Dell Networking S3100 Series
Getting Started Guide

Regulatory Model: S3100

Notes, cautions, and warnings

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

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

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

2015 - 10

Rev. A00

1

About this Guide

This document is intended as a Getting Started Guide to get new systems up and running and ready for configuration.

For more details about S3100 series installation and software configuration, see the following information, available on the Dell Networking Support website (http://www.dell.com/support).

- The *Dell Networking S3100 Series Installation Guide* describes installation and replacement procedures.
- The *Dell Configuration Guide for the S3100 Series* describes software configuration.
- The *Dell Command Line Reference Guide for the S3100 Series* provides command line interface (CLI) information.
- The *Dell Networking S3100 Series Release Notes* provide information about upgrading the S3100 series.

2

S3100 Series Hardware Overview

This section contains basic information about the S3100 series, including descriptions of features, I/O and PSU sides, power supplies, fans, and light emitting diode (LED) status.

Product Description

The S3100 series is a low-cost wireless closet switch/router product for copper connections to 1G endpoints with Power over Ethernet plus (PoE+) capability on 1G access ports. The series includes capabilities for 1/10GE switching with 1G copper links for campus network endpoints and 10G ports for uplinks to core/aggregation switches. Each of the platforms also includes a 20G expansion slot that supports an optional small form-factor pluggable plus (SFP+) or 10GBase-T module. The series has four platforms. For the two PoE platforms, you can stack up to six switches to operate as a single unit.

The S3124 platform includes the following features:

- Twenty-four Gigabit Ethernet 10/100/1000BASE-T RJ-45 ports that support auto-negotiation for speed, flow control, and duplex.
- Two combo SFP ports.
- Two SFP+ 10G ports.

The S3124F platform includes the following features:

- Twenty-four Gigabit Ethernet 100BASEFX/1000BASE-X SFP ports.
- Two 1G copper combo ports.
- Two SFP+ 10G ports.

The S3124P platform includes the following features:

- Twenty-four Gigabit Ethernet 10/100/1000BASE-T RJ-45 ports for copper that support auto-negotiation for speed, flow control, and duplex.
- Two combo SFP ports.
- Two SFP+ 10G ports.
- Supports PoE+.
- Two fixed mini Serial Attached SCSI (mini-SAS) stacking ports HG[21] to connect up to six switches.

For the S3124, S3124F, and S3124P platforms, the port numbering is as follows:

- Regular ports (I/O side) are numbered one to twenty-four.
- Combo ports (I/O side) are numbered twenty-three and twenty-four.
- SFP+ ports (I/O side) are numbered twenty-five and twenty-six.
- Module ports (PSU side) are numbered twenty-seven and twenty-eight.
- Stacking ports (PSU side) are numbered twenty-nine and thirty.

The S3148P platform includes the following features:

- Forty-eight Gigabit Ethernet 10BASE-T, 100BASE-TX, 1000BASE-T RJ-45 ports that support auto-negotiation for speed, flow control, and duplex.
- Two combo SFP ports.
- Two SFP+ 10G ports.
- Supports PoE+.
- Two fixed mini-SAS stacking ports HG[21] to connect up to six switches.

For the S3148P platform, the port numbering is as follows:

- Regular ports (I/O side) are numbered one to forty-eight.
- Combo ports (I/O side) are numbered forty-seven and forty-eight.
- SFP+ ports (I/O side) are numbered forty-nine and fifty.
- Module ports (PSU side) are numbered fifty-one and fifty-two.
- Stacking ports (PSU side) are numbered fifty-three and fifty-four.

All S3100 series platforms have the following features:

- One 20G expansion slot for modules (SFP+ [fiber] or 10GBase-T [copper RJ–45]).
- Front panel out-of-band (OOB) management port.
- External serial RS232 port (RJ–45 type).
- One universal serial bus (USB-A) port.
- Hot-swappable redundant power supply unit (PSU).
- Hot-swappable fan tray.
- Standard 1U chassis high.

NOTE: Dell-qualified SFP+ transceivers are sold separately.

S3124 Platform I/O Side

The S3124 platform input/output (I/O) side (shown in the following illustration) contains twenty-four 1G copper switch ports. The I/O side also contains a console port, management port, serial bus port, reset button, two 10G SFP+ ports, and two 1G SFP combo ports.

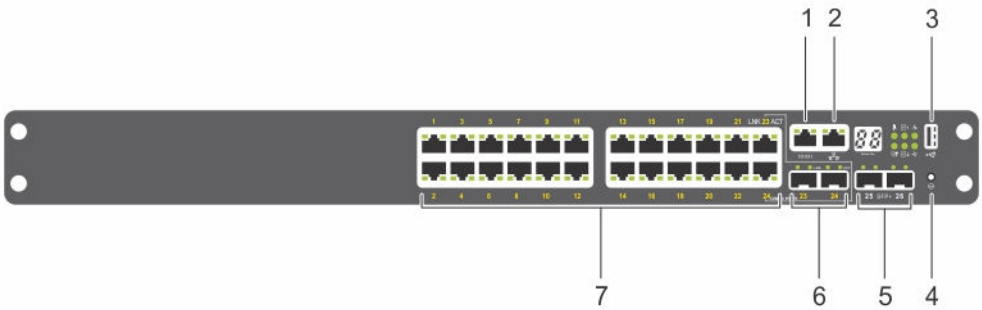

Figure 1. S3124 I/O Side View

1. Console port.
2. Management port (RJ-45 type).
3. One universal serial bus port (USB Type-A) for storage.

4. Reset button.
5. Two 10G SFP+ ports.
6. Two 1G SFP combo ports.
7. Twenty-four 1G copper switch ports.

S3124 Platform PSU Side

The S3124 PSU side (shown in the following illustration) includes the power supplies, fan tray, and stacking ports.

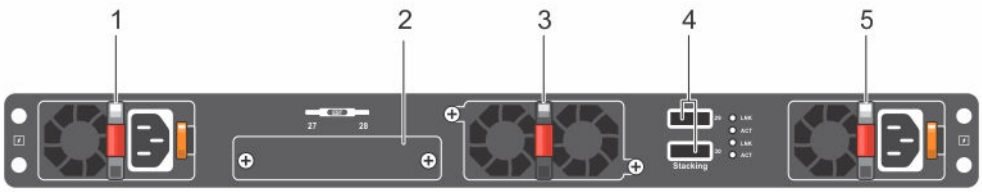

Figure 2. S3124 PSU Side View

1. PSU 1.
2. Module slot.
3. Fan tray.
4. Mini-SAS stacking ports.
5. PSU 2.

NOTE: The S3124 platform does not support stacking with Dell Networking OS 9.8(2.0).

S3124F Platform I/O Side

The S3124F platform I/O side (shown in the following illustration) contains twenty-four 1G fiber switch ports. The I/O side also contains a console port, management port, serial bus port, reset button, two 10G SFP+ ports, and two 1G copper combo ports.

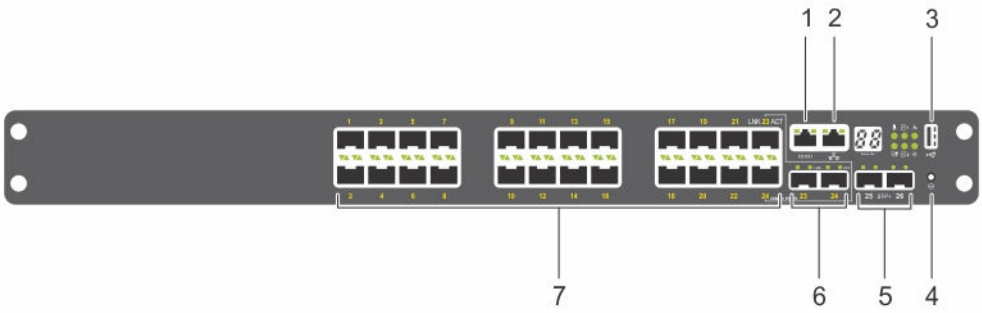

Figure 3. S3124F I/O Side View

1. Console port.
2. Management port (RJ-45 type).
3. One universal serial bus port (USB Type-A) for storage.
4. Reset button.
5. Two 10G SFP+ ports.
6. Two 1G copper combo ports.
7. Twenty-four 1G fiber switch ports.

S3124F Platform PSU Side

The S3124F PSU side (shown in the following illustration) includes the power supplies, fan tray, and stacking ports.

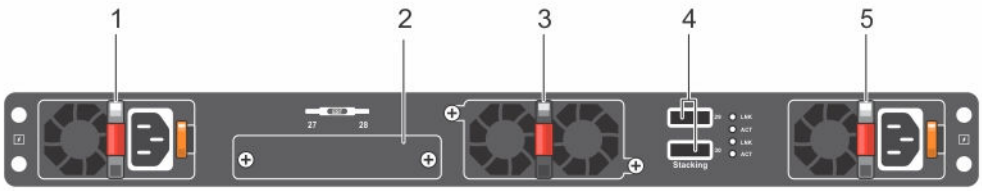

Figure 4. S3124F PSU Side View

1. PSU 1.

2. Module slot.
3. Fan tray.
4. Mini-SAS stacking ports.
5. PSU 2.

NOTE: The S3124 platform does not support stacking with Dell Networking OS 9.8(2.0).

