

# **S4100–ON Series S4128F-ON, S4148F-ON, and S4148FE Installation Guide**

November 2017

## Notes, cautions, and warnings

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

 **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.

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# About this guide

This guide provides site preparation recommendations, step-by-step procedures for rack mounting and desk mounting, inserting modules, and connecting to a power source.

**CAUTION:** To avoid electrostatic discharge (ESD) damage, wear grounding wrist straps when handling this equipment.

**WARNING:** Only trained and qualified personnel can install this equipment. Read this guide before you install and power 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.



Figure 1. Class 1 laser product tag

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

Topics:

- [Related documents](#)
- [Information symbols](#)

## Related documents

For more information about the S4100-ON Series, see the following documents:

- *OS10 Enterprise Edition Release Notes*
- *OS10 Enterprise Edition User Guide*
- *Dell S4100-ON Series Setup Guide*
- *Dell Open Networking Hardware Diagnostic Guide*
- *S4100-ON Series Release Notes*

**NOTE:** For the most recent documentation, visit Dell EMC support: [www.dell.com/support](http://www.dell.com/support).

## Information symbols

This book uses the following information symbols:

**NOTE:** The Note icon signals important operational information.

**CAUTION:** The Caution icon signals information about situations that could result in equipment damage or loss of data.

 **WARNING:** The Warning icon signals information about hardware handling that could result in injury.

 **WARNING:** The ESD Warning icon requires that you take electrostatic precautions when handling the device.

# S4100–ON Series switch

The following sections describe the Dell EMC S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch:

Topics:

- [Introduction](#)
- [Features](#)
- [Physical dimensions](#)
- [LED display](#)
- [Prerequisites](#)
- [S4100-ON Series configurations](#)
- [Luggage tag](#)

## Introduction

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) is a one rack unit (RU), full-featured fixed form-factor top-of-rack (ToR) 10/25/40/50/100GbE switch for 10G servers with small form-factor pluggable plus (SFP+), quad small form-factor pluggable plus (QSFP+), and quad small form-factor pluggable (QSFP28) ports. The S4148FE-ON also includes unified (Fibre channel and Ethernet) 10GbE SFP+ and QSFP28 ports.

**NOTE:** For specific port profile details, see the *OS10 Enterprise Edition User Guide*.

The S4100F-ON Series supports the following configurations:

**Table 1. S4100-ON Series supported configurations**

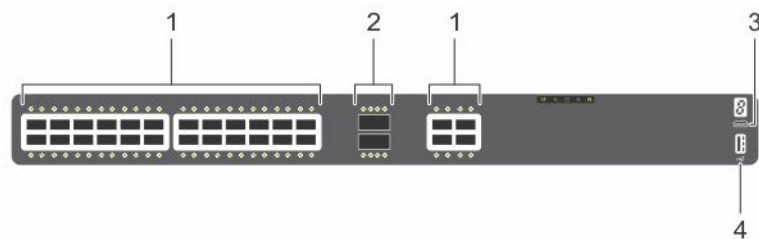
S4128F-ON	S4148F-ON	S4148FE-ON
28 x 10G + 2 x 100G	48 x 10G + 4 x 100G	48 x 10G + 4 x 100G
28 x 10G + 2 x 40G	48 x 10G + 6 x 40G	48 x 10G + 6 x 40G
28 x 10G + 4 x 50G	48 x 10G + 8 x 50G	48 x 10G + 8 x 50G
28 x 10G + 8 x 25G	48 x 10G + 16 x 25G	48 x 10G + 16 x 25G
36 x 10G	72 x 10G	72 x 10G

The following table lists the S4100-ON Series I/O-side details:

**Table 2. S4100-ON Series I/O-side details**

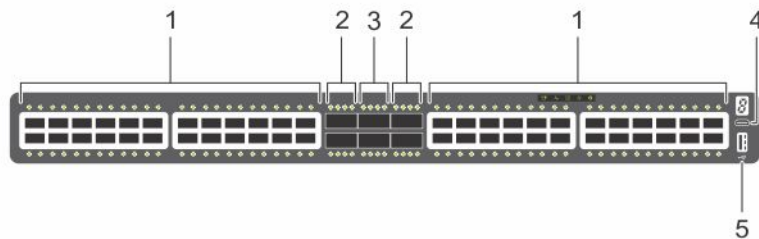
Platform	Description
S4128F-ON	<ul style="list-style-type: none"> <li>• 28 fixed 10GbE SFP+ ports</li> <li>• 2 fixed 100GbE QSFP28 ports</li> <li>• seven-segment stacking indicator</li> <li>• 1 micro-USB-B console port</li> </ul>

Platform	Description
	<ul style="list-style-type: none"> <li>1 USB type-A port</li> </ul>
S4148F-ON	<ul style="list-style-type: none"> <li>48 fixed 10GbE SFP+ ports</li> <li>2 fixed 40GbE QSFP+ ports</li> <li>4 fixed 100GbE QSFP28 ports</li> <li>seven-segment stacking indicator</li> <li>1 micro-USB-B console port</li> <li>1 USB type-A port</li> </ul>
S4148FE-ON	<ul style="list-style-type: none"> <li>48 fixed 10GbE SFP+ ports</li> <li>2 fixed 40GbE QSFP+ ports</li> <li>4 fixed 100GbE QSFP28 ports</li> <li>seven-segment stacking indicator</li> <li>1 micro-USB-B console port</li> <li>1 USB type-A port</li> <li>Support for LRM optics</li> </ul>



**Figure 2. S4128F-ON I/O-side view**

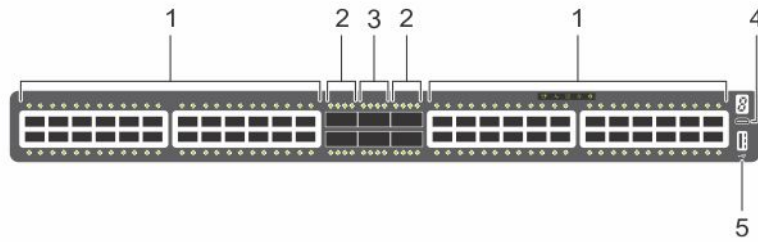
- |   |                                 |   |                          |
|---|---------------------------------|---|--------------------------|
| 1 | Twenty-eight SFP+ optical ports | 2 | Two QSFP28 optical ports |
| 3 | Micro USB-B console port        | 4 | USB Type-A               |



**Figure 3. S4148F-ON I/O-side view**

- |   |                                |   |                          |
|---|--------------------------------|---|--------------------------|
| 1 | Forty-eight SFP+ optical ports | 2 | Four QSFP28 ports        |
| 3 | Two QSFP+ optical ports        | 4 | Micro USB-B console port |
| 5 | USB Type-A                     |   |                          |

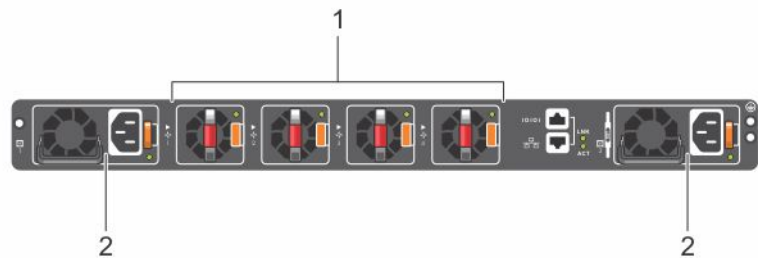




**Figure 4. S4148FE-ON I/O-side view**

- |   |  |   |                           |
|---|--|---|---------------------------|
| 1 | Twenty four each unified SFP+ and SFP+ optical ports | 2 | Four unified QSFP28 ports |
| 3 | Two QSFP+ optical ports                              | 4 | Micro USB-B console port  |
| 5 | USB Type-A   |   |                           |

The S4100-ON Series PSU-side of the switch has two hot-swappable power supplies (PSUs) with integrated fans and four hot-swappable fan trays. The platforms include one RJ-45 10/100/1000 Base-T Ethernet management port and one RJ-45 console port on the PSU side of the switch.



**Figure 5. S4100-ON Series PSU-side view**

- |   |                              |   |   |
|---|------------------------------|---|---|
| 1 | Four hot-swappable fan units | 2 | Two hot-swappable PSUs with integrated fans |
|---|------------------------------|---|---|

## Features

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) offers the following features:

- S4128F-ON: 28 fixed 10GbE SFP+ ports, 2 fixed 100GbE QSFP28 ports
- S4148F-ON: 48 fixed 10GbE SFP+ ports, 2 fixed 40GbE QSFP+ ports, 4 fixed 100GbE QSFP28 ports
- S4148FE-ON: 48 fixed 10GbE SFP+ ports, 2 fixed 40GbE QSFP+ ports, 4 fixed 100GbE QSFP28 ports with support for LRM optics
- One MicroUSB-B serial console management port
- One RJ-45 serial console management port
- One RS-232 serial console port
- One universal serial bus (USB) Type-A port for more file storage
- One 2 Core Rangeley C2338 central processing unit (CPU), with 4GB DDR3 SDRAM and one 16 GB mSATA/M.2 SSD module
- Seven-segment stacking indicator
- Temperature monitoring
- Real time clock (RTC) support

- Hot-plug redundant power supplies
- Removable fans
- Standard 1U chassis

## Physical dimensions

The S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON), has the following physical dimensions:

- 434 x 460 x 43.5 mm (W x D x H)
- 17.1 x 18.1 x 1.71 inches (W x D x H)
- Power supply unit (PSU) and fan module handle: 1.57 inches (40 mm)

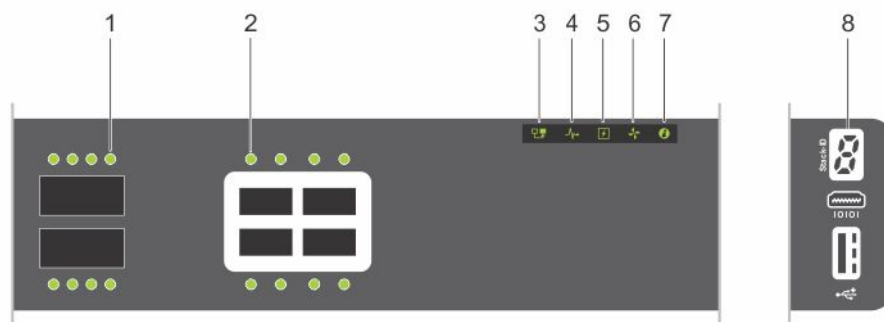
## LED display

The S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) contains LED displays on the I/O side and PSU side of the switch.

