H3C S6520X-EI & S6520X-HI Switch Series

Installation Guide

New H3C Technologies Co., Ltd.
http://www.h3c.com

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Preface

H3C S6520X-EI & S6520X-HI Switch Series Installation Guide describes the installation, power-on, maintenance, and troubleshooting of the S6520X-EI & S6520X-HI switches .

This preface includes the following topics about the documentation:

Audience

This documentation is intended for:

- Network planners.
- Field technical support and servicing engineers.
- Network administrators working with the switches.

Conventions

The following information describes the conventions used in the documentation.

Command conventions

Convention	Description
Boldface	**Bold** text represents commands and keywords that you enter literally as shown.
Italic	*Italic* text represents arguments that you replace with actual values.
[ ]	Square brackets enclose syntax choices (keywords or arguments) that are optional.
{ x | y | ... }	Braces enclose a set of required syntax choices separated by vertical bars, from which you select one.
[x | y | ...]	Square brackets enclose a set of optional syntax choices separated by vertical bars, from which you select one or none.
{ x | y | ... } *	Asterisk marked braces enclose a set of required syntax choices separated by vertical bars, from which you select a minimum of one.
[x | y | ...] *	Asterisk marked square brackets enclose optional syntax choices separated by vertical bars, from which you select one choice, multiple choices, or none.
&<1-n>	The argument or keyword and argument combination before the ampersand (&) sign can be entered 1 to n times.
#	A line that starts with a pound (#) sign is comments.

GUI conventions

Convention	Description
Boldface	Window names, button names, field names, and menu items are in Boldface. For example, the **New User** window opens; click **OK**.
>	Multi-level menus are separated by angle brackets. For example, **File** > **Create** > **Folder**.

Symbols

Convention	Description
WARNING!	An alert that calls attention to important information that if not understood or followed can result in personal injury.
CAUTION:	An alert that calls attention to important information that if not understood or followed can result in data loss, data corruption, or damage to hardware or software.
IMPORTANT:	An alert that calls attention to essential information.
NOTE:	An alert that contains additional or supplementary information.
TIP:	An alert that provides helpful information.

Network topology icons

Convention	Description
	Represents a generic network device, such as a router, switch, or firewall.
	Represents a routing-capable device, such as a router or Layer 3 switch.
	Represents a generic switch, such as a Layer 2 or Layer 3 switch, or a router that supports Layer 2 forwarding and other Layer 2 features.
	Represents an access controller, a unified wired-WLAN module, or the access controller engine on a unified wired-WLAN switch.
	Represents an access point.
	Represents a wireless terminator unit.
	Represents a wireless terminator.
	Represents a mesh access point.
	Represents omnidirectional signals.
	Represents directional signals.
	Represents a security product, such as a firewall, UTM, multiservice security gateway, or load balancing device.
	Represents a security module, such as a firewall, load balancing, NetStream, SSL VPN, IPS, or ACG module.

Examples provided in this document

Examples in this document might use devices that differ from your device in hardware model, configuration, or software version. It is normal that the port numbers, sample output, screenshots, and other information in the examples differ from what you have on your device.

Documentation feedback

You can e-mail your comments about product documentation to info@h3c.com.

We appreciate your comments.

Contents

1 Preparing for installation

This document is applicable to the following Ethernet switches:

- S6520X-30QC-EI
- S6520X-54QC-EI
- S6520X-30HC-EI
- S6520X-54HC-EI
- S6520X-30HF-EI
- S6520X-54HF-EI
- S6520X-30QC-HI
- S6520X-54QC-HI
- S6520X-30HC-HI
- S6520X-54HC-HI
- S6520X-30HF-HI
- S6520X-54HF-HI
- S6520X-54HC-UPWR-EI

Safety recommendations

To avoid any equipment damage or bodily injury caused by improper use, read the following safety recommendations before installation. Note that the recommendations do not cover every possible hazardous condition.

- Before cleaning the switch, remove all power cords from the switch. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or in a damp environment. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be severely damaged in case of a fall.
- Ensure good ventilation of the equipment room and keep the air inlet and outlet vents of the switch free of obstruction.
- Make sure the power input voltage is as required by the power supply.
- To avoid electrical shocks, do not open the chassis while the switch is operating or when the switch is just powered off.
- During switch installation, wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

Examining the installation environment

To ensure correct operation of your switch, make sure the installation environment meets the requirements listed in Table1-1.

Table1-1 Checking list for the installation environment

Item	Requirements
Ventilation and heat dissipation	**△ CAUTION:** To ensure correct operation of your device, make sure the installation environment is adequately ventilated to prevent the switch from overheating. • Ensure a minimum clearance of 10 cm (3.94 in) around the chassis. • Do not install the device near a heat source, for example, a stove or heater. • Ensure air ventilation in the installation environment. • Do not block the ventilation holes in the device or power adapter.
Anti-moisture	**△ CAUTION:** Water or moisture might damage the circuits of the device. • Do not place the device near water or in a damp environment. • Install the switch in a clean, dry, and ventilated place where temperature is controlled in a stable range. • Make sure the installation environment is free from water leakage or condensation. If required, install a dehumidification device (such as an air conditioner with a dehumidification function or a dedicated dehumidifier). • Do not operate the device under or near the water source, such as the wash basin, laundry room, or areas with high humidity. • Do not touch the device with wet hands.
Temperature/humidity	For correct operation and long service life of your switch, maintain the temperature and humidity in the equipment room at acceptable ranges. • Lasting high relative humidity can cause poor insulation, electricity leakage, mechanical property change of materials, and metal corrosion. • Lasting low relative humidity can cause washer contraction and ESD and cause issues including loose mounting screws and circuit failure. • High temperature can accelerate the aging of insulation materials and significantly lower the reliability and lifespan of the switch. For the temperature and humidity requirements of the switch, see technical specifications in hardware information and specifications for the switch series.
Lightning protection	**△ CAUTION:** Ground the switch correctly and verify the grounding. For more information, see "Grounding the switch." • If you ground the switch by using a grounding strip, make sure the grounding resistance of the grounding strip in the equipment room is less than 1Ω. • If you ground the switch by using a grounding conductor buried in the earth ground, make sure the grounding resistance of the grounding conductor in the ground is less than 10Ω. • Route the signal cables along indoor walls, bury the cables in the earth ground, or thread the cables through steel tubes. Install a signal lightning arrester with a nominal discharge current for a corresponding network interface. • Keep the signal cables far from power cords and lightning rod down conductors. • As a best practice, route power cords indoors. If an AC power cord is routed from outdoors, connect the AC power cord first to a power lightning arrester before leading it to the AC power port on the

Item	Requirements
	switch. Make sure the power lightning arrester has a nominal discharge current and the total length of the power cord from the power lighting arrester to the power port on the switch is less than 5 m (16.40 ft). • Ground the switch, rack, independent power modules, and lightning arresters separately. • You must ground optical fibers with reinforcing metal stiffener from outdoors on an optical distribution frame (ODF) or fiber splice enclosure.
Cable routing	△ **CAUTION:** Do not run an Ethernet cable and power cord in parallel. • Route different types of cables separately. • Keep power cords a minimum of 5 cm (1.97 in) away from other cables.
ESD prevention	• Ground the switch correctly. • To avoid ESD damage to the device or components, always wear an ESD wrist strap when you install or remove the device or components. • Make sure the wrist strap has good skin contact and is reliably grounded.
Cleanliness	For more information, see "Cleanliness."
Corrosive gas prevention	The installation site must be free from corrosive gases such as acid gases and alkaline gases. For more information, see "Corrosive gas limit."
EMI	• If AC power is used, use a single-phase three-wire power receptacle with protection earth (PE) to filter interference from the power grid. • Keep the device far away from radio transmitting stations, radar stations, and high-frequency devices. • Use electromagnetic shielding, for example, shielded interface cables, when necessary.

Cleanliness

Dust buildup on the chassis might cause electrostatic adsorption and dust corrosion, resulting in poor contact of metal connectors and contact points. This might shorten the device's lifetime and even cause device failure in the worst case. Table1-2 describes the switch requirement for cleanliness.

Table1-2 Switch requirement for cleanliness

Substance	Particle diameter	Concentration limit
Dust particles	≥ 0.5 μm	≤ 1.8×10^7 particles/m^3

To maintain cleanliness in the equipment room, follow these guidelines:

- Keep the equipment room away from pollution sources. Do not smoke, eat, or drink in the equipment room.
- Use double-layer glass in windows and seal doors and windows with dust-proof rubber strips. Use screen doors and window screens for doors and windows open to the outside and make sure the external windows are air tight.
- Use dustproof materials for floors, walls, and ceilings and use wallpaper or matt paint that does not produce powders.