S3124P Platform I/O Side

The S3124P platform I/O side (shown in the following illustration) contains twenty-four 1G copper switch ports that include PoE+ function. The I/O side also contains a console port, management port, serial bus port, reset button, two 10G SFP+ ports, and two 1G SFP combo ports.

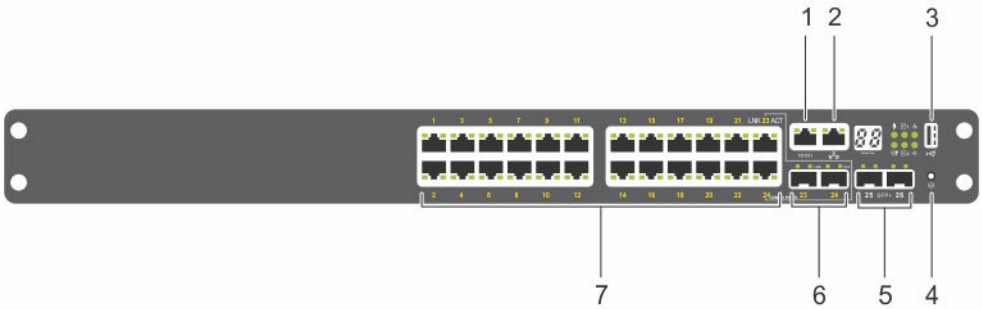

Figure 5. S3124P I/O Side View

1. Console port.
2. Management port (RJ-45 type).
3. One universal serial bus port (USB Type-A) for storage.
4. Reset button.
5. Two 10G SFP+ ports.
6. Two 1G SFP combo ports.
7. Twenty-four 1G copper switch ports including PoE+ function.

S3124P Platform PSU Side

The S3124P PSU side (shown in the following illustration) includes the power supplies, fan tray, and stacking ports.

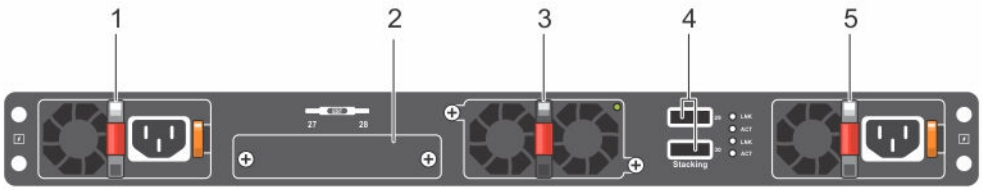

Figure 6. S3124P PSU Side View

1. PSU 1.
2. Module slot.
3. Fan tray.
4. Mini-SAS stacking ports.
5. PSU 2.

S3148P Platform I/O Side

The S3124P platform I/O side (shown in the following illustration) contains forty-eight 1G copper switch ports that include PoE+ function. The I/O side also contains a console port, management port, serial bus port, reset button, two 10G SFP+ ports, and two 1G SFP combo ports.

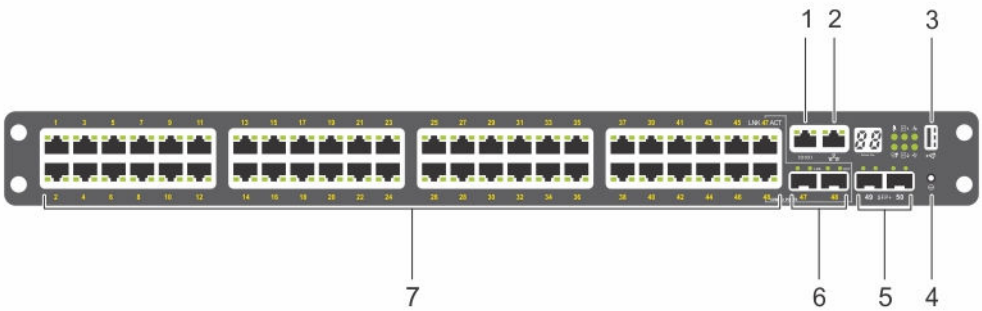

Figure 7. S3148P I/O Side View

1. Console port.
2. Management port (RJ-45 type).
3. One universal serial bus port (USB Type-A) for storage.

4. Reset button.
5. Two 10G SFP+ ports.
6. Two 1G SFP combo ports.
7. Forty-eight 1G copper switch ports including PoE+ function.

S3148P Platform PSU Side

The S3148P PSU side (shown in the following illustration) includes the power supplies, fan tray, and stacking ports.

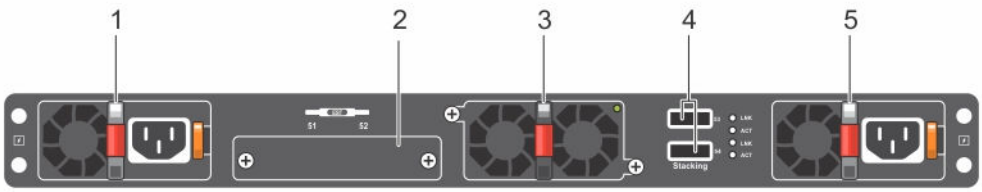

Figure 8. S3148P PSU Side View

1. PSU 1.
2. Module slot.
3. Fan tray.
4. Mini-SAS stacking ports.
5. PSU 2.

Reset Button

The reset button allows you to perform a hard reset on the switch. The reset button is accessed through the pinhole on the I/O side of the chassis.

To perform a hard reset of the switch, insert the tip of a paper clip or similar tool into the pinhole. When the switch completes the boot process after the reset, it resumes operation with the most recently saved configuration. Any changes made to the running configuration that were not saved to the startup configuration prior to the reset are lost.

Power Supplies

S3100 systems support two hot-swappable power supply units (PSUs) with integrated fans that provide cooling for the system. The type of PSU differs by platform.

NOTE: Two PSUs are required for full redundancy, but the systems can operate with a single PSU. The S3100 systems ship with one PSU. You can purchase a second PSU as a separate purchased part.

CAUTION: To prevent electrical shock, ensure that the system is grounded properly. If you do not ground your equipment correctly, excessive emissions may result. To ensure that the power cables meet your local electrical requirements, use a qualified electrician.

The S3124 and S3124F platforms include the following PSU options:

- One PSU — 200 Watt.
- Two PSUs — total of 400 Watt.
- V-lock receptacle for a power cord with the V-lock feature.

The S3124P platform includes the following PSU options:

- One PSU — 715 Watt (default configuration) or 1100 Watt.
- Two PSUs — total of 1430 Watt or total of 2200 Watt.

The S3148P platform includes the following PSU options:

- One PSU — 1100 Watt.
- Two PSUs — total of 2200 Watt.

Fans

The S3100 systems come from the factory with a two-fan unit tray that is field replaceable. Additionally, each PSU has an internal fan.

Plug-in Modules

One expansion slot is on the PSU side of the S3100 series chassis and can support either an SFP+ or 10GBase-T module.

Each plug-in module has two ports. The modules are sold separately.

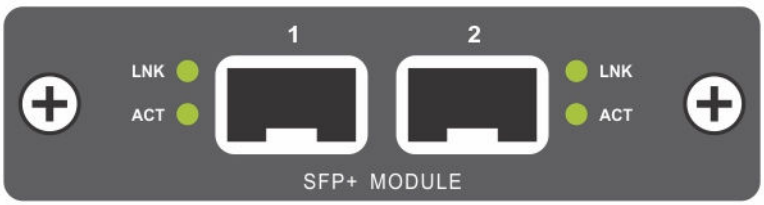

Figure 9. SFP+ Module

Figure 10. 10GBase-T Module

LED Status Information

The S3100 systems include LED displays on both the I/O and PSU side of the chassis.

You can also view status information through the command line interface (CLI) `show` commands and with the simple network management protocol (SNMP). For more information about these options, see the *Dell Command Line Reference Guide for the S3100 Series* and the *Dell Configuration Guide for the S3100 Series*.

NOTE: Within the S3100 series, the S3124P and S3148P platforms support stacking with Dell Networking OS 9.8(2.0). The S3124 and S3124F platforms do not support stacking with Dell Networking OS 9.8(2.0).

The S3124 I/O side (shown in the following illustration) includes LED displays for port, system, and stack status.

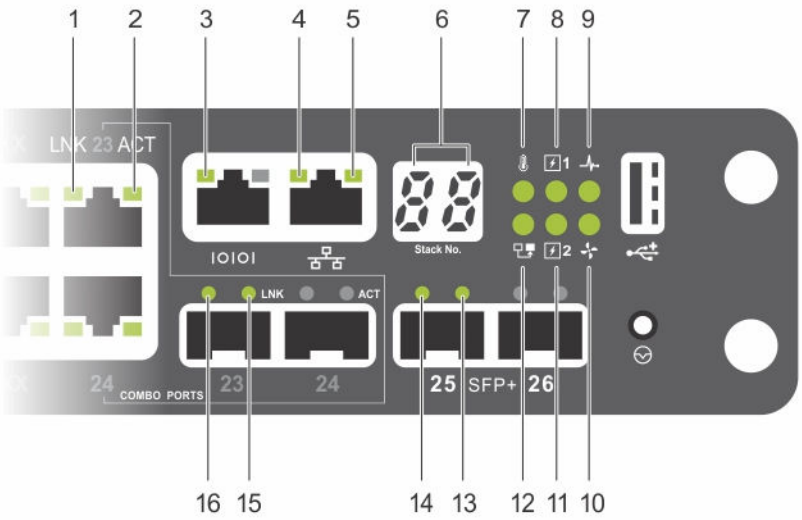

Figure 11. S3124 I/O Side LEDs

1. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port LNK.
2. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port ACT.
3. Console port LNK.
4. Management port LNK.
5. Management port ACT.
6. Stack number.
7. Temperature.
8. PSU 1.
9. System Status.
10. Fan.
11. PSU 2.
12. M (Master).
13. SFP+ (10G) port ACT.
14. SFP+ (10G) port LNK.
15. Combo SFP (1G) port ACT.
16. Combo SFP (1G) port LNK.

