S2410 Quick Reference

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Attention: Le present appareil numerique n'emet pas de perturbations radioelectriques depassant les normes applicables aux appareils numeriques de la Class A prescrites dans le Reglement sur les interferences radioelectriques etabli par le ministere des Communications du Canada.

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Danger: AC Power cords are for use with Force10 Networks equipment only, do not use Force10 Networks AC Power cords with any unauthorized hardware.

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Contents

Overview

Thank you for purchasing a Force10 Networks® S2410 switch!

This *S2410 Quick Reference* document is printed and included in the S2410 shipping box to provide you with a quick way to access basic installation and configuration instructions and to tell you how to get more information.

In addition to the S2410 with its SFTOS operating system (basic Layer 2 package) loaded in its default configuration, the shipping box also contains two AC power cords, a DB9 to RJ45 connector, a small bag with rack ears, rack-mounting screws, plastic feet for table-top mounting, and the *S2410 Documentation* CD-ROM (hereafter simply referred to as the "S2410 CD-ROM"). Other purchased components are shipped separately.

The hardware installation section (Installing the Hardware on page 6) in this guide contains a subset of the information in *Installing the S2410 System*, a book stored as a PDF both on the S2410 CD-ROM and at the iSupport website.

The software configuration section (see "Basic Software Configuration on page 10") contains a subset of the configuration information in the *SFTOS Configuration Guide*, which is also on the S2410 CD-ROM and at the iSupport website.

In fact, all of the S2410 documentation that is on the S2410 CD-ROM is also available on the iSupport website.

For more information about the S2410 CD-ROM, see the next section, Contents of the S2410 Documentation CD-ROM on page 5.

For more information about the iSupport website (login required), see The iSupport Website on page 15.



Note: This S2410 Quick Reference is specific to SFTOS Version 2.4.1.

Contents of the S2410 Documentation CD-ROM

The S2410 Documentation CD-ROM launches an HTML start page that links to folders on the CD-ROM containing the following:

S2410 Documentation

S2410 Quick Reference (this book)

Installing the S2410 System: This book contains details of installation options.

SFTOS Command Reference for the S2410: This book contains syntax statements for all SFTOS commands used by the S2410.

SFTOS Configuration Guide for the S2410: This book is designed to help you perform the most common configuration tasks, with examples of the most commonly used commands.

Note: The *S-Series and SFTOS Release Notes* are not on the CD-ROM. Visit the iSupport page. See The iSupport Website on page 15.

S-Series Links

MIBs: This link is to a folder on the S2410 CD-ROM containing the S-Series MIBs.

Secure Communications (SSH/SSL/HTTPS): This link opens an HTML page with a link to the *S-Series Secure Management* application note, which describes how to enable secure communications through SSH, SSL, and HTTP. The page also contains links to folders on the S2410 CD-ROM containing example keys and shell scripts that you can use to generate your own SSH keys and SSL certificates.

Training Material: This link is to a folder on the S2410 CD-ROM containing sets of slides, in PDF format, that are used in the S-Series training.

Force10 Literature: This link is to the Force10 Literature folder on the S2410 CD-ROM. The folder contains product data sheets for all Force10 products.

Note: The SFTOS software is not on the CD-ROM. It is installed on the system. You can check the iSupport website of Force10 for the latest image. See Installing New Software on page 12 and The iSupport Website on page 15.

Installing the Hardware



Danger: To prevent electrical shock, make sure the switch is grounded properly. If you do not ground your equipment correctly, excessive emissions may result.

Force10 Networks recommends that you install the system before inserting XFPs and cables. You can power up the system before or after you insert XFPs and cables.



Warning: As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this system. Electrostatic discharge (ESD) damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S2410 and its components.

Attaching the S2410 to a Rack

The S2410 ships with a bag containing rubber feet for adhering to the chassis base, which you would do if you want to put the switch in a cabinet or on a table top. The bag also contains two universal front-mount brackets (rack ears) with the philips screws for attaching them to the switch and to a standard 19-inch rack.