- Clean the equipment room regularly and clean the air filters of the rack each month.
- Wear ESD clothing and shoe covers before entering the equipment room, keep the ESD clothing and shoe covers clean, and change them frequently.

Corrosive gas limit

Corrosive gases can accelerate corrosion and aging of metal components. Make sure the corrosive gases do not exceed the concentration limits as shown in Table1-3.

Table1-3 Corrosive gas concentration limits

Gas	Average concentration (mg/m^3)	Maximum concentration (mg/m^3)
SO_2	0.3	1.0
H_2S	0.1	0.5
Cl_2	0.1	0.3
HCI	0.1	0.5
HF	0.01	0.03
NH_3	1.0	3.0
O_3	0.05	0.1
NO_X	0.5	1.0

△ **CAUTION:**

As a best practice, control the corrosive gas concentrations in the equipment room at their average values. Make sure the corrosive gas concentrations do not exceed 30 minutes per day at their maximum values.

To control corrosive gases, use the following guidelines:

- As a best practice, do not build the equipment room in a place with a high concentration of corrosive gases.
- Make sure the equipment room is not connected to sewer, vertical shaft, or septic tank pipelines and keep it far away from these pipelines. The air inlet of the equipment room must be away from such pollution sources.
- Use environmentally friendly materials to decorate the equipment room. Avoid using organic materials that contains harmful gases, such as sulfur or chlorine-containing insulation cottons, rubber mats, sound-proof cottons, and avoid using plasterboards with high sulfur concentration.
- Place fuel (diesel or gasoline) engines separately. Do not place them in the same equipment room with the device. Make sure the exhausted air of the engines will not flow into the equipment room or towards the air inlet of the air conditioners.
- Place batteries separately. Do not place them in the same room with the device.
- Employ a professional company to monitor and control corrosive gases in the equipment room regularly.

Examining the installation site

Before you install the switch, verify that the installation site meets the installation requirements. The switch can operate correctly in an A1 or A2 installation site. Availability issues might occur if you install the switch in an A3, B1, B2, or C installation site.

Table1-4 Installation sites

Category	Definition	Example
A1: indoor controlled environment	• Indoor environments where temperature and humidity are controlled. • Completely enclosed or shielded indoor environments.	Central equipment rooms, IDC equipment rooms, mobile cabins with air conditioners, outdoor air conditioner cabinets, and heat exchanger cabinets.
A2: indoor partially controlled environment	• Indoor environments where temperature and humidity are partially controlled. • Incompletely enclosed or shielded places. • Places far from pollution sources.	Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets far from pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, and stadiums.
A3: indoor uncontrolled environment	• Indoor environments where temperature and humidity are uncontrolled. • Incompletely enclosed or shielded places. • Places near pollution sources.	Simple equipment rooms, ordinary houses, garages, corridors, and direct ventilation cabinets near pollution sources, houses without direct exposure to sunlight or rain, railway station platforms, stadiums, uncleaned rooms after decoration, and rooms under decoration.
B1: outdoor general environment	• Unshielded places where the temperature and humidity are not controlled. • Places far from pollution sources.	Completely exposed outdoor places far from pollution sources.
B2: harsh environment	• Unshielded places where the temperature and humidity are not controlled. • Sea environments or outdoor land environments near pollution sources.	Islands, ships, and completely exposed outdoor places near pollution sources.
C: special environments	Special application environments	Buried, underwater, or undersea environments and manholes.

Table1-5 Pollution sources

Category	Radius range
Saline water areas such as oceans and saline lakes	≤ 3.7 km (2.30 miles)
Serious pollution sources such as metallurgic plants, coal mines, and heat and power plants	≤ 3 km (1.86 miles)
Medium pollution sources such as chemical factories, rubber plants, and electroplating factories	≤ 2 km (1.24 miles)
Light pollution sources, such as food factories, tanneries, and heating boilers	≤ 1 km (0.62 miles)

Checking power distribution or power supply environment

Table1-6 Requirements for power distribution or power supply environment

Item	Requirements
Preparation	The power module must be available before you install the switch.
Voltage	The voltage provided to the switch must be within the operating voltage range. For the operating voltage range, see hardware information and specifications for the switch series.
Power receptacle and cables	• If the external power supply system provides an AC power outlet, use a country-specific AC power cord. Make sure the PE wire of the AC power supply is grounded reliably. • If the external power supply system provides a DC distribution box, prepare DC power cords yourself. • Do not use the power cord provided with the switch on other devices.

Laser safety

⚠ **WARNING!**

The switch is a Class 1M laser device. Disconnected optical fibers or transceiver modules might emit invisible laser light. Do not stare into beams or view directly with optical instruments when the switch is operating.

Installation tools

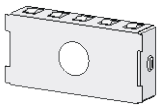
No installation tools are provided with the switch. Prepare the following tools yourself as required:

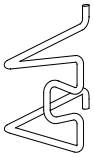
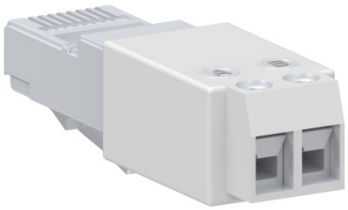
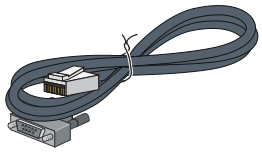
- ESD wrist strap
- Flat-blade screwdriver
- Phillips screwdriver
- Needle-nose pliers
- Diagonal pliers
- Crimping tool
- Marker
- Heat gun

Installation accessories

Before installation, make sure you have all the required installation accessories. If any accessory is damaged or missing, use the BOM part number provided in this table to purchase a new one.

Table1-7 Installation accessories

BOM part No.	Description	Quantity	Applicable device models
2150A03X	Front mounting bracket kit (including two front mounting brackets and eight M4 screws) 	1 kit, provided	All switch models
2150A0BP	Rear mounting bracket kit (including two rear mounting brackets and two shoulder screws) 	1 kit, provided	S6520X-54HC-UP WR-EI
N/A	M6 screw and cage nut 	User supplied	All switch models
63200063	Rubber feet 	4, provided	All switch models
N/A	Grounding cable  The grounding cable in this figure is for illustration only. Your grounding cable might be slightly different from this one.	1, provided	All switch models
N/A	Grounding screw 	1, provided	All switch models
N/A	Power supply filler panel 	1, provided	All switch models
N/A	Interface module filler panel  The interface module filler panel in this figure is for illustration only. Your interface module filler panel might be slightly different from this one.	2, provided	S6520X-30QC-EI S6520X-54QC-EI S6520X-30HC-EI S6520X-54HC-EI S6520X-30QC-HI S6520X-54QC-HI S6520X-30HC-HI S6520X-54HC-HI S6520X-54HC-UP WR-EI