**NOTE:** If you are using third-party software, for more LED information, see their operating software documentation.

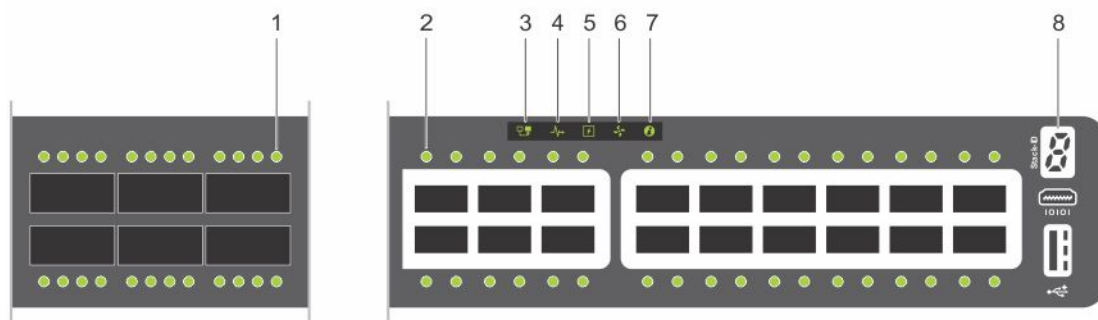
## LED behavior

The following S4100–ON Series switch LED behavior displays during open networking installation environment (ONIE) operations:



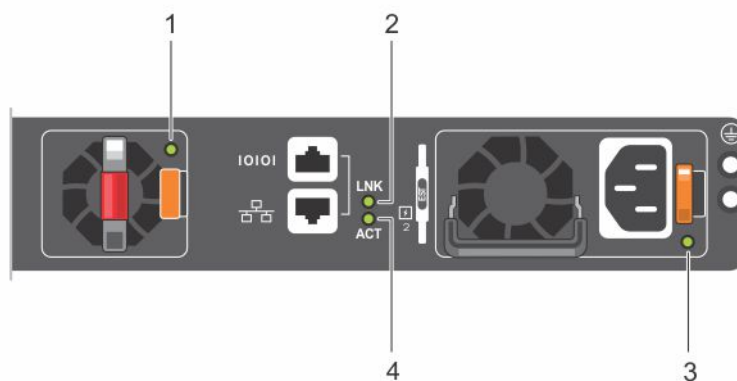
**Figure 6. S4128F-ON I/O-side LEDs**

- |   |                           |   |   |
|---|---------------------------|---|---|
| 1 | QSFP28 port activity LEDs | 2 | Link (left), activity (right) port LEDs |
| 3 | Master LED                | 4 | System LED                              |
| 5 | Power LED                 | 6 | Fan LED                                 |
| 7 | Locator LED/System beacon | 8 | Stack ID                                |



**Figure 7. S4148F-ON and S4148FE-ON I/O-side LEDs**

- |   |                           |   |                         |
|---|---------------------------|---|-------------------------|
| 1 | QSFP28 port activity LEDs | 2 | Link/activity port LEDs |
| 3 | Master LED                | 4 | System LED              |
| 5 | Power LED                 | 6 | Fan LED                 |
| 7 | Locator LED/System beacon | 8 | Stack ID                |



**Figure 8. S4100-ON Series PSU-side LEDs**

- |   |         |   |              |
|---|---------|---|--------------|
| 1 | Fan LED | 2 | Link LED     |
| 3 | PSU LED | 4 | Activity LED |

**Table 3. S4100-ON Series LED behavior**

LED	Description
System Status/Health LED	<ul style="list-style-type: none"> <li>• Solid green—Normal operation</li> <li>• Blinking green—Booting</li> <li>• Solid yellow (amber)—Critical system error</li> <li>• Blinking yellow—Noncritical system error, fan failure, or power supply failure</li> </ul>
Power LED	<ul style="list-style-type: none"> <li>• Off—No power</li> <li>• Solid green—Normal operation</li> <li>• Solid yellow—POST is in process</li> <li>• Blinking yellow—Power Supply failure</li> </ul>

LED	Description
Master LED	<ul style="list-style-type: none"> <li>Off—Switch is in Stacking Slave mode</li> <li>Solid green—Switch is in Stacking Master or Standalone mode</li> </ul>
FAN LED	<ul style="list-style-type: none"> <li>Off—No power</li> <li>Solid green—Normal operation; fan powered and running at the expected RPM</li> <li>Solid yellow—Fan failed—including incompatible airflow direction when you insert the PSU or fan trays with differing airflows</li> </ul>
PSU LED	<ul style="list-style-type: none"> <li>Off—No power</li> <li>Solid green—Normal operation</li> <li>Solid yellow—Power supply critical event causing a shutdown.</li> <li>Blinking yellow—PSU warning event; power continues to operate</li> <li>Blinking green, 1.0Hz—Standby mode</li> <li>Blinking green, 0.5Hz—Ac power cord unplugged</li> </ul>
Locator LED/System Beacon	<ul style="list-style-type: none"> <li>Off—Locator function is disabled</li> <li>Blinking blue—Locator function is enabled</li> </ul>
7-Segment LED for stacking	<ul style="list-style-type: none"> <li>Off—No power</li> <li>Solid green—Hex digit representing the stack unit ID</li> </ul>
RJ-45 Ethernet LED	<ul style="list-style-type: none"> <li>Off—no link and no activity detected</li> <li>On—Activity on the port</li> <li>Solid yellow—10MHz activity</li> <li>Solid green—100MHz activity</li> <li>Blinking green—1GHz activity</li> </ul>

**Table 4. System management Ethernet port LEDs**

LED	Description
Link LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at a maximum speed—autonegotiated/forced or 1G port</li> <li>Solid yellow—Link operating at a lower speed—autonegotiated/forced or 10/100M port</li> </ul>
Activity LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Flashing green—Port activity</li> </ul>

**Table 5. SFP+ and unified SFP+ port LEDs**

LED	Description
Link LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at maximum speed—10G port</li> <li>Solid yellow—Link operating at a lower speed—1G port</li> </ul>

LED	Description
Activity LED	<ul style="list-style-type: none"> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>
	<ul style="list-style-type: none"> <li>Off—No link</li> </ul>
	<ul style="list-style-type: none"> <li>Flashing green—Port activity</li> </ul>

**NOTE:** There are four LEDs for each QSFP+, QSFP28, and unified QSFP28 port. For each port, 100GbE or 40GbE uses only one LED, 2x50GbE uses two LEDs, and 4x25GbE or 4x10GbE uses all four LEDs.

**Table 6. QSFP28 and unified QSFP28 port LEDs**

LED	Description
Link/Activity LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at maximum speed—100G for QSFP28 port</li> <li>Flashing green—Link activity operating at maximum speed—100G port</li> <li>Solid yellow—Link operating at a lower speed—40G or 10G port</li> <li>Flashing yellow—Port activity at a lower speed—40G or 10G port</li> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>

**Table 7. QSFP28 and unified QSFP28 port LEDs: 4x25G or 4x10G mode**

LED	Description
Link/Activity LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at maximum speed—4x25G port</li> <li>Flashing green—Link activity operating at maximum speed—4x25G port</li> <li>Solid yellow—Link operating at a lower speed—4x10G port</li> <li>Flashing yellow—Port activity at a lower speed—4x10G port</li> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>

**Table 8. QSFP28 and unified QSFP28 port LEDs: 2x50G mode**

LED	Description
Link/Activity LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid yellow—Link operating at a lower speed—2x50G port</li> <li>Flashing yellow—Link activity at a lower speed—2x50G port</li> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>

**Table 9. QSFP+ port LEDs**

LED	Description
Link/Activity LED	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at maximum speed—40G port</li> </ul>

LED	Description
	<ul style="list-style-type: none"> <li>Flashing green—Link activity operating at maximum speed—40G port</li> <li>Solid yellow—Link operating at a lower speed—40G port</li> <li>Flashing yellow—Link activity at a lower speed—40G port</li> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>

**Table 10. QSFP+ port LEDs: 4x10G/1G mode**

LED	Description
Link/Activity LED—4x10G mode	<ul style="list-style-type: none"> <li>Off—No link</li> <li>Solid green—Link operating at maximum speed—10G port</li> <li>Flashing green—Link activity operating at maximum speed—10G port</li> <li>Solid yellow—Link operating at a lower speed—1G port</li> <li>Flashing yellow—Link activity at a lower speed—1G port</li> <li>Flashing yellow, 1 second on/off—Port beacon</li> </ul>

## Prerequisites

The following is a list of required and optional components for the S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch:

**NOTE:** Detailed installation instructions are provided in the [Site preparations](#) and [S4100-ON Series installation](#) sections.