Warning: Use only the supplied screws for attaching the rack ears. Longer screws might compromise the electronics. Shorter or weaker screws might not adequately support the S2410.

The lower right corner of Figure 1 shows the positioning of the rack ears and screws. Note that the rack ears supplied with the S2410 have a hole in the middle to accommodate the vent in the S2410.





Ensure that there is adequate clearance surrounding the rack to permit access and airflow. For fan maintenance and proper ventilation, position the switch in an equipment rack (or cabinet) with a minimum of five inches (12.7 cm) of clearance around the side intake and exhaust vents. If you are installing two S2410 systems side-by-side, position the two chassis at least five inches apart to permit proper airflow.

Position the S2410 chassis in the rack. Secure the chassis with two screws through each rack ear and onto the rack post.



Figure 2 Front-mounting the S2410



Note: The front-mounting installation above is one of several installation options contained in the book *Installing the S2410 System*. Other options include rear mounting, four-post mounting, and table-mounting.

Supplying Power

Both S2410 models (S2410CP and S2410P) provide built-in dual AC power supplies. Only one power supply is needed for the unit to operate. However, if both power supplies are connected, the S2410 uses power from both power supplies in load-balancing mode. The S2410 system includes no DC power or external backup power options.

Use the supplied AC power cords to connect the S2410 to the AC power source (see AC Power Supply on page 28). Ideally, the power sources are on separate circuits.

Connect the plug to the AC receptacles at the rear of the S2410, making sure the cords are secure at both ends. Connecting either power cord starts the system (no on/off switch).



Note: The AC receptacles are labeled A and B, matched to the PSU A and PSU B status LEDs on the face pf the S2410. Labeling the power cords A and B can help in a diagnostic situation.

Connecting CX4 Ports

CX4 10G copper ports are pre-installed in the S2410CP. As opposed to XFP ports, using a CX4 port requires only the insertion, into the port, of the appropriate CX4 cable with the correct CX4 cable connector. Using a cable with a bail latch-type connector is simple: You push the connector into the port. To remove it, simply pull back on the bail latch.

The S2410CP provides up to 1W per port for either active copper cables or optical-to-electrical converters. Note that the qualified 15 meter cable is an active cable and requires that the end labeled "Active" be connected to the S2410CP in order to operate correctly.

S2410 CX4 ports, because they are tightly packed, only accept cables with a connector that has a low-profile pull-tab and low-profile cable housing. Using any cable that is not approved by Force10 might cause interface errors and/or have issues with mechanical fit. CX4 cables are not included with the switch, but Force10 has certified cables to use with the S2410CP. For a list of approved cables, see the S2410 data sheet: http://www.force10networks.com/products/s2410.asp

See the book *Installing the S2410 System* for more.

Connecting XFP Ports

Force10 Networks offers various types of XFP transceivers. For details, see: http://www.force10networks.com/products/specifications.asp

All ports except the management port in the S2410P use XFP transceivers. The S2410CP includes four XFP ports (along with 20 CX4 ports that do not need transceivers). Each XFP port requires an XFP transceiver, which is a small rectangular module, as shown below.



Warning: Do not look directly into any optical port. Failure to follow this warning could result in physical harm.



Using the Console Port

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Caution: You must use a rollover cable (same as used for the E-Series). This is in contrast to the straight-through cable used on other S-Series models. In more detail, the cable connections are pin 1 to pin 8, pin 2 to pin 7, pin 3 to pin 6, pin 4 to pin 5, and the inverse for pins 5 through 8. Then, optionally, connect the RJ-45/DB-9 adapter that is shipped with the S2410 system to the cable.



See the Getting Started chapter of the *SFTOS Configuration Guide* for other console port details, such as setting the console timeout and the baud rate.

Connecting the Ethernet Management Port

The *Ethernet Management port* (commonly called the *service port*) is an RJ-45 port above the console port (shown above) and is labeled *10/100 Ethernet*. This port is dedicated to switch management, so it does not participate in handling network traffic, and it is not part of the management VLAN that you can set up with the other Ethernet ports.

