

A solid teal circle.

S5860-48XMG-U Switch Hardware Guide

About This Guide

This guide provides step-by-step instructions for installing the hardware and performing the initial software configuration of the S5860-48XMG-U switch. After completing the installation and basic configuration procedures covered in this guide, you could refer to the PicOS® documentation for information about further software configuration.

S5860-48XMG-U Overview

1.1 System Overview

1.1.1 S5860-48XMG-U Switch Hardware Overview

The S5860-48XMG-U is a high-performance Layer 3 switch designed for enterprise campus, branch, and data center access deployments. Built on the Broadcom BCM56170 chip, it offers 48x 100M/1000M/2.5G/5G/10GBase-T ports, 4x 25Gb SFP28 ports, and 2x 40Gb QSFP+ uplinks for up to 1.32 Tbps of switching capacity, enabling reliable connectivity to routers, servers, and other switches.

To ensure high availability, the switch is equipped with redundant, hot-swappable power supplies and smart fans for continuous operation and improved serviceability. It supports advanced Layer 2/3 protocols, including MLAG, BGP, OSPF, NAC, and sFlow, delivering scalability and network resiliency.

The S5860-48XMG-U can be managed by the AmpCon-Campus management platform, enabling automated lifecycle management from Day 0 to Day 2+. The platform features Zero Touch Provisioning (ZTP), topology discovery, and real-time telemetry, optimizing workflow automation and enhancing visibility into the performance of connected devices.

1.1.2 Benefits of the S5860-48XMG-U

- **Broadcom Chip** — Built on the Broadcom BCM56170 chip, the S5860-48XMG-U switch offers high-speed data transfer, low latency, and high throughput, enhancing performance for superior stability and reliability.
- **Industry-leading 10G, 25G, and 40G wire speeds** — The S5860-48XMG-U Switch offers 48x 10Gb multi-gigabit, 4x 25Gb SFP28, and 2x 40Gb QSFP+ wire speed ports.
- **Multi-Chassis Link Aggregation (MLAG)** — S5860-48XMG-U supports MLAG, which delivers device-level link redundancy and load balancing by aggregating links across two S5860-48XMG-U switches, enhancing network performance, reliability, and service continuity.
- **Advanced Layer 2/L3 features** — BGP, OSPF, PBR, LACP, STP, QoS, etc.
- **AmpCon-Campus Management Platform** — provides Day 0 to Day 2+ Automated Lifecycle Management
- **Support for channelization** — You can channelize the QSFP+ ports and increase the number of interfaces.

1.1.3 System Hardware and Software Features

The S5860-48XMG-U switch runs the PicOS® operating system and delivers Layer 2 and Layer 3 switching, routing, and security services. Table 1 lists the hardware and software features supported on the models.

Table 1. Hardware and Software Features Supported on S5860-48XMG-U Switch Model

Switch Model	Supported System	Hardware Features	Aggregate Throughput (Bidirectional)	Software Features
S5860-48XMG-U	PicOS®	<ul style="list-style-type: none"> • Broadcom BCM56170 Chip • ARM® Cortex®-A9 Single-Core CPU Processor • 1-GB memory • 1-GB SSD storage 	1.32 Tbps	<ul style="list-style-type: none"> • Feature-rich automation capabilities with support for Ansible, OpenFlow, NETCONF, RESTCONF, and zero-touch provisioning (ZTP) • Advanced PicOS® features such as MLAG, telemetry, OSPF, BGP, PBR, STP, QoS • AmpCon-Campus Provides Day 0 to Day 2+ Automated Lifecycle Management

1.1.4 Channelization in S5860-48XMG-U

The S5860-48XMG-U switch supports channelization. You can channelize the 40GbE quad small form-factor pluggable (QSFP+) ports into interfaces by connecting breakout cables and by using CLI configuration, WebUI or remotely through the AmpCon-Campus management platform. Table 2 lists the channelization supported by the model.

Table 2. Channelization in S5860-48XMG-U

Switch Model	Ports	Port Speed	Supported Channelization	Supported Transceivers and AOCs
S5860-48XMG-U	53-54	40GbE	4 x 10GbE Interfaces	/

1.1.5 Components on the Front and Rear Panels

Figure 1 shows the front view of the S5860-48XMG-U switch.

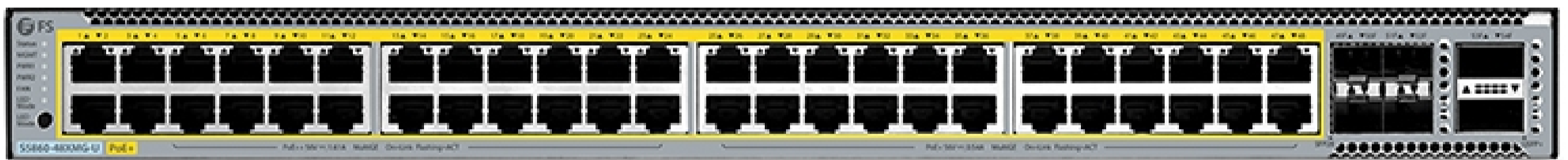


Figure 2 shows the rear view of the S5860-48XMG-U switch.

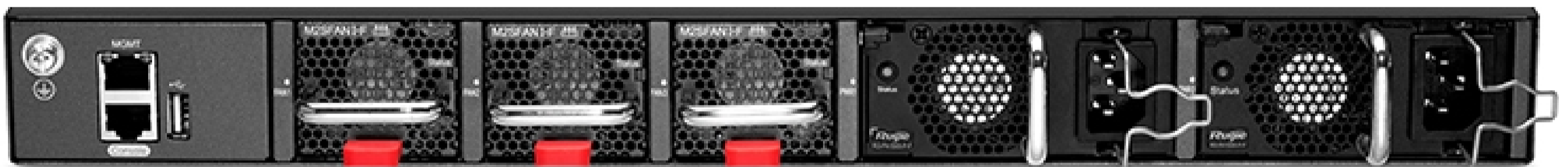
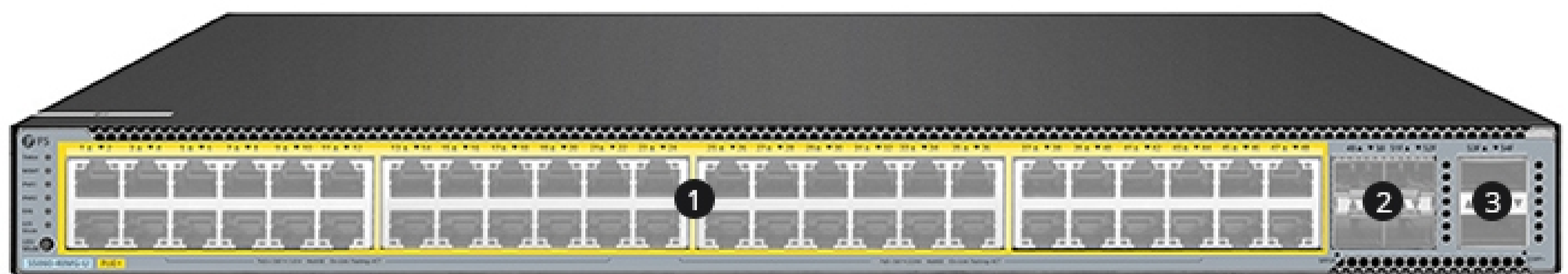


Figure 3 shows the components on the front and rear of a S5860-48XMG-U switch.



- 1** 48x 100M/1000M/2.5G/5G/10GBase-T
- 2** 4x 10G/25G SFP28
- 3** 2x 40G QSFP+



- 1** 2+1 Hot-swappable Smart Fans
- 2** 1+1 Hot-swappable Power Supplies

1.2 Chassis

1.2.1 Chassis Physical Specifications

The S5860-48XMG-U switch is a rigid sheet-metal structure that houses all components of the switch. Table 3 shows the physical specifications of the S5860-48XMG-U switch models.

Table 3. Physical Specifications of the S5860-48XMG-U Switch Model

Model	Height	Width	Depth	Weight
S5860-48XMG-U	1.72" (43.6mm)	17.4" (442mm)	16.5" (420mm) excluding fan and power supply handles	17.8 lbs (8.1kg) with two power supplies and fans installed

1.2.2 Field-Replaceable Units

Field-replaceable units (FRUs) are components that you can replace at your site. The FRUs in the S5860-48XMG-U switch are hot-removable and hot-insertable: You can remove and replace them without powering off the switch or disrupting switch functions. The S5860-48XMG-U switch has the following FRUs:

- Power supplies
- Fan modules
- Transceivers

Note: • Transceivers are not part of the shipping configuration. If you want to purchase any of these components, you must order them separately.

1.2.3 Chassis Status & Management Port & Network Port LEDs

The front panel of the S5860-48XMG-U switch features three chassis status LEDs labeled SYS, PSU, and FAN (see Figure 4).

Table 4 describes the chassis LEDs on the S5860-48XMG-U switch, their color and states, and the states they indicate.

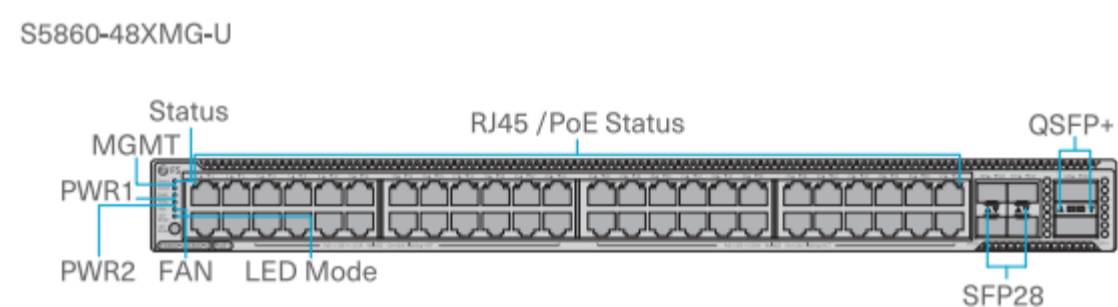


Table 4. Chassis ID LED on a S5860-48XMG-U Switch

LEDs	State	Description
LED Mode	Solid Green	The LED indicates the switching status.
	Solid Amber	The LED indicates the PoE power supply status.
FAN	Solid Green	All fan modules are seated and functioning properly.
	Solid Red	<ul style="list-style-type: none"> • One fan module is faulty. • The fan module model is not supported. • One fan module is not seated.
PWR1/PWR2	Off	The power module is not seated.
	Solid Green	The power module is seated and providing power to the switch.
	Solid Amber	The model of the power module is not supported or cannot be read.