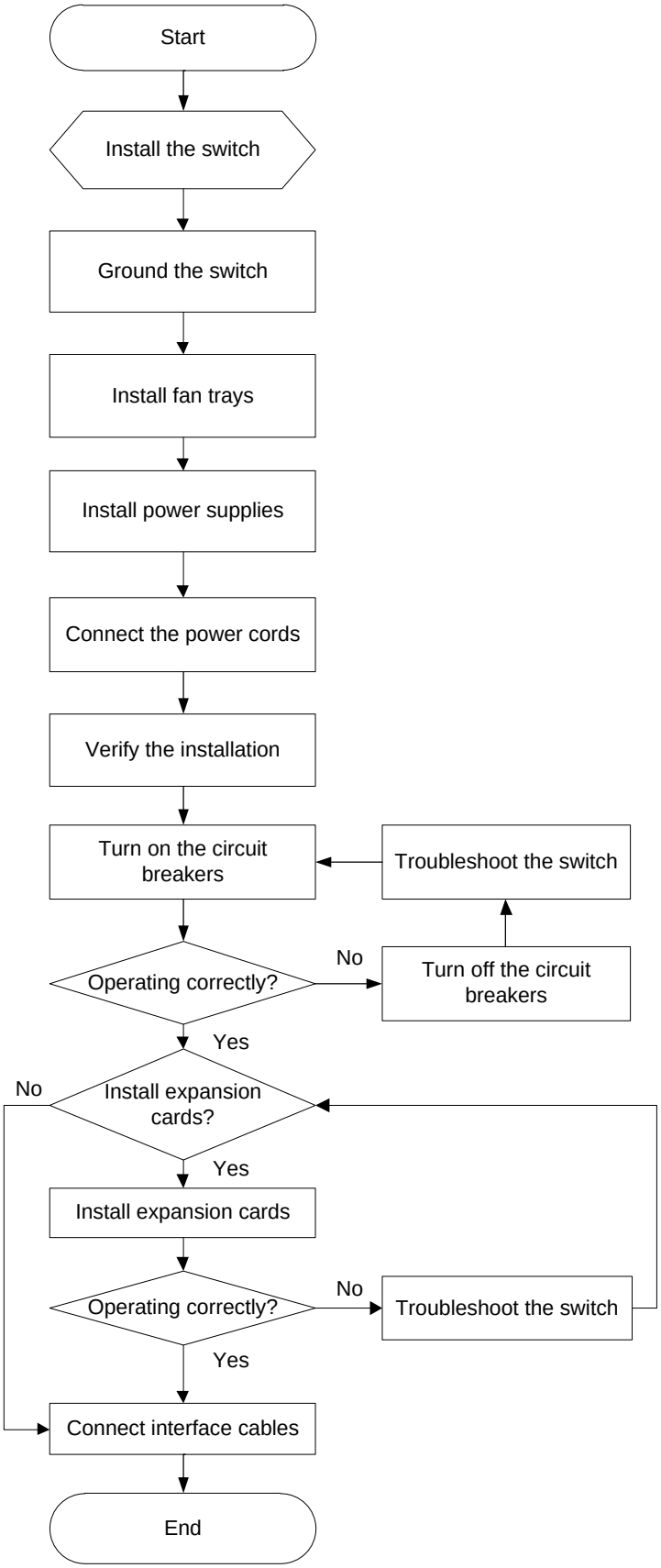
BOM part No.	Description	Quantity	Applicable device models
N/A	AC power cord  The appearance and parameters of AC power cords vary by country and region. The power cord shown in this figure is a standard power cord used in China.	Removable power supply: 1, provided	All switch models
N/A	AC power cord retainer clip  The AC power cord retainer clip in this figure is for illustration only. Your power cord retainer clip might be slightly different from this one.	PSR180-12A-B and PSR180-12A-F power supplies: 1, provided	S6520X-30HF-EI S6520X-54HF-EI S6520X-30HF-HI S6520X-54HF-HI
1408A048	Network port connector 	1, optional	S6520X-54HC-UP WR-EI
04042967	DB9-to-RJ45 console cable 	1, optional	All switch models
0404A1EE	USB-to-RJ45 console cable 	1, optional	All switch models
N/A	Micro USB console cable 	1, user supplied	S6520X-30QC-EI S6520X-54QC-EI S6520X-30HC-EI S6520X-54HC-EI S6520X-30QC-HI S6520X-54QC-HI S6520X-30HC-HI S6520X-54HC-HI

2 Installing the switch

△ **CAUTION:**

Keep the tamper-proof seal on a mounting screw on the chassis cover intact, and if you want to open the chassis, contact H3C for permission. Otherwise, H3C shall not be liable for any consequence.

Figure2-1 Hardware installation flow



Installing the switch in a 19-inch rack

Installation methods

Table2-2 Installation methods

Installation method	Requirements and guidelines	Applicable switch models	Installation procedure
Using front mounting brackets	• Select an installation position for the front mounting brackets as required: near the power supply side or port side. • Make sure the distance between the front rack posts and front door is equal to or greater than 130 mm (5.12 in). • Make sure the distance between the front rack posts and rear door is equal to or greater than 550 mm (21.65 in).	S6520X-30HF-EI S6520X-54HF-EI S6520X-30HF-HI S6520X-54HF-HI S6520X-30QC-EI S6520X-54QC-EI S6520X-30QC-HI S6520X-54QC-HI S6520X-30HC-EI S6520X-54HC-EI S6520X-30HC-HI S6520X-54HC-HI	See "Rack-mounting the switch by using only front mounting brackets."

Using front and rear mounting brackets	• Select an installation position for the front mounting brackets as required: near the power supply side or port side.
	• Install the rear mounting brackets based on the rack depth (distance between the front and rear rack posts).
	  ○ If the rack depth is in the range of 431 to 595 mm (16.97 to 23.43 in), orient the rear mounting brackets with the wide flange inside the rack.
	  ○ If the rack depth is in the range of 274 to 438 mm (10.79 to 17.24 in) and the distance from the rear rack posts to the inner surface of the cabinet door is greater than 153 mm (6.02 in), orient the rear mounting brackets with the wide flange outside the rack.
		S6520X-54HC-UPWR-EI	See "Rack-mounting the switch by using front and rear mounting brackets."

IMPORTANT:

For the rack doors to close easily after switch installation, make sure the distance requirements described in Table2-2 are met.

Installation procedure at a glance

Figure2-2 Procedure for installing the switch in a 19-inch rack by using front mounting brackets

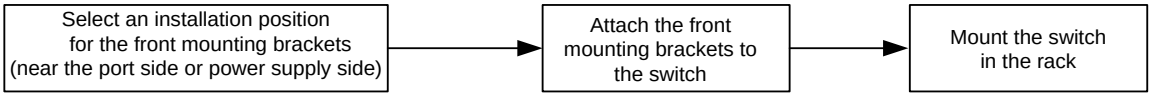
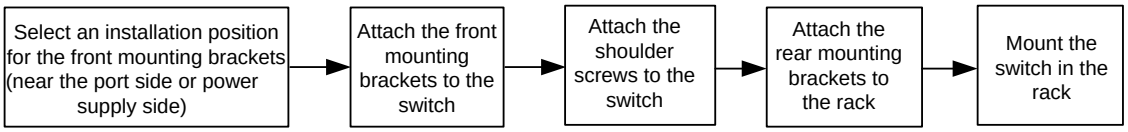


Figure2-3 Procedure for installing the switch in a 19-inch rack by using front and rear mounting brackets



NOTE:

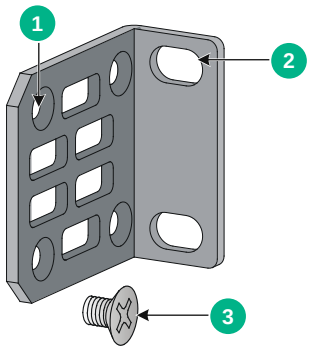
If a rack shelf is available, you can put the switch on the rack shelf, slide the switch to an appropriate location, and attach the switch to the rack by using the mounting brackets.

Installation accessories

Table2-3 Installation accessories

Switch model	Front mounting brackets (as shown in Figure2-4)	Rear mounting brackets and shoulder screws (as shown in Figure2-5)
S6520X-30QC-EI S6520X-54QC-EI S6520X-30QC-HI S6520X-54QC-HI S6520X-30HC-EI S6520X-54HC-EI S6520X-30HC-HI S6520X-54HC-HI	Provided	N/A
S6520X-54HC-UP WR-EI	Provided	Provided

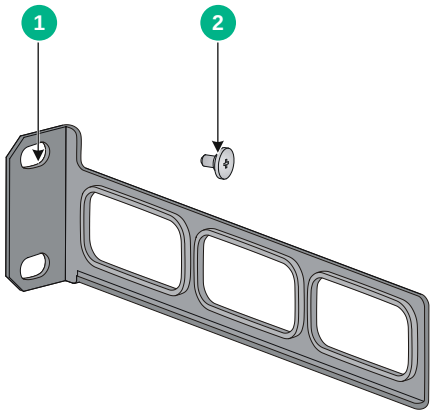
Figure2-4 Front mounting bracket



(1) Screw hole for attaching the bracket to the switch (2) Screw hole for attaching the bracket to the rack

(3) M4 screw

Figure2-5 Rear mounting bracket and shoulder screw



(1) Screw hole for attaching the bracket to the rack (2) Shoulder screw

Rack-mounting the switch by using only front mounting brackets

All switch models except the S6520X-54HC-UPWR-EI support rack mounting by using only front mounting brackets.

Attaching the front mounting brackets to the switch

The switch has one mounting position near the network ports and the other mounting position near the power supplies for the front mounting brackets. Select one position as needed.

