Installing the S2410 System

August 2007

FORCE10™

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Contents

Preface

About this Guide

This guide provides site preparation recommendations, step-by-step procedures for rack mounting and desk mounting, inserting optional modules, and connecting to a power source, for the S2410 system, including the S2410CP and S2410P.

After you have completed the hardware installation and power-up of the S2410, refer to the *SFTOS™ Configuration Guide for the S2410* for software configuration information and the *SFTOS Command Reference, Version 2.4* for detailed Command Line Interface (CLI) information.

Information Symbols

The following graphic symbols are used in this document to bring attention to hazards that exist when handling the S2410 and its components. Please read these alerts and heed their warnings and cautions.

Table 1 describes symbols contained in this guide.

Table 1 Information Symbols

Symbol	Warning	Description
	Danger	This symbol warns that improper handling and installation could result in bodily injury. Before you begin work on this equipment, be aware of hazards involving electrical circuitry, networking environments, and instigate accident prevention procedures.
	Caution	This symbol informs you that improper handling and installation could result in equipment damage or loss of data.
	Warning	This symbol informs you that improper handling may reduce your component or system performance.
	Note	This symbol informs you of important operational information.

Related Publications

For more information about the S2410, refer to the following documents:

- *SFTOS Configuration Guide, Version 2.4.1*
- *SFTOS Command Reference, Version 2.4.1*
- *S2410 Quick Reference*
- *S-Series and SFTOS Version 2.4.1 Release Note*s

Each of these documents are available on the S2410 Documentation CD-ROM and on the iSupport website (registration for access to some sections is required): https://www.force10networks.com/csportal20/KnowledgeBase/Documentation.aspx

The iSupport website also has a section for S-Series techtips and FAQs. See The iSupport Website on page 31.

The CD-ROM also has:

- **MIBs**: Files for all SNMP MIBs supported by SFTOS
- **Data sheets**: Force10 product data sheets
- **Security**: Description and supporting files for setting up SSH, SSL, and HTTPS access to the switch
- **Training**: PDF files of the slide shows used in training

Chapter 1 The S2410 System

This chapter contains these sections:

Physical Interfaces

The Force10 Networks S2410 is a Layer 2 switch that is available in two models — the **S2410CP** and the **S2410P**. The primary difference is that the S2410P contains 24 built-in 10-gigabit Ethernet (10G) XFP ports, while the S2410CP contains 20 built-in 10G BaseCX4 ports and four 10G XFP ports.

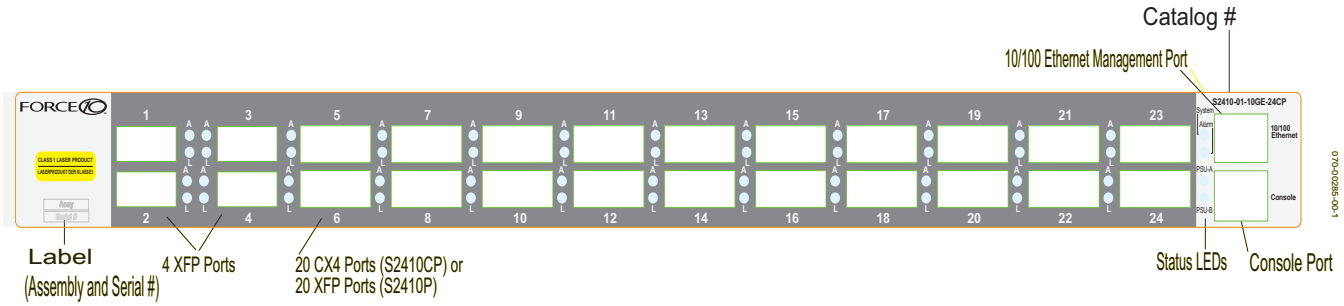


Figure 1 The S2410CP (Front View)

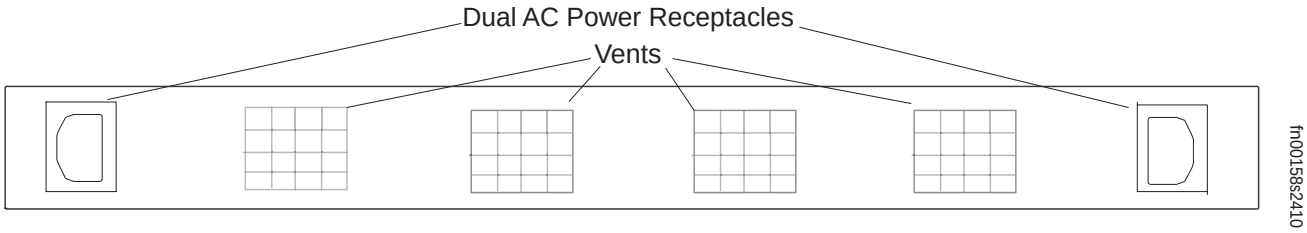


Figure 2 The S2410 (Rear View)

Required Equipment

The following items are necessary to install the S2410 system:

- Two grounded AC power sources
- At least one cable (included) to connect the power source to the S2410 AC power supply
- Brackets and screws (included) for front-mounted rack installation (#2 Phillips screwdriver required but not included)
- Console port: Rollover cable (RJ-45 connector) and terminal adapter (DB-9 to RJ-45) (supplied) (For pinout and terminal settings, see Accessing the Console Port on page 23.)

Features

- 24 line-rate 10 GbE ports (See Ports for details.)
- CPU and switch processor
- Flash memory
- Standard 1U chassis height by 19-inch rack-mountable width
- Several rack attachment options; front-mount brackets standard
- Seven built-in fans on the left side (see Fans and Airflow on page 12)
- Load-sharing redundant internal AC power supplies
- Up to 16000 MAC address entries supported with hardware assisted aging
- Supports 9000 jumbo frames
- Back-pressure support at half-duplex, IEEE 802.3x flow control at full duplex
- Extensive LEDs for per-port and system statuses (see LED Displays on page 9)

Ports

S2410CP:

- 20 fixed 10GbE BaseCX4 ports
- 4 ports for optional 10G XFP transceivers (needs XFP optics)
- 1 RJ-45 console port with RS-232 signaling
- 1 RJ-45 10/100 dedicated Ethernet Management port (labeled 10/100 Ethernet)

S2410P:

- 24 fixed 10GbE XFP ports (needs XFP optics)
- 1 RJ-45 console port with RS-232 signaling
- 1 RJ-45 dedicated Ethernet Management port (labeled 10/100 Ethernet)

For details on using ports (console, CX4, Ethernet Management, and XFP), see Chapter 4, Accessing Ports, on page 23.