	Solid Red	The redundant power module is not functioning properly or not connected to the AC power cord.
MGMT	Off	No link is established on this port.
	Solid Green	A 1000Mbps link is established on this port.
	Blinking Green	The port is sending and receiving traffic at 1000Mbps.
	Solid Amber	A 100/10Mbps link is established on this port.
	Blinking Amber	The port is sending and receiving traffic at 100/10Mbps.
Status	Off	The system is not powered on.
	Blinking Green (3Hz)	The system is being initialized. Continuous blinking indicates a fault.
	Blinking Green (10Hz)	The system is being located, and can be remotely turned on or off by an O&M engineer.
	Solid Green	The system is operating normally.
	Solid Amber	Temperature at the air intake and exhaust vents exceeds the threshold.
	Solid Red	<ul style="list-style-type: none"> • Temperature at air inlets or outlets exceeds the threshold. • The system is faulty.
RJ45	Off	No link is established on this port.
	Solid Green	A 1/2.5/5/10Gbps link is established on this port.
	Blinking Green	The port is sending or receiving traffic at 1/2.5/5/10Gbps.
	Solid Amber	A 100Mbps link is established on this port.
	Blinking Amber	The port is sending and receiving traffic at 100Mbps.
PoE Status	Off	The PoE function is disabled.
	Solid Green	The PoE function is enabled.
	Solid Amber	The PoE port is overloaded or faulty.
SFP28	Off	No link is established on this port.
	Solid Green	A 10/25Gbps link is established on this port.
	Blinking Green	The port is sending and receiving traffic at 10/25Gbps.
QSFP+	Off	No link is established on this port.
	Solid Green	A 40Gbps link is established on the port.
	Blinking Green	The port is sending and receiving traffic at 40Gbps.

1.3 Cooling System

The cooling system in the S5860-48XMG-U switch consists of fan modules and built-in fans in the power supplies. It supports front-to-back airflow, meaning air enters through the front panel and exits through the rear.

The fan modules are hot-removable and hot-insertable field-replaceable units (FRUs) installed in the rear panel of the switch. You can remove and replace them without powering off the switch or disrupting switch functions.

1.3.1 Fan Modules

We ship the S5860-48XMG-U switch with 3x hot-swappable fans pre-installed in the rear panel.

The fan modules are available in a model that has airflow directions:

- Front-to-back (cold air enters through the front of the switch and hot air exhausts through the back of the switch).
- Left-to-Back (cold air enters through the left of the switch and hot air exhausts through the back of the switch).

1.3.2 Models and Airflow Direction

Table 5 shows the airflow direction in the S5860-48XMG-U switch model.

Table 5. Airflow Direction in S5860-48XMG-U Switch Model

Fan Modules and Power Supplies	Direction of Airflow in the Fan Modules and Power Supplies
We ship the switch with 3 fan modules (with front-to-back airflow and left-to-back airflow) and two AC power supplies.	Front-to-back—Cold air intake to cool the chassis is through the vents on the front panel of the chassis, and hot air exhausts through the vents on the rear panel of the chassis.

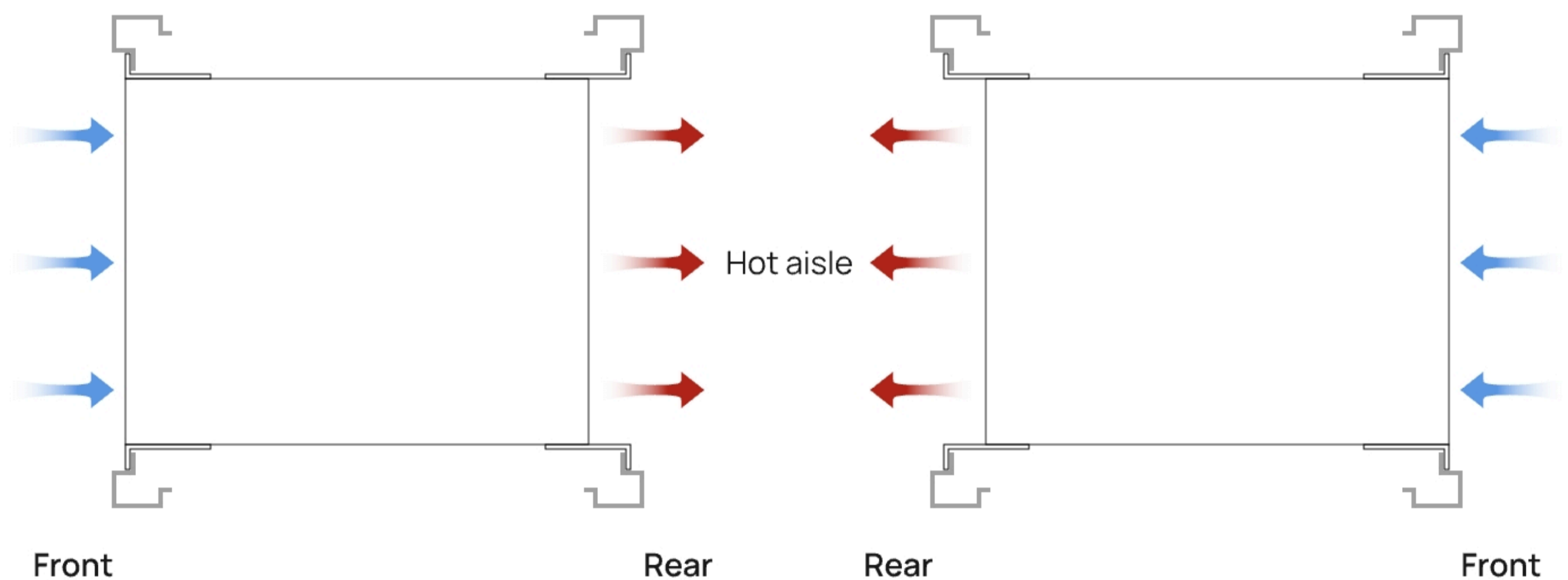
S5860-48XMG-U Models with Front-to-Back Airflow

In the S5860-48XMG-U switch models that have front-to-back airflow, the cold air intake to cool the chassis is through the vents on the front panel of the switch, and hot air exhausts through the vents on the rear panel.

1.3.3 How to Position the Switch

In front-to-back airflow, hot air exhausts through the vents on the rear panel of the switch.

For front-to-back airflow and left-to-back airflow, install the fan modules with the air intake side (typically the side with the fan blades visible or the grille pattern) facing the cold aisle, and the air exhaust side (typically the side with the power connector or handle) facing the hot aisle.



1.3.4 S5860-48XMG-U Fan Module Status

There is a status LED for each fan module on the S5860-48XMG-U switch, next to the fan module slot on the rear panel of the chassis, indicating the status of the fan module. Table 6 describes the fan module LED.

Table 6. Fan Module Status LED

LED	Color	Description
FAN	Solid Green	All fan modules are seated and functioning properly.

	Solid Red	<ul style="list-style-type: none"> • One fan module is faulty. • The fan module model is not supported. • One fan module is not seated.
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1.4 Power System

The S5860-48XMG-U switch supports two AC power supplies. The power supplies are fully redundant, load-sharing, and hot-removable and hot-insertable FRUs when the second power supply is installed and running. You can remove and replace them without powering off the switch or disrupting switch functions.

- Caution**
- To improve system stability and availability, you are advised to configure 1 + 1 power redundancy. The chassis configured with power redundancy works in current-sharing mode.
 - At least one power module is required. If any slot is unoccupied, install a filler panel to enable proper airflow and to keep dust out of the chassis.
 - Unplug the power cord before installing or removing the power module.

1.4.1 AC Power Supply in S5860-48XMG-U Switch

You can install up to two power supplies in the power supply slots in the rear panel of the S5860-48XMG-U switch chassis. On the S5860-48XMG-U switch, the slots are labeled **PWR1** and **PWR2**.

Table 7. Components of AC Power Supply

No.	Component	Description
1	Handle	Handle of the power module
2	Fan	Forward fan
3	Power connector	Three-pin connector
4	LED	Power status LED
5	Latch	Latch of the power module

1.4.1.1 AC Power Supply Specifications

Table 8 shows the power supply specifications for AC power supplies for the S5860-48XMG-U switch.

Table 8. Technical Specifications for AC Power Supplies

Item	Specification
Dimensions (W x D x H)	196 mm x 90 mm x 40mm (7.72 in. x 3.54 in. x 1.57 in.)
Weight	0.9 kg (1.98 lbs.)
Power connector	C14 connector for connection with the AC power cord
Max. input voltage range	90VAC to 290VAC, 47Hz to 63Hz
Rated input voltage range	100VAC-240VAC, 50Hz to 60Hz
Rated input current range	8A (MAX) at 90V
Rated output current	10A (MAX)
Rated output power consumption	Single Power: 240W (1000W with PoE) Dual Power: 240W (2000W with PoE)

Hot swapping	Supported
Cooling	Front-to-rear airflow (air exhaust on power module panel)
Overvoltage protection	Supported
Overcurrent protection	Supported
Over-temperature protection	Supported

1.4.1.2 Power Cord Specifications

A detachable AC power cord is supplied with the AC power supplies. The plug end of the power cord fits into the power source outlet that is standard for your geographical location.

Table 9 shows the specifications of the AC power cord.

Table 9. Specifications of the AC Power Cord

Countries	Power Cord Standard	Male Plug	Female Connector	Voltage Compatibility	Maximum Input Amps
United States, Canada, Mexico, Puerto Rico, Guam, Japan, Virgin Islands (U.S.)	US	NEMA 5-15P	IEC60320 C13	100-250VAC	10A
United Kingdom, Hong Kong, Singapore, Malaysia, Maldives, Qatar, India	UK	BS1363	IEC60320 C13	100-250VAC	13A
Continental Europe, South Africa, Switzerland, Italy, Indonesia	EU	CEE 7	IEC60320 C13	100-250VAC	16A
China, Australia, New Zealand, Argentina	CN	GB16A	IEC60320 C13	100-250VAC	10A

1.4.1.3 LEDs on the AC Power Supplies

Table 10 describes the LED on the AC power supply for the S5860-48XMG-U switch.

Table 10. LED on the AC Power Supply for S5860-48XMG-U

LED	Color	Description
PWR1/PWR2	Off	The power module is not seated.
	Solid Green	The power module is seated and providing power to the switch.
	Solid Amber	The model of the power module is not supported or cannot be read.
	Solid Red	The redundant power module is not functioning properly or not connected to the AC power cord.

Site Planning, Preparation, and Specifications

2.1 Site Guidelines and Requirements

The equipment must be installed indoors for normal operation and prolonged service life. The following sections provide specific information to help you plan for a proper operating environment.

2.1.1 Floor Loading

- Ensure that the floor under the rack supporting the chassis is capable of supporting the combined weight of the rack and all the other

components.

2.1.2 Airflow

- To ensure adequate airflow through the chassis, maintain a minimum clearance of 20 cm (7.87 in.) around air vents. Route the cables and power cords through the cable management brackets to avoid blocking air intake vents. Dust the equipment every three months to prevent blocking the ventilation openings on the housing.

2.1.3 Space

- You are advised to have a pathway of 0.8 meters (2.62 ft.) wide in the equipment room. This space ensures that you can remove the components and perform routing maintenance easily.
- The front and rear of the chassis must remain unobstructed to ensure adequate airflow and prevent overheating inside the chassis.

2.1.4 Temperature

To ensure normal operation and prolonged service life of the equipment, maintain an appropriate temperature in the equipment room. Otherwise, the equipment may be damaged.

- A high temperature can accelerate the aging process of insulation materials, greatly reducing the availability of the equipment and severely affecting its service life.

For the device's operating temperature requirements, please refer to the [product datasheet](#).