To attach the front mounting brackets to the chassis:

1. Place the wide flange of the mounting bracket against the chassis side panel. Align the mounting bracket installation holes with the screw holes in the chassis.
   - To install the mounting brackets at the port-side mounting position, see Figure2-6.
   - To install the mounting brackets at the power supply-side mounting position, see Figure2-7.
2. Fasten the M4 screws to secure the mounting bracket to the switch.
3. Attach the front mounting bracket to the other side of the chassis in the same way.

Figure2-6 Attaching the front mounting brackets to the port-side mounting position (S6520X-30HF-EI switch as an example)

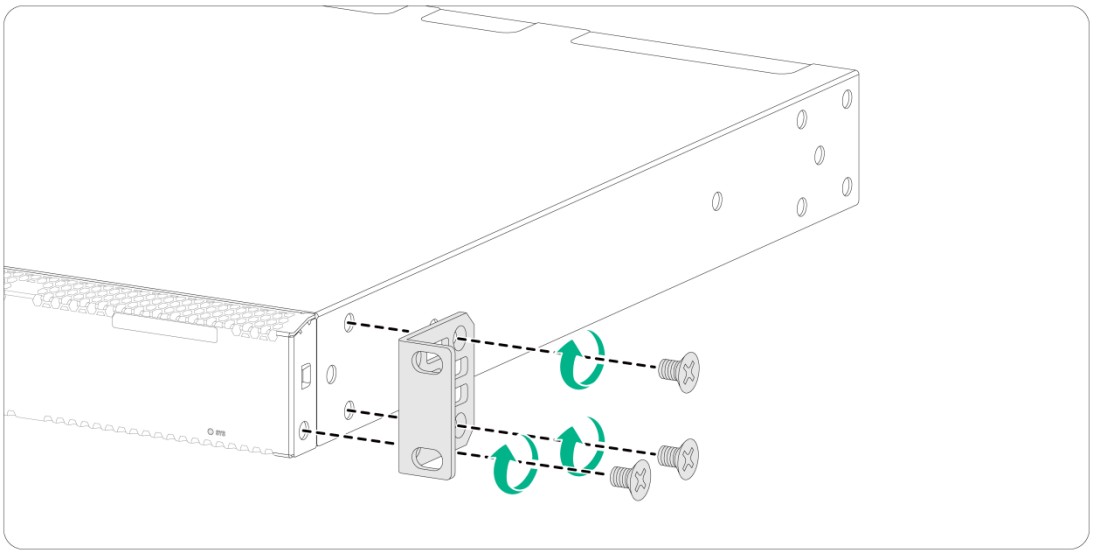
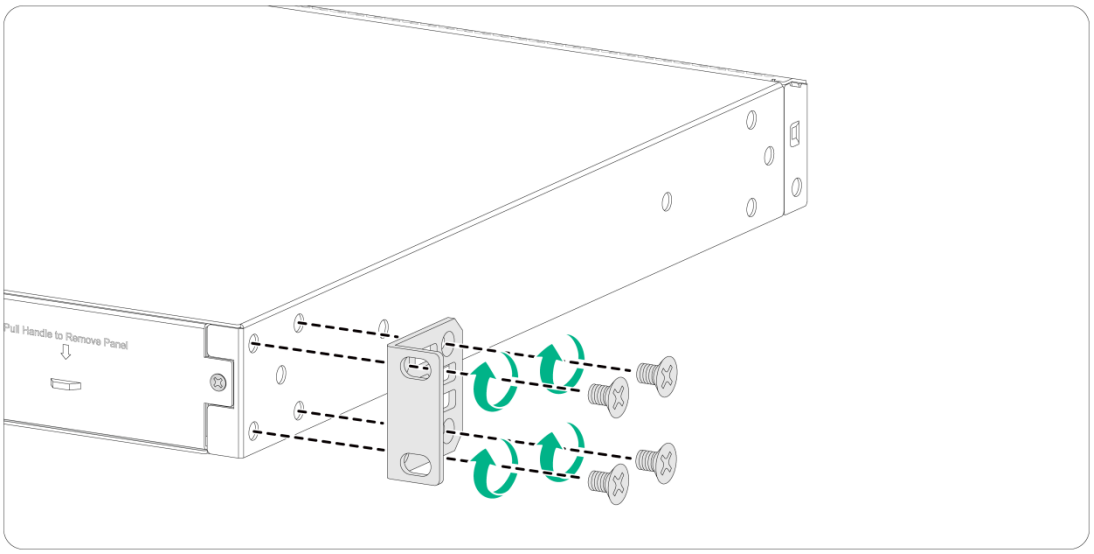


Figure2-7 Attaching the front mounting brackets to the power supply-side mounting position (S6520X-30HF-EI switch as an example)



Mounting the switch in the rack

This task requires two people.

To mount the switch in the rack:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Verify that the front mounting brackets have been securely attached to the switch chassis. See "Attaching the front mounting brackets to the switch."
3. Attach cage nuts to the front rack posts.
4. One person supports the bottom of the switch, and moves the switch to an appropriate position based on the installation positions of the front mounting brackets.

5. Another person uses M6 screws and cage nuts to attach the mounting brackets to the rack and verifies that the brackets are level and secure.

Figure2-8 Mounting the switch in the rack (port-side mounting position for the front mounting brackets, S6520X-30HF-EI switch as an example)

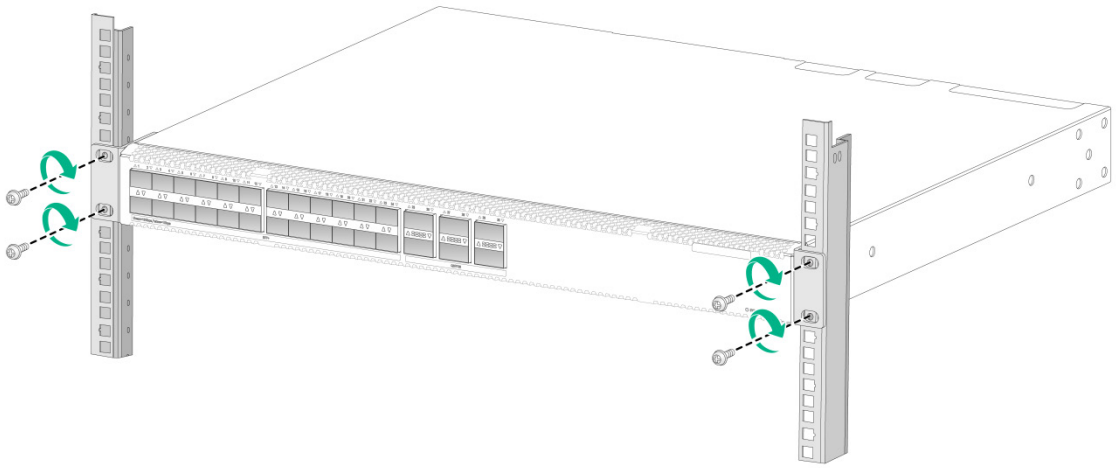
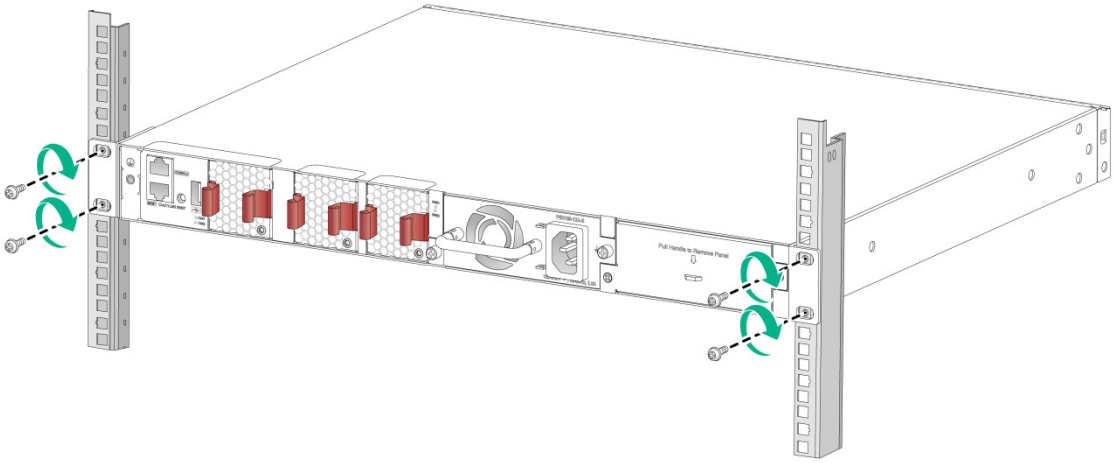


Figure2-9 Mounting the switch in the rack (power supply-side mounting position for the front mounting brackets, S6520X-30HF-EI switch as an example)



Rack-mounting the switch by using front and rear mounting brackets

Attaching the front mounting brackets and shoulder screws to the switch

The switch provides two installation positions on its side for the front mounting brackets. One is near the power supply side and one is near the port side. The following procedure attaches the front mounting brackets to the installation position near the power supply side. The port-side mounting is similar.