Connect this port to an Ethernet port in your network. It is an auto-negotiating port that is capable of 1Gbps, but the status LED only lights green when the link speed is at 100. Then see Setting the IP Address for the Service Port on page 11.

Basic Software Configuration

This *S2410 Quick Reference* contains a small subset of the software configuration information that is provided in the Getting Started chapter of the *SFTOS Configuration Guide*. That guide is available in PDF format on the S2410 CD-ROM and on the Documents tab of the iSupport website.

This section discusses the following S2410 configuration topics:

- Creating a User and Password on page 10
- Setting the Enable Password on page 10
- Enabling Ports on page 11
- Setting the IP Address of the Virtual Management Port on page 12
- Enabling Telnet to the Switch on page 12
- Installing New Software on page 12
- Creating a Simple Configuration using VLANs and STP on page 13
- Enabling Spanning Tree Protocol on page 13

Creating a User and Password

The S2410 comes installed with one read/write user named "admin", with no password. You can add that password, and also create up to five more read/write users with the username command in Global Config mode. The command edits the user name and password in one statement, as shown below. User names provide access to the S2410 through both the command line interface (CLI, as shown below) and the SFTOS Web User Interface (Web UI).



Note: Rounded text boxes, such as the following, are used throughout Force10 documentation to simulate the appearance of a terminal screen after logging in to the CLI of the switch through a console program. The hostname prompt, exemplified in the following example by "(Force10)", is configurable.

Note: In this guide, bold text highlights the commands that you enter.

```
(Force10) >enable
(Force10) #config
(Force10) (Config)#username admin passwd apassword
User login name and password are set.
(Force10) (Config)#exit
(Force10) #exit
(Force10) >
```

Setting the Enable Password

The Privileged Exec password (commonly called the "enable" password), is not set when the S2410 starts the first time. To set the enable password, access the Privileged Exec mode (also called "enable mode") and then the Global Config mode, as shown in the following example. Enter the command **enable passwd**, then press **Enter**.

At the prompts, enter the password that you want to use:

```
(Force10) >enable
(Force10) #config
(Force10) (Config)#enable passwd
Enter new password:******
Confirm new password:******
Password Changed!
(Force10) (Config)#
```

Enabling Ports

When the S2410 is first installed, all ports are disabled by default. You can use the **no shutdown** command for a specific interface (Interface Config mode), or, to enable all ports, enter **no shutdown all** in Global Config mode, as shown here:

```
(Force10) >enable
(Force10) #config
(Force10) (Config)#no shutdown all
(Force10) (Config)#exit
```

Setting the IP Address for the Service Port

The S2410 provides a management option found in E-Series switches but not available on other S-Series switches — the Ethernet Management port (labeled *10/100 Ethernet* and commonly called the service port). It is a dedicated management port (in addition to the console port and the virtual management port — see below — that are standard on all Force10 switches). You can use the service port to access the switch through Telnet, SSH, TFTP, or the SFTOS Web UI. Use the following procedure to configure the service port:

Step	Command Syntax	Command Mode	Purpose
1.	serviceport protocol {none bootp dhcp}	Global Config	Specify the network configuration protocol to be used (Bootp or DHCP) for configuring access to the Ethernet Management port. Alternatively, leave the default at none to require the Ethernet Management port to be manually configured with IP information.
2.	serviceport ip ipaddr netmask [gateway]	Global Config	If you left the default at none , manually configure the IP address, IP subnet mask, and default IP gateway of the Ethernet Management port.
3.	show serviceport	Privileged Exec	Verify the service port configuration.



Note: In command syntax statements, such as those in the procedures here, words in bold are what you type, while italics indicate a variable for which you substitute a value. For example, *gateway*, below, should be replaced by the IP address of your IP gateway.

