

STP Range Enhancement

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

LACP Individual Mode

When this feature is enabled on an LACP port-channel, if a member port of the port-channel does not receive any LACPDU over a period of time, it will be treated as a normal port that may forward data traffic according to its STP state.

Secure FTP

This release adds support for Secure FTP (sFTP).

Add Startup and Backup Configurations to Tech Support Dump

Startup and backup configurations have been added to the tech-support dump.

Full Private VLAN

This feature supports Private VLAN configurations as described in RFC 5517.

Known Issues

This section describes known issues for Enterprise NOS 8.4 on the Lenovo RackSwitch G7028/G7052.

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.

Debug

Enterprise NOS debug commands are for advanced users. Use the debug commands with caution as they can disrupt the operation of the switch under high load conditions. This could be dangerous in mission-critical production environments. Before debugging, check the MP utilization to verify there is sufficient overhead available for the debug functionality. When debug is running under high load conditions, the CLI prompt may appear unresponsive. In most cases, control can be returned by issuing a `no debug <function>` command.

ISCLI

The command:

```
RS G7028# show interface port <port number> transceiver detail
```

is unavailable. (ID: 60039)

SLP

Abbreviated IPv6 addresses are not supported in Service Location Protocol (SLP) strings. All IPv6 addresses used in SLP request strings must be extended. For example, the SLP request:

```
slptool findattrs  
service:io-device.Lenovo:management-module://2001::1
```

will not work. Instead, you must use the extended form of the IPv6 address:

```
slptool findattrs  
service:io-device.Lenovo:management-module://2001:0000:0000:  
0000:0000:0001
```