Table 1. S3124 I/O Side LED Descriptions

Feature	Detailed Description
Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port	LNK (Link speed): • Green — link up at 1000 Mbps speed. • Yellow — link up at 10/100 Mbps speed. • Off — no link. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Console port	LNK (Link speed): • Off — no link. • Solid green — link.
Management port	LNK (Link speed): • Off — no link. • Solid green — link on 1 G speed. • Solid amber — link on 100 M or 10 M speeds. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Stack number	• Displays the stack unit number of the switch. • Displays 1 if switch is not part of a stack.
Temperature	• Solid green — system temperature is below threshold limit. • Solid red — system temperature has exceeded the threshold limit of 75°C.

Feature	Detailed Description
PSU 1 and 2	• Off — power failure or no power. • Solid green — normal operation. • Blinking green — locator function is enabled.
System status	• Solid green — normal operation. The CLI prompt is available. • Blinking green — boot-up in progress. • Solid red — critical system error. • Blinking red — noncritical system error (fan fail, power supply fail).
Fan	• Solid green — fan is powered and running at the expected rpm. • Solid red — fan failed.
M (Master)	• Solid green — system is in Stacking Master mode. • Off — switch is in Slave mode.
SFP+ (10G) port	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.
Combo SFP (1G) port	LNK (Link speed): • Off — no link. • Solid green — link on 1000 Mbps speed. • Solid amber — link on 100 Mbps speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

The S3124F I/O side (shown in the following illustration) includes LED displays for port, system, and stack status.

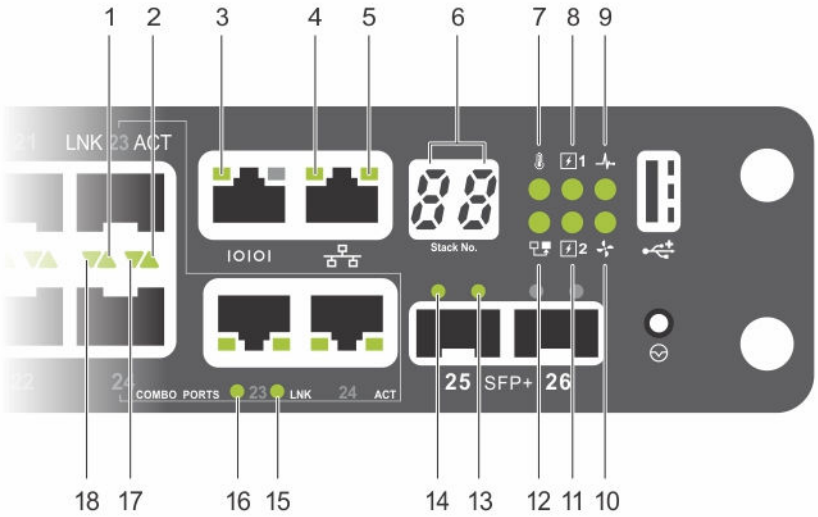

Figure 12. S3124F I/O Side LEDs

1. Gigabit Ethernet (100BASEFX/1000BASE-X) SFP port LNK.
2. Gigabit Ethernet (100BASEFX/1000BASE-X) SFP port ACT.
3. Console port LNK.
4. Management port LNK.
5. Management port ACT.
6. Stack number.
7. Temperature.
8. PSU 1.
9. System Status.
10. Fan.
11. PSU 2.
12. M (Master).
13. SFP+ (10G) port ACT.
14. SFP+ (10G) port LNK.
15. Combo SFP (1G) port ACT.
16. Combo SFP (1G) port LNK.

Table 2. S3124F I/O Side LED Descriptions

Feature	Detailed Description
Gigabit Ethernet (100BASEFX/ 1000BASE-X) SFP port	LNK (Link speed): • Off — no link. • Solid green — link on 1 Gbps speed. • Solid yellow — link on 100 Mbps speed.

Feature	Detailed Description
	ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Console port	LNK (Link speed): • Off — no link. • Solid green — link.
Management port	LNK (Link speed): • Off — no link. • Solid green — link on 1 G speed. • Solid amber — link on 100 M or 10 M speeds. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Stack number	• Displays the stack unit number of the switch. • Displays 1 if switch is not part of a stack.
Temperature	• Solid green — system temperature is below threshold limit. • Solid red — system temperature has exceeded the threshold limit of 75°C.
PSU 1 and 2	• Off — power failure or no power. • Solid green — normal operation. • Blinking green — locator function is enabled.
System status	• Solid green — normal operation. The CLI prompt is available. • Blinking green — boot-up in progress. • Solid red — critical system error. • Blinking red — noncritical system error (fan fail, power supply fail).
Fan	• Solid green — fan is powered and running at the expected rpm. • Solid red — fan failed.
M (Master)	• Solid green — system is in Stacking Master mode. • Off — switch is in Slave mode.
SFP+ (10G) port	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

Feature	Detailed Description
Combo SFP (1G) port	LNK (Link speed): • Off — no link. • Solid green — link on 1000 Mbps speed. • Solid amber — link on 100 Mbps speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

The S3124P I/O side (shown in the following illustration) includes LED displays for port, system, and stack status.

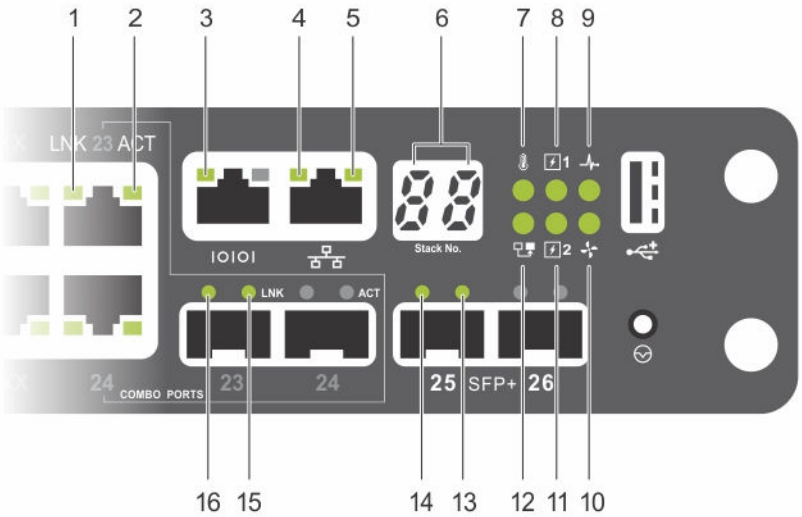

Figure 13. S3124P I/O Side LEDs

1. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port LNK.
2. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port ACT.
3. Console port LNK.
4. Management port LNK.
5. Management port ACT.
6. Stack number.
7. Temperature.
8. PSU 1.
9. System Status.
10. Fan.
11. PSU 2.
12. M (Master).

13. SFP+ (10G) port ACT.
14. SFP+ (10G) port LNK.
15. Combo SFP (1G) port ACT.
16. Combo SFP (1G) port LNK.

Table 3. S3124P I/O Side LED Descriptions

Feature	Detailed Description
Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port	LNK (Link speed): • Green — link up at 1000 Mbps speed. • Yellow — link up at 10/100 Mbps speed. • Off — no link. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Console port	LNK (Link speed): • Off — no link. • Solid green — link.
Management port	LNK (Link speed): • Off — no link. • Solid green — link on 1 G speed. • Solid amber — link on 100 M or 10 M speeds. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Stack number	• Displays the stack unit number of the switch. • Displays 1 if switch is not part of a stack.
Temperature	• Solid green — system temperature is below threshold limit. • Solid red — system temperature has exceeded the threshold limit of 75°C.
PSU 1 and 2	• Off — power failure or no power. • Solid green — normal operation. • Blinking green — locator function is enabled.
System status	• Solid green — normal operation. The CLI prompt is available. • Blinking green — boot-up in progress. • Solid red — critical system error. • Blinking red — noncritical system error (fan fail, power supply fail).
Fan	• Solid green — fan is powered and running at the expected rpm. • Solid red — fan failed.
M (Master)	• Solid green — system is in Stacking Master mode.

Feature	Detailed Description
	• Off — switch is in Slave mode.
SFP+ (10G) port	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.
Combo SFP (1G) port	LNK (Link speed): • Off — no link. • Solid green — link on 1000 Mbps speed. • Solid amber — link on 100 Mbps speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

The S3148P I/O side (shown in the following illustration) includes LED displays for port, system, and stack status.