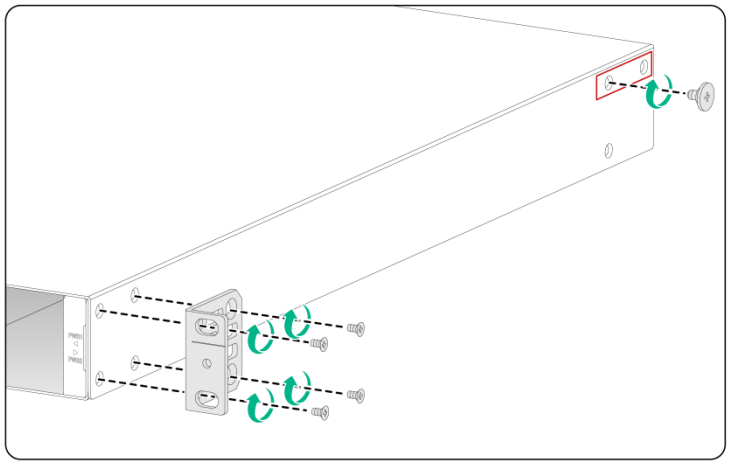
To attach the front mounting brackets and shoulder screws to the switch:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

2. Align the round holes in the wide flange of one front mounting bracket with the screw holes in the chassis. See Figure2-10.
3. Use M4 screws (supplied with the switch) to attach the mounting bracket to the chassis.
4. Repeat the preceding two steps to attach the other mounting bracket to the chassis.
5. Unpack the shoulder screws and attach them to the chassis.

   Two installation positions as red-marked in Figure2-10 are available for shoulder screws. Select one as required.

Figure2-10 Attaching the front mounting brackets and shoulder screws to the chassis



Attaching the rear mounting brackets to the rack

1. Determine the switch installation position in the rack.
2. Install cage nuts (user-supplied) in the rear rack posts. Make sure the corresponding cage nuts on the left and right rear rack posts are at the same height.
3. Orient the rear mounting brackets with the wide flange inside or outside the rack as required.
4. Use M6 screws (user-supplied) to attach the rear mounting brackets to the rear posts, as shown in Figure2-11.

   Do not fully tighten the M6 screws before mounting the switch in the rack.

Figure2-11 Attaching the rear mounting brackets to the rack with the wide flange inside the rack

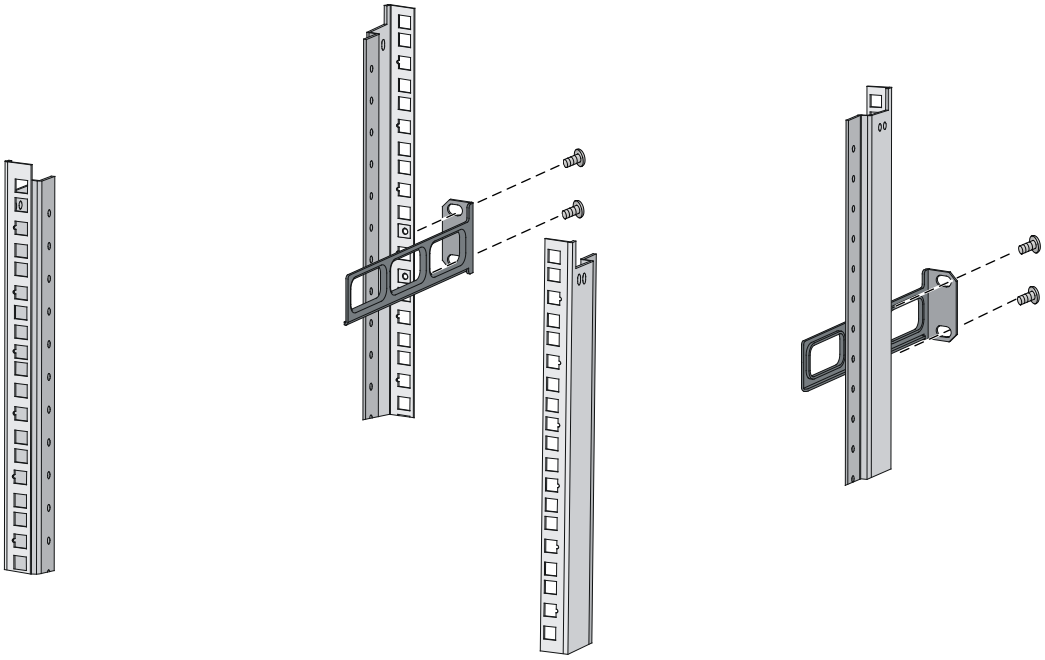
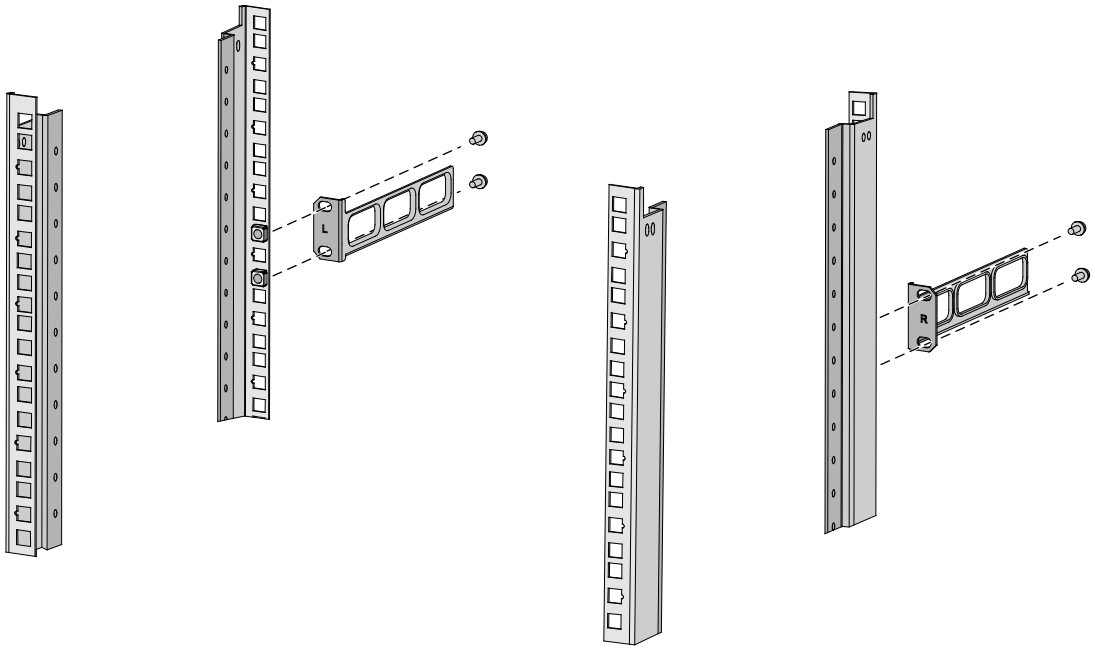


Figure2-12 Attaching the rear mounting brackets to the rack with the wide flange outside the rack



Mounting the switch in the rack

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Make sure the front mounting brackets and shoulder screws are securely attached to the two sides of the switch.

3. Attach cage nuts (user-supplied) to the front rack posts. Make sure the corresponding cage nuts on the left and right front rack posts are at the same height.
4. One person supports the chassis bottom with one hand, holds the front part of the chassis with the other, and pushes the chassis into the rack gently. Make sure the shoulder screws rest firmly on the upper edge of the rear mounting brackets. See Figure2-13 and Figure2-14.
5. The other person attaches the front mounting brackets with M6 screws (user-supplied) to the front rack posts. Make sure the switch is installed securely in the rack. See Figure2-13 and Figure2-14.

