

Installing the S2410 System



Force10

Notes, Cautions, and Warnings



NOTE: A NOTE indicates important information that helps you make better use of your computer.



CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.



WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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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.

 **NOTE:** S2410 switches contain no user-serviceable parts. For details on recycling the switch or any of its components, see [Product Recycling and Disposal on page 30](#).

Information Symbols and Warnings

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 1-1](#) describes symbols contained in this guide.

Table 1-1. Information Symbols

Symbol	Warning	Description
	Note	This symbol informs you of important operational information.
	Caution	This symbol informs you that improper handling and installation could result in equipment damage or loss of data.
	Warning	This symbol signals information about hardware handling that could result in injury.

 **WARNING:** The installation of this equipment shall be performed by trained and qualified personnel only. Read this guide before installing and powering up this equipment. This equipment contains two power cords. Disconnect both power cords before servicing.

 **WARNING:** This equipment contains optical transceivers, which comply with the limits of Class 1 laser radiation.



 **WARNING:** Visible and invisible laser radiation may be emitted from the aperture of the optical transceiver ports when no cable is connected. Avoid exposure to laser radiation and do not stare into open apertures.

 **CAUTION:** Wear grounding wrist straps when handling this equipment to avoid ESD damage.

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 Notes*

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): <http://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 33](#).

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

The S2410 System

This chapter contains these sections:

- [Physical Interfaces](#)
- [Required Equipment on page 7](#)
- [Features on page 8](#)
- [Ports on page 8](#)
- [System Status on page 9](#)

Physical Interfaces

The Dell Force10 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 2-1. The S2410CP (Front View)

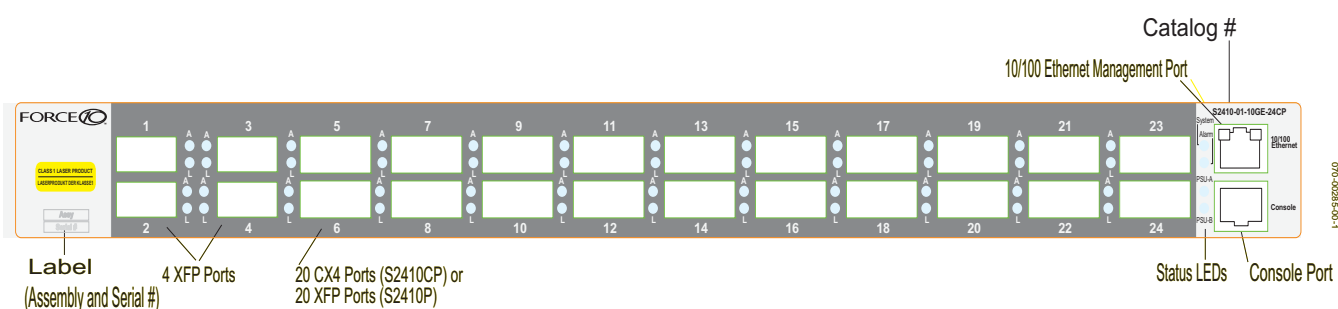
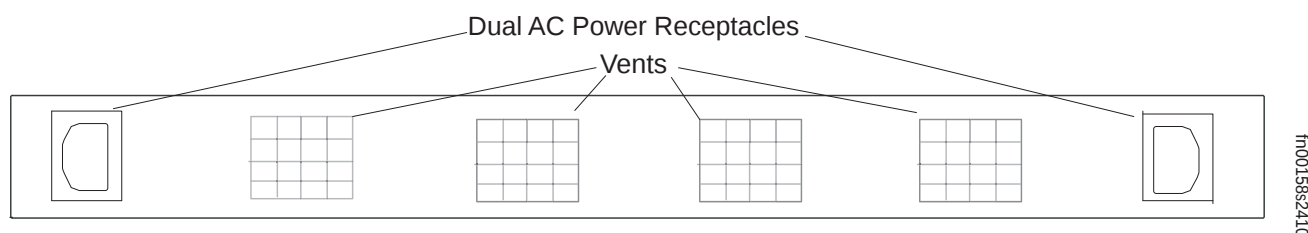


Figure 2-2. The S2410 (Rear View)



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 , 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 2-1 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 2-1](#). Also, each port has status indicators, which are described in [Table 2-2 on page 9](#).

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

Table 2-1. 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 2-2. 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.
Ethernet Management Port (labeled 10/100 Ethernet) (commonly called the service port)	Off — No activity
	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

Site Preparation

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

- [Site Selection](#)
- [Cabinet Placement on page 11](#)
- [Rack Mounting on page 12](#)
- [Fans and Airflow on page 12](#)
- [Power on page 12](#)
- [Storing Components on page 12](#)
- [Tools Required on page 13](#)

For detailed S2410 specifications, refer to [Chapter , 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.