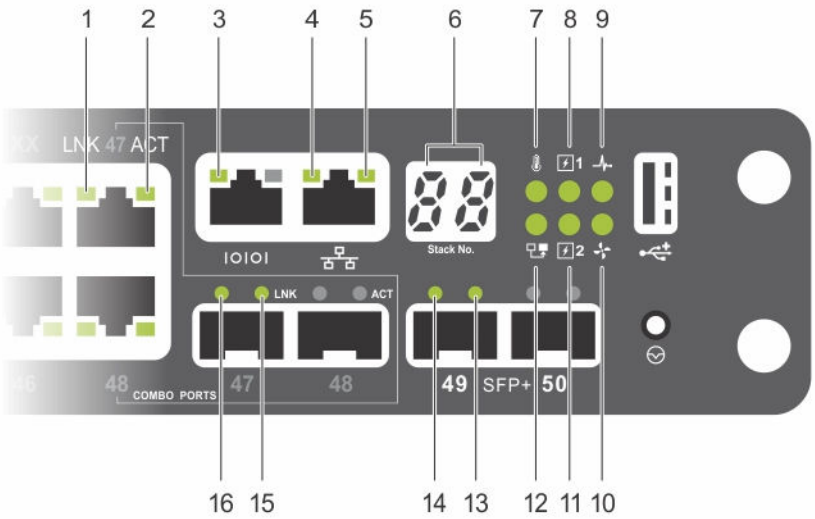

Figure 14. S3148P I/O Side LEDs

1. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port LNK.
2. Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port ACT.
3. Console port LNK.

4. Management port LNK.
5. Management port ACT.
6. Stack number.
7. Temperature.
8. PSU 1.
9. System Status.
10. Fan.
11. PSU 2.
12. M (Master).
13. SFP+ (10G) port ACT.
14. SFP+ (10G) port LNK.
15. Combo SFP (1G) port ACT.
16. Combo SFP (1G) port LNK.

Table 4. S3124P I/O Side LED Descriptions

Feature	Detailed Description
Gigabit Ethernet (10/100/1000BASE-T) RJ-45 port	LNK (Link speed): • Green — link up at 1000 Mbps speed. • Yellow — link up at 10/100 Mbps speed. • Off — no link. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Console port	LNK (Link speed): • Off — no link. • Solid green — link.
Management port	LNK (Link speed): • Off — no link. • Solid green — link on 1 G speed. • Solid amber — link on 100 M or 10 M speeds. ACT (Data transmission): • Blinking green — activity. • Off — no activity.
Stack number	• Displays the stack unit number of the switch. • Displays 1 if switch is not part of a stack.
Temperature	• Solid green — system temperature is below threshold limit. • Solid red — system temperature has exceeded the threshold limit of 75°C.
PSU 1 and 2	• Off — power failure or no power. • Solid green — normal operation.

Feature	Detailed Description
	• Blinking green — locator function is enabled.
System status	• Solid green — normal operation. The CLI prompt is available. • Blinking green — boot-up in progress. • Solid red — critical system error. • Blinking red — noncritical system error (fan fail, power supply fail).
Fan	• Solid green — fan is powered and running at the expected rpm. • Solid red — fan failed.
M (Master)	• Solid green — system is in Stacking Master mode. • Off — switch is in Slave mode.
SFP+ (10G) port	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.
Combo SFP (1G) port	LNK (Link speed): • Off — no link. • Solid green — link on 1000 Mbps speed. • Solid amber — link on 100 Mbps speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

The SFP+ module (shown in the following illustration) includes LED displays for port status.

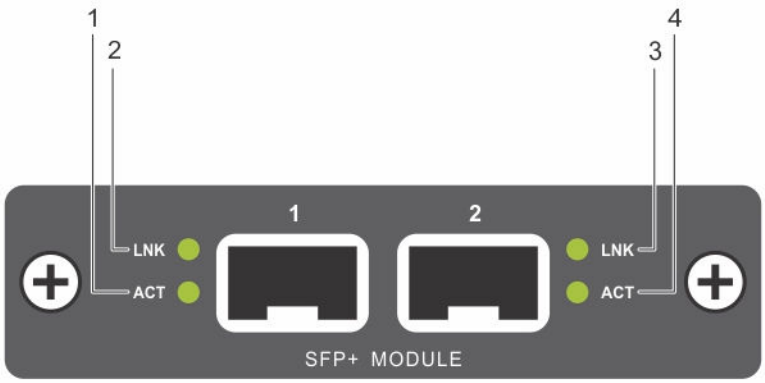

Figure 15. SFP+ Module

1. SFP+ module port 1: LNK.
2. SFP+ module port 1: ACT.
3. SFP+ module port 2: LNK.
4. SFP+ module port 2: ACT.

Table 5. SFP+ Module LEDs

Feature	Detailed Description
SFP+ (module) port 1	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.
SFP+ (module) port 2	LNK (Link speed): • Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 1 G speed. ACT (Data transmission): • Off — no link. • Blinking green — activity.

The 10GBase-T module (shown in the following illustration) includes LED displays for port status.

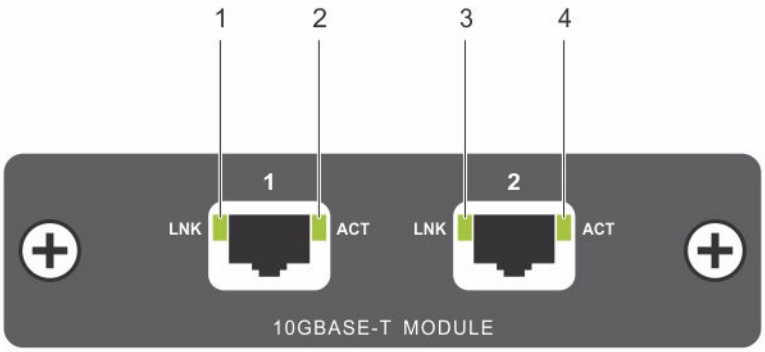

Figure 16. 10GBase-T Module

1. 10GBase-T module port 1: LNK.
2. 10GBase-T module port 1: ACT.
3. 10GBase-T module port 2: LNK.
4. 10GBase-T module port 2: ACT.

Table 6. 10GBase-T Module LEDs

Feature	Detailed Description
Link/SPD LED (left bi-color LED)	• Off — no link. • Solid green — link on 10 G speed. • Solid amber — link on 100 M or 1 G speeds.
Activity LED (right single color LED)	• Off — no link. • Blinking green — activity.

The stacking ports (shown in the following illustration) include LED displays for port status.

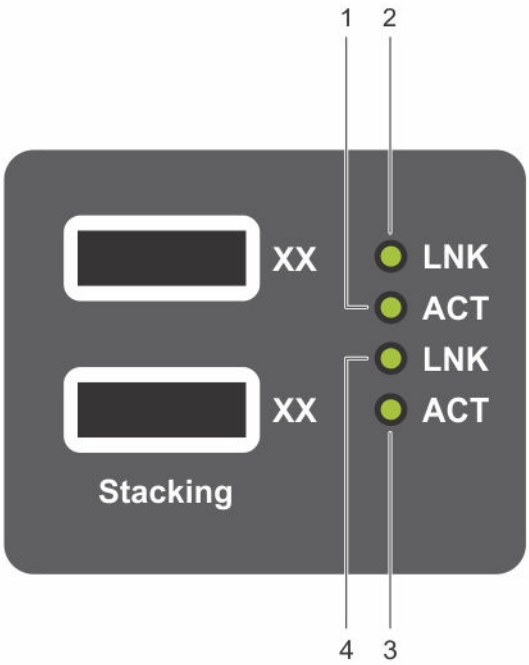

Figure 17. Stacking Port LEDs

1. Stack port 1: ACT.
2. Stack port 1: LNK.
3. Stack port 2: ACT.
4. Stack port 2: LNK.

Table 7. Stacking Port LEDs

Feature	Detailed Description
Link LED (single color LED)	• Off — no link. • Solid green — link.
Activity LED (single color LED)	• Off — no link. • Blinking green — activity.

The power supply LED handle (item 1 in the following illustration) displays power supply status.

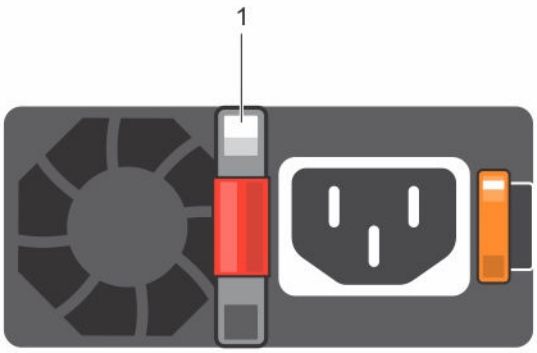

Figure 18. Power Supply LED

Table 8. Power Supply LED

Feature	Detailed Description
Handle LED	• Off — no power. • Solid green — normal operation. • Solid red — power failure.