Figure2-13 Mounting the switch in the rack (with the wide flange of the rear mounting brackets inside the rack)

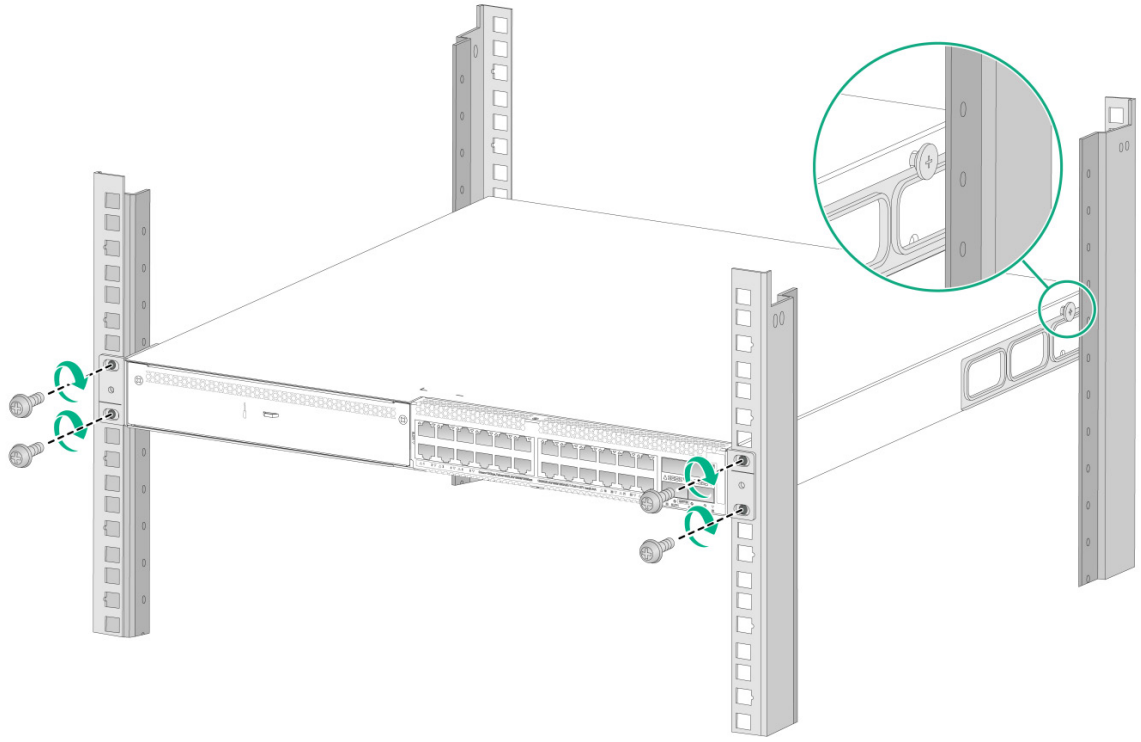
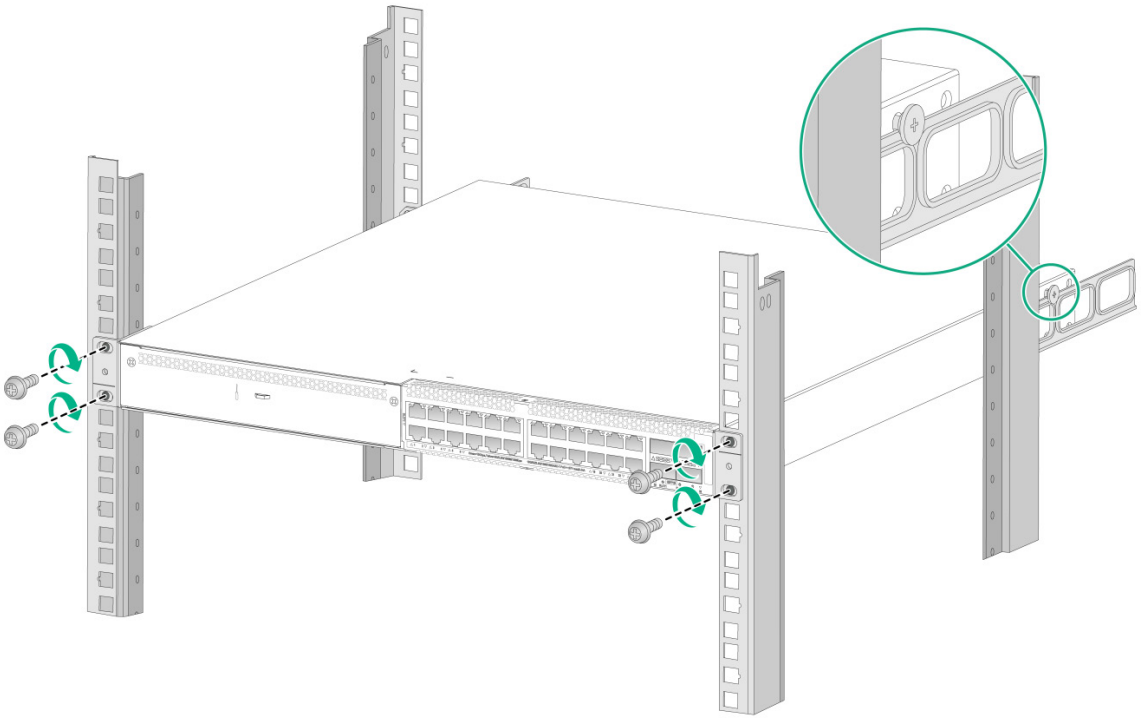


Figure2-14 Mounting the switch in the rack (with the wide flange of the rear mounting brackets outside the rack)



Mounting the switch on a workbench

IMPORTANT:

- Reserve a minimum clearance of 10 cm (3.9 in) around the chassis for heat dissipation.
- Do not place heavy objects on the switch.

To mount the switch on a workbench:

1. Verify that the workbench is sturdy and reliably grounded.
2. Place the switch with bottom up, and clean the round holes in the chassis bottom with dry cloth.
3. Attach the rubber feet to the four round holes in the chassis bottom.
4. Place the switch with upside up on the workbench.

Figure2-15 Mounting the switch on a workbench (1) (S6520X-54HF-EI switch as an example)

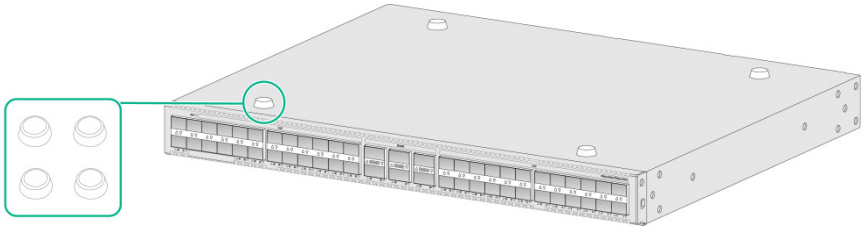
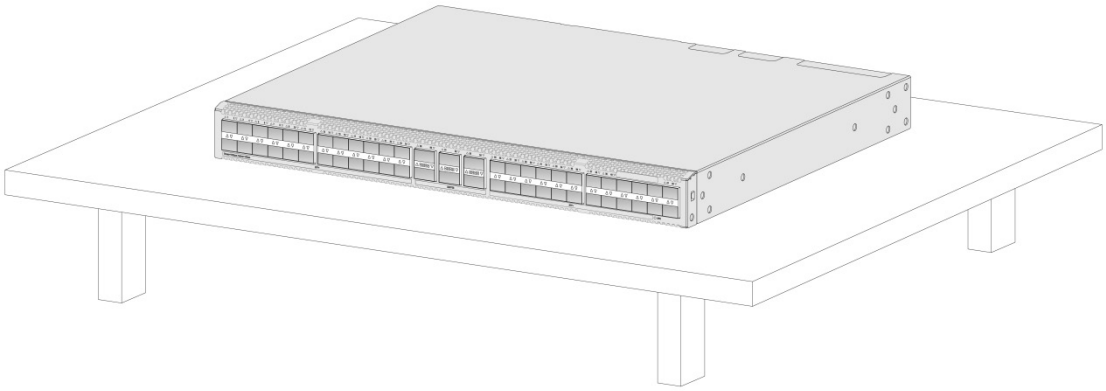


Figure2-16 Mounting the switch on a workbench (2) (S6520X-54HF-EI switch as an example)



Grounding the switch

WARNING!