Setting the IP Address of the Virtual Management Port

If you want to access the switch through Telnet, SSH, TFTP, or the SFTOS Web UI, you must either set up the service port (the Ethernet Management port described above, dedicated to switch management), or use the following procedure to configure an IP address that is accessible, by default, through ports in VLAN 1. You can also do both, with separate IP addresses.

Step	Command Syntax	Command Mode	Purpose
1.	management route default gateway	Global Config	Set the IP gateway of the management interface.
2.	interface managementethernet	Global Config	Invoke the (Config-if-ma)# prompt.
3.	ip address ipaddr subnetmask	(Config-if-ma)# prompt	Set the IP address and subnet mask of the management interface.
4.	show interface managementethernet	User Exec or Privileged Exec	Verify management IP configuration.

-

Note: By default, the virtual management IP address is reachable from VLAN 1, and all physical ports are members of VLAN 1, so the management IP address will be reachable from all enabled physical ports by default. To modify that setup, see the Management chapter in the *SFTOS Configuration Guide*.

Enabling Telnet to the Switch

Access to the switch through a Telnet server is disabled by default. To enable Telnet access, first assign the management IP address (see Setting the IP Address of the Virtual Management Port on page 12), then execute the **ip telnet server enable** command in Global Config mode.



Note: If you want to access the switch through an SSH client, you would leave Telnet disabled and set up the SSH connection, as described in "Enabling Secure Management with Secure Shell or Secure Sockets Layer" in the *SFTOS Configuration Guide*.

Installing New Software

The S2410 comes installed with a limited version of the Layer 2 package of the SFTOS software; the Stacking component of the Layer 2 package is not included, as the S2410 is not stackable.

If you need to upgrade the software image that is installed on the S2410, and you want to download the image from a TFTP server, use:

copy tftp://ip_address/filename system:image

where *ip_address* is the URL of your TFTP server and *filename* is the filename of the SFTOS image.



Note: The SFTOS software for the S2410 has a file name that follows this format: "SFTOS-<platform>-<version>-<switching|routing>.bin". For example, the file name for SFTOS 2.4.1.1 is SFTOS-S2410-2.4.1.1-switching.bin.

You can use variations of the **copy** command to download or upload files to and from the switch. For details on the command syntax, see the **copy** command in the *SFTOS Command Reference*. More detailed instructions for upgrading or reinstalling the software or configuration files are available in the Getting Started chapter of the *SFTOS Configuration Guide*.

Creating a Simple Configuration using VLANs and STP



Note: As noted in Enabling Ports on page 11, all ports are disabled by default. Enable them with **no shutdown all** (Global Config mode), or individually with the **no shutdown** command on each port. The equivalent action on the Web UI is to select **Enable** in the Admin Mode field on the Port Configuration panel.

To use the command line interface (CLI) to create a VLAN (55 in this example) and then add a tagged interface and an untagged interface to it (ports 5 and 6, respectively): :

```
(Force10_S2410) (Config)#interface vlan 55
(Force10_S2410) (Conf-if-vl-55)#tagged 0/5
(Force10_S2410) (Conf-if-vl-55)#untagged 0/6
(Force10_S2410) (Conf-if-vl-55)#exit
(Force10_S2410) (Config)#
```

For more on using the CLI to create VLANs, see the VLANs chapters in the SFTOS Command Reference and SFTOS Configuration Guide.