For rack-mounting instructions, see [Rack or Cabinet Installation on page 15](#).

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 2-1, “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, Dell Force10 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 #2 Phillips 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.

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 21](#)

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 16](#)
- [Four-Post Rack-mounting with Threaded Rails on page 17](#)
- [Four-Post Rack-mounting with Cage Nuts on page 19](#)

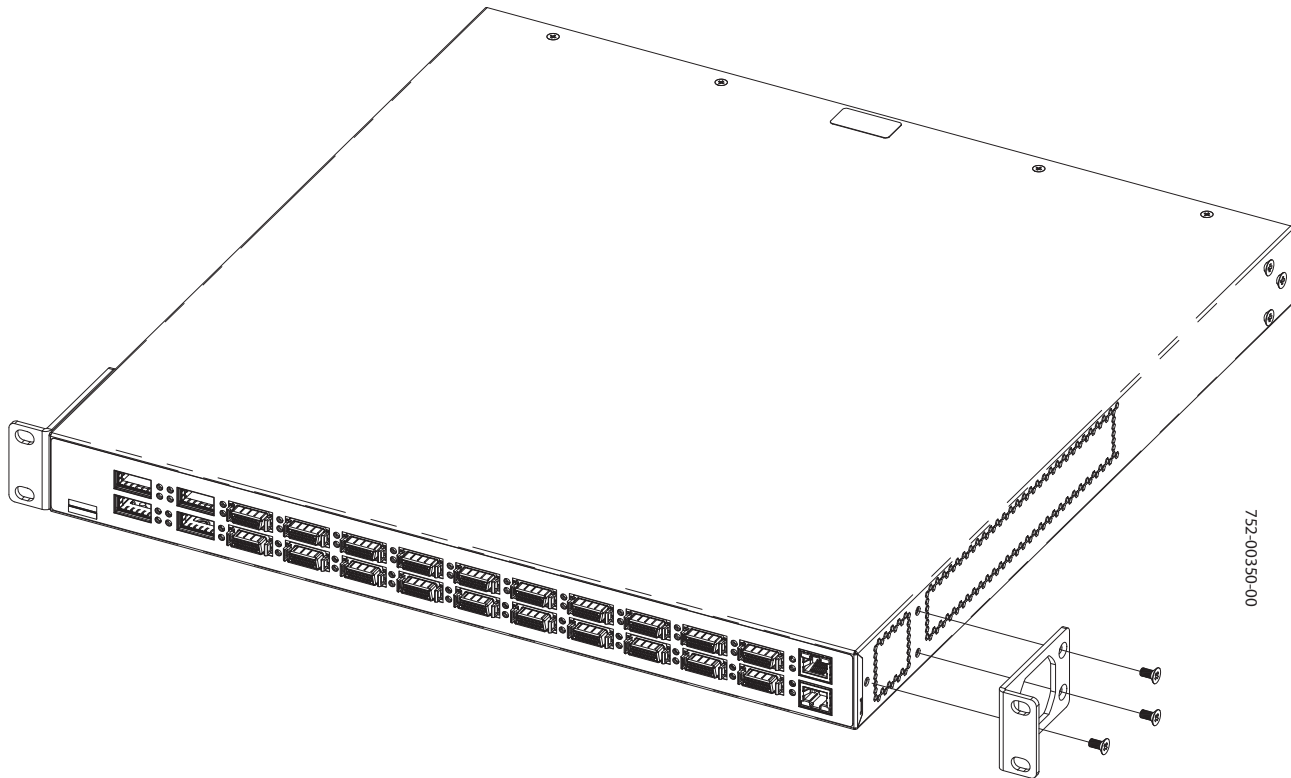
Attaching the Rack Ears

The S2410 is shipped with two universal front-mounting brackets (rack ears), which are contained in a bag with 3 Phillips 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 4-1](#) 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.