Note:

- The operating temperature is measured at the point that is 1.5 m (4.92 ft.) above the floor and 0.4 m (1.31 ft.) before the equipment with no protective plates in front or at the back of the equipment.

2.1.5 Humidity

To ensure normal operation and prolonged service life of the equipment, maintain an appropriate humidity in the equipment room. Otherwise, the equipment may be damaged.

- In an environment with a high relative humidity, the insulating material is prone to poor insulation or even electricity leakage.
- In an environment with a low relative humidity, the insulating strip may dry and shrink, resulting in screw loosening. Furthermore, internal circuits are prone to static electricity.

For the device's operating humidity requirements, please refer to the [product datasheet](#).

Note:

- The operating humidity is measured at the point that is 1.5 m (4.92 ft.) above the floor and 0.4 m (1.31 ft.) before the equipment with no protective plates in front or at the back of the equipment.

2.1.6 Cleanliness

The indoor dust takes on a positive or negative static electric charge when falling on the switch, causing poor contact of the metallic joint. Such electrostatic adhesion may occur more easily when the relative humidity is low, not only affecting the service life of the switch, but also causing communication faults. The following table lists the requirements for the dust and particles in the equipment room:

Table 11. Dust and Particle Requirement

Minimum Dust and Particle Diameter	Unit	Maximum Quantity
0.5 μm	particles/m ³	3.5 × 10 ⁵
5 μm	particles/m ³	3.0 × 10 ³

Apart from dust, there are also requirements on the salt, acid, and sulfide in the air of the equipment room. These harmful substances will accelerate metal corrosion and component aging. Therefore, the equipment room should be properly protected against harmful gases, such as sulfur dioxide and hydrogen sulfide. The following table lists limits on harmful gases.

Table 12. Gas Requirement

Gas	Average	Maximum (mg/m ³)
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	mg/m ³	cm ³ /m ³	mg/m ³	cm ³ /m ³
Sulfur Dioxide (SO ₂)	0.3	0.11	1.0	0.37
Hydrogen Sulfide (H ₂ S)	0.1	0.071	0.5	0.36
Chlorine (Cl)	0.1	0.034	0.3	0.1
Nitrogen Oxides (NO)	0.5	0.26	1.0	0.52

Note:The average value is measured over one week. The maximum value is the upper limit of the harmful gas measured in one week for up to 30 minutes every day.

2.1.7 System Grounding

A reliable grounding system is the basis for stable and reliable operation, which is indispensable for preventing lightning strikes and interference. Carefully check the grounding conditions at the installation site according to the grounding specifications, and complete grounding properly based on the site situation.

- **Safety Grounding**

Ensure that the rack and power distribution system are securely grounded. Otherwise, electric shocks may occur when the insulation resistance between the power module and the chassis becomes small.

Note:The building should provide a protective ground connection to ensure that the equipment is connected to a protective earth.

- **Lightning Grounding**

The surge protection system is an independent system consisting of a lightning rod, a downlead conductor, and a connector connected to the grounding system. The grounding system is usually used for power reference grounding and safety grounding of the rack.

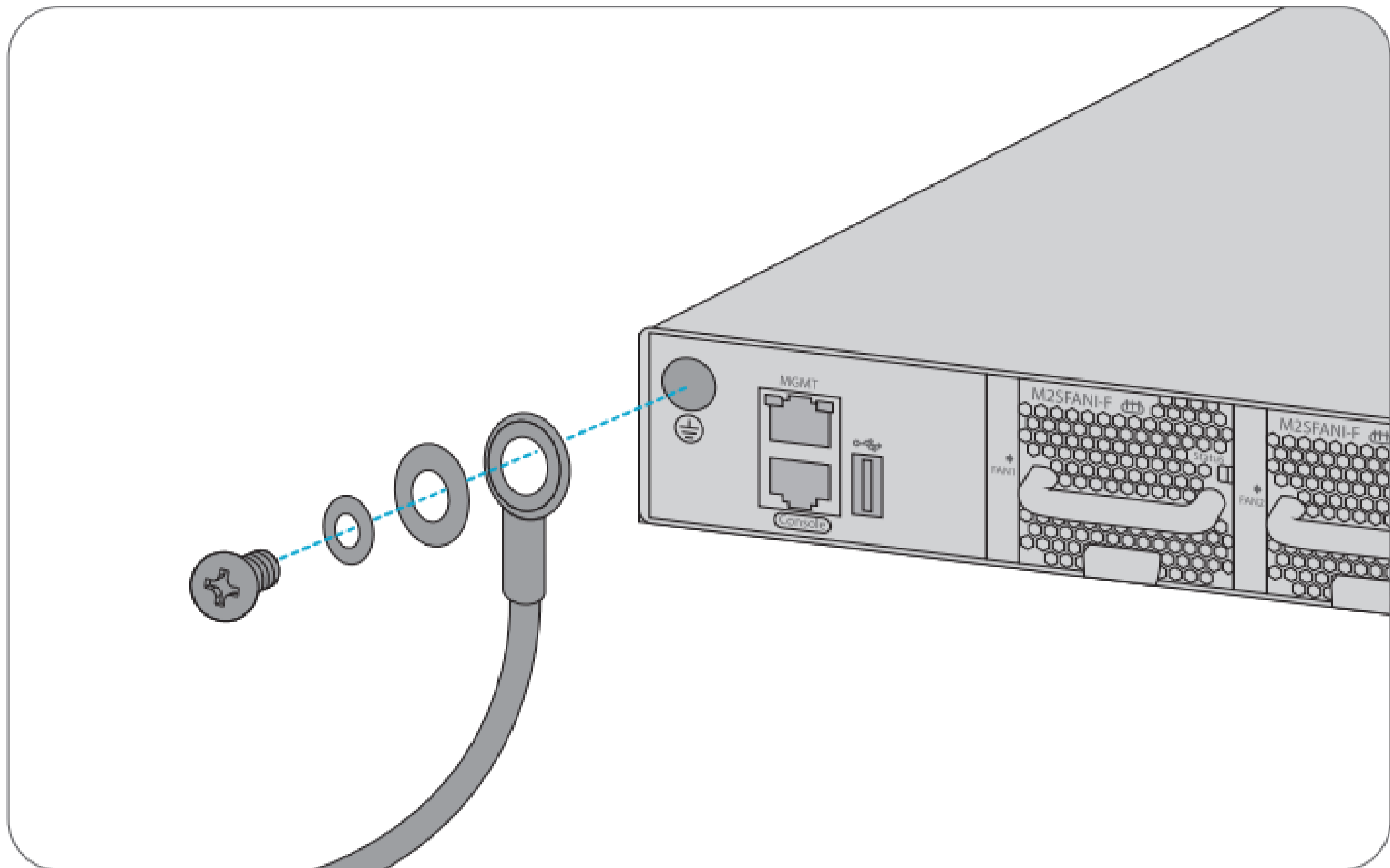
- **EMC Grounding**

Grounding for the EMC design includes shielded grounding, filter grounding, noise, interference suppression, and level reference.

The grounding resistance should be smaller than 1-ohm. Connect the grounding terminal to the ground before operating the equipment.

There is one grounding studs in the lower left corner of the rear panel. It's pasted with a conspicuous label.

Grounding the Switch



2.1.8 Preventing Electromagnetic Interference

Electromagnetic interference mainly comes from outside the equipment or application system and affects the equipment through capacitive coupling, inductive coupling, electromagnetic waves, and other conduction modes.

- Interference prevention measures should be taken for the power supply system.
- Keep the equipment far away from the grounding facility and surge protector facility of the power device.
- Keep the equipment far away from high-frequency current devices such as high-power radio transmitting stations and radar launchers.
- Take electromagnetic shielding measures when necessary.

2.1.9 Surge Protection

Although the equipment can guard against lightning strikes, strong lightning strikes may still damage the equipment. Take the following surge protection measures:

- Ensure that the grounding wire of the rack is in good close contact with the ground.
- Ensure that the neutral point of the AC power socket is in close contact with the ground.
- You are advised to install a power arrester in front of the power input end to enhance surge protection for the power supply.

2.2 Management Cable Specifications and Pinouts

2.2.1 Console Port Connector Pinout Information

The console port on PicOS® devices is an RS-232 serial interface, using an RJ-45 connector to connect to a console management device. The default baud rate for the console port is 115200 baud.

2.2.2 RJ-45 Management Port Connector Pinout Information

The RJ-45 connector on PicOS® network devices provides the following pinout details for the management port.

Table 13. Pin Signal Definition Table for 1000BASE-T

Pin	MDI Mode	MDI-X Mode
1	Media Dependent Interface A+	Media Dependent Interface B+
2	Media Dependent Interface A-	Media Dependent Interface B-
3	Media Dependent Interface B+	Media Dependent Interface A+
4	Media Dependent Interface C+	Media Dependent Interface D+
5	Media Dependent Interface C-	Media Dependent Interface D-
6	Media Dependent Interface B-	Media Dependent Interface A-
7	Media Dependent Interface D+	Media Dependent Interface C+
8	Media Dependent Interface D-	Media Dependent Interface C-

Initial Installation and Configuration

3.1 Unpack and Mount the S5860-48XMG-U Switch

Below is an optimized guide for unpacking and preparing the S5860-48XMG-U switch for installation, including key preCautions and potential risk alerts.

3.1.1 Parts Inventory (Packing List) for a S5860-48XMG-U Switch

The switch shipment includes a packing list. Check the parts you receive with the switch against the items in the packing list.

Table 14. Inventory of Components Provided with a S5860-48XMG-U Switch

Models	Component	Quantity
S5860-48XMG-U	Power Cord	2
	Grounding Cable	1
	Rubber Pad	4
	Front Mounting Bracket	2
	Rear Mounting Bracket	2
	Sliding Rail	2
	M4 Screw	14
	M6 Screw	4
	M6 Cage Nut	4

3.1.2 Mount the S5860-48XMG-U Switch on a Rack

Make sure the previously mentioned “2.1 Site Guidelines and Requirements” have been met before you begin the installation. Plan for the installation site, networking mode, power supply, and cabling in advance. Then, wear an ESD wrist strap, place the switch, and mount it onto the rack.

3.1.2.1 Installation Requirements

Before the installation, make sure that you have the following conditions ready:

- Phillips screwdriver, related bolts and ESD tools.

- Standard-sized, 19" wide rack with a minimum of 1U height available.
- Category 5e or higher RJ45 Ethernet cables, fiber optic cables and a console cable.