Enabling Spanning Tree Protocol

Spanning Tree Protocol (STP) is off by default. First, you must enable STP globally. Next, enable STP on the desired ports. Using the CLI to enable STP, it is possible to enable spanning tree globally and on all the ports with just two commands — **spanning-tree** and **spanning-tree port mode all**. The following example also shows the use of two **show** commands to verify the configuration and convergence:

```
(Force10) #configure
(Force10) (Config) #spanning-tree
(Force10) (Config) #spanning-tree port mode all
(Force10) (Config) #exit
(Force10) #show spanning-tree summary
Spanning Tree Adminmode..... Enabled
Spanning Tree Version..... IEEE 802.1s
Configuration Name..... 00-01-E8-D5-A0-F7
Configuration Revision Level..... 0
Configuration Digest Key.....
0xac36177f50283cd4b83821d8ab26de62
Configuration Format Selector.... 0
No MST instances to display.
(Force10) #show spanning-tree interface 1/0/1
Hello Time..... 0
Port Mode..... Enabled
Port Up Time Since Counters Last Cleared..... 0 day 0 hr 19 min 38 sec
STP BPDUs Transmitted..... 2
STP BPDUs Received..... 593
RSTP BPDUs Transmitted..... 0
RSTP BPDUs Received..... 0
MSTP BPDUs Transmitted..... 4
MSTP BPDUs Received..... 0
(Force10) #write memory
![Your final step is to execute the write memory command to save the configuration.]!
```

Notable Differences between S-Series and E-Series

The S-Series CLI differs from the FTOS on the E-Series, but users familiar with FTOS can quickly learn the variations in syntax and usage. Variations include:

- **Creating a static route**: The SFTOS command **ip route** supports only IP addresses for setting the next-hop router, while **ip route** in the FTOS also supports physical interfaces.
- Setting the size of the logging buffer: The FTOS command logging buffered has a parameter that enables you to set the size of the buffer, while SFTOS does not. Both FTOS and SFTOS invoke debug logging with the number 7 for the severity level parameter. The SFTOS command is logging buffered 7.
- **Displaying the MAC address table**: Both FTOS and SFTOS have the **show mac-address-table** command, but the SFTOS command **show mac-addr-table** provides more similar results to that FTOS command.
- **Service timestamps**: This FTOS command is not available in SFTOS, which sets timestamps automatically.
- aaa authentication: This FTOS command is available in SFTOS as authentication.
- **Displaying system information**: The FTOS command **show linecard** is similar to **show version** in SFTOS, which shows basic information, including the running software version and up time. Other similar commands in SFTOS are **show hardware** and **show sysinfo**, and **show tech-support** provides the results of a group of those similar commands.

The iSupport Website

The i-Support website (<u>http://www.force10networks.com/support/</u>), as shown below, is organized primarily into the following five tabs:

- Home: Summary of open cases, RMA management, and field notices (as shown below)
- Service Request: Case management
- Software Center: Software downloads, bug fixes, and bug tracking tool
- Documents: User documentation, FAQs, field notices, technical tips, and white papers
- Support Programs: Information on all Force10 support and professional support services

Access to some sections of the iSupport website do not require a password. If some section does require a password, you can request one at the website:

- 1. On the Force10 Networks home page, <u>http://www.force10networks.com</u>, click the **Support** link.
- 2. Click the Account Request link.
- 3. Fill out the User Account Request form and click Send.
- 4. Click Login, and then enter the userid and password that you received by email.

FORCE	Sequence Environment				
Products Applications V	Vhite Papers Support Partners News/Events Company Careers Cor				
Login	Support Policies				
	Force10 world class support				
Support Overview	Force10 Networks provide world class technical support with modular hardware and so services to maintain a high performance network. Force10 support policies are streamlir quickly assist customers receive solutions to their technical issues.				
Contact Support					
Professional Services					
Support Policies	Support Guide				
Customer Login	Force10 Support guide provides process guidelines for requesting services from For Common questions regarding technical support requests, RMA's, training and i-Support u				
Account Request	covered.				
Documentation	• <u>Support Guide</u>				
E-Series Tech Tips and FAQ	Support Agreement The StarSupport end-user agreement covers Force10 support obligations, process for requ technical and hardware support, support limitations, terminations and definitions. <u>Force10 Master Support Agreement</u>				
S-Series Tech Tips and FAQ					
S-Series Downloads					
	Product Warranty				

Force10 Warranty and End User License Agreement

For more on using the iSupport website and accessing services, see the *Force10 Service and Support Guide*, available on the Support Policies page, as displayed above. You can also contact the Force10 Technical Assistance Center (TAC) by email or phone. For details, click the **Contact Support** link in the **Support** section of http://www.force10networks.com.