- S4100–ON Series (S4128F-ON, S4148F-ON, or S4148FE-ON) switch, or multiple switches, if stacking
- AC country- and regional-specific cables to connect the AC power source to each of the switches' AC power supplies
- Mounting brackets for rack installation, included
- Screws for rack installation
- #1 and #2 Phillips screwdrivers, not included
- Torx screwdriver, not included
- Ground cable screws, included
- Copper or fiber cables

Other optional components are:

- Ground cable and lug for the frame-end of the ground cable
- Extra power supply unit
- Extra fan module
- Extra mounting brackets if installing in a four-post rack or cabinet

## S4100-ON Series configurations

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switches are available in several different configurations.

All S4100-ON Series switches include the following configurations:

- Fan with airflow from the I/O side to the PSU side—normal
- Fan with airflow from the PSU side to the I/O side—reverse
- AC power supply with airflow from the I/O side to the PSU side—normal
- AC power supply with airflow from the PSU side to the I/O side—reverse

- DC power supply with airflow from the I/O side to the PSU side—normal
- DC power supply with airflow from the PSU side to the I/O side—reverse

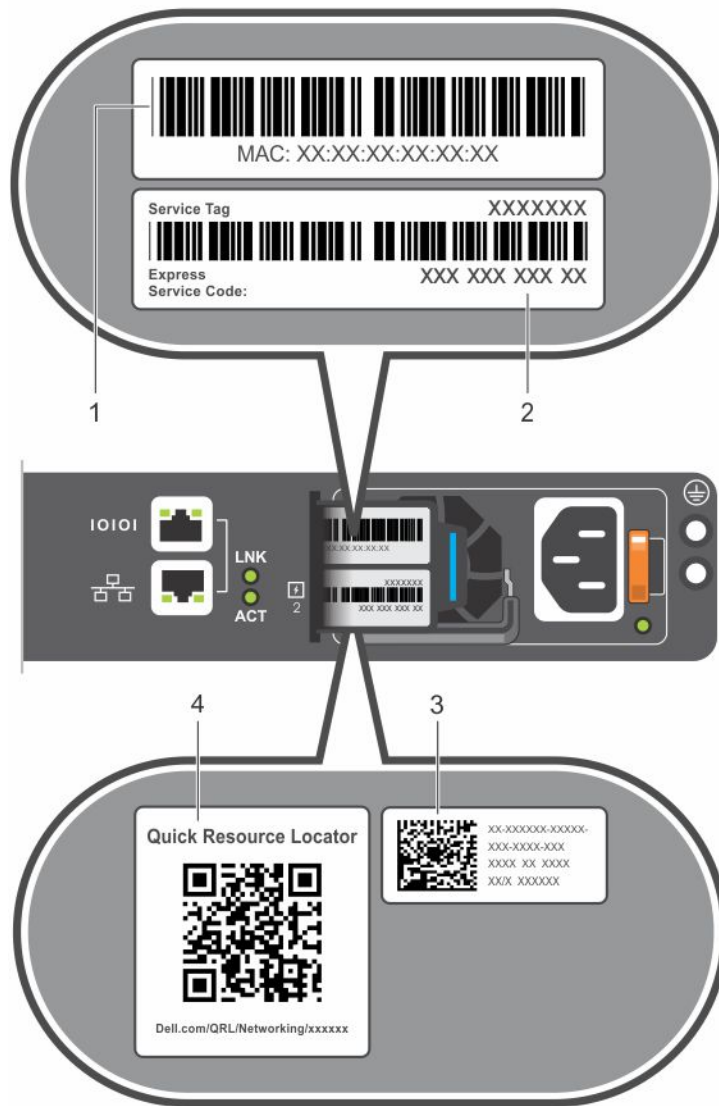
The following table lists each S4100-ON Series switch configuration:

**Table 11. S4100-ON Series configurations**

<b>S4100-ON Series Switch</b>	<b>Configuration</b>
S4128F-ON AC or DC Normal airflow	28 fixed SFP+ ports, 2 fixed QSFP28 ports, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.
S4128F-ON AC or DC Reverse airflow	28 fixed SFP+ ports, 2 fixed QSFP28 ports, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.
S4148F-ON AC or DC Normal airflow	48 fixed SFP+ ports, 2 fixed QSFP+ ports, 4 fixed QSFP28 ports, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.
S4148F-ON AC or DC Reverse airflow	48 fixed SFP+ ports, 2 fixed QSFP+ ports, 4 fixed QSFP28 ports, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.
S4148FE-ON AC or DC Normal airflow	48 fixed SFP+ ports, 2 fixed QSFP+ ports, 4 fixed QSFP28 ports, support for LRM optics, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.
S4148FE-ON AC or DC Reverse airflow	48 fixed SFP+ ports, 2 fixed QSFP+ ports, 4 fixed QSFP28 ports, support for LRM optics, 7-segment stacking indicator, 1 micro-USB-B console port, 1 USB type-A port, 1 RJ-45 10/100/1000 Base-T Ethernet management port, 2 AC or DC PSUs, and 4 fan trays.

## Luggage tag

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch has a pull-out tag, known as a luggage tag, on the PSU-side of the switch. The front of the luggage tag includes switch ID information. The back of the luggage tag includes a QRL that takes you to a How-To site where you watch videos about racking the switch, replacing components, configuring port channels, and so on.



**Figure 9. S4100-ON Series luggage tag**

- |   |                                    |   |   |
|---|------------------------------------|---|---|
| 1 | Front: MAC address                 | 2 | Front: Service tag and Express service code |
| 3 | Back: Quick resource locator (QRL) | 4 | Back: QRL                                   |



## Site preparations

The S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) is suitable for installation as part of a common bond network (CBN). You can install the switch in:

- Network telecommunication facilities
- Data centers
- Other locations where the National Electric Code (NEC) applies

For more information about the S4100–ON Series specifications, see [Specifications](#).

**NOTE:** Install the switch into a rack or cabinet before installing any optional components.

Topics:

- [Site selection](#)
- [Cabinet placement](#)
- [Rack mounting](#)
- [Switch ground](#)
- [Fans and airflow](#)
- [Power](#)
- [Storing components](#)

### Site selection

Install Dell EMC equipment in restricted access areas.

A restricted access area is one where service personnel can only gain access using a special tool, lock, key, or other means of security. The authority responsible for the location controls access to the restricted area.

Ensure that the area where you install switch meets the following safety requirements:

- Near an adequate power source. Connect the switch to the appropriate branch circuit protection according to your local electrical codes.
- Environmental—switch location—continuous temperature range is from 50° to 104°F (from 5° to 40°C).
- Operating humidity is from 5 to 85 percent noncondensing, continuous.
- In a dry, clean, well-ventilated, and temperature-controlled room, away from heat sources such as hot cooling vents or direct sunlight.
- Away from sources of severe electromagnetic noise.
- Inside the restricted access area, position in a rack or cabinet, or on a desktop with adequate space in the front, back, and sides for proper ventilation and access.
- Install the switch in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

For more information about switch storage and environmental temperatures, see [Specifications](#).

# Cabinet placement

Install the S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) only in indoor cabinets designed for use in a controlled environment.

Do not install the switch in outside cabinets. For cabinet placement requirements, see [Site selection](#).

The cabinet must meet minimum size requirements. Airflow must be in accordance with the Electronic Industries Alliance (EIA) standard. Ensure that there is a minimum of 5 inches (12.7 cm) between the intake and exhaust vents and the cabinet wall.

## Rack mounting

When you prepare your equipment rack, ensure that the rack is grounded. Ground the equipment rack to the same ground point the power service in your area uses. The ground path must be permanent.

## Switch ground

Dell EMC recommends grounding your switch. Use the S4100–ON Series switch in a CBN.

**NOTE:** For AC-powered switches, although the third conductor of the AC power cord provides a ground path, Dell EMC recommends grounding your switch with a dedicated ground wire.

**NOTE:** For DC-powered switches, the only way to safely ground your switch is to attach a dedicated ground wire.

## Fans and airflow

The fans on the S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) support two airflow options: normal and reverse.

## Fan combinations

Fan installation is done as part of the factory install based on SKU type. The S4100–ON Series has stock keeping units (SKUs) that support the following configurations:

- AC PSU with fan airflow from the I/O to the PSU—normal
- AC PSU with fan airflow from the PSU to the I/O—reverse
- DC fan unit with airflow from the I/O to the PSU—normal
- DC fan unit with airflow from the PSU to the I/O—reverse

Be sure to order the fans suitable to support your site's ventilation. Use a single type of airflow fan in your switch. Do not mix reverse and normal airflows in a single switch.

For proper ventilation, position the S4100–ON Series switch in an equipment rack or cabinet with a minimum of 5 inches (12.7 cm) of clearance around the exhaust vents. The fan speed varies based on internal temperature monitoring. The switch never intentionally turns off the fans.

For more information, see [Fans](#).

## Power

Connect the switch to the applicable power source using the appropriate power cable. An AC power cable is included with each PSU.

When installing AC or DC switches, follow the requirements of the National Electrical Code ANSI/NFPA 70, where applicable.

The switch is powered-up when the power cable is connected between the switch and the power source.

For more information, see [Power supplies](#).

**CAUTION:** Always disconnect the power cable before you service the power supply slots. The switch has multiple power cords. Before servicing, ensure all power cords are disconnected.

**CAUTION:** On the AC switch, use the power supply cable as the main disconnect device. Ensure that the socket-outlet is located/installed near the equipment and is easily accessible.

**NOTE:** Module power is software controlled. You do not see module LEDs when the switch powers up in ONIE.

## Storing components

If you do not install your S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch and components immediately, properly store the switch and all optional components following these guidelines:

- Storage location temperature must remain constant. The storage range is from -40° to 65°C (-40° to 149°F).
- Store on a dry surface or floor, away from direct sunlight, heat, and air conditioning ducts.
- Store in a dust-free environment.