System Status

S2410 status data can be derived in several ways, including physical LED displays, discussed next, along with boot menu options, CLI **show** commands, SNMP traps, and the SFTOS Web User Interface. For details on those options, see the *S2410 Quick Reference*, the *SFTOS Command Reference* (SFTOS 2.4), and the *SFTOS Configuration Guide* (SFTOS 2.4).

LED Displays

As shown in Figure 1 on page 7, the S2410 contains a set of system status indicators on the right side of the front panel. Those indicators are explained in Table 2. Also, each port has status indicators, which are described in Table 3 on page 10.

The following table describes the LED status indicators on the left side of the front panel.

Table 2 Status Panel LED Display

LED Label	LED Color	Description
System	Off	Unit is powered off.
	Green Blinking	Unit is booting up (blinking rate is 1 Hz).
	Green	Unit is operational
	Red	Error during boot
Alarm	Off	No alarm
	Amber	Minor alarm: Fan or temperature is outside acceptable range
	Red	Major alarm
PSU A and PSU B	Off	PSU not present
	Green	PSU present and OK
	Red	Red could mean that the PSU is present but failed, or that one power cord that used to be connected is now disconnected. The syslog message indicates “AC Power removed or fault detected.”

Table 3 Port LED Displays

Feature	Description
10G Ports	Link LED (upper left side of each port except 1 and 2): Green — Link up on this port Off — No Link detected at this port Activity LED (lower left side of each port except 1 and 2) Blinking Green — Activity, transmitting or receiving packet at this port. Off — No activity
Ethernet Management Port (labeled 10/100 Ethernet) (commonly called the service port)	Link LED (lower left side of port): Green — 100BaseT Link up on this port (1000 is not guaranteed.) Off — No Link detected at this port Activity LED (lower right side of port) Blinking Green — Activity, transmitting or receiving packet at this port. Off — No activity

Chapter 2 Site Preparation

This chapter describes requirements and site setup procedures for your S2410 system.
This chapter covers the following topics:

For detailed S2410 specifications, refer to Chapter 5, S2410 Specifications, on page 27.

Note: Install the S2410 into a rack or cabinet before installing any optional components.

Site Selection

Make sure that the area where you install your S2410 chassis meets the following safety requirements:

- Near an adequate power source. Connect the system to the appropriate branch circuit protection as defined by your local electrical codes. Ideally, you connect each power supply to a separate circuit.
- Environmental temperature between 32° – 122°F (0° – 40°C).
- Relative humidity that does not exceed 90% non-condensing.
- In a dry, clean, well-ventilated and temperature-controlled room, away from heat sources such as hot air vents or direct sunlight.
- Away from sources of severe electromagnetic noise.
- Positioned in a rack, cabinet, or on a desktop with adequate space in the front, rear, and sides of the unit for proper ventilation, and access (see below).

Cabinet Placement

The cabinet must meet the following criteria:

- Minimum cabinet size and airflow are according to the EIA standard.
- Minimum of 5 inches (12.7 cm) between the side intake and exhaust vents and the cabinet wall.

Rack Mounting

Ensure that your equipment rack is earth ground. The equipment rack must be grounded to the same ground point used by the power service in your area. The ground path must be permanent.

Fans and Airflow

Ventilation is primarily side-to-side (some vents in back), with seven fans on the left side of the switch that operate at a constant speed. For proper ventilation, position the chassis in an equipment rack (or cabinet) with a minimum of five inches (12.7 cm) of clearance around the side intake and exhaust vents. When two S-Series systems are installed side by side, position the two chassis at least 5 inches (12.7 cm) apart to permit proper airflow. The acceptable ambient temperature ranges are listed in Environmental Parameters on page 27.

As listed in Table 2, “Status Panel LED Display,” on page 9, the front panel of the S2410 has an Alarm LED that includes alarms for fan problems and out-of-range temperatures. The LED is amber when the temperature or components are outside expected parameters, red in a major alarm.

SFTOS logs a temperature warning message when a temperature of 77 degrees C is reached, and logs another message when the temperature returns to normal. The Command Line Interface (CLI) also reports an alarm.

Use the **show logging buffered** command to display the system log messages, and the **show logging** command for event log messages,. For details, see the Syslog chapters of the *SFTOS Command Reference* or *SFTOS Configuration Guide*.

Fan replacement is not offered as an option in the field.

Power

Caution: The power supply cord is used as the main disconnect device; ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

Both S2410 models (S2410CP and S2410P) provide built-in dual AC power supplies. Ideally, the power sources would be on separate circuits. While only one power supply is needed for the unit to operate, if both power supplies are connected, the power supplies act as redundant backups and do some load sharing, although the sharing is not necessarily equal.

There are no DC power or backup power options.

Storing Components

If you do not install your system and components immediately, Force10 Networks recommends that you properly store the S2410 and all optional components until you are ready to install them.

Warning: Electrostatic discharge (ESD) damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S2410 and its accessories. After you remove the original packaging, place the S2410 and its components on an antistatic surface.

Follow these storage guidelines:

- Storage temperature should remain constant ranging from -4° to 158° F (-20°C to 70° C).
- Storage humidity range should be between 10 to 95% relative humidity, non-condensing
- Store on a dry surface or floor, away from direct sunlight, heat, and air conditioning ducts.
- Store in a dust-free environment.

Tools Required

S-Series switches are shipped fully assembled, encased in foam. A utility knife is useful for cutting the packing tape, and a Philips #2 screwdriver is required for attaching rack screws, and is also used for making some attachments, including DC cables and rear cover plates. Wear an anti-static guard, as noted above.

Chapter 3 Installing the S2410

S2410 systems have no stacking or other optional modules, so, to install the S2410 system, you can simply install the system on a tabletop, in a rack, or in a cabinet, turn it on, and then connect ports. The following options are discussed in this chapter:

- Tabletop Installation
- Rack or Cabinet Installation
- Supplying Power on page 22

Then see Where Do I Go from Here?

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.

Tabletop Installation

The S2410 can be positioned on a tabletop. Keep the following in mind when using a tabletop:

- Ensure that your tabletop is stable and can handle the weight of the S2410 (see Chassis Physical Design on page 27).
- Position the S2410 so that there is proper side ventilation (see Fans and Airflow on page 12).
- Position the S2410 so that there is easy access to the rear power inlets, and an unobstructed path between power inlets and outlets.