Figure 4-1. Attaching Rack Ears to Switch



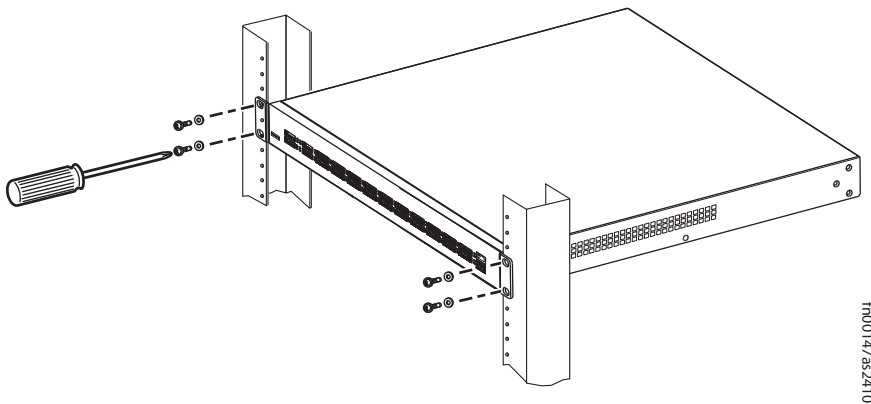
Two-Post Rack Mounting

Ensure that there is adequate clearance surrounding the rack to permit access and airflow (see [Chapter , 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 15](#)). Secure the chassis with two screws through each bracket (rack ear) and onto the front rack post, as shown in [Figure 4-2](#).

Figure 4-2. S2410 Two-post (Front-mounted) Rack-mounting



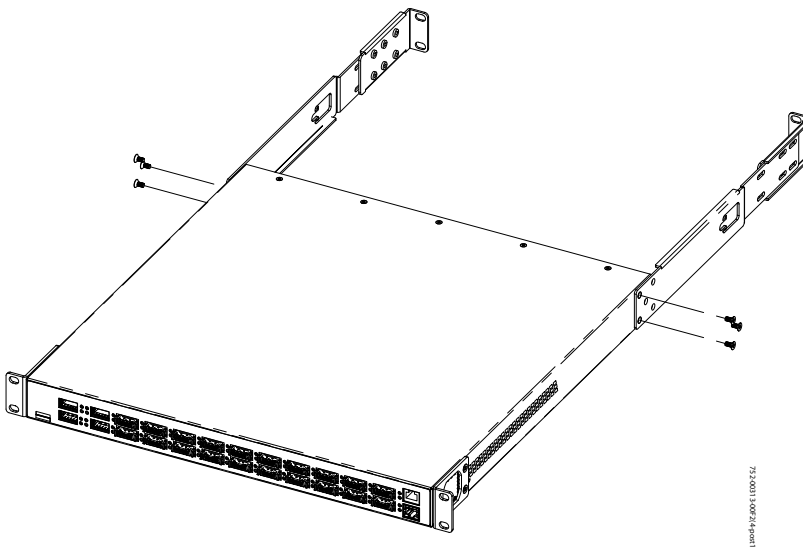
Four-Post Rack-mounting with Threaded Rails

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 15](#)), 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.

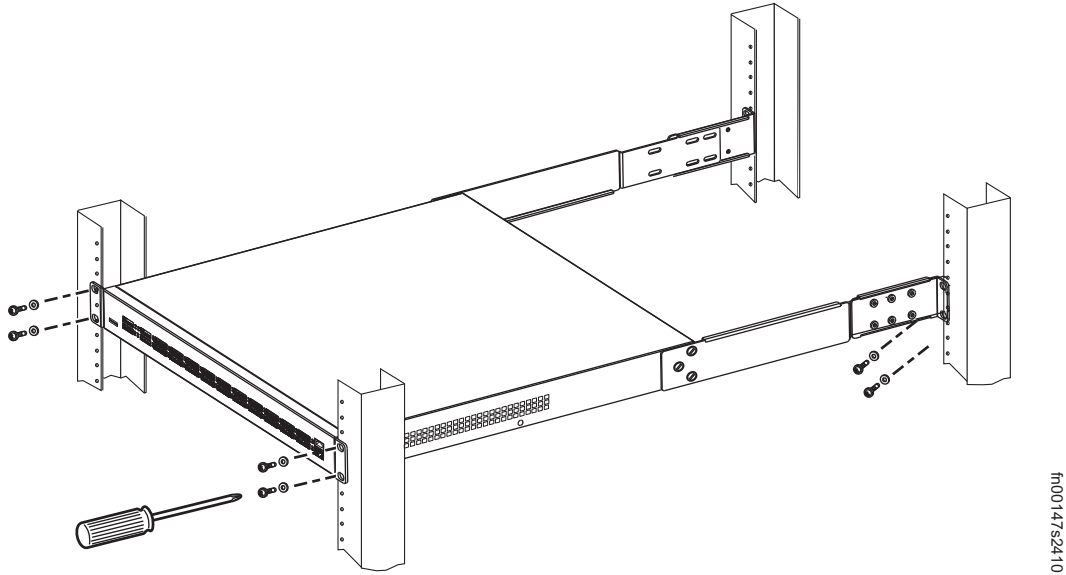
Step	Task
1	Align the three screw holes of the adjustable rear mounting bracket with the three holes in the S2410 chassis, and secure the mounting bracket with three screws.