**NOTE:** ESD damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4100–ON Series switch and its accessories. After you remove the original packaging, place the switch and its components on an anti-static surface.

# S4100–ON Series installation

To install the S4100–ON Series (S4128F–ON, S4148F–ON, and S4148FE–ON), complete the installation procedures in the order presented in this section.

Always handle the S4100–ON Series switch and its components with care. Avoid dropping the switch or any field replaceable units (FRUs).

**NOTE:** ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4100–ON Series switch and its components. As with all electrical devices of this type, take all the necessary safety precautions to prevent injury when installing this switch.

**NOTE:** For more information, see the *Open Networking Hardware Diagnostic Guide*.

Topics:

- [Unpack the switch](#)
- [Rack or cabinet installation](#)
- [ReadyRails installation](#)
- [S4100–ON Series installation](#)
- [Optics installation](#)
- [Switch power-up](#)
- [After switch installation](#)
- [Switch replacement](#)

## Unpack the switch

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

When unpacking the S4100–ON Series switch, make sure that the following items are included:

- One S4100–ON Series (S4128F–ON, S4148F–ON, or S4148FE–ON) switch
- One RJ-45 to DB-9 female cable
- Two sets of rail kits, no tools required
- Two PSUs
- Four fan units
- Two country- and region-specific AC power cords
- *Dell S4100–ON Series Setup Guide*
- *Safety and Regulatory Information*
- *Warranty and Support Information*

## Unpack

- 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.

## Rack or cabinet installation

You may either place the switch on a rack shelf or mount the switch directly into a 19" wide, EIA-310- E-compliant rack. Rack mounting includes four-post, two-post, round threaded holes, or square holes. The ReadyRails system is provided for 1U front-rack and two-post installations.

The ReadyRails system includes two separately packaged rail assemblies. To begin installation, separate each rail assembly by sliding the inside rail out of the outside rail.

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

**📘 NOTE:** The illustrations in this section are not intended to represent a specific switch.

**📘 NOTE:** Do not 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, possibly damaging the equipment and causing 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's 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 switch 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 45°C maximum ambient temperature of the switch.
- Reduced air flow—Do not compromise the amount of airflow required for safe operation of the equipment. Install the equipment in the rack so that the equipment constantly has the correct amount of airflow surrounding it.
- 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 fan panel facing downward.

## ReadyRails installation

To easily configure your rack for installation of your S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch, use the ReadyRails rack mounting system provided.

You can install the ReadyRails system using the 1U tool-less square-hole method or one of three possible 1U threaded round-hole methods. The tooled installation methods include two-post flush mount, two-post center mount, or four-post threaded mount.

To begin installation, separate each rail assembly by sliding the inside rail out of the outside rail.

**📘 NOTE:** For more installation instructions, see the installation labels attached to the rail assembly.

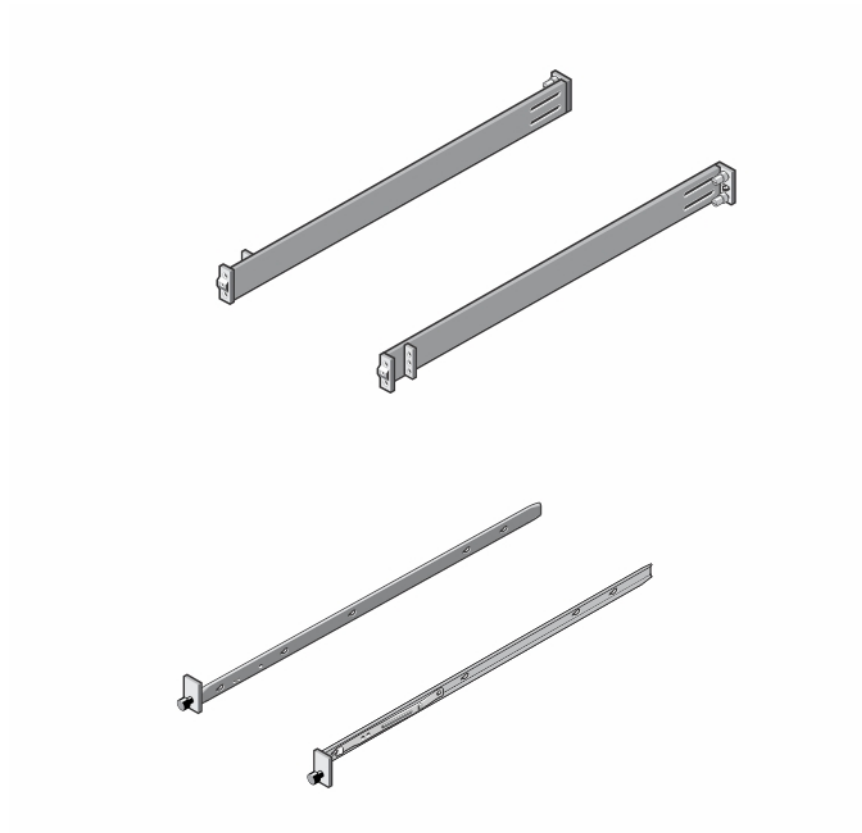
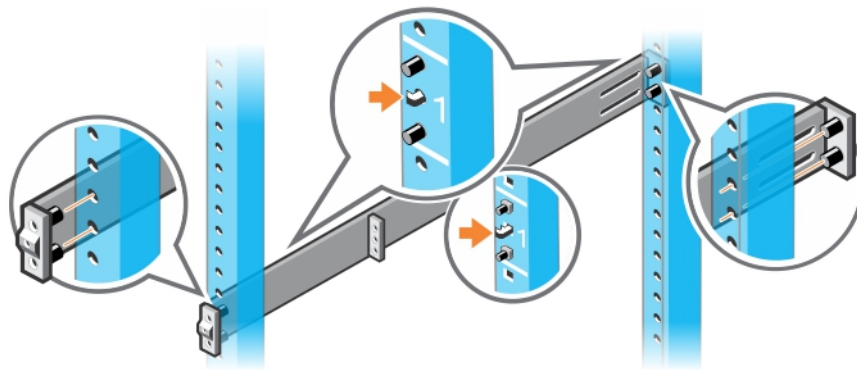


Figure 10. Separate rails

## 1U Tool-less mount installation

**NOTE:** For more installation instructions, see the installation labels attached to the rail assembly.

- 1 Face the ReadyRails flange ears facing outward. Place one rail between the left and right vertical posts. Align and seat the back flange rail pegs in the back vertical post flange.  
The center extractions show how the pegs appear in both the square and nonthreaded round holes.



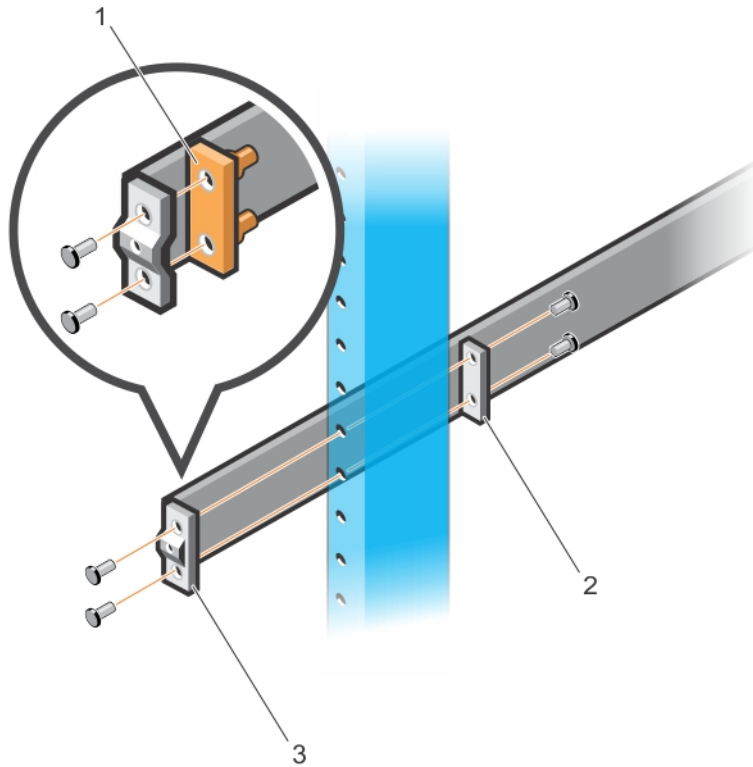
**Figure 11. 1U tool-less installation**

- 2 Align and seat the front flange pegs in the holes on the front side of the vertical post.  
**NOTE:** Be sure that the rails click into place and are secure.
- 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.

## Two-post flush-mount installation

**NOTE:** For more installation instructions, see the installation labels attached to the rail assembly.

- 1 For this configuration, remove the latch castings from the front side of each ReadyRails assembly, item 1.  
To remove the two screws from each front flange ear on the switch side of the rail and remove each latch casting, use a Torx screwdriver. Retain the latch castings for future rack requirements. It is not necessary to remove the back flange castings.