Orderable S3100 Components

The S3100 series has the following orderable components:

- Second power supply (two is the maximum per switch).
  - S3124 and S3124F platforms support a 200W PSU.
  - S3124P and S3148P platforms support a 715W PSU or 1100W PSU.
- Power cord.
- 10GBase-T module.
- SFP+ module.
- Various optics and cables.

3

Installation

This information describes unpacking a S3100 series switch, installing the power supplies, and mounting the switch in your rack. Optional procedures such as connecting the stacking ports or installing a plug-in module are also described.

Unpacking a S3100 Series Switch

To unpack your switch, follow these steps.

NOTE: Before unpacking the switch, inspect the container and immediately report any evidence of damage.

When unpacking each S3100 series switch, make sure that the following items are included:

- One S3100 series switch.
- One RJ-45 to DB-9 female cable.
- One Dell ReadyRails™ kit for rack installation, two mounting brackets, bolts, and cage nuts.
- One set of self-adhesive rubber pads for free-standing installation (four pads are included).
- One PSU.
- *Getting Started Guide*.
- *Safety and Regulatory Information*.
- *Warranty and Support Information*.
- *Software License Agreement*.

1. Place the container on a clean, flat surface and cut all straps securing the container.
2. Open the container or remove the container top.
3. Carefully remove the switch from the container and place it on a secure and clean surface.
4. Remove all packing material.
5. Inspect the product and accessories for damage.

Installing a Power Supply

To install a power supply, follow these steps.

CAUTION: Remove the power cable from the power supplies prior to removing the power supply module itself. Power must not be connected prior to insertion in the chassis.

CAUTION: To prevent electrical shock, ensure that the system is grounded properly. If you do not ground your equipment correctly, excessive emissions may result. To ensure that the power cables meet your local electrical requirements, use a qualified electrician.

WARNING: ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the system and its components.

NOTE: The PSU slides into the slot smoothly. Do not force the PSU into a slot as this may damage the PSU or the chassis. Ensure that you install the PSU correctly. When you install the PSU correctly, the power connector is on the right side of the PSU.

NOTE: The PSUs are field replaceable. When running with full redundancy (two power supplies installed and running), you can remove and replace one PSU while the other PSU is running, without disrupting traffic.

1. Remove the PSU slot cover from the PSU side of switch. You can select either of the two PSU slots, however, if you are using a single PSU, Dell Networking recommends using power supply 1 (PSU1) as the blank plate slot.
2. Remove the PSU from the electrostatic bag.
3. Insert the PSU into the switch PSU slot (insert the PSU-exposed PCB edge connector first). The PSU slot is keyed such that the PSU can only be fully inserted in one orientation.
4. Plug in the AC cord from the switch PSU to the external power source, such as an AC wall outlet.

   NOTE: The system powers up as soon as the cables are connected between the power supply and the power source. If you have not yet installed the switch in a rack, defer this step until you are ready to power up the system.
5. If you have a redundant PSU (a second PSU), repeat steps 1 through 5 using the second PSU slot on the S3100 series system.
6. If you use a single PSU, install a blank plate in the other PSU slot.

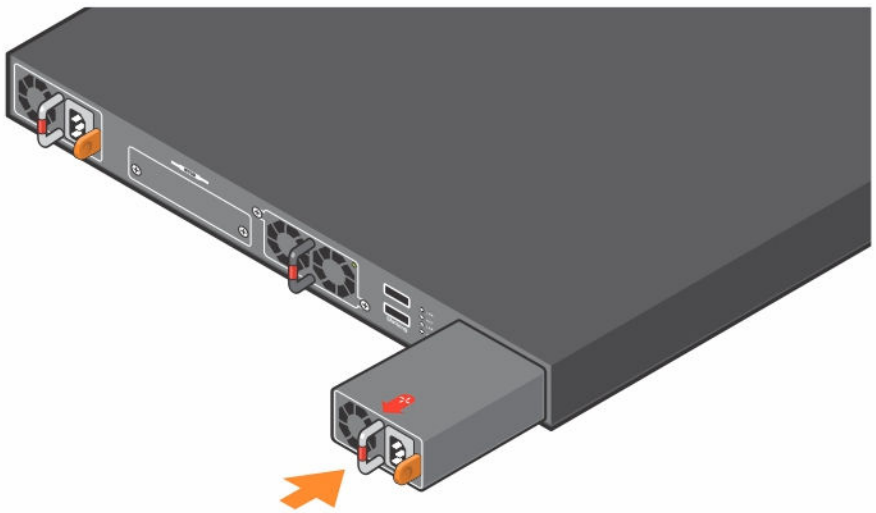

Figure 19. Installing a Power Supply

Installing a Fan Tray

To install a fan tray, follow these steps:

NOTE: The fan tray is hot-swappable.

1. Take the fan tray out of the shipping box.
2. Use the grab handle on the fan tray to slide it into the bay.
3. Tighten the captive screws on the fan tray with a screwdriver. Ensure that the fan tray is secure.

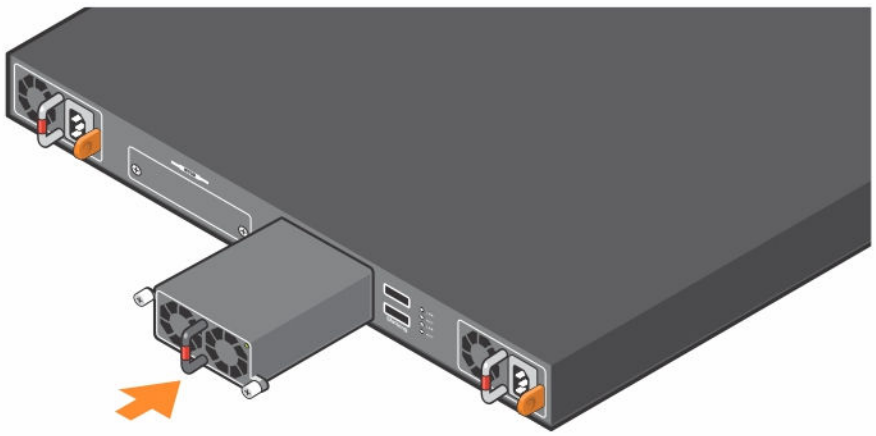

Figure 20. Installing a Fan Tray

Installing a Plug-In Module (Optional)

The S3100 series switches support SFP+ and 10GBase-T plug-in modules in the expansion slots on the PSU side of the switch.

CAUTION: The plug-in modules are not hot-swappable.

To install a plug-in module, follow these steps:

1. Insert the module into an expansion slot.
2. Reboot the switch.

   The switch recognizes the new module.

After a module is recognized, its configuration is stored locally on the switch as the switch default. The module configuration appears in the running configuration for informational purposes. For more information, see the *Dell Configuration Guide for the S3100 Series*.

Install Rack or Cabinet Hardware

You may either place the switch on the rack shelf or mount the switch directly into a 19" wide, EIA-310-E-compliant rack (four-post, two-post, or threaded methods).

The ReadyRails system is provided for one 1U front-rack and two-post installations. The system includes two separately packaged rail assemblies.

WARNING: This is a condensed reference. Read the safety instructions in your Safety, Environmental, and Regulatory information booklet before you begin.

NOTE: The illustrations in this document are not intended to represent a specific switch.

NOTE: Do not the use the mounted ReadyRails as a shelf or a workplace.

Rack Mount Safety Considerations

- Rack loading — Overloading or uneven loading of racks may result in shelf or rack failure, this can cause damage to the equipment and possible personal injury. Stabilize racks in a permanent location before loading begins. Mount the components starting at the bottom of the rack, then work to the top. Do not exceed your rack load rating.
- Power considerations — Connect only to the power source specified on the unit. When you install multiple electrical components in a rack, ensure that the total component power ratings do not exceed the circuit capabilities. Overloaded power sources and extension cords present fire and shock hazards.
- Elevated ambient temperature — If you install the system in a closed rack assembly, the operating temperature of the rack environment may be greater than the room ambient temperature. Use care not to exceed the 40°C maximum ambient temperature of the switch.
- Reduced air flow — Install the equipment in the rack so that the amount of airflow required for safe operation of the equipment is not compromised.
- Reliable earthing — Maintain reliable earthing of rack-mounted equipment. Pay particular attention to the supply connections other than the direct connections to the branch circuit; for example, use of power strips.
- Do not mount the equipment with the PSU side facing in the downward position.

Installing the Dell ReadyRails System

The ReadyRails rack mounting system is provided to easily configure your rack for system installation.

You can install the ReadyRails system using the 1U tool-less method or one of three possible 1U tooled methods (two-post flush mount, two-post center mount, or four-post threaded).

1. With the ReadyRails flange ears facing outward, place one rail between the left and right vertical posts. Align and seat the rear flange rail pegs in the rear vertical post flange. Item 1 of the following illustration and its extractions show how the pegs appear in both the square and non-threaded round holes.
2. Align and seat the front flange pegs in the holes on the front side of the vertical post. See item 2 in the following illustration.
3. Repeat this procedure for the second rail.
4. To remove each rail, pull on the latch release button on each flange ear and unseat each rail. See item 3 in the following illustration.