Figure 4-3. Four-post Rack-mounting with Adjustable Rear-mounting Brackets, Step 1



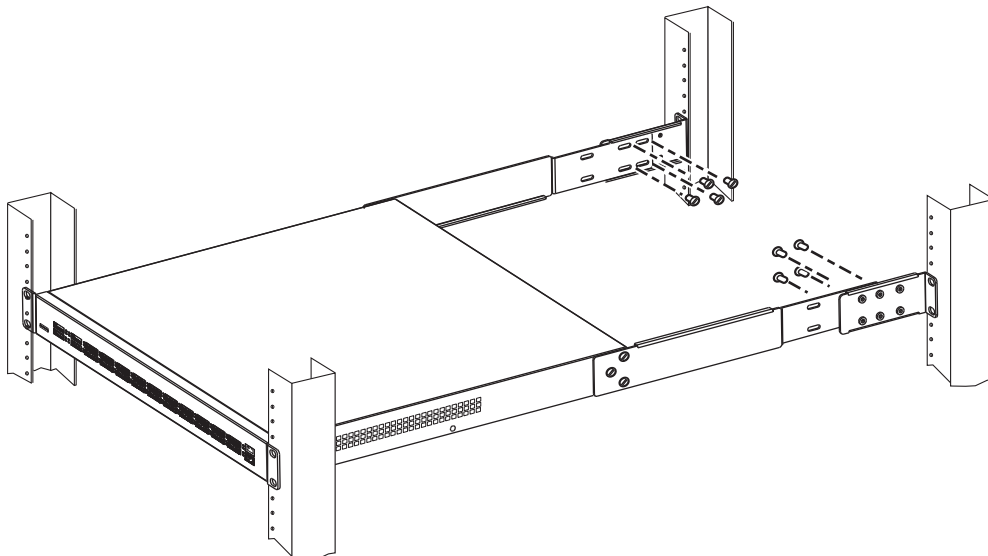
Step	Task
2	Insert the S2410 into the rack, and secure the chassis to the front post with two screws. Then secure the chassis to the rear posts with two screws.

Figure 4-4. Four-post Rack-mounting with Adjustable Rear-mounting Brackets, Step 2



- 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 4-5. Four-post Rack-mounting with Adjustable Rear-mounting Brackets, Step 3



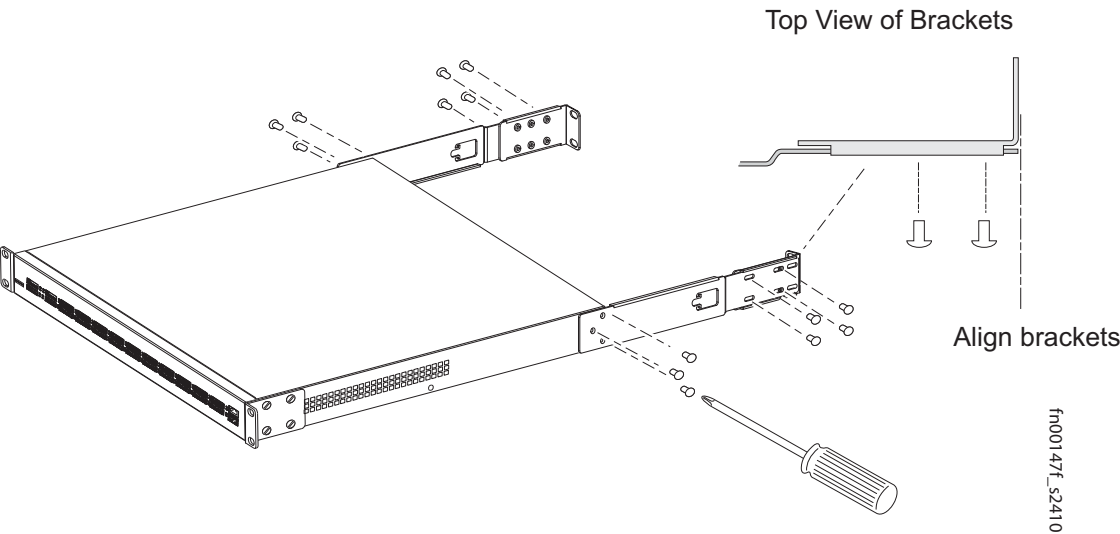
Four-Post Rack-mounting with Cage Nuts

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 15](#)), and then follow the steps below to install the S2410 chassis into a four-post rack mounting with cage nuts.