**Figure 12. Two-post flush-mount installation**

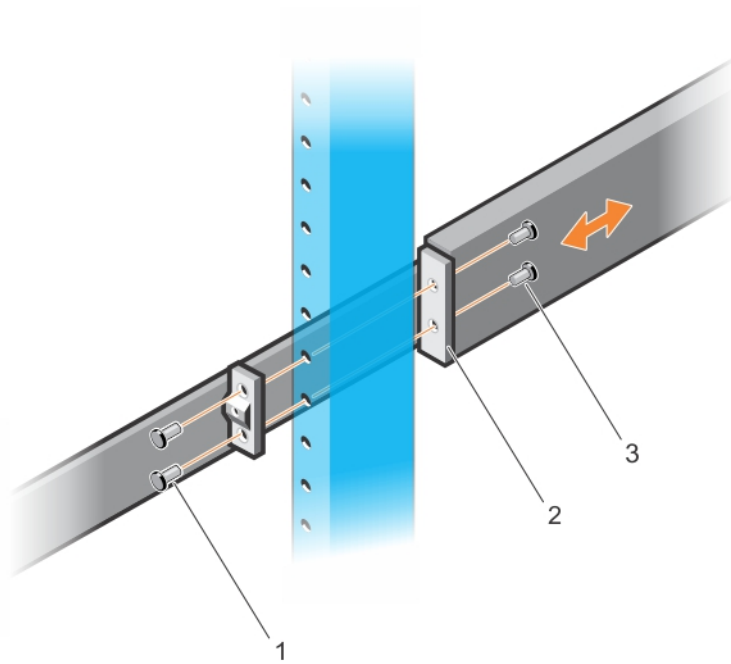
- 2 Attach one rail to the front post flange with two user-supplied screws, item 2.
- 3 Slide the plunger bracket forward against the vertical post and secure the plunger bracket to the post flange with two user-supplied screws, see item 3.
- 4 Repeat this procedure for the second rail.

## Two-post center-mount installation

**NOTE:** For more installation instructions, see the installation labels attached to the rail assembly.

- 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, item 1.





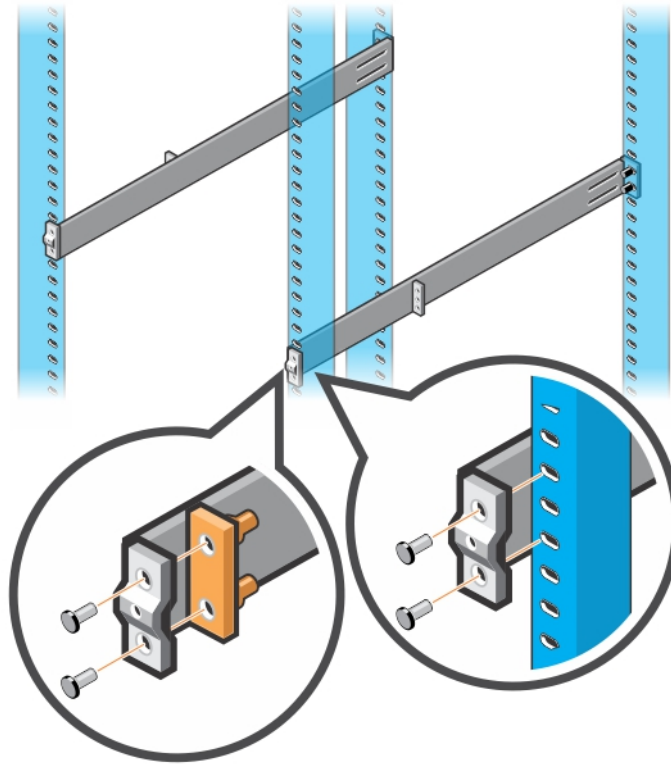
**Figure 13. Two-post center-mount installation**

- 2 Slide the back bracket towards the post. Secure it to the post flange with two user-supplied screws, items 2 and 3.
- 3 Repeat this procedure for the second rail.

## Four-post threaded installation

**NOTE:** For more installation instructions, see the installation labels attached to the rail assembly.

- 1 Remove the latch castings from each end of the ReadyRails assemblies. To remove the two screws each latch casting, use a Torx driver.  
Retain the latch castings for future rack requirements.



**Figure 14. Four-post threaded installation**

- 2 For each rail, attach the front and back flanges to the post flanges with two user-supplied screws at each end.

## S4100-ON Series installation

You can mount the switch in the 1U front-rack two-post, flush or center configuration, or a four-post configuration. The following is an example of a front-rack configuration:

For the 1U two-post configurations, slide the switch into the rails in the same manner as the four-post configurations.

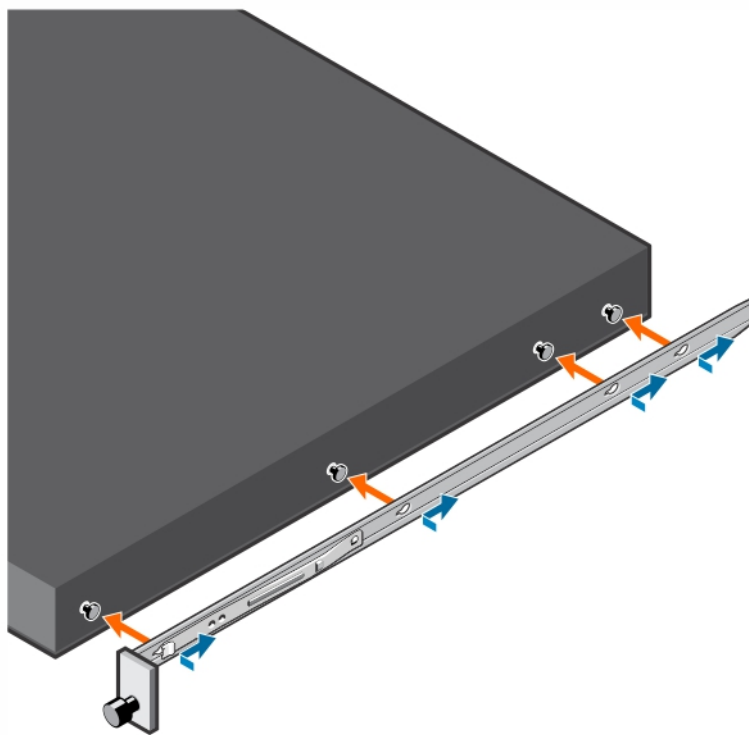
### 1U front-rack installation

Configure the rails that are attached to the switch.

- 1 **NOTE:** For more information, see the installation instruction labels on the rail.

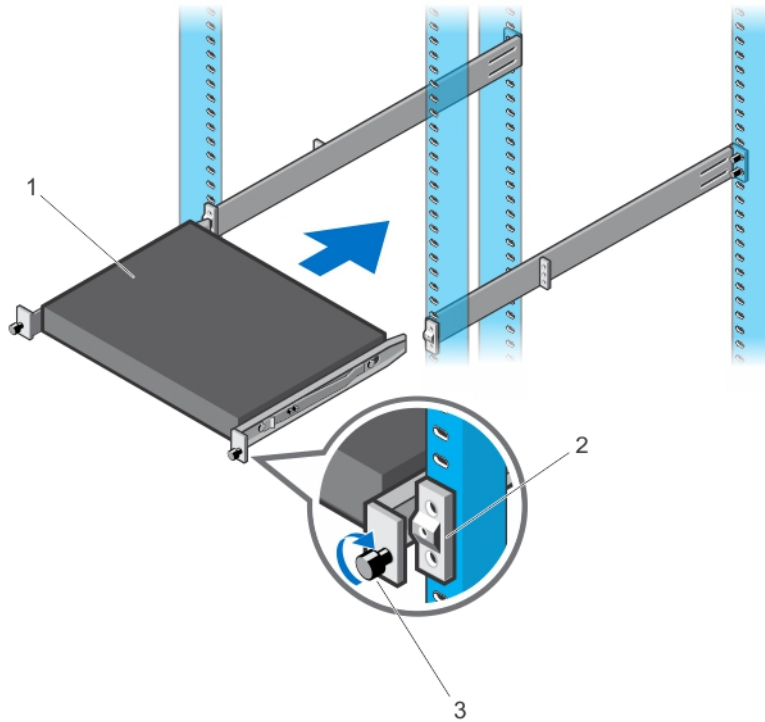
Attach the inner switch rails to the S4100F-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch.

Line up the rail with the mounting heads and attach the rail to the chassis. Slide the rail back until it locks into place. The following shows the detail of the front standoff with the locking tab:



**Figure 15. Switch rail attachment**

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



**Figure 16. Front rack installation**

**NOTE:** Do not use the mounted Ready-Rails as a shelf or a workplace.

3 Tighten the two thumb screws and rack screws.

To remove the chassis from the rack or cabinet, press in the two side-release bars on the chassis at the same time and slide the chassis forward.

## Optics installation

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch has the following optic configurations:

**Table 12. S4100-ON Series optic configurations**

Platform	Description
S4128F-ON	<ul style="list-style-type: none"> <li>28 fixed SFP+ optical ports</li> <li>2 fixed QSFP28 optical ports</li> </ul>
S4148F-ON	<ul style="list-style-type: none"> <li>48 fixed SFP+ optical ports</li> <li>2 fixed QSFP+ optical ports</li> <li>4 fixed QSFP28 optical ports</li> </ul>
S4148FE-ON	<ul style="list-style-type: none"> <li>24 LRM-capable fixed unified SFP+ optical ports</li> <li>24 LRM-capable fixed SFP+ optical ports</li> <li>2 fixed QSFP+ optical ports</li> <li>2 fixed unified QSFP28 optical ports</li> </ul>

Platform	Description
	<ul style="list-style-type: none"> <li>2 fixed QSFP28 optical ports</li> </ul>

For a list of supported optics, see the S4100-ON Series data sheet at [www.dell.com/support](http://www.dell.com/support) or contact your Dell EMC representative.

**CAUTION:** ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4100-ON Series and its components.

**WARNING:** When working with optical fibers, follow all warning labels and always wear eye protection. Never look directly into the end of a terminated or unterminated fiber or connector as it may cause eye damage.

- 1 Position the optic so it is in the correct position.  
The optic has a key that prevents it from being inserted incorrectly.
- 2 Insert the optic into the port until it gently snaps into place.