3.1.2.2 Installation Guidelines

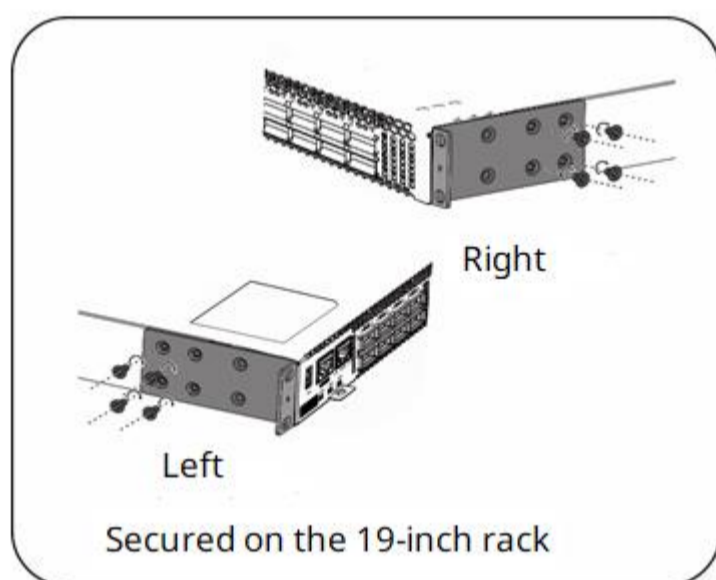
Please verify that the front and rear brackets of the rack are in the right locations before mounting. If the front brackets are too close to the front door, there will not be sufficient clearance between the front panel and the door. As a result, the front door cannot be closed after Ethernet cables and optical fibers are connected to the chassis. Generally, maintain a minimum clearance of 10 mm (0.39 in.) between the front panel and the front door. Before installation, verify the following guidelines are met:

- The rack has been secured.
- The various components in the rack have been installed.
- There are no obstacles inside or around the rack when installing the switch.

3.1.2.3 Mount the Brackets

Remove two L-brackets and eight M4 x 8FMO countersunk screws from packing materials.

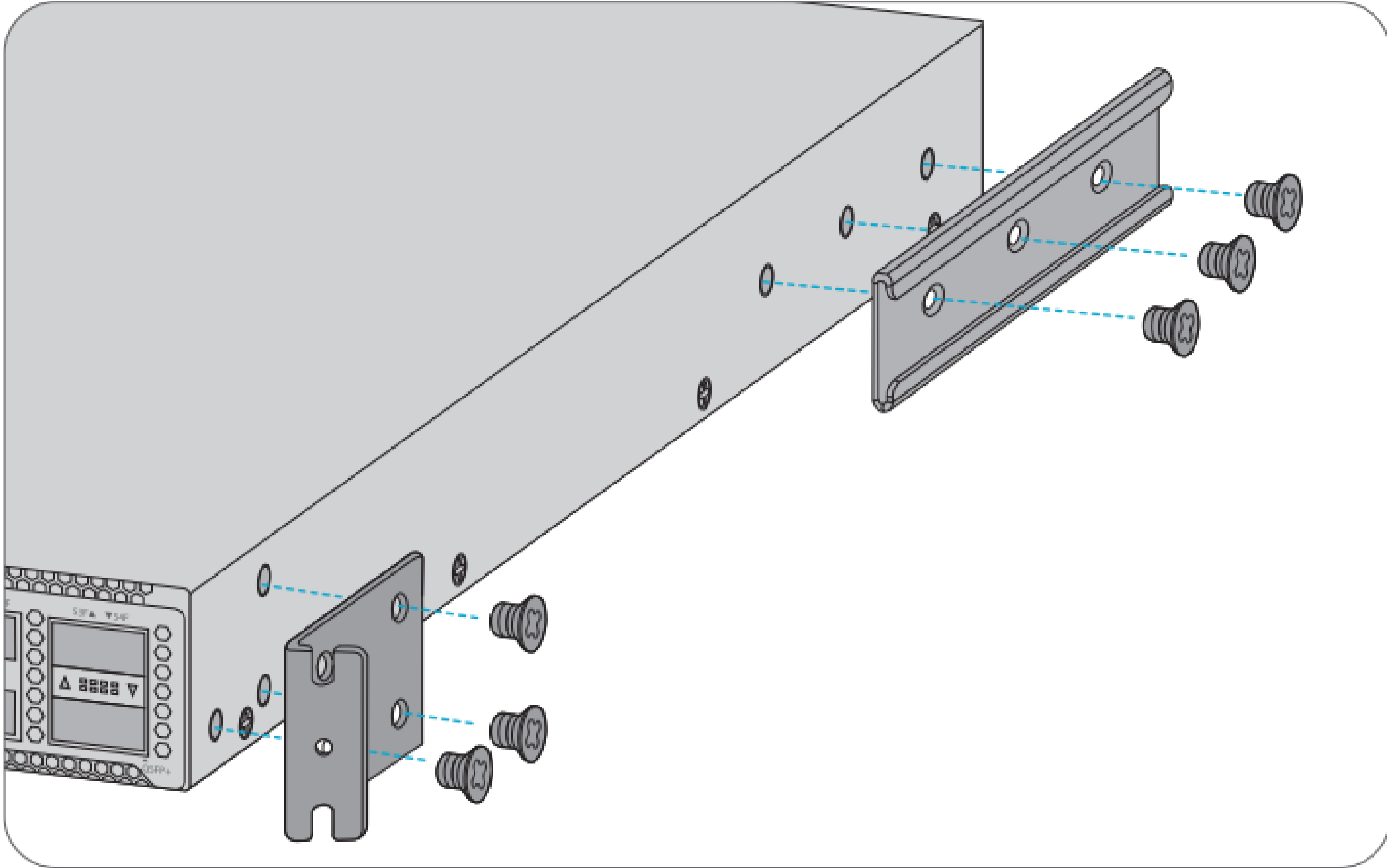
Position an L-bracket against one side of the chassis and secure the bracket to the chassis with four screws. Repeat this step with the other bracket on the opposite side of the chassis.



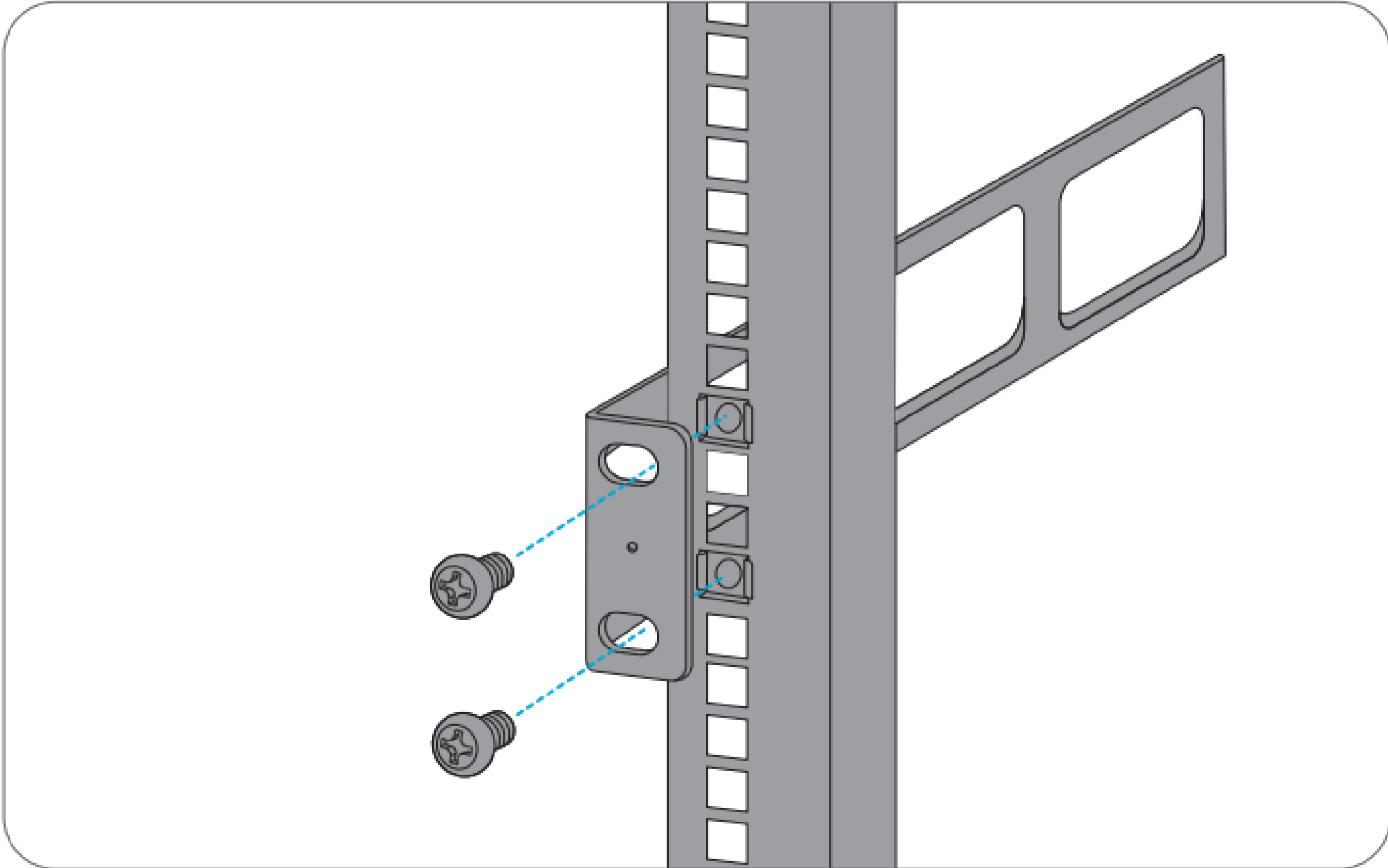
3.1.2.4 Mount the Chassis on the Rack

The chassis can be installed on a standard 19-inch EIA rack. Mount the chassis on the rack with its front panel facing forward. You are advised to use a tray or guide rails to assist in installing the chassis on the rack.