Rack or Cabinet Installation

The S2410 provides three rack-mounting methods:

- Two-Post Rack Mounting on page 17
- Four-Post Rack-mounting with Threaded Rails on page 18
- Four-Post Rack-mounting with Cage Nuts on page 20

Attaching the Rack Ears

The S2410 is shipped with two universal front-mounting brackets (rack ears), which are contained in a bag with 3 philips screws for each rack ear. The rack ears must first be attached to the front corners of the switch before performing any of the rack-mounting procedures presented here. .

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 3 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.

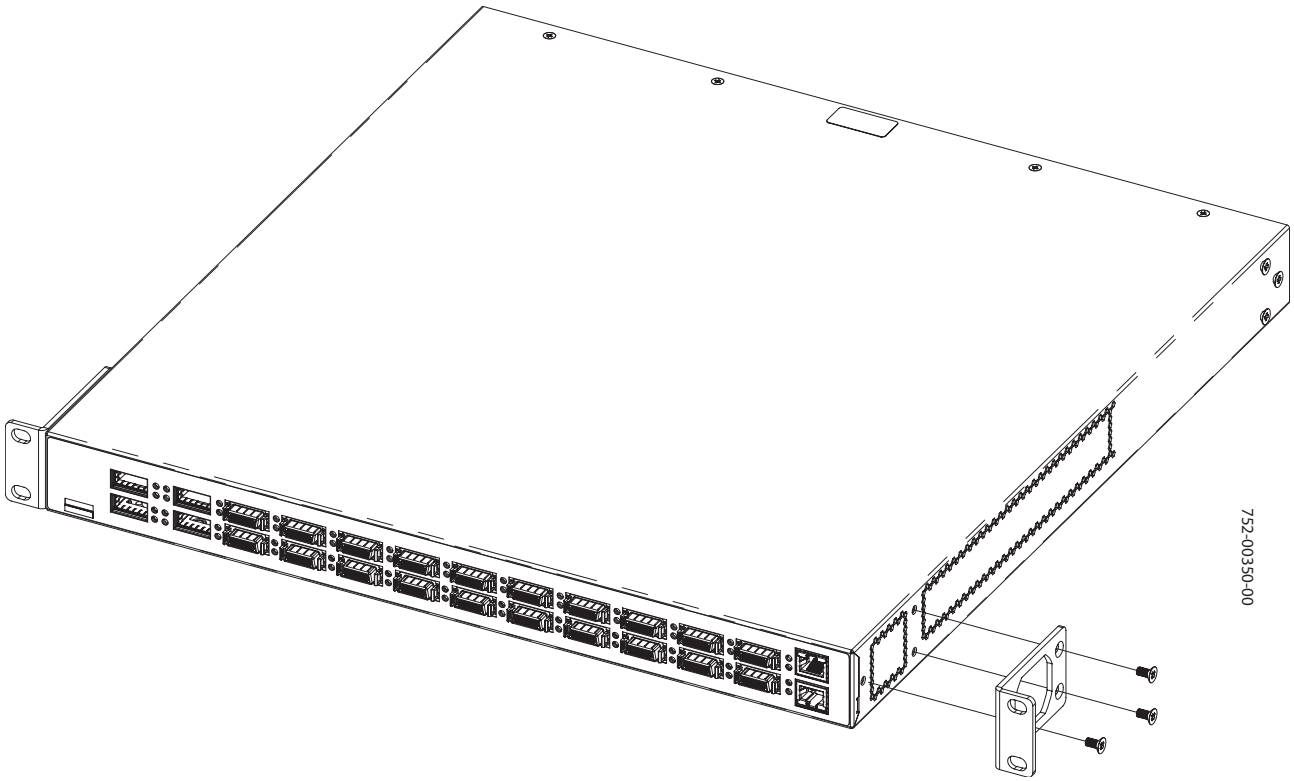


Figure 3 Attaching Rack Ears to Switch

Two-Post Rack Mounting

Ensure that there is adequate clearance surrounding the rack to permit access and airflow (see Chapter 2, Site Preparation, on page 11).

If you are installing two S2410 systems side-by-side, position the two S2410 chassis at least 5 inches (12.7 cm) apart to permit proper airflow.

Position the S2410 chassis in the rack (attach the rack ears first, using only the supplied screws; see Attaching the Rack Ears on page 16). Secure the chassis with two screws through each bracket (rack ear) and onto the front rack post, as shown in Figure 4. .

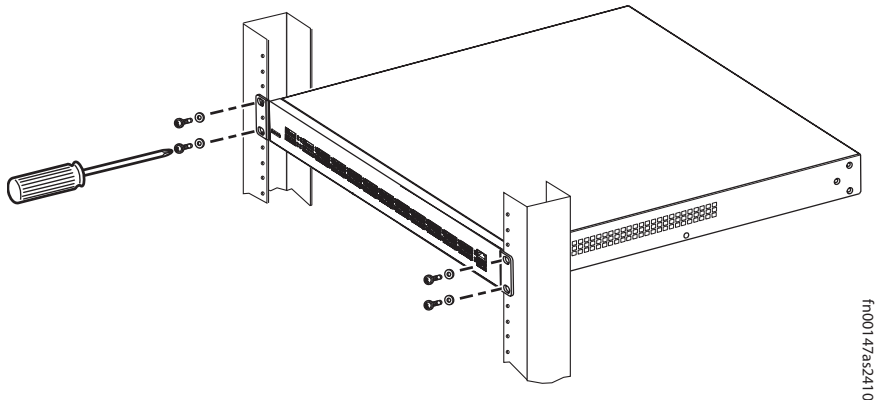


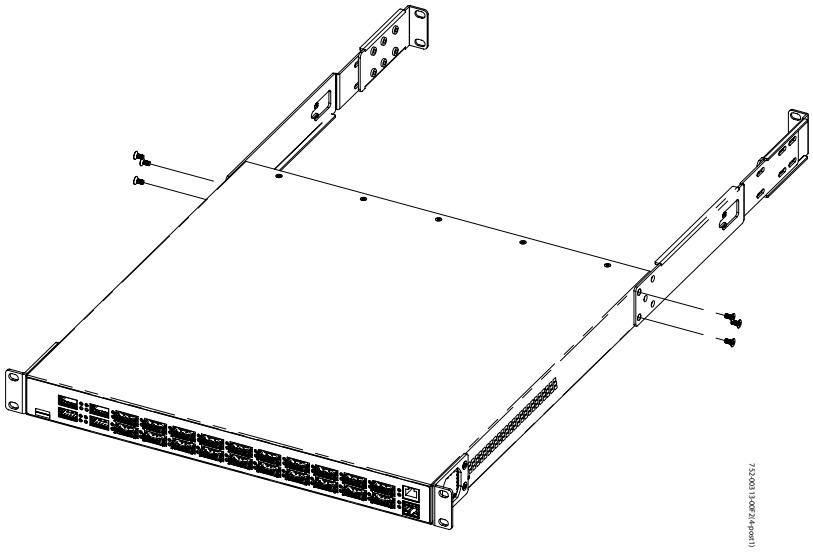
Figure 4 S2410 Two-post (Front-mounted) Rack-mounting