**NOTE:** When you cable the ports, be sure not to interfere with the airflow from the small vent holes above and below the ports.

## Optics removal

Remove an optic by pushing the tab on the optic and sliding the optic from the port.

When removing optics with direct attach cables (DACs) from the port, pull the release tab firmly and steadily. Before pulling the release tab, you may need to gently push the optic into the port to ensure that it is seated properly. Do not jerk or tug repeatedly on the tab.

## Switch power-up

Supply power to the S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch after you mount it in a rack or cabinet.

Dell EMC recommends reinspecting your switch before powering up. Verify the following:

- The equipment is properly secured to the rack. Dell EMC recommends properly grounding the switch.
- The ambient temperature around the unit, which may be higher than the room temperature, is within the limits specified for the S4100-ON Series, see [Specifications](#).
- There is sufficient airflow around the unit.
- The input circuits are correctly sized for the loads and that you use sufficient overcurrent protection devices.
- All protective covers are in place.
- Blank panels are installed if you do not install optional modules.

**CAUTION:** Do not power up the switch if you did not install a fan module.

**NOTE:** A US AC power cable is included for powering up an AC power supply. You must order all other power cables separately.

**NOTE:** ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4100-ON Series switch and its components.

## Power up sequence

When the switch powers up, the fans immediately come on at high speed. The fan speed slows as the switch continues to boot up.

# After switch installation

To configure your switch, after you have securely installed and powered on the S4100-ON Series switch, see your open network installation environment (ONIE)-compatible operating system documentation at [www.onie.org](http://www.onie.org). For more information about working with the ONIE environment, see your switch documentation at [www.dell.com/support](http://www.dell.com/support).

## Switch replacement

The following steps describe removing and replacing a switch. For further assistance when replacing a switch, contact your Dell EMC support representative.

**NOTE:** ESD damage can occur when components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the switch and accessories. After you remove the original packaging, place the switch and components on an anti-static surface.

- 1 Back up the switch configuration to your back-up computer or laptop TFTP server.

```
copy running-config tftp://hostip/filepath
```

To establish a console connection to the switch CLI, assign an IP address on the switch network.

- 2 Disconnect the power source.

- 3 Label and remove all cables.

- 4 Remove the switch from the rack.

At the same time, press in the two side-release bars on the switch and slide the switch forward.

If you are using the fan trays or PSUs in the replacement switch, remove them from the switch.

- 5 Unpack the new switch.

For more information, see [Unpack](#).

- 6 Confirm that the software version of the replacement switch is the same as the previously installed switch.

```
show os-version
```

If the software versions do not match, upgrade the replacement switch software using the procedure included with the firmware download.

- 7 Copy the backed-up switch configuration to the new switch.

```
copy tftp://hostip/filepath running-config
```

- 8 Install the new switch in your rack or cabinet.

For detailed installation instructions, see [S4100F-ON Series installation](#).

If you are using the fan trays or PSUs from the removed switch, reinsert them in the replacement switch.

- 9 Connect all the cables.

- 10 Power on the switch.

For more information, see [Switch power up](#).

## Power supplies

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch ships with two AC or DC power supplies.

The power supplies have two air-flow directions, normal and reverse. Normal is from the I/O-side to the PSU-side. Reverse is from the PSU-side to the I/O-side.

The PSUs are field replaceable. When running with full redundancy—two power supplies installed and running, you can remove and replace one PSU without disrupting traffic.

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

**NOTE:** Connect the power supply to the appropriate branch circuit protection as defined by your local electrical codes and verify that the remote power source complies with the switch input power specifications.

**NOTE:** If you use a single PSU, install a blank plate in the other PSU slot. Use power supply 2 (PSU2) as the blank plate slot. To install the blank plate, use a #1 Philips screw driver.

**NOTE:** ESD damage can occur if components are mishandled. Always wear an ESD-preventive wrist or heel ground strap when handling the S4100F-ON Series switch and its components.

Topics:

- [Components](#)
- [AC or DC power supply installation](#)
- [DC power supply connection](#)

## Components

The following power supply options are available for the S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch:

- AC or DC power supply with integrated fan
- AC or DC power supply with integrated reverse flow fan

Power supply 1 (PSU1) is on the left side of the switch; power supply 2 (PSU2) is on the right side of the switch.



**Figure 17. S4100-ON Series PSUs**

## 1 PSUs

The PSUs have an integrated fan that you cannot replace individually; if the fans integrated in a PSU fail, you must replace the entire PSU. You can replace the fan trays individually. For fan tray replacement procedures, see [Fans](#).

**⚠ WARNING:** Prevent exposure and contact with hazardous voltages. Do not attempt to operate this switch with the safety cover removed.

**⚠ CAUTION:** Remove the power cable from the PSU before removing the PSU. Also, do not connect the power cable before you insert the PSU in the switch.

**ℹ NOTE:** To comply with the GR-1089 Lightning Criteria for Equipment Interfacing with AC Power Ports, use an external surge protection device (SPD) at the AC input of the router.

## PSU LEDs

- Solid green—Input is OK.
- Flashing yellow (amber)—There is a fault with the PSU.
- Flashing green blink at 1Hz—Switch is in standby/CR state.
- Off—PSU is off.

## AC or DC power supply installation

**ℹ NOTE:** The PSU slides into the slot smoothly. Do not force a PSU into a slot as this action may damage the PSU or the S4100-ON Series switch.

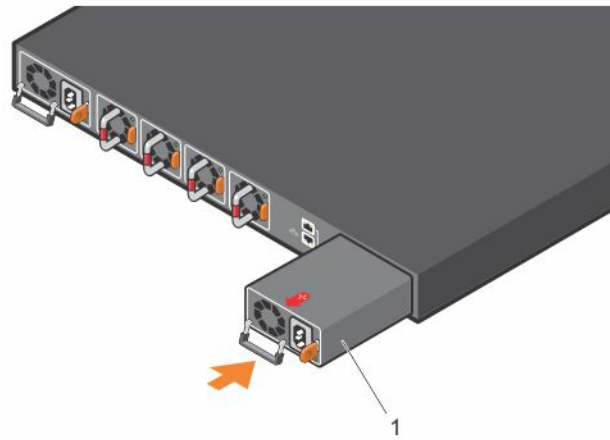
**ℹ NOTE:** Ensure that you correctly install the PSU. When you install the PSU correctly, the power connector is on the right side of the PSU.

**ℹ NOTE:** If you use a single PSU, install a blank plate in the other PSU slot. If you are only using one power supply, Dell EMC recommends installing the power supply in the first slot, PSU1. Install a blank plate in the second slot, PSU2.

- 1 Remove the PSU slot cover using a small #1 Phillips screwdriver.
- 2 Remove the PSU from the electro-static bag.
- 3 Insert the PSU into the switch PSU slot.

Insert the exposed PCB edge connector first. The PSU slot is keyed so that the PSU can only be fully inserted in one orientation. When you install the PSU correctly, it snaps into place and is flushed with the back of the switch.





**Figure 18. PSU installation**

- 1 Left PSU is PSU1 and right PSU is PSU2.
- 4 Plug in the appropriate AC 3-prongs cord from the switch PSU to the external power source.
- 5 Repeat steps 1 through 4 if you have a redundant PSU slot.

**NOTE:** The switch powers up when you connect the cables between the power supply and the power source.

## AC or DC power supply replacement

**CAUTION:** Disconnect the power cord before removing the power supplies. Also, disconnect all power cords before servicing.

**NOTE:** The PSU slides into the slot smoothly. Do not force a PSU into a slot as this action may damage the PSU or the S4100–ON Series switch.

**NOTE:** If a PSU fails, you must replace the entire unit. There are no field serviceable components in the PSU. To request a hardware replacement, see [Dell EMC support](#).

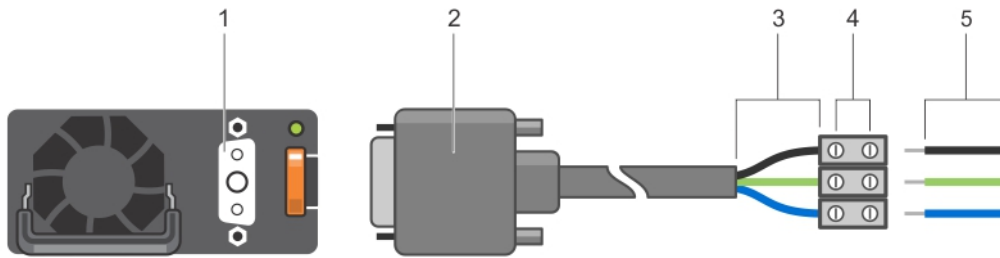
**NOTE:** If you use a single PSU, install a blank plate in the other PSU slot. If you are only using one power supply, Dell EMC recommends installing the power supply in the first slot, PSU1. Install a blank plate in the second slot, PSU2.

- 1 Disconnect the power cable from the PSU.
- 2 Use the grab handle to slide the PSU out of the power supply bay.
- 3 Use the grab handle on the replacement PSU to slide it into the power supply bay.
- 4 Attach the power cord to the replacement PSU.

**NOTE:** The switch powers up when the cables are connected between the power supply and the power source.

## DC power supply connection

Each DC PSU kit, sold separately, comes with a connector cable.



**Figure 19. DC power supply and connector cable**

- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 1 | DC PSU power socket                          | 2 | Cable connector with thumb screws |
| 3 | Cable connector wires—black, green, and blue | 4 | Wiring block                      |
| 5 | DC power source wires—black, green, blue     |   |                                   |

- 1 Strip 1/2 inches of insulation from each of the site's DC power source wires, item 5.
- 2 Insert each of the site's DC power source's bare wire lengths into the wiring block, matching the wire colors, items 3 and 4.