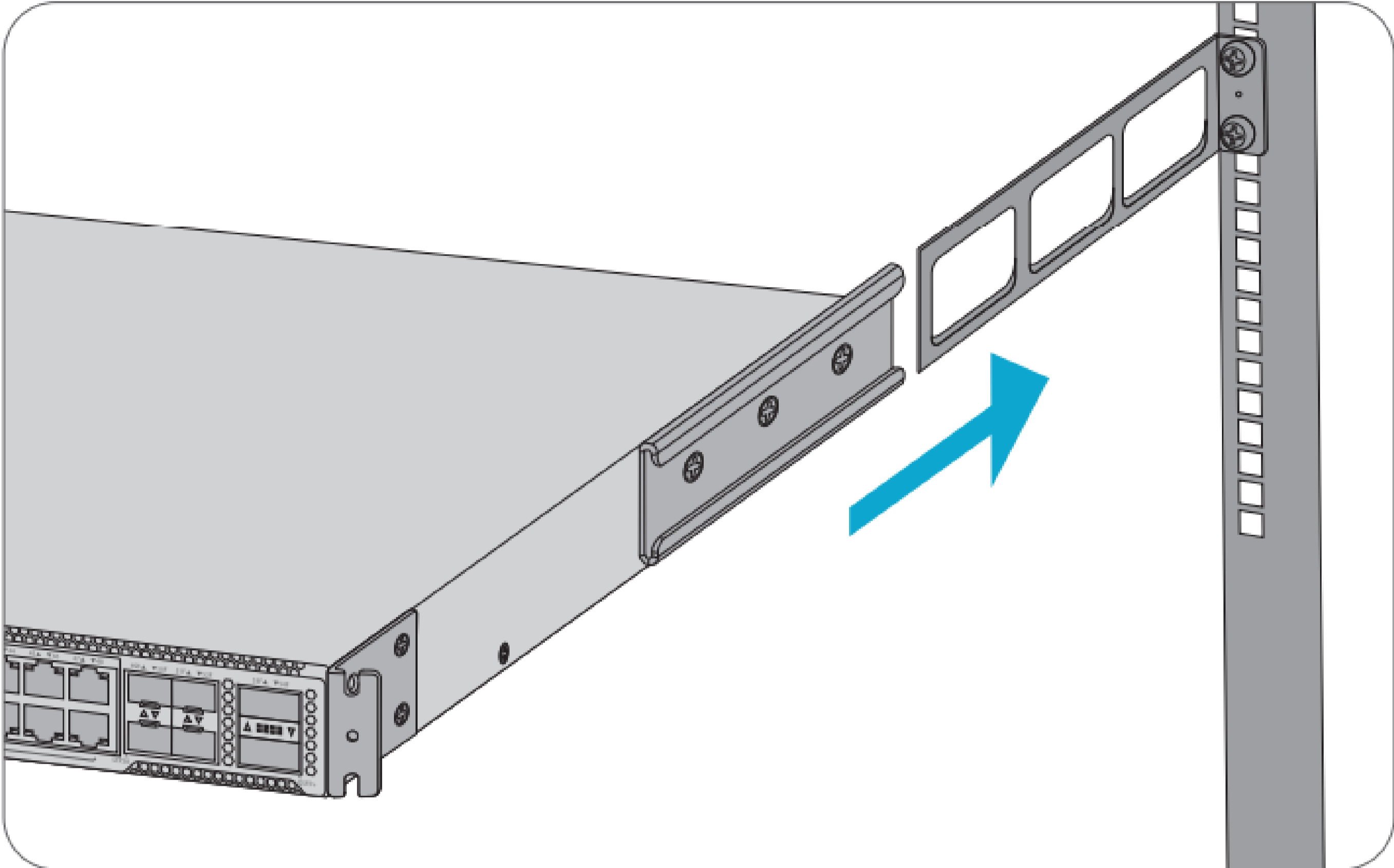
Secure the front mounting brackets and the sliding rails to the two sides of the switch with screws.



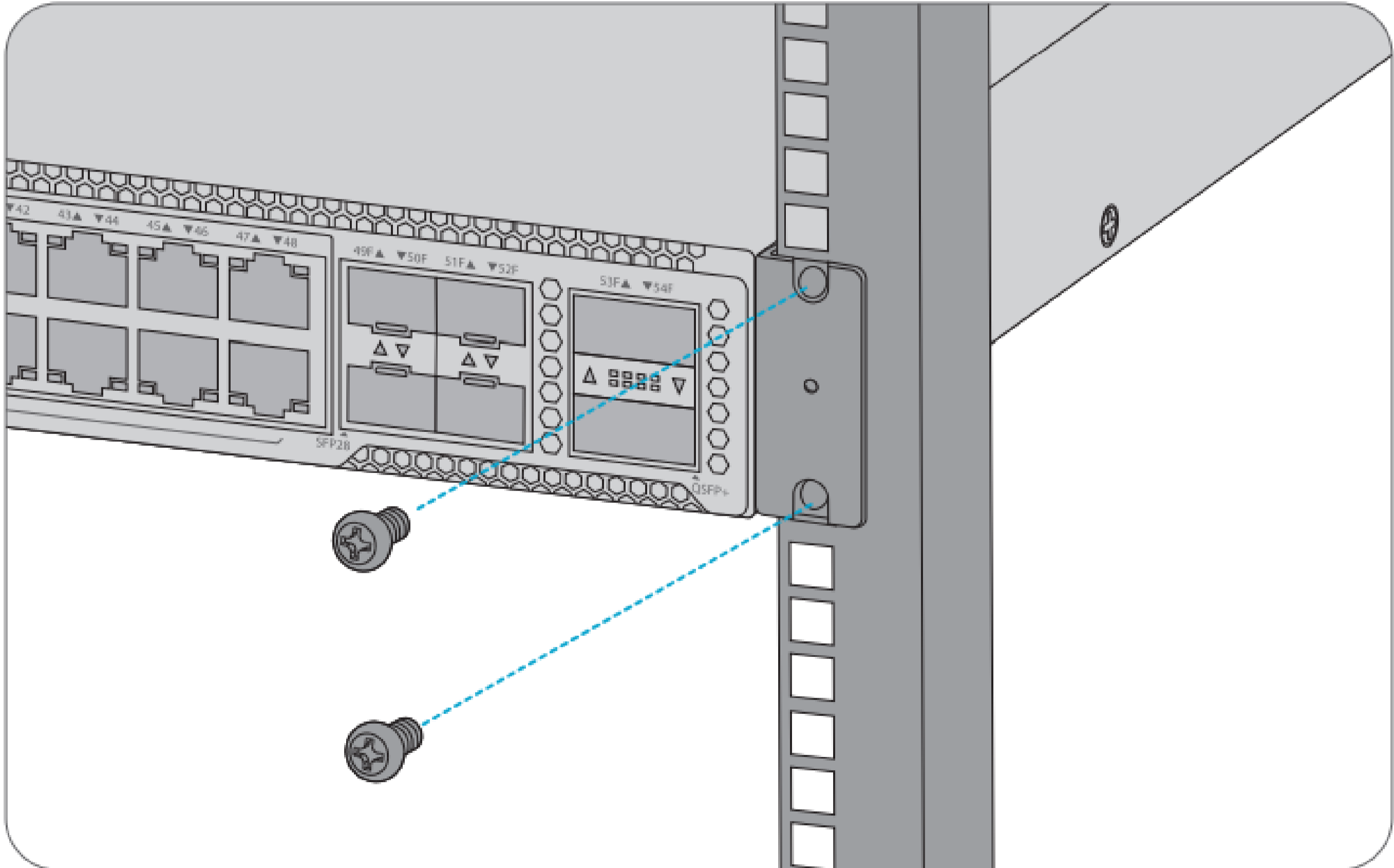
Fix the rear mounting brackets to the rack with screws and cage nuts.



Slide the switch into the rack.



Install the switch on the rack with screws and cage nuts.

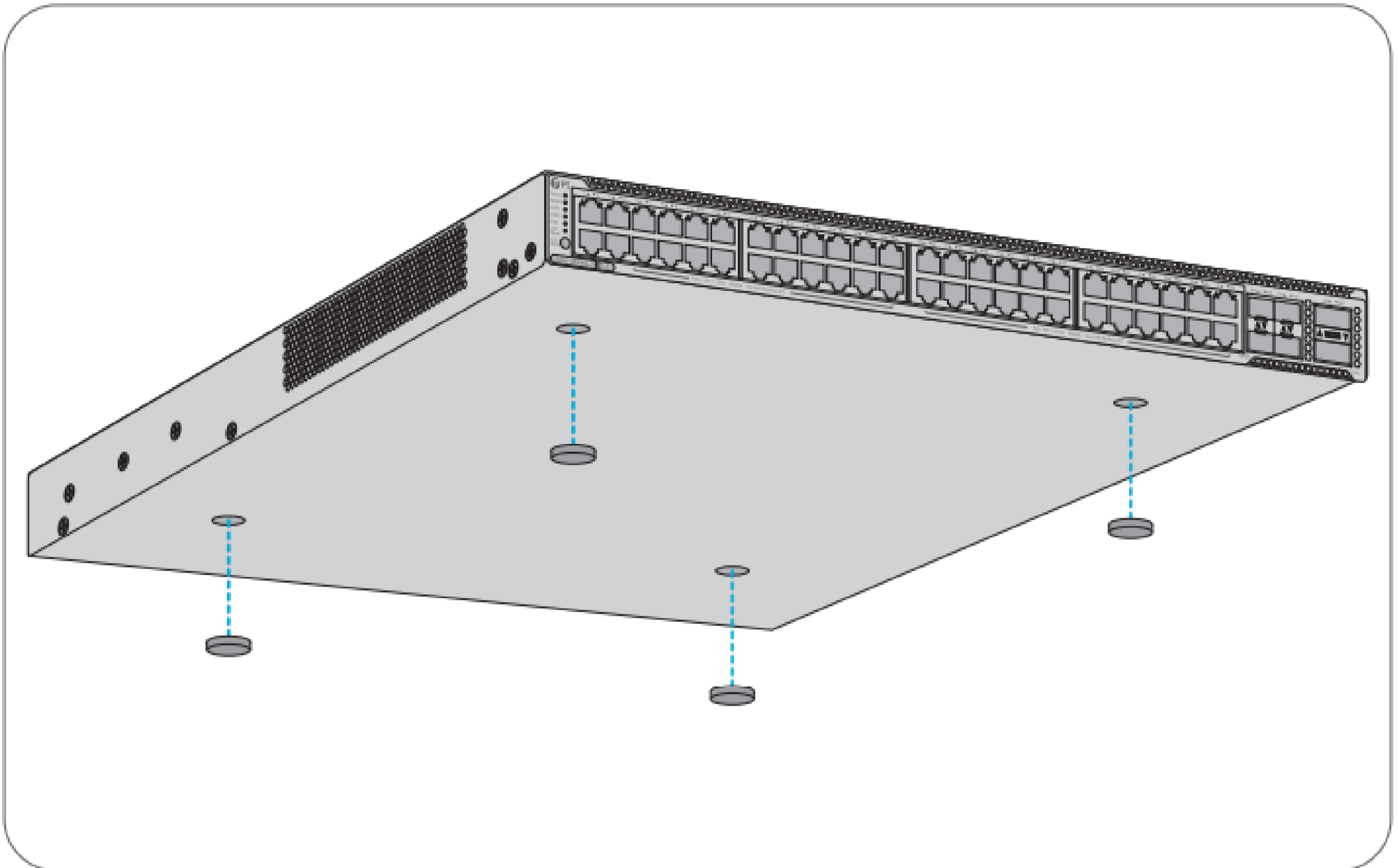


- Note:**
- Install the brackets over screw holes on both sides of the front panel.
 - Distinguish left and right rack-mount guide rails according to the notations.
 - The rack-mount guide rails delivered with the chassis are applicable to a cabinet with a depth ranging from 800mm (31.5 inches) to 1200mm (47.2 inches).

