

Brocade SLX-OS Software Upgrade Guide, 16r.1.00

Supporting the Brocade SLX 9850 Router

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Preface

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Document conventions

The document conventions describe text formatting conventions, command syntax conventions, and important notice formats used in Brocade technical documentation.

Notes, cautions, and warnings

Notes, cautions, and warning statements may be used in this document. They are listed in the order of increasing severity of potential hazards.

NOTE

A Note provides a tip, guidance, or advice, emphasizes important information, or provides a reference to related information.

ATTENTION

An Attention statement indicates a stronger note, for example, to alert you when traffic might be interrupted or the device might reboot.



CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.



DANGER

A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Text formatting conventions

Text formatting conventions such as boldface, italic, or Courier font may be used to highlight specific words or phrases.

Format	Description
bold text	Identifies command names. Identifies keywords and operands. Identifies the names of GUI elements.
<i>italic text</i>	Identifies text to enter in the GUI. Identifies emphasis. Identifies variables.
Courier font	Identifies document titles. Identifies CLI output.

Format	Description
	Identifies command syntax examples.

Command syntax conventions

Bold and italic text identify command syntax components. Delimiters and operators define groupings of parameters and their logical relationships.

Convention	Description
bold text	Identifies command names, keywords, and command options.
<i>italic text</i>	Identifies a variable.
value	In Fibre Channel products, a fixed value provided as input to a command option is printed in plain text, for example, <code>--show WWN</code> .
[]	Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets.
{ x y z }	A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. In Fibre Channel products, square brackets may be used instead for this purpose.
x y	A vertical bar separates mutually exclusive elements.
< >	Nonprinting characters, for example, passwords, are enclosed in angle brackets.
...	Repeat the previous element, for example, <code>member[member...]</code> .
\	Indicates a "soft" line break in command examples. If a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash.

Brocade resources

Visit the Brocade website to locate related documentation for your product and additional Brocade resources.

White papers, data sheets, and the most recent versions of Brocade software and hardware manuals are available at www.brocade.com.

Product documentation for all supported releases is available to registered users at MyBrocade.

Click the **Support** tab and select **Document Library** to access documentation on MyBrocade or www.brocade.com. You can locate documentation by product or by operating system.

Release notes are bundled with software downloads on MyBrocade. Links to software downloads are available on the MyBrocade landing page and in the Document Library.

Document feedback

Quality is our first concern at Brocade, and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. You can provide feedback in two ways:

- Through the online feedback form in the HTML documents posted on www.brocade.com
- By sending your feedback to documentation@brocade.com

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.

Contacting Brocade Technical Support

As a Brocade customer, you can contact Brocade Technical Support 24x7 online, by telephone, or by e-mail. Brocade OEM customers should contact their OEM/solution provider.

Brocade customers

For product support information and the latest information on contacting the Technical Assistance Center, go to www.brocade.com and select **Support**.

If you have purchased Brocade product support directly from Brocade, use one of the following methods to contact the Brocade Technical Assistance Center 24x7.

Online	Telephone	E-mail
<p>Preferred method of contact for non-urgent issues:</p> <ul style="list-style-type: none"> Case management through the MyBrocade portal. Quick Access links to Knowledge Base, Community, Document Library, Software Downloads and Licensing tools 	<p>Required for Sev 1-Critical and Sev 2-High issues:</p> <ul style="list-style-type: none"> Continental US: 1-800-752-8061 Europe, Middle East, Africa, and Asia Pacific: +800-AT FIBREE (+800 28 34 27 33) Toll-free numbers are available in many countries. For areas unable to access a toll-free number: +1-408-333-6061 	<p>support@brocade.com</p> <p>Please include:</p> <ul style="list-style-type: none"> Problem summary Serial number Installation details Environment description

Brocade OEM customers

If you have purchased Brocade product support from a Brocade OEM/solution provider, contact your OEM/solution provider for all of your product support needs.