**⚠ WARNING:** Do not cross the wires—in the wiring block, blue aligns with blue, green aligns with green, and black aligns with black.

- 3 Use a flat-blade screwdriver to tighten the screws that secure the bare wires into the wiring block.
- 4 Insert the DC power connector cable end into the power socket of the DC PSU and tighten the thumb screws, items 1 and 2.

**⚠ WARNING:** Never force the power connector into or out of the DC PSU power socket.

**ⓘ NOTE:** To remove the power connector from a DC PSU, unscrew the thumb screws and pull the power connector from the DC PSU socket.

## Fans

The S4100–ON Series (S4128F–ON, S4148F–ON, and S4148FE–ON) switch comes from the factory with two PSUs and four fan modules installed in the chassis. The fan modules and the power supplies are hot-swappable.

In addition to the power supply modules, you can order and install fan modules separately.

**NOTE:** The S4100–ON Series switch supports two airflow direction options—normal and reverse. All fans and PSUs *MUST* have the same airflow direction. If you mix the airflow direction, to avoid heat damage to the switch components, *you must correct the mixed airflow direction.*

- Airflow is from the I/O panel to the PSU—normal.
- Airflow is from the PSU to the I/O panel—reverse.

Environmental factors can decrease the amount of time required between fan replacements. Check the environmental factors regularly. An increase in temperature and particulate matter in the air might affect performance—for example, new equipment installation.

**CAUTION:** Check the fans at six-month intervals, and replace them as necessary. Regularly monitor the speeds of the fans to accurately determine replacement intervals.

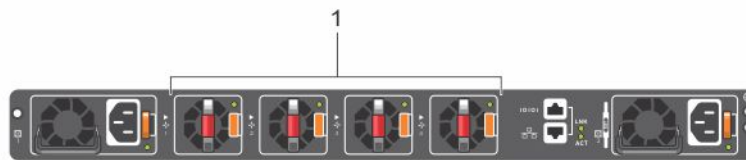
Topics:

- [Components](#)
- [Fan module installation](#)

## Components

The following are the S4100–ON Series (S4128F–ON, S4148F–ON, and S4148FE–ON) fan components.

- S4100–ON Series Fan module
- S4100–ON Series Fan module—reverse



**Figure 20. S4100–ON Series fan modules**

1 Fan units

## Fan LEDs

- Solid green—fan function is normal.
- Flashing yellow (amber)—there is a fan fault.
- Off—fan is off.

## Fan module installation

The fan modules in the S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch are field replaceable. When looking at your switch, Slot 1 is on the left side of the switch and Slot 4 is on the right side of the switch.

**CAUTION:** DO NOT mix airflow directions. All fans must use the same airflow direction—reverse or normal. If you mix the airflow direction, to avoid overheating the switch, correct the mixed airflow.

- 1 Take the fan module out of the shipping box.
- 2 Slide the module into the bay.

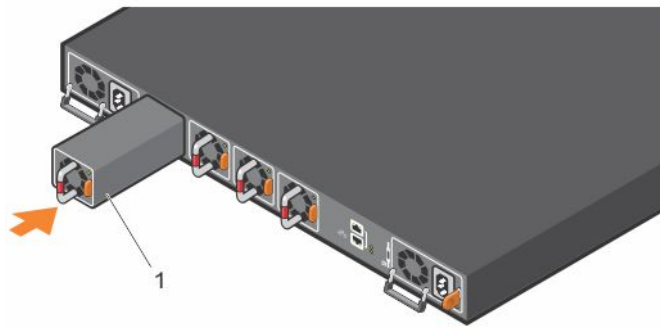


Figure 21. S4100–ON Series fan modules installation

- 1 Fan unit

## Fan module replacement

To request a hardware replacement, see [Dell EMC support](#).

**CAUTION:** Complete the following steps within one minute or the switch temperature could rise above safe thresholds and the switch could shut down:

- 1 Slide the fan module out of the bay.
- 2 Slide the replacement module into the bay.

## Management ports

Besides the 10/100/1000Base-T RJ-45 ports, the S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch provides several ports for management and storage.

**NOTE:** The output examples in this section are for reference only. Your output may vary.

Topics:

- [RS-232 console port access](#)
- [USB storage](#)
- [USB-B console port access](#)
- [Before you install an OS](#)
- [ONIE service discovery](#)

### RS-232 console port access

The RS-232 console port is on the PSU-side of the switch, as shown.



**Figure 22. RS-232 console port**

- 1 RJ-232 console port

**CAUTION:** Ensure that any equipment attached to the serial port can support the required 115200 baud rate.

**NOTE:** Before starting this procedure, ensure your PC has a 9-pin serial port. You must have a terminal emulation program already installed and running on your PC.

**NOTE:** If your PC's serial port cannot accept a female DB-9 connector, use a DB-9 male-to-male adaptor.

- 1 Install the provided RJ-45 connector side of the provided cable into the S4100-ON Series console port.
- 2 Install the DB-9 female side of the provided copper cable into your PC's serial port. Or install the DB-9 cable into other data terminal equipment (DTE) server hardware that you intend to use.
- 3 Keep the default terminal settings on the console as follows:
  - 115200 baud rate
  - No parity
  - 8 data bits

- 1 stop bit
- No flow control

## USB storage

USB storage does not automatically mount. The supported file system is FAT. To use USB storage, first mount the device using the following steps:

- 1 Create a mount directory for the USB.

```
ONIE:/ # mkdir /mnt/usb
```

- 2 View the fixed disks using fdisk.

```
ONIE:/mnt # fdisk -l
```

For internal storage:

```
Disk /dev/sda: 15.8 GB, 15829303296 bytes
255 heads, 63 sectors/track, 1924 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1		1	1925	15458303+	ee	EFI GPT

For USB storage:

```
Disk /dev/sdb: 30.9 GB, 30942946304 bytes
64 heads, 32 sectors/track, 29509 cylinders
Units = cylinders of 2048 * 512 = 1048576 bytes
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sdb						

- 3 Mount the device /dev/sdb to the /mnt/usb directory.

```
ONIE:/ # mount -t vfat /dev/sdb /mnt/usb
```

**① NOTE:** The following message displays if the /mnt/usb directory is missing: mount: mounting /dev/sdb on /mnt/usb failed: No such file or directory.

**① NOTE:** The following message displays if the USB device is not seen: mount: mounting /dev/sdb on /mnt/usb failed: No such device or address.

- 4 Add a device to the file systems table using the fstab command and mount the file systems—recommended.

```
ONIE:/ # vi /etc/fstab
```

```
# FSTAB entry for the ONIE-BOOT partition mounted on /boot
LABEL=ONIE-BOOT /mnt/onie-boot ext4 defaults,rw,errors=remount-ro 0 1
/dev/sdb /mnt/usb vfat defaults 0 1
```

```
ONIE:/ # mount -a
```

## USB-B console port access

The USB-B console port is on the I/O side of the S4100-ON Series.

The terminal settings are the same for the serial console port and the RS-232/RJ-45 console port:

- 115200 baud rate
- No parity
- 8 data bits
- 1 stop bit
- No flow control

When you connect the USB-B port, it becomes the primary connection and, while connected, all messages are sent to the USB-B port.

**NOTE:** Before starting this procedure, be sure that you have a terminal emulation program already installed on your PC. Install the appropriate drivers to support the USB-B port. For assistance, contact [www.dell.com/support](http://www.dell.com/support) to download the drivers.

To access the USB-B console port, follow these steps.

- 1 Power on the PC.
- 2 Connect the USB-A end of cable into an available USB port on the PC.
- 3 Connect the USB-B end of cable into the USB-B console port on the S4100-ON Series switch.
- 4 Power on the S4100-ON Series switch.
- 5 Install the necessary USB device drivers. (To download the drivers, go to [www.dell.com/support](http://www.dell.com/support).)  
For assistance, contact Dell EMC Technical Support.
- 6 Open your terminal software emulation program to access the S4100-ON Series switch.
- 7 Confirm that the terminal settings on your terminal software emulation program are as follows:
  - 115200 baud rate
  - No parity
  - 8 data bits
  - 1 stop bit
  - No flow control

## Before you install an OS

After powering on the S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch, it goes through a power-on self-test (POST).

POST runs every time the switch is initialized and checks the hardware components to determine if the switch is fully operational before booting. After POST, the switch uses the Grub bootloader.

To select an entry, use the up and down arrow keys. Press **Enter** to select an operating software (OS) or enter **e** to edit the commands before booting. Enter **c** for a command line. The selected entry runs automatically in the operating system.

## Grub bootloader example

```
GNU GRUB version 2.02~beta2+e4a1fe391
```

```
+-----+
|*ONIE: Install OS      |
| ONIE: Rescue          |
| ONIE: Uninstall OS    |
| ONIE: Update ONIE     |
| ONIE: Embed ONIE      |
| EDA-DIAG              |
|                       |
|                       |
|                       |
|                       |
|                       |
+-----+
```

Your switch comes with ONIE installed.

**NOTE:** To access ONIE, use the RJ-45 console port.

## ONIE example

```
ONIE: Install OS
  For downloading and installing an OS from a URL
```

```

    Starts ONIE with ONIE Discovery Service
    (factory default boot)
ONIE: Rescue
    Starts ONIE without ONIE Discovery Service
    Useful for running Diagnostics manually
ONIE: Uninstall OS
    Restore to factory defaults erases any installed OS
ONIE: Update ONIE
    For downloading and updating ONIE from a URL
ONIE: Embed ONIE
    For downloading and updating ONIE from a URL and erases any installed OS

```

During the initial setup, the switch boots to ONIE Install. ONIE Install boots with ONIE Discovery to the console (ONIE:).