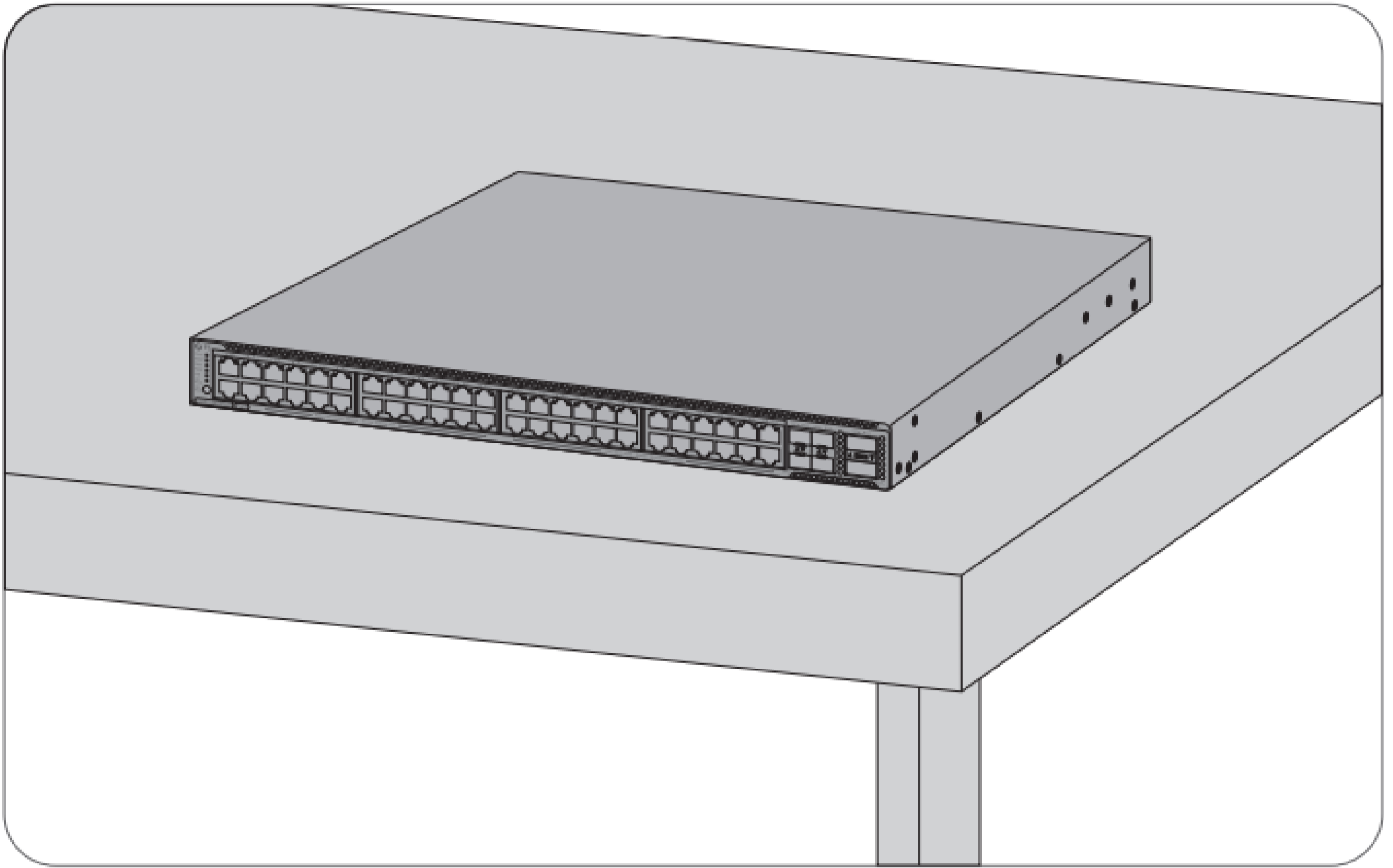
3.1.3 Mount the Chassis on the Workbench

If a standard 19-inch EIA rack is not available, mount the switch on a clean workbench.

Attach four rubber pads to the bottom of the switch.



Place the switch on a stable desk.



3.2 Connect the S5860-48XMG-U to Power

3.2.1 Connect the S5860-48XMG-U Switch to Earth Ground

3.2.1.1 Installation Guidelines

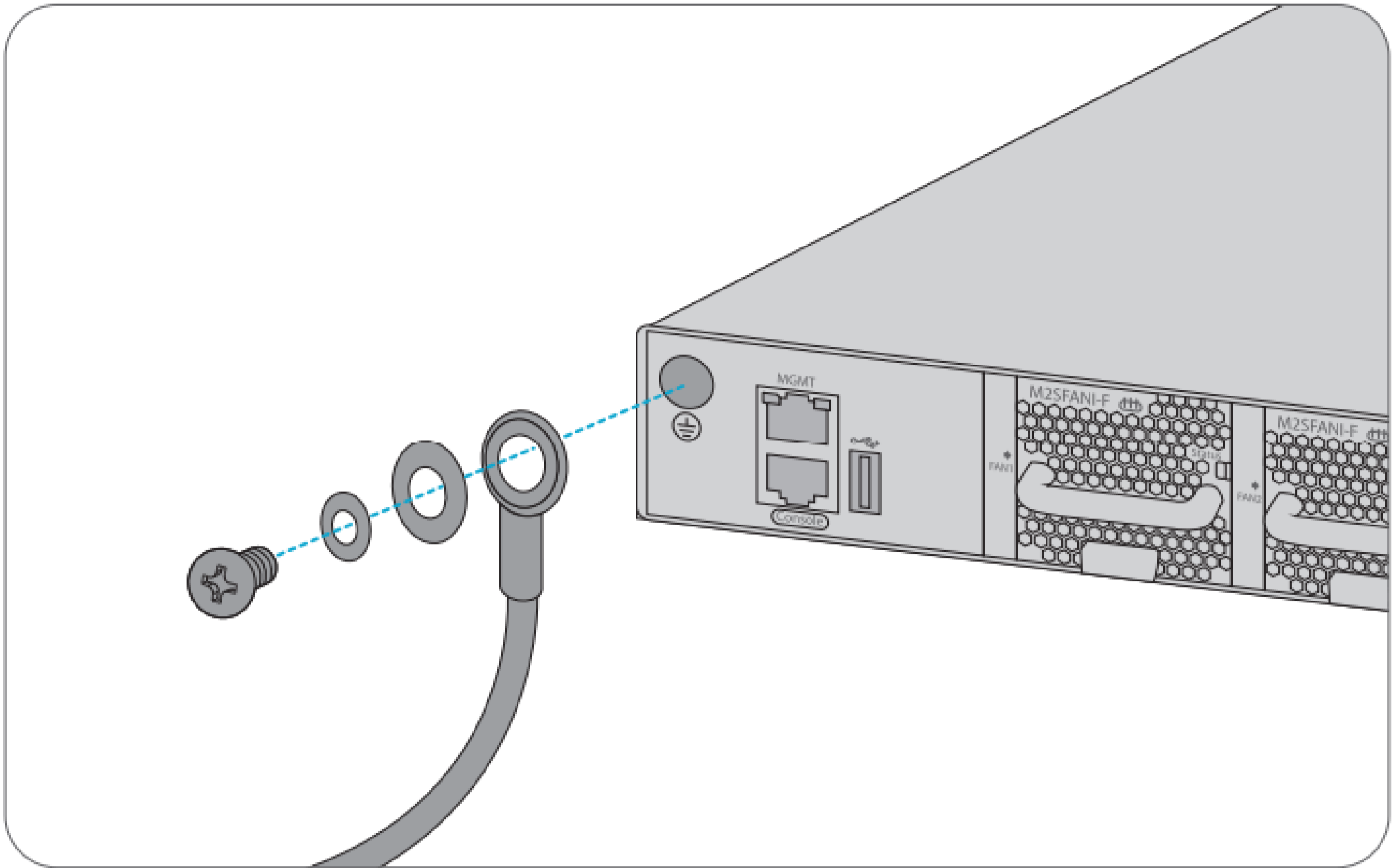
A reliable grounding system is the basis for stable and reliable operation, which is indispensable for preventing lightning strikes and interference. The chassis has a grounding stud on its rear panel. Connect the grounding stud to the grounding terminal of the rack, and then connect the grounding terminal to the grounding bar of the equipment room.

- The cross-sectional area of the grounding wire is determined by the maximum possible current. The grounding wire should be of a good conduction quality.
- Never use bare wires.
- The combined grounding should have a grounding resistance of less than 1-ohm.

3.2.1.2 Procedure

Connect one end of the grounding cable to a proper earthground, such as the rack in which the switch is mounted.

Secure the grounding lug to the grounding point on the switch with a screw and washers.



Danger Warnings:

- To ensure personal and equipment safety, it is necessary to ground the switch properly. The resistance between the chassis and the ground must be less than 0.1-ohm.
- The maintenance personnel should check whether the AC power socket is reliably connected to the building's protective ground. If not, the maintenance personnel should use a protective grounding wire to connect the protective ground terminal of the AC power socket to the building's protective ground.
- The power cord must be plugged into the power socket connected to the earth ground.
- The power socket must be installed near the equipment in an easily accessible location.
- When installing or replacing the unit, the ground connection must always be made first and disconnected last.
- The cross-sectional area of the protection ground wire should be at least 2.5mm² (12AWG).

3.2.2 Connect Power to S5860-48XMG-U Switch

3.2.2.1 Installation Guidelines

To avoid electric shock, do not connect the power cable while the power is on.

Before connecting cables, take ESD protection measures. For example, wear ESD gloves or an ESD wrist strap.

Power cables must be buried underground or routed indoors and cannot be led into the equipment room aerially.

Do not power on a switch before you finish installing the switch and connecting cables.

3.2.2.2 Procedure

Wear an ESD wrist strap or ESD gloves. Ensure that the ESD wrist strap is grounded and in close contact with your wrist.

Turn off the power module and the external power supply system for the switch.

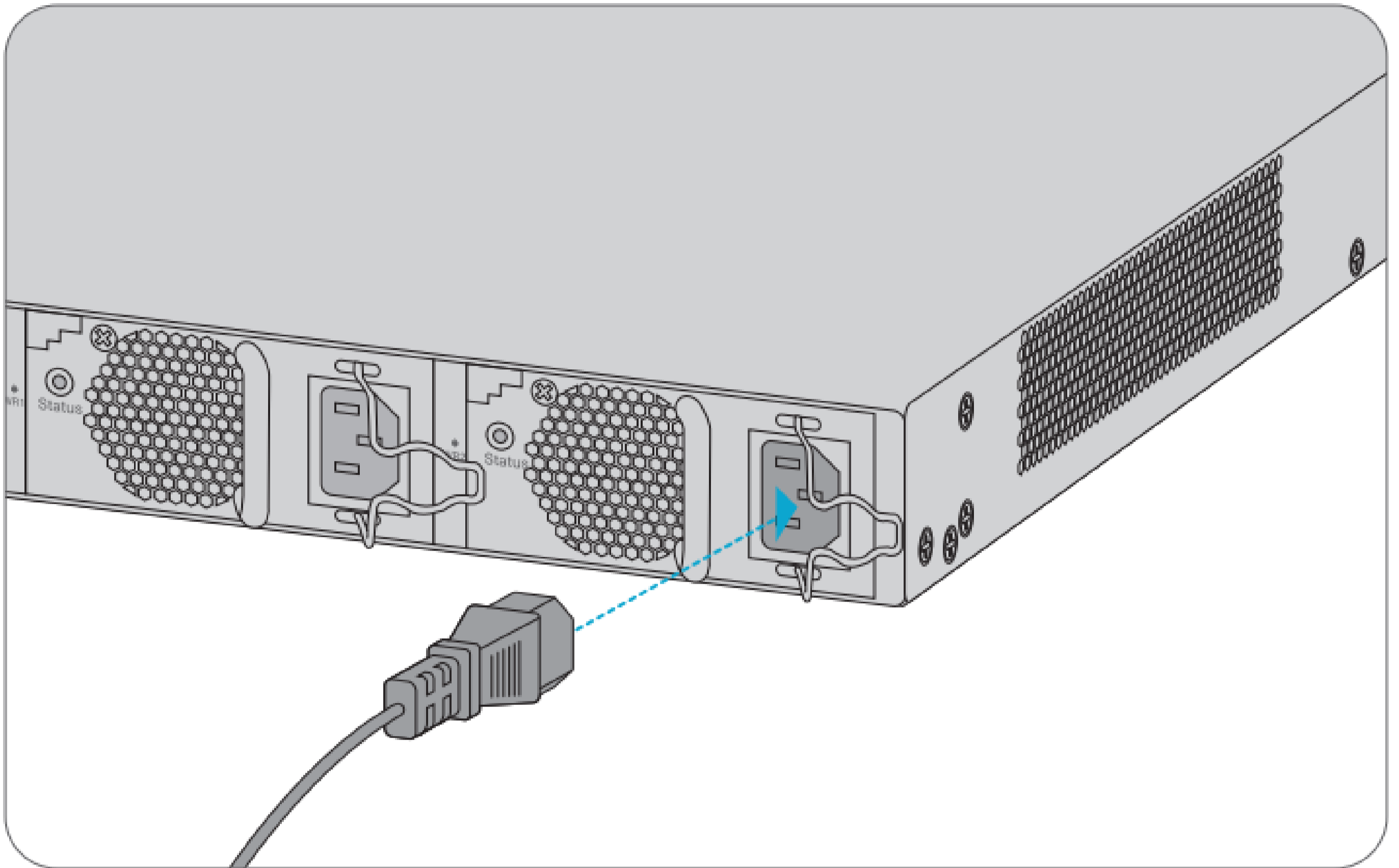
Connect the power cable to the power module.