Four-Post Rack-mounting with Threaded Rails

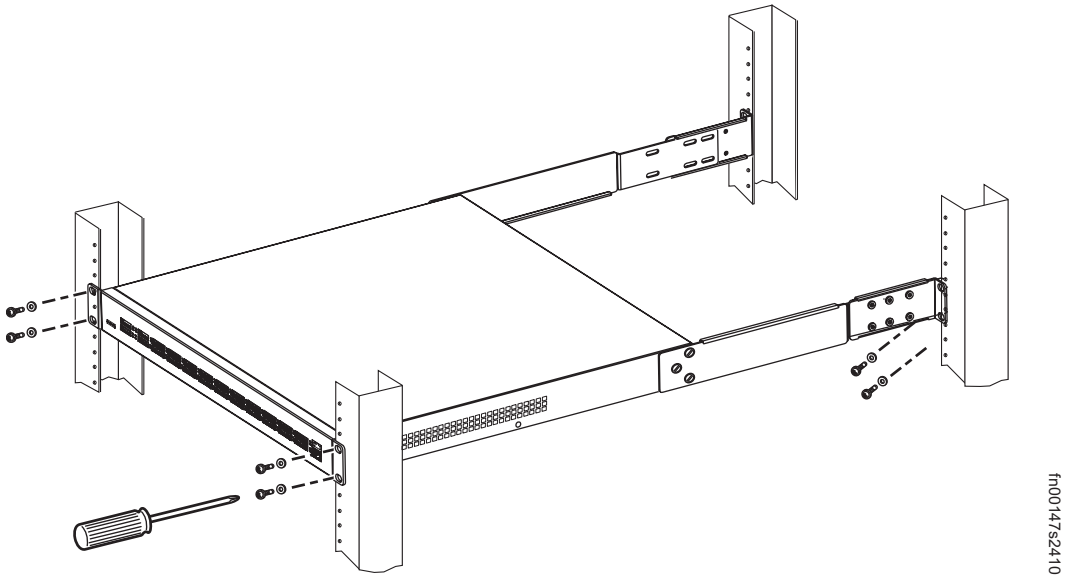
Ensure that there is adequate clearance surrounding the cabinet or rack to permit access and airflow. If you are installing two S2410 systems side-by-side, position the two S2410 chassis at least 5 inches (12.7 cm) apart to permit proper airflow.

Attach the rack ears first, using only the supplied screws (see Attaching the Rack Ears on page 16), and then follow the steps below to install the S2410 chassis into a four-post 19-inch equipment rack, using the attached front mounting brackets and the optional adjustable rear-mounting brackets.

Step	Task
1.	Align the three screw holes of the adjustable rear mounting bracket with the three holes in the S2410 chassis, and secure the mounting bracket with three screws.



Step	Task
2.	Insert the S2410 into the rack, and secure the chassis to the front post with two screws. Then secure the chassis to the rear posts with two screws.



Step	Task
3.	Set the adjustable rear mounting bracket to the length (one of three lengths) for your bracket. Secure the length with the four screws.