- Correctly connecting the grounding cable is crucial to lightning protection and ESD and EMI protection. You must connect the grounding cable correctly and reliably for the switch.
- For information about lightning protection for the switch, see *H3C Network Devices Lightning Protection Guide*.

To ensure correct operation of electrical devices and personal safety, you must ground electrical devices reliably. Use a grounding cable to connect the device to the earthing facility at the installation site.

Reliable grounding of devices brings the following benefits:

- Protects human body from electric shocks.
- Protects devices and power and data lines from damages.
- Prevents electrical fires, lightning strokes, electromagnetic coupling interferences, ESD damages, and ensures correct operation of the power system.

Select a grounding method based on the installation environment.

NOTE:

The power and grounding terminals in this section are for illustration only.

Grounding the switch with a grounding strip

CAUTION:

- Connect the grounding cable to the grounding strip in the equipment room. Do not connect it to a fire main or lightning rod.
- To guarantee the grounding effect and avoid switch damage, use the grounding cable provided with the switch to connect the switch to a grounding strip in the equipment room.

If a grounding strip is available at the installation site, use the grounding cable provided with the switch to connect the switch to the grounding strip.

Connecting the grounding cable to the chassis

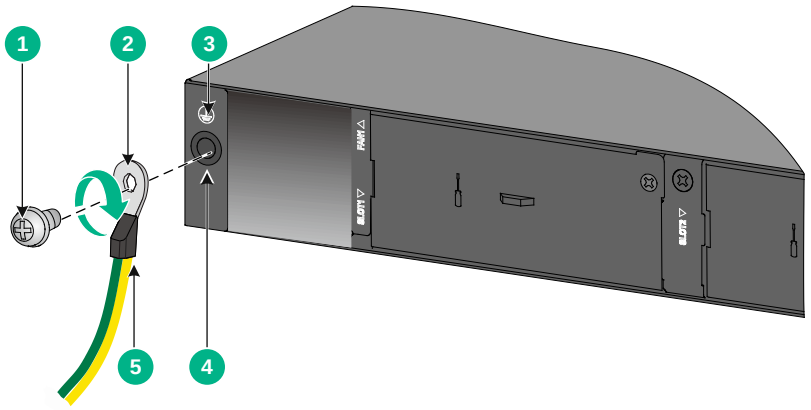
1. Remove the grounding screw from the grounding hole in the chassis.

2. Use the grounding screw to attach the ring terminal of the grounding cable to the grounding screw hole. Fasten the screw.

IMPORTANT:

Orient the grounding cable as shown in Figure2-17 so that you can easily install or remove the removable components.

Figure2-17 Connecting the grounding cable to the chassis



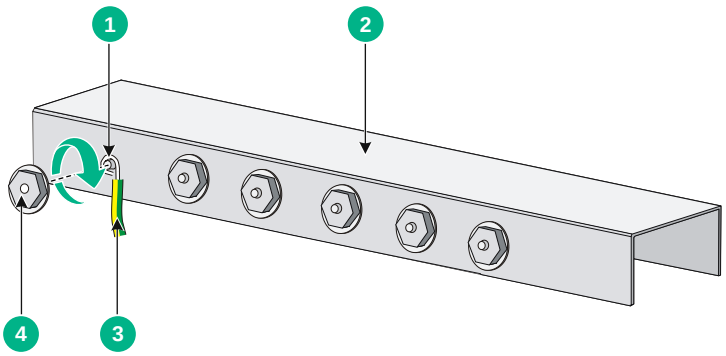
(1) Grounding screw	(2) Ring terminal
(3) Grounding sign	(4) Grounding hole
(5) Grounding cable	

Connecting the grounding cable to a grounding strip

Use either of the following methods to connect the grounding cable to a grounding strip in the equipment room:

- Method 1
  a. Use needle-nose pliers to bend the bare metal part to the shape as shown in Figure2-18. Make sure the bended part can securely attached to the grounding post on the grounding strip.
  b. Attach the bended part of the grounding cable to the grounding post and use the hex nut to fasten the bended part to the post.

  Figure2-18 Connecting the grounding cable to a grounding strip



(1) Grounding post	(2) Grounding strip
(3) Grounding cable	(4) Hex nut

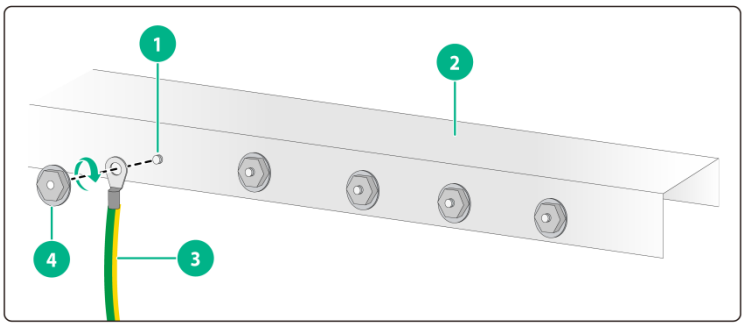
- Method 2

If the grounding cable has a ring terminal, use the ring terminal to connect the grounding cable to a grounding strip:

a. Remove the hex nut from a ground post on the grounding strip.

b. Attach the ring terminal to the grounding post and use the hex nut to secure the ring terminal to the grounding post.

Figure2-19 Connecting the grounding cable to a grounding strip



(1) Grounding post	(2) Grounding strip
(3) Grounding cable	(4) Hex nut

Grounding the switch with a grounding conductor buried in the earth ground

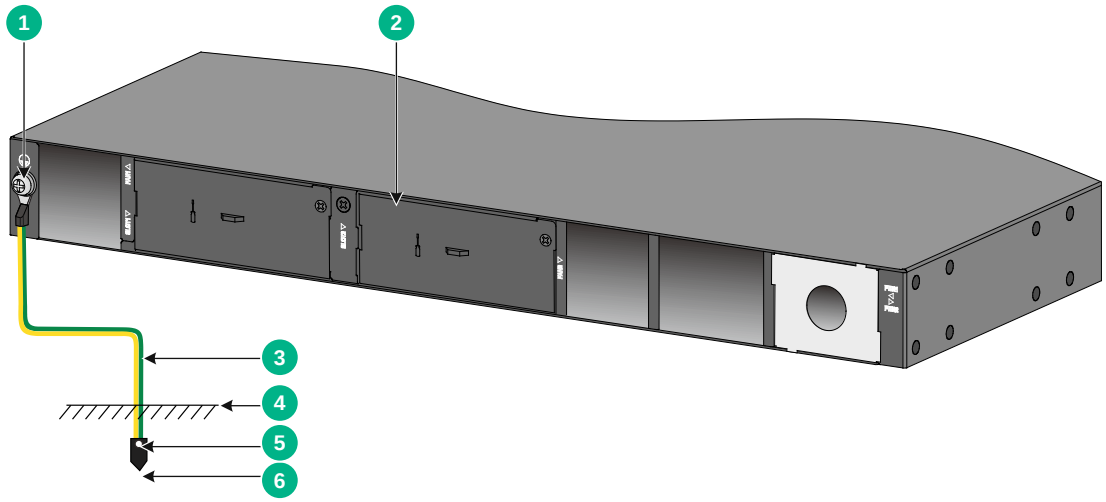
If the installation site does not have grounding strips, but earth ground is available, hammer a 2.5 m (8.20 ft) or longer angle iron or steel tube into the earth ground to act as a grounding conductor. Make sure a minimum of 0.7 m (2.30 ft) is left between the top of the grounding conductor and the ground. In cold areas, bury the grounding conductor below the frozen soil layer. In areas with thin soil or rocky gravel, determine the depth for burying the grounding conductor based on the actual condition.

If zinc-coated steel is used, the following dimensions requirements must be met:

- **Angle iron**—A minimum of 50 × 50 × 5 mm (1.97 × 1.97 × 0.20 in).
- **Steel tube**—A minimum of 3.5 mm (0.14 in) in thickness.
- **Flat steel**—A minimum of 40 × 4 mm (1.57 × 0.16 in).
- **Round steel**—A minimum of 10 mm (0.39 in).

Weld the yellow-green grounding cable to the angel iron or steel tube and treat the joint for corrosion protection.