- OEM/solution providers are trained and certified by Brocade to support Brocade® products.
- Brocade provides backline support for issues that cannot be resolved by the OEM/solution provider.
- Brocade Supplemental Support augments your existing OEM support contract, providing direct access to Brocade expertise. For more information, contact Brocade or your OEM.
- For questions regarding service levels and response times, contact your OEM/solution provider.

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Supported hardware and software

In those instances in which procedures or parts of procedures documented here apply to some devices but not to others, this guide identifies exactly which devices are supported and which are not.

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for SLX-OS Release 16r.1.00, documenting all possible configurations and scenarios is beyond the scope of this document.

The following hardware platforms are supported by this release:

- Brocade SLX 9850-4 router
- Brocade SLX 9850-8 router

To obtain information about other Brocade OS versions, refer to the documentation specific to that version.

What's new in this document

The following tables include descriptions of new information added to this guide for the SLX OS 16r.1.00 software release.

TABLE 1 Summary of enhancements in SLX OS release 16r.1.00

Feature	Description	Described in
<feature-name>	<feature-description>	<xref to feature or chapter>

Installing and Maintaining Firmware

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Firmware management overview

Brocade firmware upgrades consist of multiple firmware packages listed in a `.plist` file. The `.plist` file contains specific firmware information (time stamp, platform code, version, and so forth) and the names of the firmware packages to be downloaded. These packages are made available periodically to add features or to remedy defects in the firmware. In SLX OS 16r.1.00, firmware upgrade is performed incrementally. The **firmware download** command compares the new firmware packages against the current installation and only downloads the packages that contain new features or have been modified.

You can download the firmware from a remote server by means of the File Transfer Protocol (FTP), SSH File Transfer Protocol (SFTP), or the Secure Copy Protocol (SCP). If you want to download firmware from a remote server, you must connect the management Ethernet port of the switch to the server. In a modular chassis, both management Ethernet ports need to be connected.

If a **firmware download** session is interrupted by an unexpected reboot, SLX OS attempts to recover the previously installed firmware. Success depends on the state of the firmware download. You must wait for the recovery to complete before initiating another firmware download.

Preserving the configuration

To preserve the configurations, back up the configuration using the **copy running-config filename** command before the firmware download. After the upgrade is completed, run the **copy filename running-config** command.

Upgrading firmware on a modular chassis

In SLX OS 16r.1.00 in-service software upgrade (ISSU) is not supported. .

Automatic firmware synchronization

When you replace or insert a second management module into a chassis, the active management module automatically synchronizes the hot-plugged standby management module with the same firmware version. The standby management module reboots with the upgraded firmware. The automatic firmware synchronization takes place only if all of the following conditions are met:

- The standby management module is inserted while the chassis is already up (hot-plugged insert).
- There was no firmware download process running when the standby management module was inserted.
- The active and standby firmware versions must be different.

NOTE

Automatic firmware synchronization is intrinsic to SLX OS 16r.1.00 and later and no corresponding **enable** or **disable** commands are associated with the feature. As a result, the feature cannot be disabled.

Supported platforms

The following lists supported firmware versions by platform.

TABLE 2 SLX-OS firmware support by platform

Platform	16r.1.00	
Brocade SLX 9850-4 Router	yes	
Brocade SLX 9850-8 Router	yes	

Preparing for a Firmware Download

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Prerequisites

To prepare for a firmware download, perform the tasks listed in this section. In the unlikely event of a failure or timeout, you will be able to provide your switch support provider the information required to troubleshoot the firmware download.