Connect the AC power cables:

Insert the plug of the AC power cable into the power socket in the AC power module.

Lock the AC power cable with the locking strap.

Connect the other end of the AC power cable to the external AC power supply system.



- Caution:**
- Make sure the power socket is OFF before connecting the power cord.
 - Use a 3-core power cord, with a minimum cross-sectional area of 1.5mm² or 14 AWG per pin.
 - Use a 10 A power cord for the AC power supply. Adopt the proper power socket and make sure that the AC power system in the equipment room is capable enough.

3.3 Connect the S5860-48XMG-U to the Network

3.3.1 Install a Transceiver

Before you install a transceiver in a device, ensure that you have taken the necessary preCautions for safe handling of lasers.

Ensure that you have a rubber safety cap available to cover the transceiver.

The transceivers for FS devices are hot-removable and hot-insertable field-replaceable units (FRUs). You can remove and replace the transceivers without powering off the device or disrupting the device's functions.

- Note:** After you insert a transceiver or after you change the media-type configuration, wait for 6 seconds for the interface to display operational commands.

To install a transceiver:

- Caution:** To prevent electrostatic discharge (ESD) damage to the transceiver, do not touch the connector pins at the end of the transceiver.

Wrap and fasten one end of the ESD wrist strap around your bare wrist, and connect the other end of the strap to an ESD site point or to the ESD point on the device.

Remove the transceiver from its bag.

Check to see whether the transceiver is covered with a rubber safety cap. If it is not, cover the transceiver with a rubber safety cap.

ⓘ Laser Warning: Do not leave a fiber-optic transceiver uncovered except when inserting or removing a cable. The rubber safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.

If the port in which you want to install the transceiver is covered with a dust cover, remove the dust cover and save it in case you need to cover the port later. If you are hot-swapping a transceiver, wait for at least 10 seconds after removing the transceiver from the port before installing a new transceiver.

Using both hands, carefully place the transceiver in the empty port. The connectors must face the chassis.

ⓘ Caution: Before you slide the transceiver into the port, ensure that the transceiver is aligned correctly. Misalignment might cause the pins to bend, making the transceiver unusable.

Slide the transceiver gently until it is fully seated.

Remove the rubber safety cap from the transceiver and the end of the cable, and insert the cable into the transceiver.

ⓘ Laser Warning: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cable connected to a transceiver emit laser light that can damage your eyes.

ⓘ Caution: Do not leave a fiber-optic transceiver uncovered except when inserting or removing cable. The safety cap keeps the port clean and protects your eyes from accidental exposure to laser light.

If there is a cable management system, arrange the cables in the cable management system to prevent the cables from dislodging or developing stress points. Secure the cable so that it does not support its own weight as it hangs toward the floor. Place excess cable out of the way in a neatly coiled loop in the cable management system. Placing fasteners on the loop helps to maintain its shape.

- ⓘ Caution:**
- Do not let the fiber-optic cable hang free from the connector. Do not allow fastened loops of cable to dangle, which stresses the cable at the fastening point.
 - Avoid bending the fiber-optic cable beyond its minimum bend radius. An arc smaller than a few inches in diameter can damage the cable and cause problems that are difficult to diagnose.
 - Make sure to use a dust cap to cover ports that are unused.

3.3.2 Connect a Fiber-Optic Cable

Before you connect a fiber-optic cable to an optical transceiver installed in a device, ensure that you have taken the necessary preCautions for safe handling of lasers.

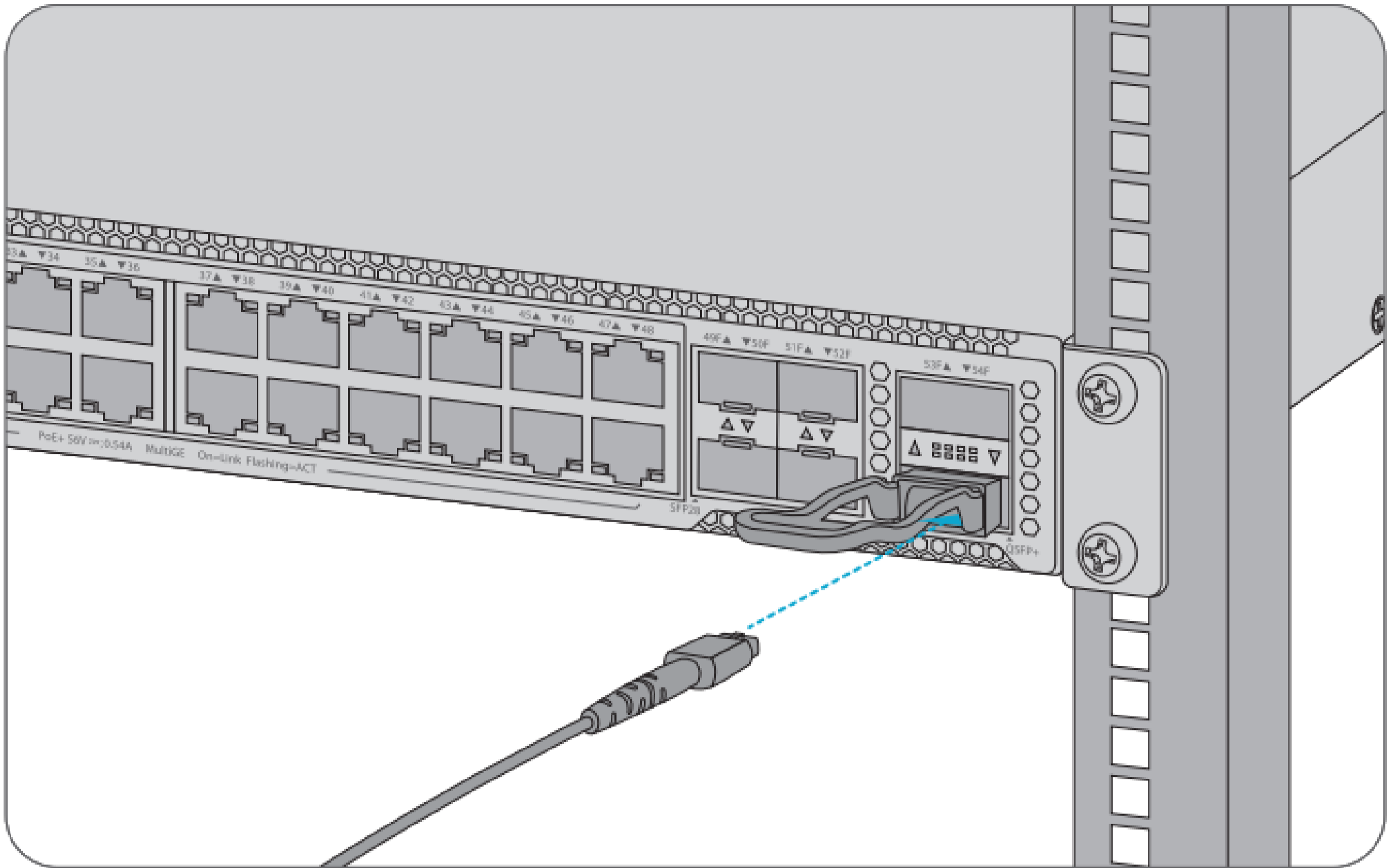
To connect a fiber-optic cable to an optical transceiver installed in a device:

ⓘ Laser Warning: Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cables connected to transceivers emit laser light that can damage your eyes.

If the fiber-optic cable connector is covered with a rubber safety cap, remove the cap. Save the cap.

Remove the rubber safety cap from the optical transceiver. Save the cap.

Insert the cable connector into the optical transceiver.



Secure the cables so that they do not support their own weight. Place excess cable out of the way in a neatly coiled loop. Placing fasteners on a loop helps cables maintain their shape.

- Caution:**
- Do not bend fiber-optic cables beyond their minimum bend radius. An arc smaller than a few inches in diameter can damage the cables and cause problems that are difficult to diagnose.
 - Do not let fiber-optic cables hang free from the connector. Do not allow fastened loops of cables to dangle, which stresses the cables at the fastening point.