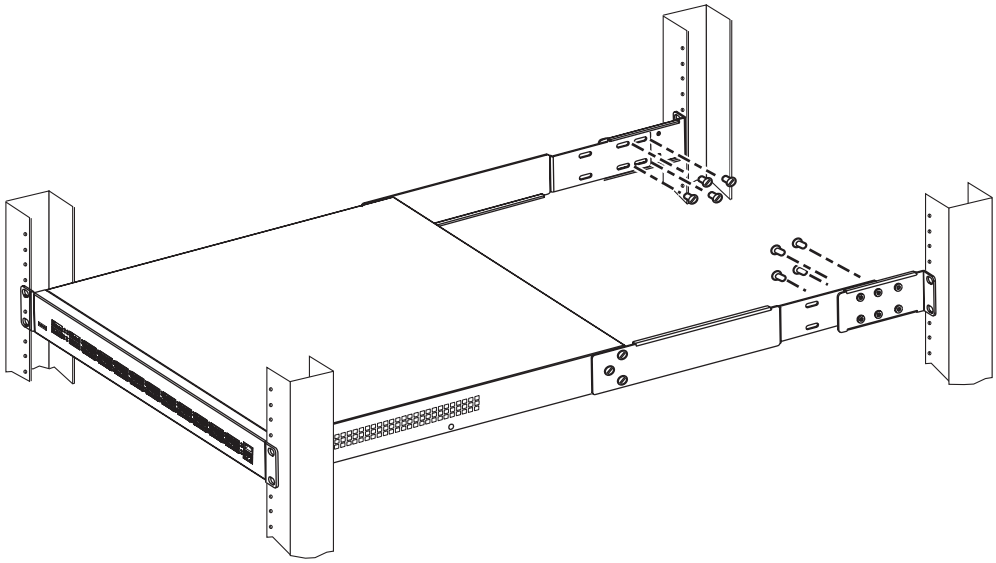


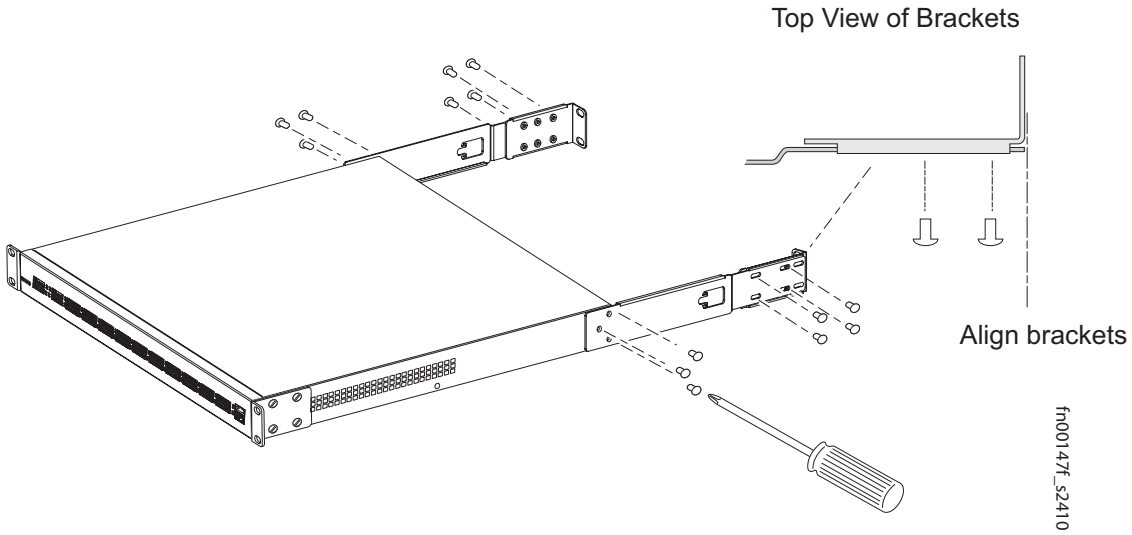
Figure 5 Four-post Rack-mounting with Adjustable Rear-mounting Brackets

Four-Post Rack-mounting with Cage Nuts

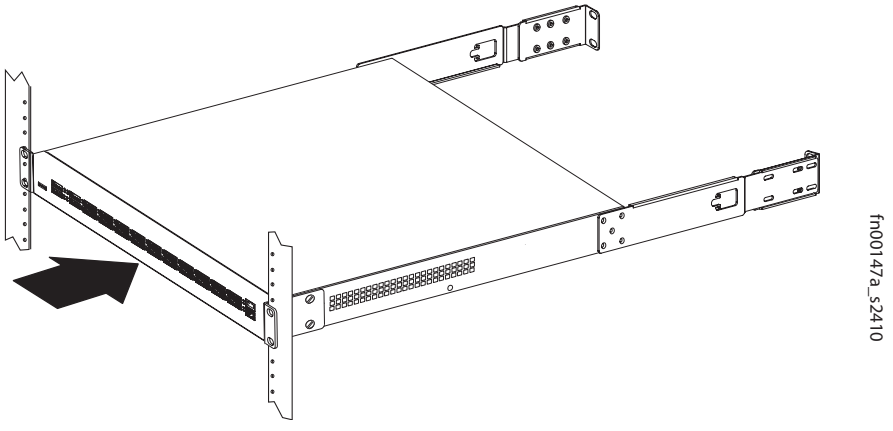
Ensure that there is adequate clearance surrounding the cabinet or rack to permit access and airflow. If you are installing two S2410 systems side-by-side, position them at least 5 inches (12.7 cm) apart.

Attach the rack ears first, using only the supplied screws (see Attaching the Rack Ears on page 16), and then follow the steps below to install the S2410 chassis into a four-post rack mounting with cage nuts.

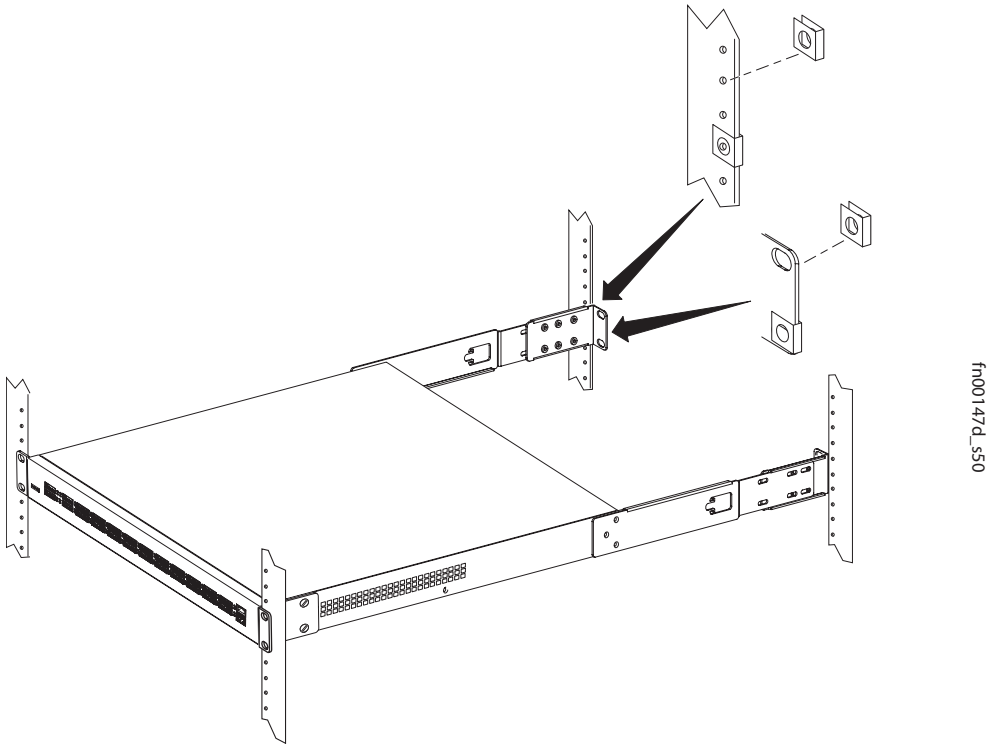
Step	Task
1.	Attach the two rear brackets to the side panels. Align the three holes in the bracket with the three holes on the S2410 chassis, and secure the brackets to the chassis using the screws.