1. Verify the current firmware version. Refer to [Obtaining the firmware version](#) on page 16 for details.
2. Download the firmware package from the Brocade website to an FTP server.
3. Decompress the firmware archive. Refer to [Obtaining and decompressing firmware](#) on page 13.
4. Decide on a migration path. Check the connected devices to ensure firmware compatibility. Refer to the "SLX OS Compatibility" section of the *SLX OS 16r.1.00 Release Notes* for the recommended firmware version.
5. Back up your switch configuration using the **copy running-config filename** command before the firmware download.
6. For additional support, connect the switch to a computer with a serial console cable. Ensure that all serial consoles and any open network connection sessions, such as Telnet, are logged and included with any trouble reports
7. Enter the **copy support** command to collect all current core files prior to executing the firmware download. This information helps to troubleshoot the firmware download process in the event of a problem. Once the **copy support** command is issued and the files collected, the **clear support** command can be issued to remove the files from the list.
8. Enter the **clear logging raslog** command to erase all existing messages in addition to internal messages.

Obtaining and decompressing firmware

Firmware upgrades are available for customers with support service contracts and for partners on the Brocade website at www.mybrocade.com.

You must download the firmware package to an FTP server and decompress the package *before* you can use the **firmwaredownload** command to upgrade the firmware on your equipment.

When you unpack the downloaded firmware, it expands into a directory that is named according to the firmware version. When issued with the path to the directory where the firmware is stored, the **firmwaredownload** command performs an automatic search for the correct package file type associated with the device.

Basic Firmware Upgrade

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Upgrading firmware on a local device

A basic firmware download upgrades the local device only. This section explains how to use the **firmwaredownload** command and its various options in a local device firmware upgrade.

Upgrading considerations and restrictions

Consider the following when upgrading your firmware version:

- Upgrading SLX-OS is automatically allowed because the Telnet server and SSH server status are enabled by default.

Connecting to the switch

When you upgrade firmware in default mode, you connect to the switch through the management IP address. Modular switches have one management IP address for the chassis and separate IP addresses for each management module. To upgrade both management modules, you can either connect to the chassis management IP address or to the IP address of the active management module. If you want to upgrade a single management module only, you must connect to the IP address of that management module and run the **firmware download** command in manual mode. In manual mode, only the local management module is upgraded.

Use the **show system** command to display the management IP address for the chassis.

```
switch# show system
Stack MAC                : 00:05:33:15:FA:70
  -- UNIT 0 --
Unit Name                 : sw0
Switch Status             : Online
Hardware Rev              : 1000.0
TengigabitEthernet Port(s) : 56
Up Time                  : up 8:38
Current Time              : 16:39:56 GMT
NOS Version               : 5.0.0
Jumbo Capable             : yes
Burned In MAC             : 00:05:33:15:FA:70
Management IP             : 10.24.73.131 <- Chassis Management IP address
Management Port Status    : UP
```

Use the **show interface management** command to display the IP addresses for the management modules.

```
switch# show interface management
interface Management 10/1
ip address 10.24.73.130/20
ip gateway-address 10.24.64.1
ipv6 ipv6-address [ ]
ipv6 ipv6-gateways [ ]
line-speed actual "1000baseT, Duplex: Full"
```

```

line-speed configured Auto
interface Management 10/2
ip address 10.24.74.23/20
ip gateway-address 10.24.64.1
ipv6 ipv6-address [ ]
ipv6 ipv6-gateways [ ]
line-speed actual "1000baseT, Duplex: Full"
line-speed configured Auto

```

NOTE

You must configure the gateway and default route that is pointing to the management interface within the mgmt-vrf and address-family unicast context.

Obtaining the firmware version

Enter the **show version** command to obtain the firmware version for both primary and secondary partitions of each module.

```

device# show version

SLX-OS Operating System Software
SLX-OS Operating System Version: 16r.1.01
Copyright (c) 1995-2016 Brocade Communications Systems, Inc.
Firmware name:      16r.1.01slxos_16r.1.x_maint_160819_1858
Build Time:         05:11:01 Aug 20, 2016
Install Time:       18:32:33 Aug 22, 2016
Kernel:             2.6.34.6

Control Processor:  GenuineIntel with 7890 MB of memory

System Uptime:     0days 12hrs 35mins 29secs

Slot   Name      Primary/Secondary Versions                               Status
-----
M1     SLX-OS  16r.1.01slxos_16r.1.x_maint_160819_1858          STANDBY*
      16r.1.01slxos_16r.1.x_maint_160819_1858

```

Using the firmware download command

Two upgrade options are available:

- Coldboot - Coldboot is the standard option for dual-MM system for all firmware upgrades between major releases.
- Default-config - Removes all configuration and is similar to an initial installation and configuration.