3.4 Connect the S5860-48XMG-U to External Devices

3.4.1 Connect a Device to a Network for Out-of-Band Management

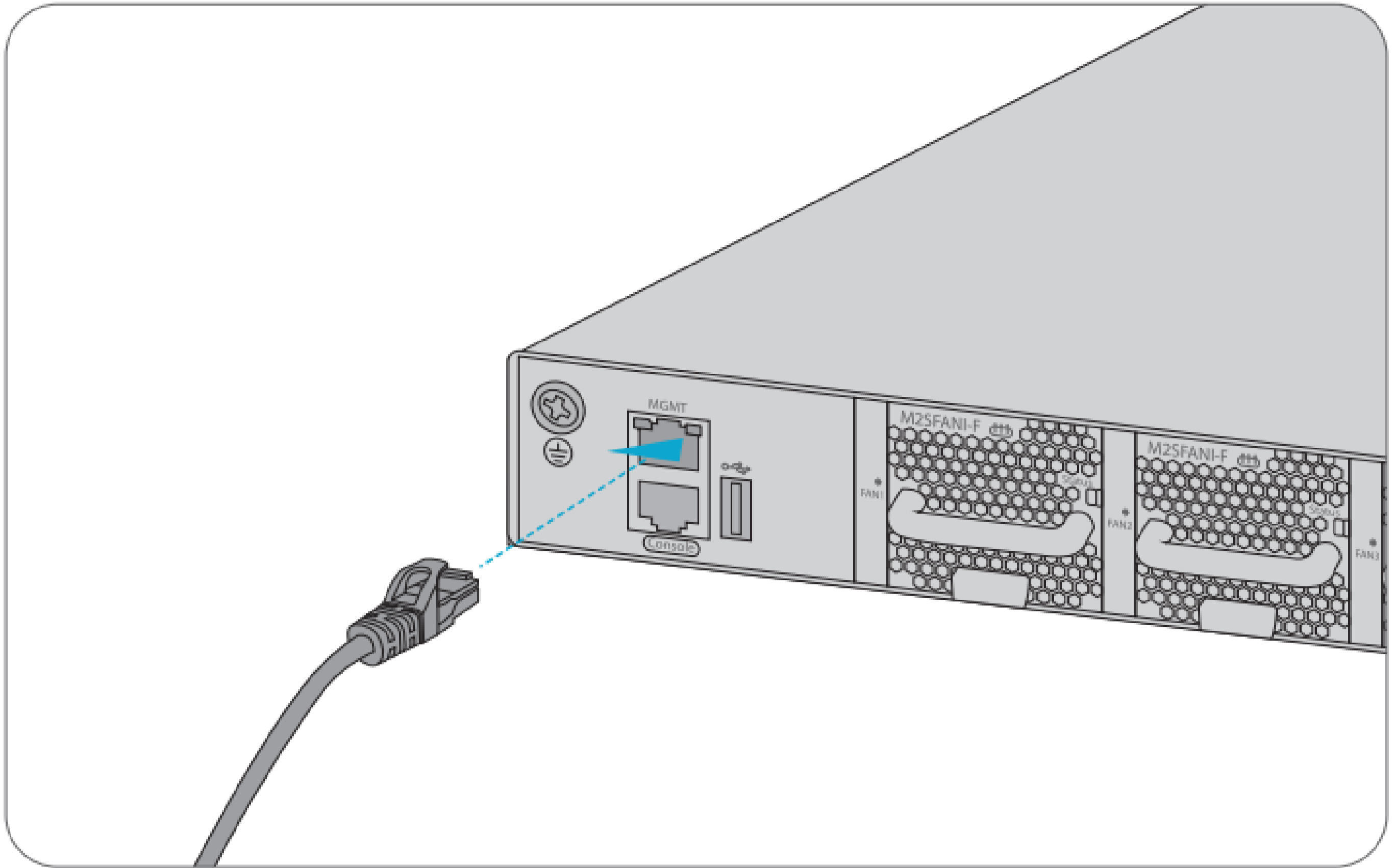
Ensure that you have an Ethernet cable that has an RJ-45 connector at either end.

You can monitor and manage a network device, such as a router or a switch, by using a dedicated management channel. Each device has a management port to which you can connect an Ethernet cable with an RJ-45 connector. Use the management port to connect the device to the management device.

To connect a device to a network for out-of-band management:

Connect one end of the Ethernet cable to the management port on the device.

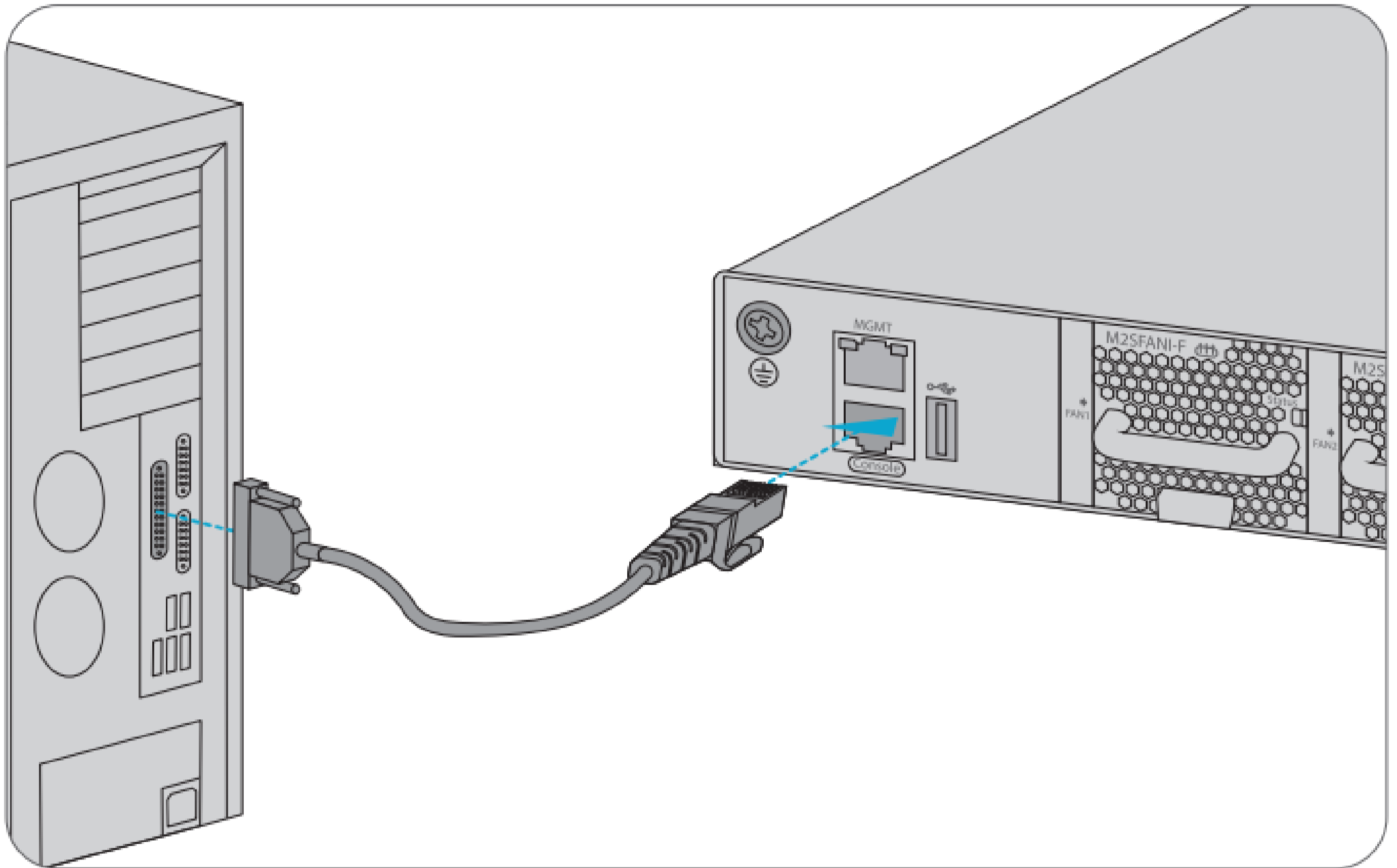
Connect the other end of the Ethernet cable to the management device.



3.4.2 Connect a Device to a Management Console Using an RJ-45 Connector

You can configure and manage your network devices through a dedicated management channel, using the console port available on each device.

Connect the PC to the device's console port using a console cable, as shown in the image below.



3.5 Post-Installation Checks

- Note:**
- Before checking the installation, ensure that all power is turned off and disconnected to prevent personal injury and damage to the switch components.

Category	Check Item
Rack & Physical Setup	• The external power supply matches the power distribution system.
	• The front and rear doors of the rack can close properly after installation has been completed.
	• The rack has been completely fastened, which will not move or tilt.
	• The chassis has been mounted on the rack, and all cables have been fastened to the rack.
Fan & Power Modules	• Select the proper fan module and tighten captive screws.
	• Select the proper power module.
	• The power module is completely seated in the slot.
Power & Electrical	• The power cord is plugged into the power module and retained there.
	• The power cord is long enough to avoid overextension.
	• Each power module receives power from a power socket.
	• If a slot is to remain empty, install a filler panel to allow for adequate airflow and to keep dust out of the chassis.
Power-Up Safety	• At least two personnel are required to power on the chassis. Do not service the chassis before it is powered off.

	<ul style="list-style-type: none"> Carefully check your work area for possible hazards, such as ungrounded power extension cables, missing safety grounds, and moist floors.
	<ul style="list-style-type: none"> The power socket is connected to the earth ground as required with a rated current of at least 10 A.
	<ul style="list-style-type: none"> Do not subject the equipment to dampness, and avoid liquids inside the equipment.
	<ul style="list-style-type: none"> Locate the emergency power-off switch in the room. In the case of an electrical accident, you will be able to quickly turn off the power.
	<ul style="list-style-type: none"> Never assume that power is disconnected from a circuit. Instead, always check.

3.6 Configure PicOS® on the S5860-48XMG-U

3.6.1 Connect and Configure S5860-48XMG-U

The initial configuration of the switch requires the user to connect the terminal or computer to the switch's console port. Once the user accesses the switch and establishes the CLI (Command Line Interface) through a serial console connection, an IP address is assigned to the management port, and an IP route to the gateway is created. Keep in mind the following points:

- The console port provides local serial access to the switch.
- The Ethernet management port is used for out-of-band network management tasks. Before using the management port for the first time, you must assign an IP address to the port.

3.6.1.1 Connect Console Port

Before configuring the device for the first time, you need to access it via the console port. The console port is located at the front of the switch. You can connect a terminal or a computer to the console port using a serial or RS-232 cable.

Port Settings

Use the following port settings to connect the terminal or computer to the switch console port:

```
Baud rate: 115200
Data bits: 8
Stop bits: 1
```

- i The default width for terminal sessions through the console port is 80 characters. This means that the terminal client's width should be at least 80 characters for proper use of the console port. Most terminal clients have a default width of 80 characters.

3.6.1.2 Assign an IP Address to the Management Interface

Once initial access to the switch is obtained, the user needs to configure the management IP address and default gateway in either L2/L3 mode or OVS mode. This section explains the configuration in L2/L3 mode.

The management IP address is used for maintaining and managing the device. You can configure a static IP address for the management interface eth0, or you can dynamically assign the address via DHCP. If a static IP address is not assigned, the system will default to attempting to obtain the management port IP address dynamically from the DHCP server.

- i **Note:**When switching from OVS mode to L2/L3 mode, the static IP address of the management port configured before will still be used if there is no user configuration for it in the new mode.

Step 1: Set static IP addresses for the management interface eth0.

```
set system management-ethernet eth0 ip-address {IPv4 | IPv6} <ip_address>
```

Note: • If the static IP address is not assigned, the system will try to dynamically obtain the management port IP address from the DHCP server, which is also the factory setting.

Step 2: Set the gateway address for the management interface eth0.

```
set system management-ethernet eth0 ip-gateway {IPv4 | IPv6} <ip_address>
```

Step 1: Set static IP addresses for the management interface eth0.

```
admin@Xorplus# set system management-ethernet eth0 ip-address IPv4 192.168.10.5/24
```

Step 2: Set the gateway address for the management interface eth0.

```
admin@Xorplus# set system management-ethernet eth0 ip-gateway IPv4 192.168.10.1
```

Step 3: Commit the configuration.

```
admin@XorPlus# commit
```

Step 4: Verify the configuration.

- Run **run show system management-ethernet** command to view the configuration information, status, and traffic statistics information of the management interface.

```
admin@XorPlus# run show system management-ethernet
eth0 Hwaddr: 00:18:23:30:e5:72 State: UP
Gateway : 192.168.10.1
Inet addr:
192.168.10.5/24
Traffic statistics
Input Packets.....3620
Input Bytes.....462971
Output Packets.....597
Output Bytes.....75459
```



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