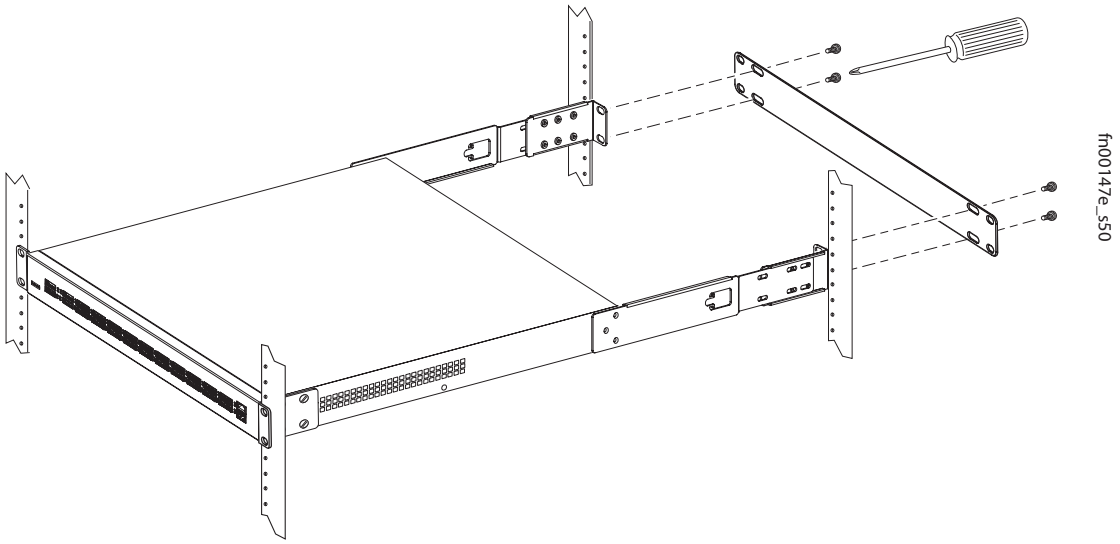
2.	Align and secure the adjustable bracket onto the rear bracket.
3.	Insert the S2410 chassis into the rear of the rack. Position and secure the chassis with two screws into each front bracket flange and into the rack post.



Step	Task
4.	Position the cage nuts over the holes on each bracket flange and each rack post.



5.	Align the rack filler panel to the rear bracket and rack posts. Secure by inserting two screws into the hole in the filler panel through to the holes in the rack post.



Supplying Power

Caution: The power supply cord is used as the main disconnect device; ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

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-sharing mode. There are no DC power or backup power options.

The power cords shipped by default with the S2410 chassis are for the United States. Several versions of the power cord are available, based on country requirements.

Connect the power cord plugs to the AC receptacles at each rear corner of the S2410, as shown in Figure 2 on page 7, making sure the cords are secure. Connecting either power cord to power starts the system (no on/off switch).

Power supply replacement is not offered as an option in the field.

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.

Where Do I Go from Here?

Note: The S2410 is unique among S-Series switches in several aspects:

- It has no stacking functionality.
- It has a dedicated *Ethernet Management port* (commonly called the *service port*), in addition to the standard console port and virtual managementethernet port on VLAN 1.
- It has no optional modules.

The next chapter (Chapter 4, Accessing Ports, on page 23) discusses connecting the console port to a management terminal, so that you can use the Command Line Interface (CLI) to configure system preferences, ports, and alternative management interfaces.

If you have an S2410CP, it contains XFP ports, and you need to install XFP transceivers (not included with the S2410CP) before connecting the optical cables. See Accessing XFP Ports on page 26. Alternatively, see Accessing CX4 Ports on page 24.

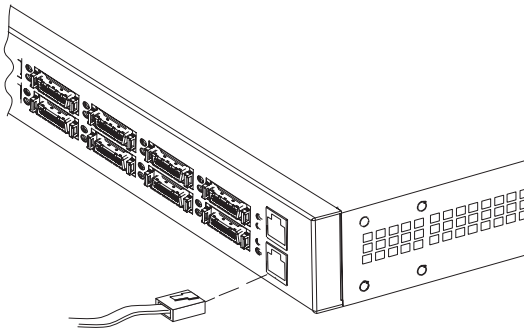
For more on using alternative management interfaces, see the *S2410 Quick Reference* or the Getting Started chapter of the *SFTOS Configuration Guide* (SFTOS 2.4).

Chapter 4 Accessing Ports

This chapter contains the following sections:

Accessing the Console Port

You must first connect the console port to a management terminal in order to use the Command Line Interface (CLI) to set up alternative management interfaces, such as an SFTOS Web User Interface connection to the Ethernet Management port (see Accessing the Ethernet Management Port on page 24). For more on using alternative management interfaces, see the *S2410 Quick Reference* or the Getting Started chapter of the *SFTOS Configuration Guide for the S2410*.

Connect the RJ-45/DB-9 adapter that is shipped with the S2410 system to the RJ-45 cable. Console port pinout: Pin 1 = NC (unused) Pin 2 = DTR (output) Pin 3 = TxD (output) Pin 4 = GND Pin 5 = GND Pin 6 = RxD (input) Pin 7 = DSR (input) Pin 8 = NC	 **Figure 6** Console Port of S2410	Set your initial console terminal settings to match the default console settings on the switch: • 9600 baud rate • No parity • 8 data bits • 1 stop bit • No flow control (console port only) After establishing a connection, you can modify the settings to match at each end of the connection.

To access the console port, use the following the procedure:

Step	Task
1	**Caution:** You must use a rollover cable (same as used for the E-Series) to connect to the console port. 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.

Step	Task (Continued)
2	If necessary, connect the RJ-45/DB-9 adapter that is shipped with the S2410 system to the end of the RJ-45 cable that will connect to your terminal.
3	Verify your terminal default settings match the default settings, as listed above, on the console port:
4	If you use the console port to download software to the switch, you will probably want to raise the console baud rate. Establish a connection with the default settings to verify the connection. Then use the **lineconfig** command to access the Line Config mode, and use the **serial baudrate** command to raise the baud rate on the console port. (Match the settings in your terminal access program.)

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

Accessing the Ethernet Management Port

In addition to the management VLAN that is standard on all S-Series switches, the S2410 has the *Ethernet Management port*, a port on the right front of the chassis (labeled *10/100 Ethernet*, above the console port) that is dedicated to switch management. With a standard RJ-45 Ethernet cable, connect it to any Ethernet port in your network through which you can access the switch via a Telnet, SSH, SNMP, or Web client.

For details on configuring the port (setting up an IP address to it) for management access, see the *S2410 Quick Reference* or the section “Configuring the Ethernet Management Port” in the Management chapter of the *SFTOS Configuration Guide*.

Accessing 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 S2410, but Force10 has certified cables to use with the S2410. For a list of approved cables, see the S2410 data sheet: http://www.force10networks.com/products/s2410.asp

Force10 has tested each of the listed cables over all environmental conditions. Use of unqualified cables can result in interface errors, and Force10 will not support applications using non-qualified cabling. For more detail on required clearances, see the following section, Required CX4 Cable Housing Clearances on page 25.