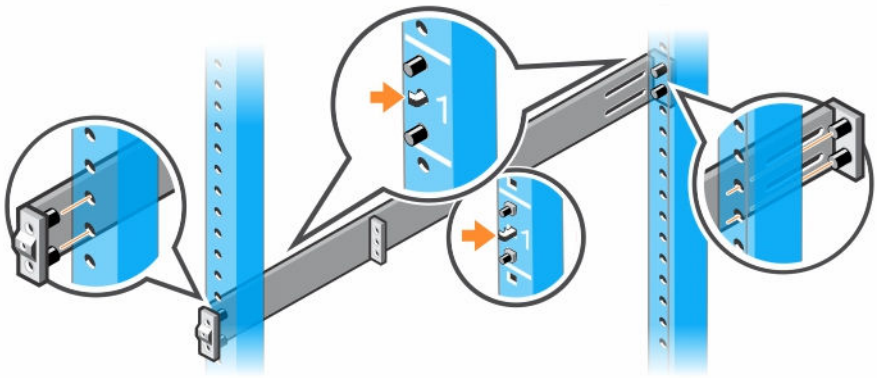

Figure 21. 1U Tool-Less Configuration

Configuring a Two-Post Flush-Mount

To install your switch using a two-post flush-mount configuration, follow these steps.

1. For this configuration, remove the castings from the front side of each ReadyRails assembly. See item 1 in the following illustration. To remove the two screws from each front flange ear (on the switch side of the rail) and remove each casting, use a Torx driver. Retain the castings for future rack requirements. It is not necessary to remove the rear flange castings.
2. Attach one rail to the front post flange with two user-supplied screws. See item 2 in the following illustration.
3. Slide the plunger bracket forward against the vertical post and secure the plunger bracket to the post flange with two user-supplied screws. See item 3 in the following illustration.
4. Repeat this procedure for the second rail.

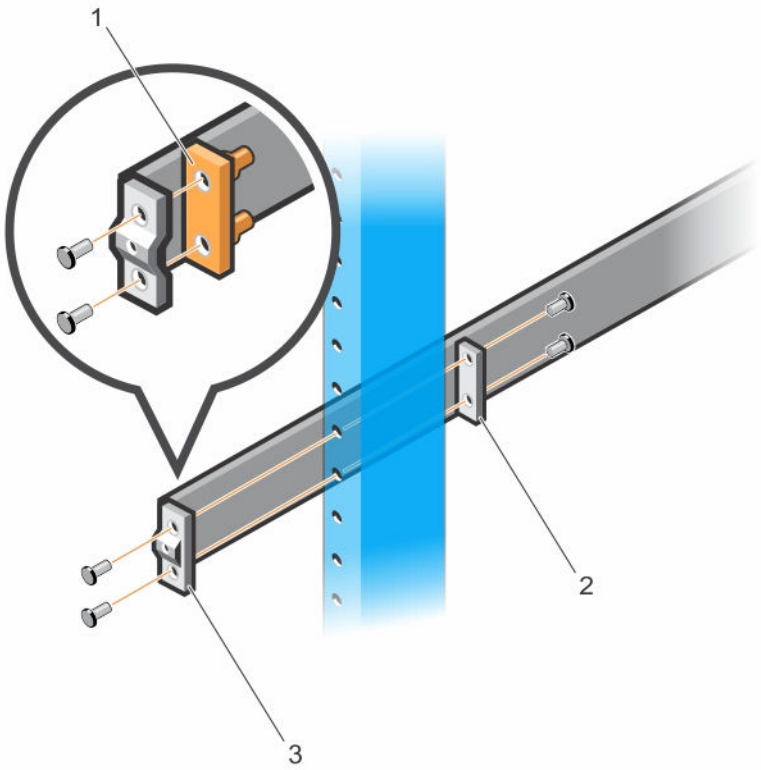

Figure 22. Installing the Switch using a Two-Post Flush-Mount Configuration

Configuring a Two-Post Center-Mount

To install your switch in a two-post center-mount configuration, follow these steps.

1. Slide the plunger bracket rearward until it clicks into place and secure the bracket to the front post flange with two user-supplied screws. See item 1 in the following illustration.
2. Slide the back bracket towards the post and secure it to the post flange with two user-supplied screws. See item 2 in the following illustration.
3. Repeat this procedure for the second rail.

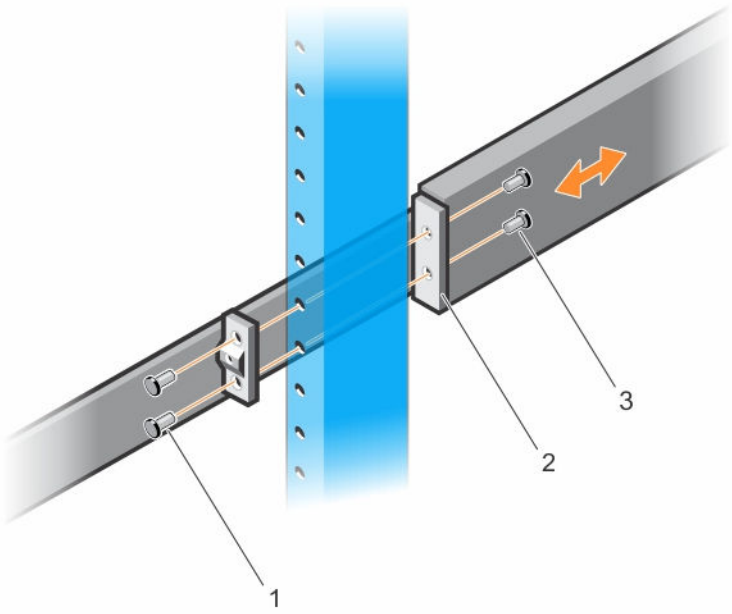

Figure 23. Installing the Switch in a Two-Post Center-Mount Configuration

Configuring a Four-Post Thread

To install your switch in a four-post thread configuration, follow these steps.

1. For this configuration, remove the flange ear castings from each end of the ReadyRails assemblies. To remove the two screws from each flange ear and remove each casting, use a Torx driver. See item 1 in the following illustration. Retain the castings for future rack requirements.
2. For each rail, attach the front and rear flanges to the post flanges with two user-supplied screws at each end. See item 2 in the following illustration.

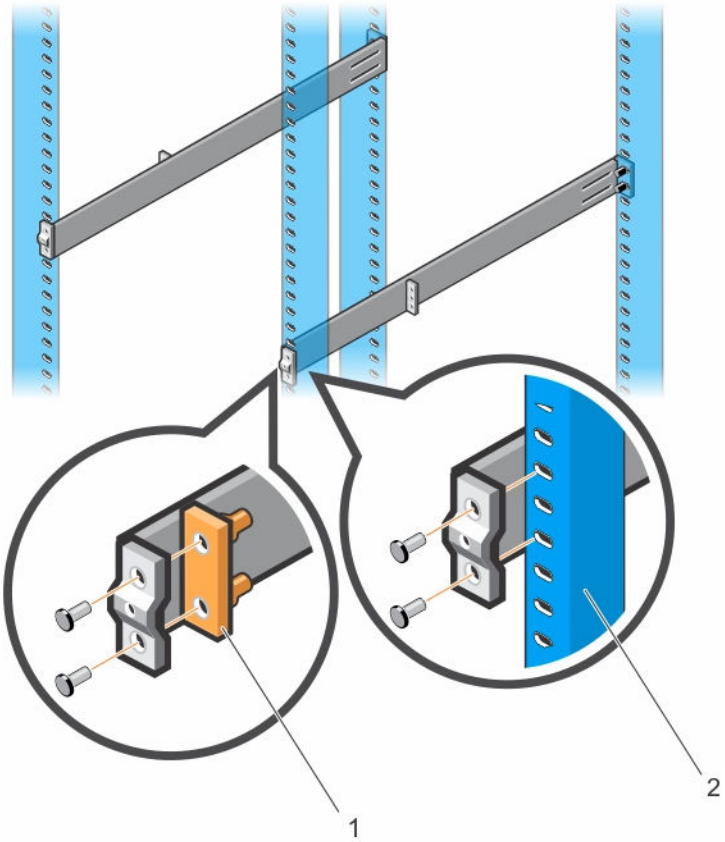

Figure 24. Four-Post Threaded Configuration

Installing a 1U Two-Post

You can install the switch in 1U two-post (flush and center) configurations. Slide the system into the rails in the same manner as the four-post configurations.

Installing a 1U Front-Rack

To install the switch in a 1U front-rack configuration, configure the rails that are attached to the system.

1. Attach the switch rails (inner chassis members) to the switch. Item 3 in the following illustration shows the detail for the front standoff with the locking tab.