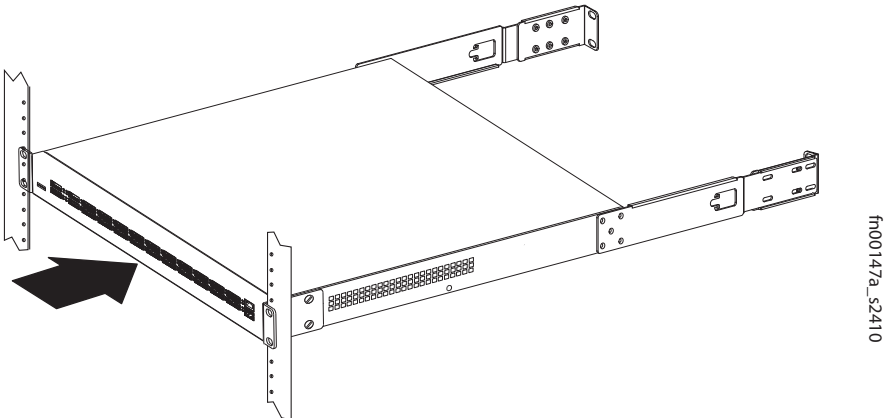
Step	Task
1	Attach the two rear brackets to the side panels. Align the three holes in the bracket with the three holes on the S2410 chassis, and secure the brackets to the chassis using the screws.

Figure 4-6. Four-post Rack-mounting with Cage Nuts, Step 1



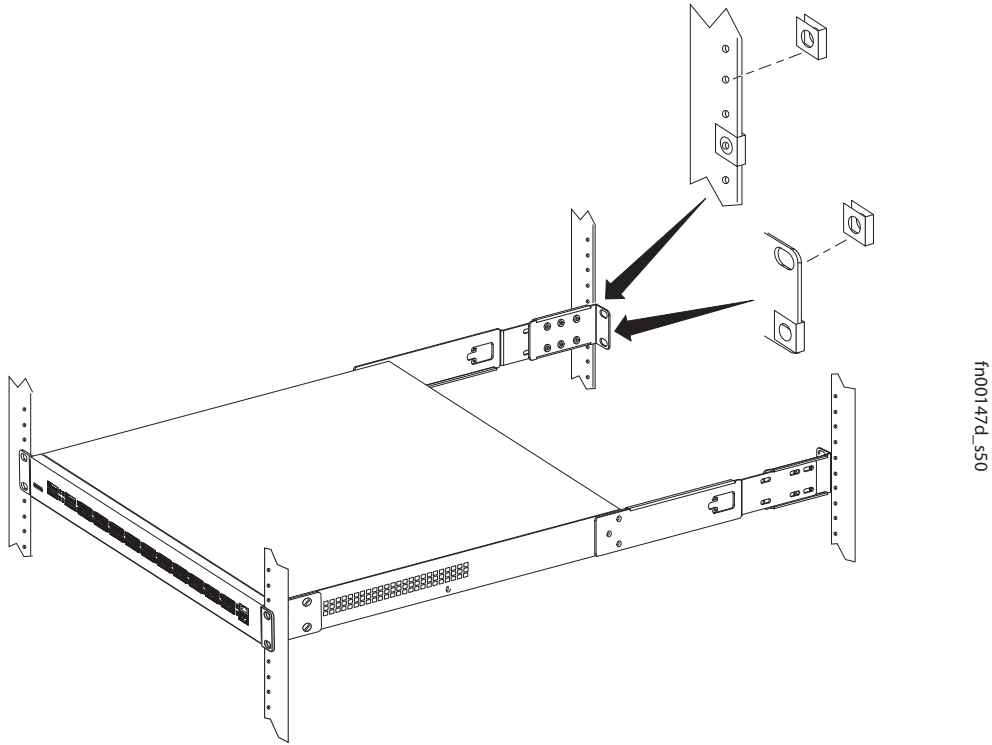
- 2 Align and secure the adjustable bracket onto the rear bracket.
- 3 Insert the S2410 chassis into the rear of the rack. Position and secure the chassis with two screws into each front bracket flange and into the rack post.