Note: The S2410 CX4 ports auto-sense the length of the attached cable, so their pre-emphasis does not need to be set manually.

Required CX4 Cable Housing Clearances

The maximum back shell dimensions of an acceptable CX4 connector are shown in Figure 7. Use of a CX4 connector that exceeds those dimensions can cause damage to the S2410CP connectors and possible failure of the interface.

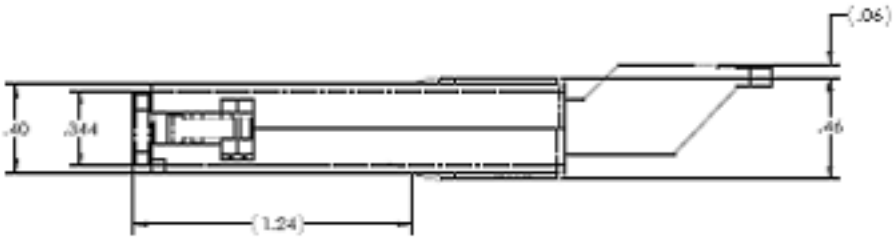


Figure 7 CX4 Connector Profile

No portion of the back shell nor any latching mechanism on the diminutive side of the trapezoidal CX4 connector nozzle shall extend more than 0.230 inches from the connector centerline parallel to that side. No portion of the back shell nor any latching mechanism on the opposite side of the trapezoidal connector nozzle shall extend more than 0.375 inches from the connector centerline parallel to that side. No portion of the back shell nor any latching mechanism shall extend more than 0.0495 inches from the centerline of the connector centerline perpendicular to the long axis of the trapezoidal nozzle.

Accessing XFP Ports

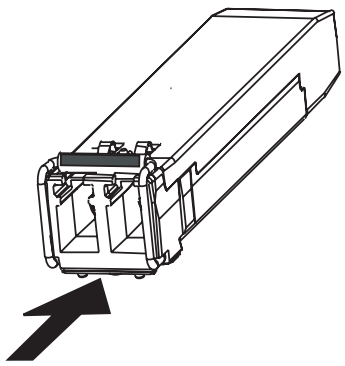
Force10 Networks offers various types of XFP transceivers. For details, see: http://www.force10networks.com/products/specifications.asp

All ports except the dedicated Ethernet Management port in the S2410P use XFP transceivers, and the S2410CP includes four XFP ports. Each XFP port requires an XFP transceiver (not included in the S2410 chassis shipping box), which is a small rectangular module (see Figure 8 on page 26) that you insert into the port and into which you insert an optical cable. Each XFP contains two fiber optic leads.

To install an XFP transceiver into an XFP port, follow the procedure below:

Warning: 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.

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

Step	Task
1	 fn00101-S2410WT Position the XFP so it is in the upright position (XFPs on the bottom (even-numbered ports) are upside down; odd-numbered ports (on top) install right-side up), with the bail latch on top in the closed position, as shown below. For details on XFP installation, see the instruction that accompanies the XFP. **Figure 8** XFP
2	Insert the XFP gently into the port until it snaps into place. (The design of the XFP prevents it from seating incorrectly.)
3	The XFP transceiver contains Rx and Tx labels on the two fiber optic connections, and the connections have keyways that prevent inserting the cables incorrectly.

Chapter 5 S2410 Specifications

Chassis Physical Design

Parameter	Specifications
Height	Standard 1U chassis height: 1.73 inches (4.4 cm)
Width	17 inches (432 mm)
Depth	16.73 inches (425 mm)
Chassis Weight (with factory-installed components)	12 pounds (5.5 kg)
Rack Clearance Required	Front: 5-inches (12.7 cm) Rear: 5-inches (12.7 cm)
Thermal Dissipation (Maximum Thermal Output)	S2410CP: 125W (426.8 BTU/Hour) S2410P: 225W (768.2 BTU/Hour)

Environmental Parameters

Parameter	Specifications
Temperature (acceptable range)	• 32° to 104°F (0° to 40°C) • -4° to 158°F (-20° to 70°C) non-operating
Maximum Acceptable Altitude	No performance degradation to 10,000 feet (3,048 meters)
Relative Humidity	Operating: 10 to 90% relative humidity (RH) non-condensing Storage: 10 to 95% RH non-condensing
Shock	MIL-STD-810
Vibration	Bellcore GR-63

AC Power Supply

Parameter	Specifications
Nominal Input Voltage	100 - 240 VAC, 50/60 Hz, auto-sensing
Maximum AC Power Supply Input Current (power consumption)	S2410CP: 125W S2410P: 225W (3.5W per XFP)

Power Redundancy

Parameter	Specifications
Load balancing and redundant AC power	Both the S2410CP model and the S2410P have two AC inputs that connect to separate sets of power modules for 1+1 redundancy.

IEEE Standards

The S2410 complies with the following IEEE standards:

- 802.1ac Frame Extension for VLAN tagging
- 802.1D Bridging, GARP, GMRP
- 802.1p Layer 2 prioritization
- 802.1Q VLAN Tagging, Double VLAN Tagging (Q in Q), GVRP
- 802.1s Multiple Spanning Tree protocol (up to 32 instances)
- 802.1w Rapid Spanning Tree protocol
- 802.1x Port-based network access control
- 802.3ad Link aggregation with LACP support
- 802.3ae 10 Gigabit Ethernet
- 802.3ak 10 Gigabit Ethernet CX4
- 802.3x Flow Control

RFC Compliance

- 1492 TACACS+
- 2865 RADIUS
- 3128 Protection against a Variant of the Tiny Fragment Attack
- 3580 IEEE 802.1x RADIUS Usage
- Ietf-draft SSH v2
- SSL
- Layer 2 ACLs
- MAC Address Security
- Port Access Control

Quality of Service:

- 4 queues per port
- IEEE 802.1p
- Per port rate limiting
- Per queue rate limiting
- Strict Priority and Weighted Round Robin Scheduling
- Weighted Random Early Detect congestion control

Web-based Management:

- 768 UDP
- 783 TFTP
- 791 IP
- 792 ICMP
- 826 ARP
- 951 BootP
- 1157 SNMP v1
- 1212 Concise MIB Definition
- 1213 SNMP v2 (MIB-II)
- 1493 Bridge MIB
- 1643 Ethernet-like MIB
- 1901 Community based SNMPv2
- 1905 Protocol Operations for SNMPv2
- 1906 Transport Mappings for SNMPv2
- 1907 Management Information Base for SNMPv2
- 1908 Coexistence between SNMPv1 and SNMPv2
- 2096 IP forwarding table MIB
- 2131 DHCP Server
- 2233 The Interfaces Group MIB using SMI v2
- 2570 SNMP v3
- 2665 Ethernet-like interfaces

Agency Compliance

The S2410 is designed to comply with the following safety and agency requirements.