**NOTE:** For more information, see the *Open Networking Hardware Diagnostic Guide*.

After you have securely installed and powered on the switch, to configure your switch, see your third-party ONIE-compatible OS or the Dell EMC OS documentation.

## ONIE service discovery

ONIE attempts to locate the installer through several discovery methods, as shown. To download and run an installer, the ONIE Service Discovery feature uses the first successful method found.

- 1 Pass from the boot loader.
- 2 Search locally attached storage devices for one of the ONIE default installer filenames—for example, USB.
- 3 Exact URLs from DHCPv4.
- 4 Report inexact URLs based on the DHCPv4 responses.
- 5 Query to the IPv6 link-local neighbors using HTTP for an installer.
- 6 Start TFTP waterfall—from the DHCPv4 option 66

### Examples of ONIE `ifconfig eth0` commands

If none of the ONIE Service Discovery methods are successful, you can disable this using the `onie-discovery-stop` command.

You can install an operating system manually from HTTP, FTP, or TFTP using the `onie-nos-install <URL>` command.

**NOTE:** If you have a recovery USB plugged into your switch, remove it before installing the DIAG-OS using the `onie-nos-install` command.

The ONIE Install environment uses DHCP to assign an IP address to the management interface—`eth0`. If that fails, it uses the default IP address 192.168.3.10/255.255.255.0.

To display the IP address, use the `ifconfig eth0` command, as shown.

```

ONIE:/ # ifconfig eth0
eth0 Link encap:Ethernet HWaddr 90:B1:1C:F4:9C:76
      inet addr:10.11.53.33 Bcast:10.255.255.255 Mask:255.0.0.0
      inet6 addr: fe80::92b1:1cff:fef4:9c76/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
      RX packets:18 errors:0 dropped:0 overruns:0 frame:0
      TX packets:24 errors:0 dropped:0 overruns:0 carrier:0 collisions:0 txqueuelen:1000
      RX bytes:1152 (1.1 KiB) TX bytes:6864 (6.7 KiB)
      Interrupt:21 Memory:ff300000-ff320000

```

To assign an IP address to the management interface, `eth0`, and verify network connectivity, use the `ifconfig eth0 <ip address>` command, as shown.

```

ONIE:/ # ifconfig eth0 10.11.53.33/16

Verify the network connection with ping.
ONIE:/ # ping 10.11.8.12
PING 10.11.8.12 (10.11.8.12): 56 data bytes

```



```
64 bytes from 10.11.8.12: seq=0 ttl=62 time=1.357 ms
64 bytes from 10.11.8.12: seq=1 ttl=62 time=0.577 ms
^C
```

# Specifications

This section lists the S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch specifications.

**⚠ CAUTION:** Operate the product at an ambient temperature not higher than 113°F—45°C.

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

**ℹ NOTE:** For RoHS information, see [Restricted Material Compliance](#).

Topics:

- [Chassis physical design](#)
- [IEEE standards](#)
- [Agency compliance](#)
- [USA Federal Communications Commission statement](#)
- [European Union EMC directive conformance statement](#)
- [Japan VCCI compliance for class A equipment](#)
- [Korean certification of compliance](#)
- [Safety standards and compliance agency certifications](#)
- [Electromagnetic compatibility](#)
- [Product recycling and disposal](#)

## Chassis physical design

**Table 13. Chassis physical design**

Parameter	Specifications
Height	1.71 inches (43.5 mm)
Width	17.1 inches (434 mm)
Depth	18.1 inches (460 mm)
	PSU/fan tray handle: 1.57 inch (40 mm)
Chassis weight with factory-installed components	S4128F-ON: 19.66 lbs/8.92 kg (2* PSUs) S4148F-ON: 20.15 lbs/9.14 kg (2* PSUs) S4148FE-ON: 20.15 lbs/9.14 kg (2* PSUs)
Rack clearance required	Front: 5 inches (12.7 cm) Back: 5 inches (12.7 cm)

**Table 14. Environmental parameters**

Parameter	Specifications
Operating temperature	5° to 40°C (50°F to 104°F) -5°C to 45°C (23°F to 113°F) short term  Short term is <= 1% of operational hours per year.  <b>NOTE: Reduce maximum temperature by 1°C/125 meters (1°F/228 feet) above 950 meters (3,117 feet).</b>
Operating humidity	5% to 85% (RH), non-condensing, continuously 5% to 90% (RH), non-condensing, short term  Short term is <= 1% of operational hours per year.
Storage temperature	-40° to 65°C (-40°F to 149°F)
Storage humidity	5% to 95%, non-condensing
Maximum thermal output	470 W = 1260 BTU/Hr
Maximum operational altitude	10,000 feet (3,048 meters)
Maximum non-operational altitude	39,370 feet (12,000 meters)
Shock	Dell EMC Spec SV0115

**Table 15. AC power requirements**

Parameter	Specifications
Power supply	100–240 VAC 50/60 Hz
Maximum current draw per switch	4.7A/3.9A at 100/120V AC 2.35A/1.95A at 200/240V AC
Maximum power consumption	370 Watts
Typical power consumption	200 Watts

**Table 16. DC power requirements**

Parameter	Specifications
Minimum and maximum input voltage range	-40.5V, -48V, -60V
Input power at full load	-40.5V/970W -48V/930W -60V/ 950W, without fan -40.5V/980W -48V/940W -60V/ 960W, with fan
Input current at full load	-40.5V/23.8A -48V/19.0A -60V/ 15.6A, without fan -40.5V/24.0A -48V/19.2A -60V/ 16.0A, with fan

## IEEE standards

The S4100–ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch complies with the following IEEE standards:

- 802.1ab (LLDP)
- 802.1ax (Layer 2)

- 802.1d, 802.1w, 802.1s, 802.1x (Mgmt/Security), 802.3x (Layer 2)
- 802.3 (1000BASE-KX)
- 802.3ba (40GbE and 100GbE ports)

## Agency compliance

The S4100-ON Series (S4128F-ON, S4148F-ON, and S4148FE-ON) switch complies with the following safety and agency requirements:

### USA Federal Communications Commission 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 EMC 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.

#### 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.

Figure 23. Canadian department of communication statement

### European Union EMC directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 2004/30/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Dell EMC cannot 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 EMC option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 32/ CISPR34 and EN55032 / EN55034. 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, you may be required to take adequate measures.**

European Community Contact

Dell EMC, EMEA - Central

Dahlenweg 19

66265 Heusweiler

# 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。

Figure 24. Japan: VCCI compliance for class A equipment

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:** Use the AC power cords with Dell EMC equipment only. Do not use Dell EMC 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。

Figure 25. Japan: warning label

# Korean certification of compliance

A급 기기 (업무용 방송통신기자재)	이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.
------------------------	---

Figure 26. Korean certification of compliance


	 [ <i>equipment type</i> ]
품명(Product Name)	Ethernet Switch
모델명(Model)	[ <i>model number</i> ]
신청인(Applicant)	Dell Technologies
제조사(Manufacturer)	
제조년월(Manufacturing Date)	[ <i>date</i> ]
제조국(Country of Origin)	China

Figure 27. Korean package label

## Safety standards and compliance agency certifications

- IEC 62368-1, 2nd Edition
- CUS UL 60950-1, 2nd Edition
  - Meets or exceeds Hi Pot and Ground Continuity testing per UL 60950-1.
- AS/NZS 60950
- CSA 60950-1-03, 2nd Edition
- EN 60950-1, 2nd 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
- IEC 60950-1, 2nd Ed, including all National Deviations and Group Differences

## Electromagnetic compatibility

### Emissions

- International: CISPR 32: Class A
- Australia/New Zealand: AS/NZS CISPR 32, Class A
- Canada: ICES-003, Issue-4, Class A
- Europe: EN55032:2015 (CISPR 32), Class A
- EN55032
- Japan: VCCI Class A
- Korea: KN32, Class A
- Taiwan: CNS13438, Class A
- USA: FCC CFR47 Part 15, Subpart B, Class A

### Immunity

- EN 300 386 EMC for Network Equipment

- EN 55024
- 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

You must recycle or discard this system according to applicable local and national regulations. Dell EMC encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Dell EMC 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 EMC 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 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 28. 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 EMC products, which fall within the scope of the WEEE, are labeled with the crossed-out wheeled-bin symbol, as shown above, as required by WEEE.

For information on Dell EMC product recycling offerings, see the WEEE Recycling instructions on the Support page. For more information, contact the Dell EMC Technical Assistance Center.

## Dell EMC support

The Dell EMC support site provides documents and tools to help you effectively use Dell EMC equipment and mitigate network outages. Through the support site you can obtain technical information, access software upgrades and patches, download available management software, and manage your open cases. The Dell EMC support site provides integrated, secure access to these services.

To access the Dell EMC support site, go to [www.dell.com/support/](http://www.dell.com/support/). To display information in your language, scroll down to the bottom of the web page and select your country from the drop-down menu.

- To obtain product-specific information, enter the 7-character service tag, found on the luggage tag, or the 11-digit express service code of your switch and click **Submit**.  
To view the switch service tag or express service code, pull out the tag or enter the `show chassis` command from the CLI. The luggage tag is on the PSU-side of the switch.
- To receive more technical support, click **Contact Us**. On the Contact Information web page, click **Technical Support**.

To access switch documentation, go to [www.dell.com/manuals/](http://www.dell.com/manuals/).

To search for drivers and downloads, go to [www.dell.com/drivers/](http://www.dell.com/drivers/).

To participate in Dell EMC community blogs and forums, go to [www.dell.com/community](http://www.dell.com/community).