Figure 4-7. Four-post Rack-mounting with Cage Nuts, Step 3



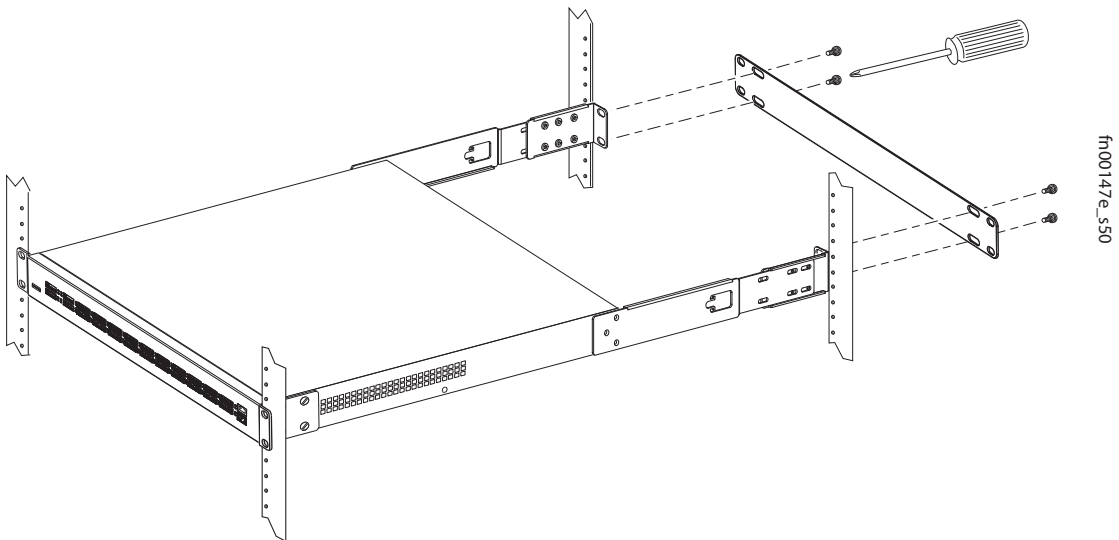
Step	Task
4	Position the cage nuts over the holes on each bracket flange and each rack post.

Figure 4-8. Four-post Rack-mounting with Cage Nuts, Step 4



- 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.

Figure 4-9. Four-post Rack-mounting with Cage Nuts, Step 5



Supplying Power

 **NOTE:** 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 2-2 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 of the S2410. Labeling the power cords A and B can help in a diagnostic situation.

Where Do I Go from Here?

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 management Ethernet port on VLAN 1.
- It has no optional modules.
- It uses only the SFTOS 2.4.1.x software release.

The next chapter ([Chapter , 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.

Whether you have an S2410P, which contains 24 XFP ports, or an S2410CP, which contains four XFP ports, you need to install XFP transceivers (not included with the switch) before connecting the optical cables. See [Accessing XFP Ports on page 25](#). Alternatively, see [Accessing CX4 Ports on page 24](#).

For more on using management interfaces, see the *S2410 Quick Reference* or the Getting Started chapter of the *SFTOS Configuration Guide* (SFTOS 2.4.1.0).

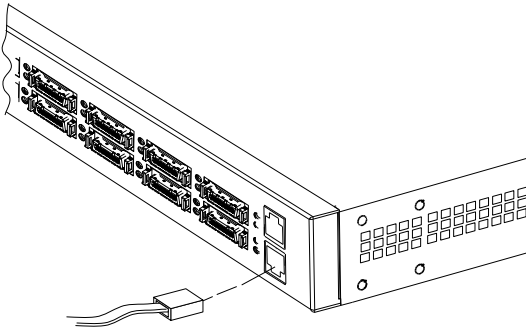
Accessing Ports

This chapter contains the following sections:

- [Accessing the Console Port](#)
- [Accessing the Ethernet Management Port on page 24](#)
- [Accessing CX4 Ports on page 24](#)
- [Accessing XFP Ports on page 25](#)

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 5-1. S2410 Console Port 	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.
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To access the console port, use the following the procedure:

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
1	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.
2	Verify your terminal default settings match the default settings, as listed above, on the console port:

Step	Task (<i>continued</i>)
3	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 <code>lineconfig</code> command to access the Line Config mode, and use the <code>serial baudrate</code> 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 running SFTOS, 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 Dell Force10 might cause interface errors and/or have issues with mechanical fit. CX4 cables are not included with the S2410, but Dell 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>

Dell Force10 has tested each of the listed cables over all environmental conditions. Use of unqualified cables can result in interface errors, and Dell 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 5-2](#). Use of a CX4 connector that exceeds those dimensions can cause damage to the S2410CP connectors and possible failure of the interface.

Figure 5-2. 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

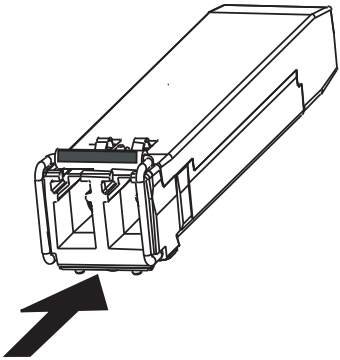
Dell Force10 offers various types of XFP transceivers. For details, see: <http://www.force10networks.com/products/specifications.asp>

All ports in the S2410P use XFP transceivers except the dedicated Ethernet Management port, and the S2410CP includes four XFP ports. The XFP transceiver (not included in the S2410 chassis shipping box) is a small rectangular module (see [Figure 5-3 on page 26](#)) that you insert into the port and into which you insert an optical cable. Each XFP contains two fiber optic leads. XFPs are hot-insertable and swappable.