Safety Standards and Compliance Agency Certifications

- CB Report, all country deviations
- CE Mark (EN 60950)
- CUL 60950, 3rd edition (US NRTL through CSA)

- CSA 60950, 3rd edition
- EN 60950, Safety of Information Technology Equipment
- EN 60825-1 Safety of Laser Products- Part 1: Equipment Classification Requirements and User Guide
- EN 60825-2 Safety of Laser Products- Part 2: Safety of Optical Fibre Communication Systems
- 21 CFR 1040.10 and 1040.11 FDA laser device requirements

Electromagnetic Emissions

Safety

- USA: FCC CFR47 Part 15, Subpart J, Class A
- Canada: ICES-003, Issue-2, Class A
- Europe: EN 55022 1998 (CISPR 22: 1997), Class A
- Japan: VCCI V3/01.4 Class A

Immunity

EMC

- USA: FCC CFR Part 15, Subpart J, Class A
- Canada: ICES-003, Issue-2, Class A
- Europe: EN55022 1998 (CISPR 22: 1997), Class A
- Japan: VCCI V3/01.4 Class A
- EN 61000-4-2 ESD
- EN 61000-4-3 Radiated Immunity
- EN 61000-4-4 EFT
- EN 61000-4-5 Surge
- EN 61000-4-6 Low Frequency Conducted Immunity
- EN 300 386 v1.3.1 (2001-09) EMC for Network Equipment
- EN 55024 1998

Telecoms: JATE (for Japan)

Appendix A Technical Support

This appendix contains these major sections:

The iSupport Website

The i-Support website (http://www.force10networks.com/support/), as shown below, provides a range of documents and tools to assist you with effectively using Force10 equipment and mitigating the impact of network outages. Through iSupport you can obtain technical information regarding Force10 products, access to software upgrades and patches, and open and manage your Technical Assistance Center (TAC) cases. Force10 iSupport provides integrated, secure access to these services.

Accessing iSupport Services

The URL for iSupport is http://www.force10networks.com/support/.

The i-Support website 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 the complete suite of Force10 support and professional support services.

To access some iSupport services you must have a userid and password. If you do not have one, you can request one at the website:

1. On the Force10 Networks iSupport page, click the **Account Request** link.
2. Fill out the User Account Request form, and click **Send**. You will receive your userid and password by E-Mail.
3. To access iSupport services, click the **LOGIN** link, and enter your userid and password.

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.

Contacting the Technical Assistance Center

How to Contact Force10 TAC	Log in to iSupport at http://www.force10networks.com/support/, and select the **Service Request** tab.
Managing Your Case	Log in to iSupport, and select the **Service Request** tab to view all open cases and RMAs.
Downloading Software Updates	Log in to iSupport, and select the **Software Center** tab.
Technical Documentation	Log in to iSupport, and select the **Documents** tab. This page can be accessed without logging in via the **Documentation** link on the iSupport page.

Information to Submit When Opening a Support Case	• Your name, company name, phone number, and E-mail address
	• Preferred method of contact
	• Model number
	• Serial Number (see Locating Serial Numbers on page 33)
	• Software version number
	• Symptom description
	• Screen shots illustrating the symptom, including any error messages. These can include:
	  • Output from the **show tech-support** [**non-paged**] command (This report is very long, so the storage buffer in your terminal program should be set high.)
	  • Output from the **show logging** (This report is also included as a section in the output of **show tech-support**.)
	  • Console captures showing the error messages
	  • Console captures showing the troubleshooting steps taken
	  • Saved messages to a syslog server, if one is used

Contact Information	E-mail: support@force10networks.com Web: http://www.force10networks.com/support/ Telephone: US and Canada: 866.965.5800 International: 408.965.5800

Locating Serial Numbers

The serial number of the chassis is located on a sticker on the lower left front of the chassis. The serial number is below the assembly number bar code and has 11 digits. You can also use the **show switch** command in the CLI to access the serial number.

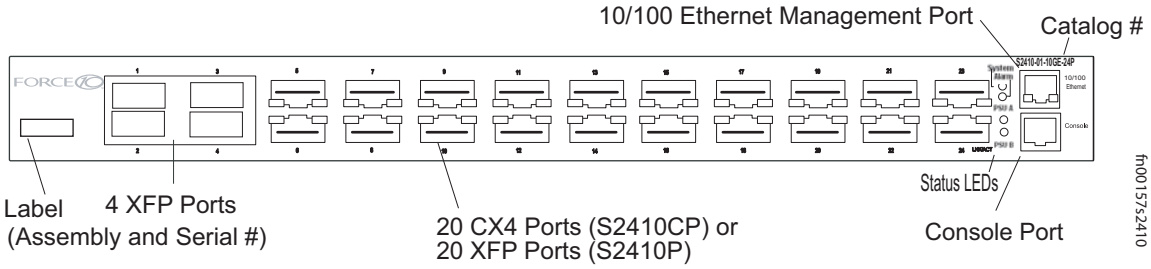


Figure 9 Serial Number on Front of Chassis

Requesting a Hardware Replacement

To request replacement hardware, follow these steps:

Step	Task
1	Determine the part number and serial number of the component. To list the numbers for all components installed in the chassis, use the **show inventory** command.

2	Request a Return Materials Authorization (RMA) number from TAC by opening a support case. Open a support case by:
	• Using the Create Service Request form on the iSupport page (see Contacting the Technical Assistance Center on page 32).
	• Contacting Force10 directly by E-mail or by phone (see Contacting the Technical Assistance Center on page 32). Provide the following information when using E-mail or phone:
	  • Part number, description, and serial number of the component.
	  • Your name, organization name, telephone number, fax number, and e-mail address.
	  • Shipping address for the replacement component, including a contact name, phone number, and e-mail address.
	  • A description of the failure, including log messages. This generally includes:
	  • Output from the **show tech-support** [**non-paged**] command (This report is very long, so the storage buffer in your terminal program should be set high.)
	  • Output from the **show logging** (This report is included as a section in the output of **show tech-support**.)
	  • Console captures showing the error messages
	  • Console captures showing the troubleshooting steps taken
	  • Saved messages to a syslog server, if one is used

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