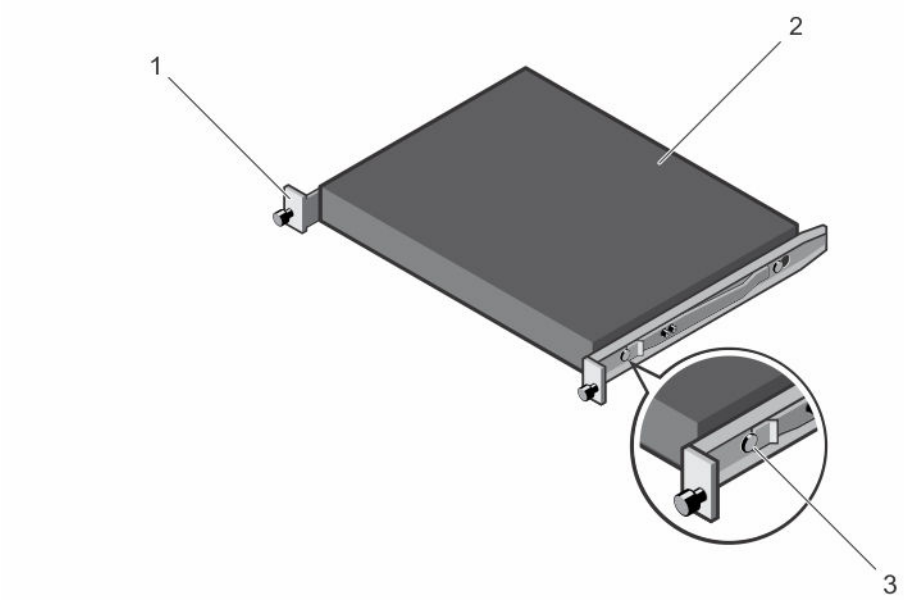

Figure 25. Attaching the Switch Rails

2. After you have installed both switch rails, line them up on the previously mounted ReadyRails and slide the switch in until it is flush with the front of the rack. About three inches before you fully insert your switch, the rail locking feature engages to keep the switch from inadvertently sliding out of the rack and falling.

   NOTE: Do not the use the mounted ReadyRails as a shelf or a workplace.

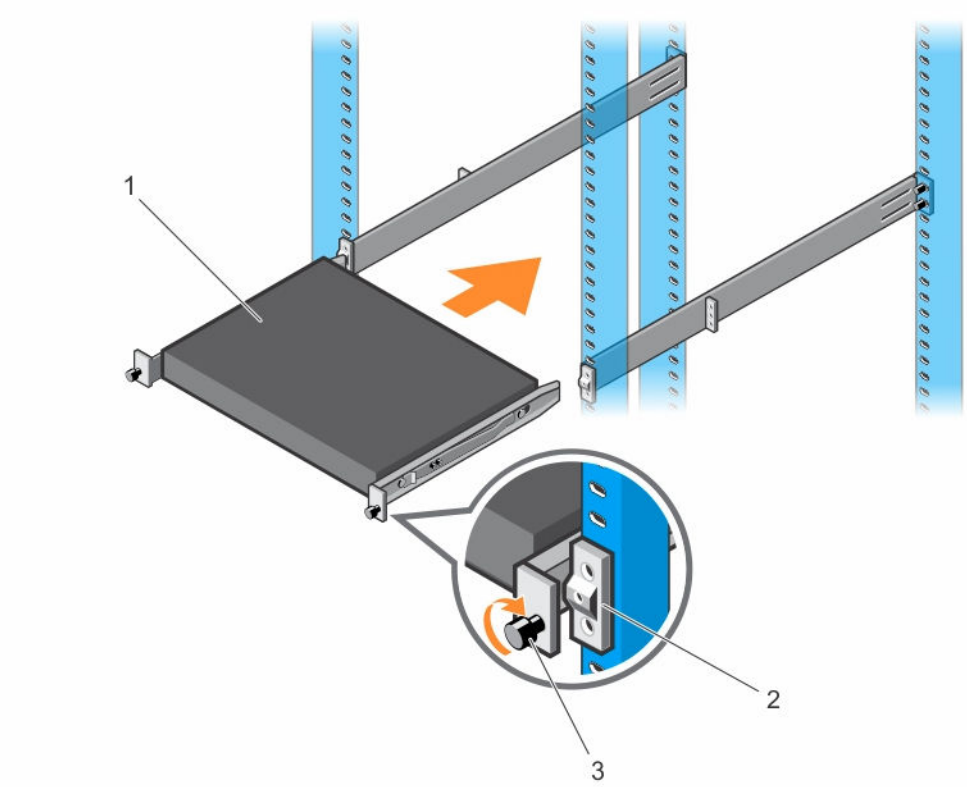

Figure 26. Installing the Switch in a Front-Rack Configuration

Connecting the Stacking Ports (Optional)

For the S3124P or S3148P platforms, you can connect up to six switches to operate as a single unit, using two fixed mini-SAS stacking connectors on the PSU side. When you connect multiple switches together through the stack ports, they operate as a single unit with up to 288 front panel ports. The stack operates and is managed as a single entity.

NOTE: The S3124P and S3148P platforms support stacking with Dell Networking OS 9.8(2.0). Stacks must be either all S3124P or S3148P platforms, you cannot combine different platforms into one stack. The S3124 and S3124F platforms do not support stacking with Dell Networking OS 9.8(2.0).

Dell recommends installing the switches connected in a ring topology. Assemble and cable the stack of switches before powering up and configuring it.

To install your switches in a ring topology, follow these steps.

1. Connect one of the mini-SAS cables into either of the stacking ports of the top switch and the switch directly below it. As necessary, use a separately purchased, longer (1 meter or 3 meter) mini-SAS cable to connect the switches.
2. Repeat this process until all the devices are connected.
3. Use the remaining stacking cable to connect the two remaining stacking ports together so that a ring topology is assembled.

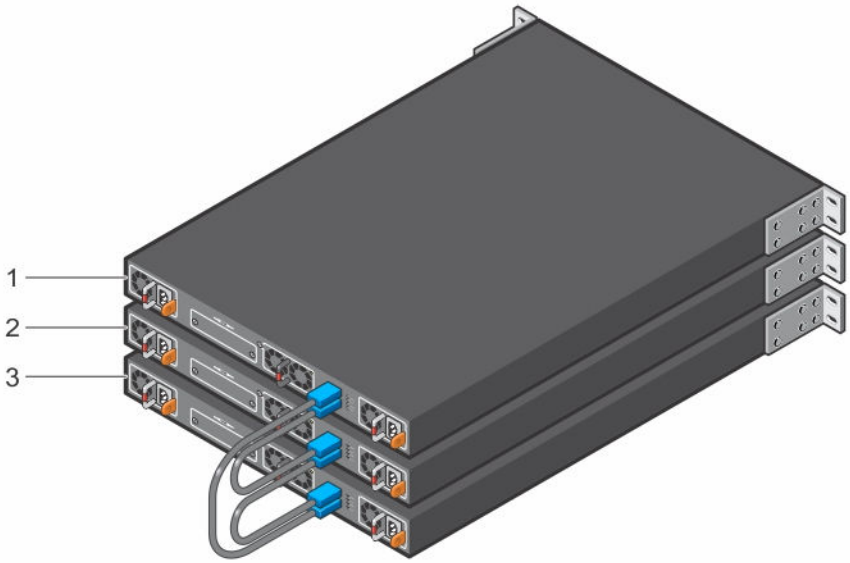

Figure 27. Connecting a Stack of Switches

A stack of three switches connected in a ring topology has these physical connections between the switches:

1. The bottom mini-SAS port on Unit 1 is connected to the top mini-SAS port on Unit 2.
2. The bottom mini-SAS port on Unit 2 is connected to the top mini-SAS port on Unit 3.
3. The bottom mini-SAS port on Unit 3 is connected to the top mini-SAS port on Unit 1.

After you power up a stack for the first time, the switches elect a master switch, which may occupy any location in the stack. The Master LED on the front panel is illuminated on the master unit.

If a master failure is detected in the stack, the stacking feature supports a standby unit that assumes the master unit role. The standby unit is automatically selected in the stack. When a master failure is detected, the standby unit initializes the control plane and enables all other stack units with the current configuration. The standby unit maintains a synchronized copy of the running configuration for the stack.

NOTE: You can (optionally) use the CLI to assign the master unit role, or select a different stack member as the standby unit, based on priority or MAC address. For more information, see the *Dell Configuration Guide for the S3100 Series* or the *Dell Command Line Reference Guide for the S3100 Series*.

Powering Up

To connect the chassis to the applicable power source, use the appropriate power cord. The system is powered up as soon as the power cord is connected between the system and the power source.

CAUTION: Always disconnect the power cable before you service the power supply slots.

4

S3100 Series Technical Specifications

Operate the product at an ambient temperature not higher than 40°C.

CAUTION: Lithium Battery Caution: There is a danger of explosion if the battery is incorrectly replaced. Replace only with same or equivalent type. Dispose of the batteries according to the manufacturer's instructions.

Chassis Physical Design

Parameter	Specifications
Height	1.71 inches (43.5 mm).
Width	17.09 inches (434 mm).
Depth	16.02 inches (407 mm).
Chassis weight	S3124 — 13.45 lbs (6.1 kg).
	S3124F — 13.45 lbs (6.1 kg).
	S3124P — 14.77 lbs (6.7 kg).
	S3148P — 15.65 lbs (7.1 kg).

Environmental Parameters

Parameter	Specifications
Operating temperature	32° to 113°F (0° to 45°C).
Operating humidity	8% to 85% (RH), non-condensing.
Storage temperature	–40° to 158°F (–40° to 70°C).
Storage humidity	5% to 90% (RH), non-condensing.
Maximum thermal output	24 port — 137.88 BTU/hr.
	48 port — 213.98 BTU/hr.