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 an optical port, which could result in physical harm.

Step	Task
1	Figure 5-3. XFP  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 here. For details on XFP installation, see the instruction that accompanies the XFP. fn00101-S2410WT
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.

CAUTION: Before connecting a transceiver to a source, check the receive power of the transceiver with an optical power meter. Generally, Dell Force10 specified optics are not to be subjected to receive power higher than that stipulated by the optic specification. If the optic is exposed to optical power in excess of the specification, there is a high likelihood that it will be damaged.

Optical specifications for Dell Force10 branded devices are at the following URL:
<http://www.force10networks.com/products/mediaspecifications.asp>

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)
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)

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
Thermal Dissipation (Maximum Thermal Output)	S2410CP: 426.8 BTU/Hour S2410P: 768.2 BTU/Hour
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	Designed to meet MIL-STD-810
Vibration	Telcordia GR-63-CORE
ISO 7779 A-weighted sound pressure level	S2410CP: 61.5 dBA at 73.4°F (23°C) S2410P: 61.5 dBA at 73.4°F (23°C)

Power Supply

Parameter	Specifications
Nominal Input Voltage	100 - 240 VAC, 50/60 Hz, auto-sensing
Maximum Current Draw	S2410CP: 1.5 A @ 100/120 VAC, .575 A @ 200/240 VAC S2410P: 2.05 A @ 100/120 VAC, 1.025 A @ 200/240 VAC
Maximum Power Consumption	S2410CP: 125W S2410P: 225W (3.5W per XFP)
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.



NOTE: S2410 switches contain a lithium clock battery that is not user-serviceable. The switch contains no user-serviceable parts. For details on recycling the switch or any of its components, see [Product Recycling and Disposal on page 30](#).

Agency Compliance

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

USA Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy. If it is not installed and used in accordance to the instructions, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case users will be required to take whatever measures necessary to correct the interference at their own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Dell Force10 is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications in the equipment. Unauthorized changes or modification could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communication Statement

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union EMC Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Force 10 Networks can not accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of this product, including the fitting of non-Dell Force10 option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/ European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.



WARNING: This is a Class A product. In a domestic environment, this device may cause radio interference, in which case, the user may be required to take adequate measures.

European Community Contact

Dell Force10, EMEA - Central
Dahlienweg 19
66265 Heusweiler
Germany

<http://www.force10networks.com/german/>

Tel: +49 172 6802630

Email: EMEA Central Sales

Japan: VCCI Compliance for Class A Equipment

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is Class A product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

 **WARNING:** AC Power cords are for use with Dell Force10 equipment only. Do not use Dell Force10 AC power cords with any unauthorized hardware.

本製品に同梱いたしております電源コードセットは、本製品専用です。本電源コードセットは、本製品以外の製品ならびに他の用途でご使用いただくことは出来ません。製品本体には同梱された電源コードセットを使用し、他製品の電源コードセットを使用しないで下さい。

Korea (MIC certification)

Korean Class A Warning Statement

이 기기는 업무용으로 전자파 적합등록을 받은 기기 이오니, 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하셨을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

Safety Standards and Compliance Agency Certifications

- CUS UL (60950-1, 1st Edition)
- CSA 60950-1-03, 1st Edition
- EN 60950-1, 1st Edition
- EN 60825-1, 1st Edition
- EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification Requirements and User's Guide
- EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems
- FDA Regulation 21CFR 1040.10 and 1040.11

Electromagnetic Compatibility (EMC)

Emissions

- Australia/New Zealand: AS/NZS CISPR 22: 2006, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN55022 2006 (CISPR 22: 2006), Class A
- Japan: VCCI V3/ 2007.04 Class A
- USA: FCC CFR47 Part 15, Subpart B, Class A

Immunity

- EN 300 386 v1.3.3: 2005 EMC for Network Equipment
- EN 55024 1998 + A1: 2001 + A2: 2003
 - EN 61000-3-2 Harmonic Current Emissions
 - EN 61000-3-3 Voltage Fluctuations and Flicker
 - 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

Product Recycling and Disposal

This switch must be recycled or discarded according to applicable local and national regulations. Dell Force10 encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Dell Force10 offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products.

Waste Electrical and Electronic Equipment (WEEE) Directive for Recovery, Recycle and Reuse of IT and Telecommunications Products

Dell Force10 switches are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label, as shown in [Figure 6-1](#) is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Figure 6-1. The European WEEE symbol



In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE.

Dell Force10 products, which fall within the scope of the WEEE, are labeled with the crossed-out wheelie-bin symbol, as shown above, as required by WEEE.