NOTE

To be able to address the FTP server by its name, ensure that a Domain Name System (DNS) entry is established for the server.

NOTE

SLX-OS does not support the use of special characters (such as &!%#) in FTP and SCP passwords. If your SCP or FTP password contains special characters, the download fails.

Downloading firmware using the coldboot option

The **coldboot** option in the **firmware download** command allows you to download new firmware onto a switch and forces the switch to perform a cold reboot.

In a chassis system, this option downloads the firmware on both the active and standby MMs and reboots both of the MMs at the same time. After the firmware completes downloading on both MMs, they are rebooted at the same time. This ensures that both MMs reboot with the same firmware, and prevents any firmware compatibility issues that may exist between the old and the new firmware.

NOTE

This option causes traffic disruption.

1. Download the firmware from the source directory with the coldboot option.

```
switch# firmware download scp host 10.70.4.109 user fvt directory /buildsjc/sre/SQA/nos/nos5.0.0/
nos5.0.0_bld30 password pray4green coldboot
Performing system sanity check...
```

This command will cause a cold/disruptive reboot and will require that existing telnet, secure telnet or SSH sessions be restarted.

Do you want to continue? [y/n]:y

2. After the switch completes the reboot sequence, you may log in to the switch and operate normally.
3. Log back into the switch. Enter the **firmware commit** command to commit the new firmware. If you entered **y** after the prompt, the switch will commit the firmware automatically upon booting up.

```
switch# firmware commit
Validating primary partition...
Doing firmwarecommit now.
Please wait ...
Replicating kernel image
.....
FirmwareCommit completes successfully.
```

4. Enter the **show version** command. Both partitions on the switch or on the modules should contain the new firmware.

Downloading firmware using the default-config option

The **firmware download default-config** command allows you to download a new firmware onto the switch, clean up the configuration, and then force the switch to perform a cold reboot.

This option is useful to prevent issues caused by incompatible configuration between the old and new firmware.



CAUTION

When you invoke **firmware download default-config**, traffic is disrupted and the configuration is lost. You must save the configuration information before you execute the command and then restore it afterwards.

To download firmware by using the **default-config** option use the following command:

```
switch# firmware download default-config ftp host 10.20.1.3 user fvt password pray4green directory dist
file release.plist
```

```
Performing system sanity check...
```

```
This command will set the configuration to default.
```

```
This command will cause Cold reboot on both MMs at the same time and will require that existing telnet,
secure telnet or SSH sessions be restarted.
```

Do you want to continue? [y/n]: y

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Viewing software capabilities

Viewing information about software capabilities

To display information about the software capabilities, enter the **show license** command.

```
device# show license
Slot 1
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Port Upgrade license
Feature name:PORT_100G_40G_UPGRADE
Capacity: 30x100G or 50X40G
License is Node-Lock and valid
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
MPLS license
Feature name: MPLS
License is Node-Lock and valid
Slot 2
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Port Upgrade license
Feature name:PORT_10G_UPGRADE
Capacity: 36x10G
License is Node-Lock and valid
```

Interface module capabilities

The following table lists the supported capabilities for the following Brocade SLX 9850 interface modules:

- BR-SLX9850-10Gx72S-M
- BR-SLX9850-100Gx36CQ-M
- BR-SLX9850-10Gx72S-D
- BR-SLX9850-100Gx36CQ-D

TABLE 3 Brocade SLX 9850 interface modules capabilities

Capability	M Interface Module
MPLS	Yes
Packet Buffers per interface module	12 GB (72x10G) 36 GB (Flex)