Power Requirements

Parameter	Specifications
Power supply	100–240 VAC 50/60 Hz.
Maximum current draw per system (excluding PoE power)	24 port — 0.40 watts @40.41 watts/100vac, 0.20 watts @40.41 watts/200vac. 48 port — 0.63 watts @62.71 watts/100vac, 0.32 watts @62.71 watts/200vac.
Maximum power consumption (excluding PoE power)	63 Watts.

5

Installing the Software

This information describes the initial software configuration, including connecting, booting, configuration, and examples.

Navigating CLI Modes

The Dell Networking OS prompt changes to indicate the CLI mode.

Move linearly through the command modes, except for the `end` command that takes you directly to EXEC Privilege mode, and the `exit` command that moves you up one command mode level.

Accessing the Console

The console port is on the I/O side of the chassis (item 1 in the following illustration).

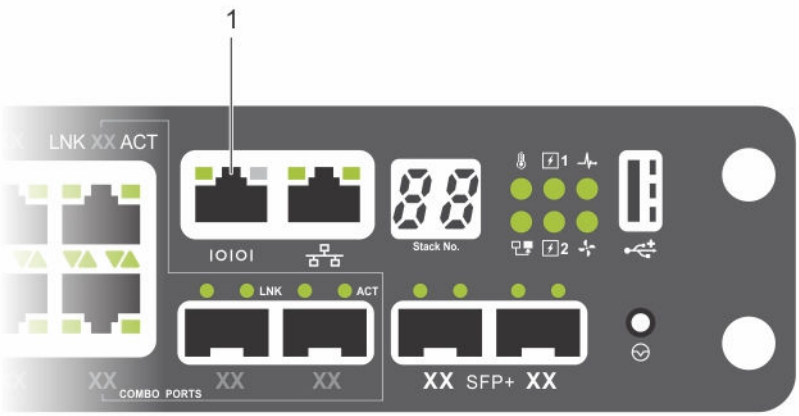

Figure 28. Console Port Location

NOTE: You must have a password configured on a virtual terminal line before you can Telnet into the system. Therefore, use a console connection when connecting to the system for the first time. Before starting this procedure, be sure that you have a terminal emulation program already installed on your PC.

NOTE: If you are configuring a stack of switches, serial console access to the stack manager is available from any serial port using the local CLI. Only one serial console session at a time is supported.

1. Install an RJ-45 copper cable into the console port. To connect the console port to a terminal server, use a rollover cable.
2. Connect the other end of the cable to the DTE terminal server.
3. Set the default terminal settings as follows.
   - 9600 baud rate.
   - No parity.
   - Eight data bits.
   - One stop bit.
   - No flow control.

Access the Console Port with a DB-9 Adapter

If the DTE has a DB-9 interface, you can connect to the console using an RJ-45 to DB-9 adapter along with the RJ-45 rollover cable.

The following table lists the pin assignments.

Console Port	RJ-45 to RJ-45 Rollover Cable	RJ-45 to RJ-45 Rollover Cable	RJ-45 to DB-9 Adapter	Terminal Server Device
Signal	**RJ-45 Pinout**	**RJ–45 Pinout**	**DB-9 Pin**	**Signal**
RTS	1	8	8	CTS
NC	2	7	6	DSR
TxD	3	6	2	RxD
GND	4	5	5	GND
GND	5	4	5	GND
RxD	6	3	3	TxD
NC	7	2	4	DTR
CTS	8	1	7	RTS

Default Configuration

A version of Dell Networking OS is pre-loaded onto the system; however, the system is not configured when you power up for the first time (except for the default host name, which is `Dell`).

You must configure the system using the CLI.

Configuring Layer 2 (Data Link) Mode

To enable Layer 2 data transmissions through an individual interface, use the `switchport` command in INTERFACE mode.

You cannot configure switching or Layer 2 protocols such as spanning tree protocol (STP) on an interface unless the interface has been set to Layer 2 mode.

1. Enable the interface.
   INTERFACE mode

   ```
   no shutdown
   ```
2. Place the interface in Layer 2 (switching) mode.
   INTERFACE mode

   ```
   switchport
   ```

To view the interfaces in Layer 2 mode, use the `show interfaces switchport` command in EXEC mode.

Configuring a Host Name

The host name appears in the prompt. The default host name is `Dell`.

Host names must start with a letter, end with a letter or digit, and must have characters, letters, digits, and hyphens in the string.

- Create a new host name.
  CONFIGURATION mode

  ```
  hostname name
  ```

Accessing the System Remotely

You can configure the system to be accessed remotely by Telnet.

The system has a dedicated management port and a management routing table that is separate from the IP routing table.

1. Configure an IP address for the management port (Configuring the Management Port IP Address).
2. Configure a management route with a default gateway (Configuring the Management Route).
3. Configure a username and password (Configuring the Username and Password).

Configuring the Management Port IP Address

In order to access the system remotely, assign IP addresses to the management ports.

1. Enter INTERFACE mode for the management port.
   CONFIGURATION mode

```
interface ManagementEthernet slot/port
```

2. Assign an IP address to the interface.
   INTERFACE mode

   ```
   ip address ip-address/mask
   ```

3. Enable the interface.
   INTERFACE mode

   ```
   no shutdown
   ```

Configuring the Management Route

Define a path from the S3100 series system to the network from which you will remotely access the system.
Management routes are separate from IP routes and are used to manage the system through the management port.

- Configure a management route to the network from which you will access the system.
  CONFIGURATION mode

  ```
  management route ip-address/mask gateway
  ```

Configuring the Username and Password

To access the system remotely, configure a system username and password.

- Configure a username and password to access the system remotely.
  CONFIGURATION mode

  ```
  username username password [encryption-type]
  ```

Configuring the Enable Password

Access EXEC Privilege mode using the `enable` command. EXEC Privilege mode is unrestricted by default.
As a basic security measure, configure a password. There are two types of enable passwords:

- enable password — stores the password in the running/startup configuration using a data encryption standard (DES)-encryption method.
- enable secret — stores the password in the running/startup configuration using a stronger, MD5-encryption method.

Dell Networking recommends using the enable secret password.

- Create a password to access EXEC Privilege mode.
  CONFIGURATION mode

  ```
  enable [password | secret] [level level] [encryption-type] password
  ```

Creating a Port-based VLAN

The default VLAN (VLAN 1) is part of the system startup configuration and does not require configuration.

To configure a port-based VLAN, create the VLAN and then add physical interfaces or port channel (LAG) interfaces to the VLAN.

- Configure a port-based VLAN (if the vlan-id is different from the Default VLAN ID) and enter INTERFACE VLAN mode.

  CONFIGURATION mode

  ```
  interface vlan vlan-id
  ```

  After you create a VLAN, assign interfaces in Layer 2 mode to the VLAN to activate the VLAN.

To view the configured VLANs, use the `show vlan` command in EXEC Privilege mode.

Assigning Interfaces to a VLAN

You can only assign interfaces in Layer 2 mode to a VLAN using the `tagged` and `untagged` commands.

To place an interface in Layer 2 mode, use the `switchport` command.

You can designate Layer 2 interfaces as tagged or untagged. When you place an interface in Layer 2 mode using the `switchport` command, the interface automatically designates untagged and is in the Default VLAN.

To tag frames leaving an interface in Layer 2 mode, assign that interface as tagged to a port-based VLAN to tag it with that VLAN ID.

To move untagged interfaces from the Default VLAN to another VLAN, use the `untagged` command.

1. **Tag interfaces.** Access INTERFACE VLAN mode of the VLAN to which you want to assign the interface.

   CONFIGURATION mode

   ```
   interface vlan vlan-id
   ```

2. Enable an interface to include the IEEE 802.1Q tag header.

   INTERFACE mode

   ```
   tagged interface
   ```

   This command is available only in VLAN interfaces.

3. **Move untagged interfaces.** Access INTERFACE VLAN mode of the VLAN to which you want to assign the interface.

   CONFIGURATION mode

   ```
   interface vlan vlan-id
   ```

4. Configure an interface as untagged.

   INTERFACE mode

`untagged interface`

This command is available only in VLAN interfaces.

To view which interfaces are tagged or untagged and to view which VLAN the interfaces belong, use the `show vlan` command. To view just the interfaces that are in Layer 2 mode, use the `show interfaces switchport` command in EXEC Privilege mode or EXEC mode.

Assigning an IP Address to a VLAN

VLANs are a Layer 2 feature. For two physical interfaces on different VLANs to communicate, assign an IP address to the VLANs to route traffic between the two interfaces.

The `shutdown` command in INTERFACE mode does not affect Layer 2 traffic on the interface.

NOTE: You cannot assign an IP address to the Default VLAN, which, by default, is VLAN 1. To assign another VLAN ID to the Default VLAN, use the `default vlan-id vlan-id` command from the configuration mode.

- Access INTERFACE VLAN mode of the VLAN to which you want to assign the IP address.

  INTERFACE mode

  `ip address ip-address mask [secondary]`

  Configure an IP address and mask on the interface.

Connect the System to the Network

After you have completed the hardware installation and software configuration for the system, connect to your company network by following your company's cabling requirements.