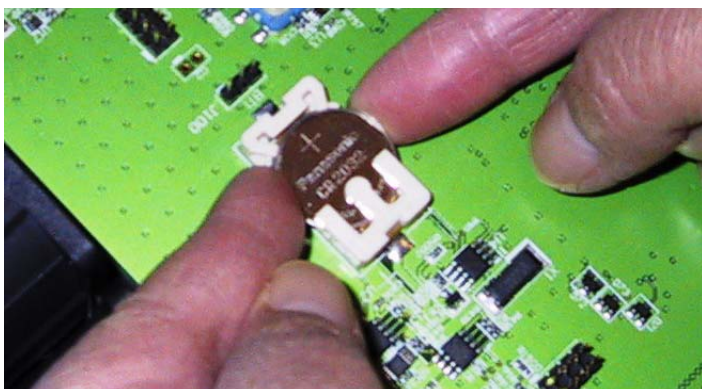
For information on Dell Force10 product recycling offerings, see the WEEE Recycling instructions on iSupport at: <http://www.force10networks.com/CSPortal20/Support/WEEEandRecycling.pdf>. For more information, contact the Dell Force10 Technical Assistance Center (TAC) (see [Contacting the Technical Assistance Center on page 34](#)).

Notice to Recyclers

⚠ CAUTION: Breaking the case cover seal voids the warranty, so this procedure is only for end-of-life recycling. To remove the lithium closed-cell clock battery:

- 1 Remove the #1 phillips screws that connect the switch cover to the body. The cover has five screws across the top of the back and thirteen screws evenly spaced along the flanges that wrap underneath the body on three sides.
- 2 The front and back of each side of the unit has #2 phillips screw holes for rack-mounting. If screws are in those holes, they must also be removed.
- 3 Set the unit vertically on a bench, so that its back panel is resting on the bench.
- 4 Grasp each side of the cover and pull up sharply until the cover slides upwards enough to reveal the inside back edge of the body.
- 5 Set the unit flat on a bench, and use one hand to restrain the body while using the other hand to slide the cover forward and off the unit.
- 6 Place fingers on each side of the clock battery and lift up (Figure). Avoid the use of metallic tools to remove batteries to avoid accidental shorting of the battery.

Figure 6-2. Removing the clock battery



Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators.

Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local Dell Force10 representative.

Figure 6-3. The European WEEE symbol



For California:

Perchlorate Material — Special handling may apply.

See: <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials.

Technical Support

This appendix contains these major sections:

- [The iSupport Website](#)
- [Contacting the Technical Assistance Center on page 34](#)
- [Locating Serial Numbers on page 34](#)
- [Requesting a Hardware Replacement on page 35](#)

The iSupport Website

The iSupport website provides a range of documents and tools to assist you with effectively using Dell Force10 equipment and mitigating the impact of network outages. Through iSupport you can obtain technical information regarding Dell Force10 products, access to software upgrades and patches, and open and manage your Technical Assistance Center (TAC) cases. Dell Force10 iSupport provides integrated, secure access to these services.

Accessing iSupport Services

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

The iSupport 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 Dell 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 Dell Force10 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.

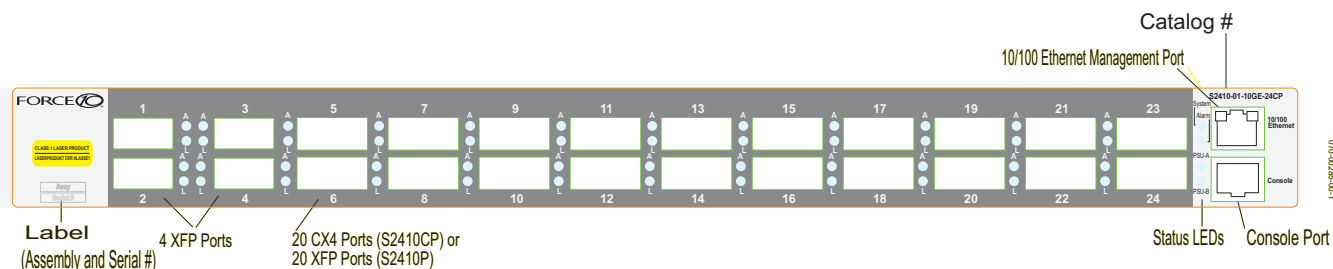
Contacting the Technical Assistance Center

How to Contact Dell 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 34) • 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 or show version commands in the CLI to access the serial number.

Figure 7-1. Serial Number on Lower Left of Faceplate



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 hardware 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 34). • Contacting Dell Force10 directly by E-mail or by phone (see Contacting the Technical Assistance Center on page 34). 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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