Figure2-20 Grounding the switch by burying the grounding conductor into the earth ground



(1) Grounding screw	(2) Chassis rear panel	(3) Grounding cable
(4) Earth	(5) Welding point	(6) Grounding conductor

Verifying the connection after grounding the switch

- If you ground the switch by using a grounding strip, perform the following tasks:
  - **a.** Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω.
  - **b.** Use a grounding resistance tester to measure the grounding resistance of the grounding strip, and make sure the grounding resistance is less than 1Ω.
- If you ground the switch by using a grounding conductor buried in the earth ground, perform the following tasks:
  - **a.** Use a multimeter to measure the resistance between the switch grounding terminal and grounding point, and make sure the resistance is less than 0.1Ω.
  - **b.** Use a grounding resistance tester to measure the grounding resistance of the angle iron in the ground, and make sure the grounding resistance is less than 10Ω. For locations with high soil resistivity, sprinkle some resistance reducer to reduce soil resistivity or replace soil around the grounding strip with soil with lower resistance.

For information about resistance measurement, see *H3C Network Devices Lightning Protection Guide*.

Installing and removing a fan tray

CAUTION:

- You can power on the switch only when the switch is fully configured with fan trays of the same model.
- Do not leave any slots empty when the switch is operating. Install a module or filler panel in the slots.
- If multiple fan trays fail during switch operation, do not remove them simultaneously. Replace the fan trays one after another and finish replacing each fan tray within 3 minutes.
- If one fan tray fails while the switch is operating, perform either of the following tasks:
  - If the ambient temperature is not higher than 27°C (80.6°F), replace the fan tray within 24 hours and make sure the failed fan tray is in position before the replacement.
  - If the ambient temperature is higher than 27°C (80.6°F), replace the fan tray immediately.
- If you power cycle the switch after a fan tray fails, the switch will fail to start up.

The switch comes with empty fan tray slots. Select fan trays for the switch that match the ventilation requirements at the installation site.

- The LSWM1FANSCE fan tray draws in cool air from the faceplate. Its handle is blue.
- The LSWM1FANSCBE fan tray expels hot air from the faceplate. Its handle is red.
- The LSPM1FANSA-SN fan tray draws in cool air from the faceplate.
- The LSPM1FANSB-SN fan tray expels hot air from the faceplate.
- The FAN-40B-1-A fan tray expels hot air from the faceplate. Its handle is red.

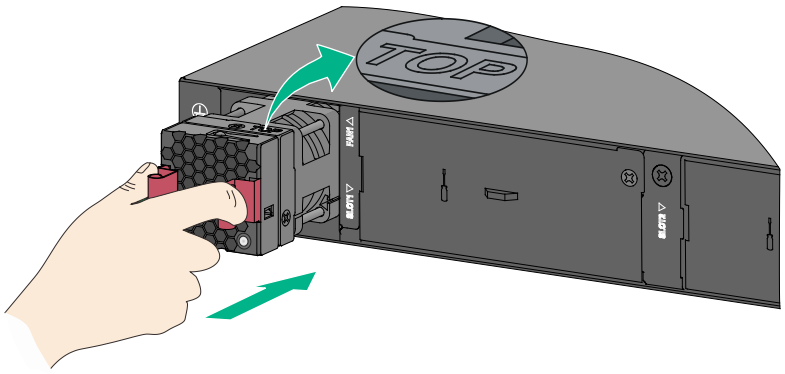
For the fan trays available for the switch and their specifications, see hardware information and specifications for the switch series.

Installing a fan tray

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Unpack the fan tray and verify that the fan tray model is as required.
3. Orient the fan tray with the TOP mark facing up.
4. Align the fan tray with the fan tray slot. Holding the fan tray handles, slide the fan tray into the slot along the guide rails. Make sure the fan tray is fully seated in the slot and has a firm contact with the backplane.

   To prevent damage to the fan tray or the connectors in the chassis, insert the fan tray gently. If you encounter a hard resistance while inserting the fan tray, pull out the fan tray and insert it again.

Figure2-21 Installing a fan tray



IMPORTANT:

- In versions earlier than Release 6326 (not inclusive) or Release 65xx versions earlier than Release 6525 (not inclusive), you must use the **`fan prefer-direction`** command to set the preferred airflow direction of the switch to be consistent with that of the fan trays the first time you log in to the switch. If the fan trays have a different airflow direction than the preferred one, the system outputs traps and logs. By default, the preferred airflow direction of the switch is from the port side to the power supply side, the same as that of the LSWM1FANSCBE fan tray. For more information about the **`fan prefer-direction`** command, see the configuration guides and command references for the device.
- In other versions, the switch does not check the preferred airflow direction at system start. You only need to ensure consistent airflow directions of all fan trays on the switch. If the airflow directions of the fan trays are inconsistent, the system outputs traps and logs.

Removing a fan tray

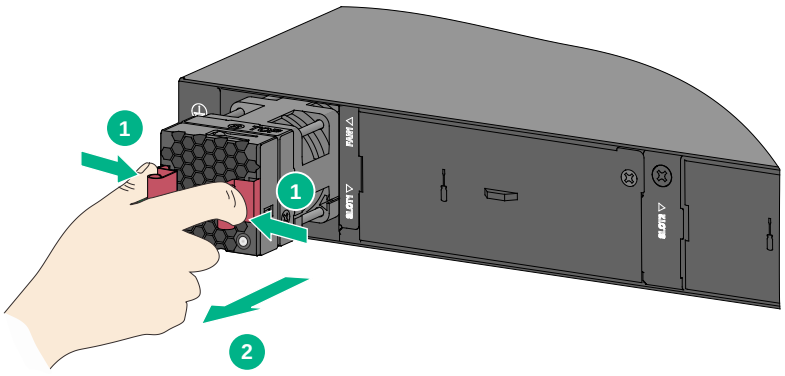
WARNING!

- To avoid bodily injury, disturbing the dynamic balance of the fan tray, and causing loud noises, do not touch the rotation axis, or any bare wires, fan blades, or terminals on the fan tray.
- Do not place the fan tray in a moist place. Prevent liquid from entering the fan tray.
- Fan trays with faulty internal wiring and conductors require maintenance from maintenance engineers. Do not disassemble the faulty fan trays.

To remove a fan tray:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Holding the fan tray handles, pull the fan tray slowly out of the slot along the guide rails.
3. Put the removed fan tray in an antistatic bag.

Figure2-22 Removing a fan tray



Installing and removing a power supply

The switch provides two power supply slots. It comes with power supply slot PWR1 empty and power supply slot PWR2 installed with a filler panel. You can install one or two power supplies for the switch as required. For the power supplies available for the switch and their specifications, see hardware information and specifications for the switch series.

WARNING!

- To avoid bodily injury or switch damage, strictly follow the procedures in Figure2-23 and Figure2-24 to install and remove a power supply.
- You must provide a circuit breaker for each power supply.

Figure2-23 Installation procedure

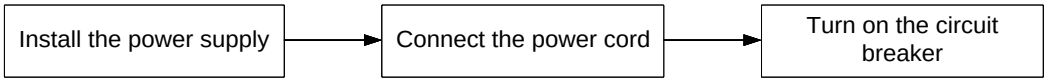
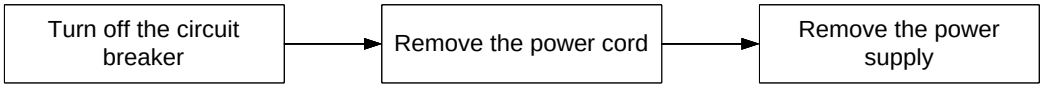


Figure2-24 Removal procedure



CAUTION:

- To prevent damage to the power supply and the connectors on the backplane, insert the power supply gently. If you encounter a hard resistance when inserting the power supply, pull out the power supply and insert it again. Make sure the power supply has a good contact with the connectors.
- When the switch has two power supplies working in 1+1 redundancy, removing one power supply does not affect system operation. If the switch has only one power supply, removing the power supply causes power down of the switch.
- If you are not to install a new power supply after removing the old one, install a filler panel in the slot in time.
- Use a torque of 5 kgf-cm (0.49 Nm) to fasten the captive screws on a power supply.

Installing a PSR250-12A, PSR250-12A1, PSR450-12D, PSR1600-54A-B, PSR920-54A-B, or PSR600-54A-B power supply

The installation procedure is the same for the PSR250-12A, PSR250-12A1, PSR450-12D, PSR1600-54A-B, PSR920-54A-B, and PSR600-54A-B power supplies. The following procedure installs a PSR250-12A1 power supply.

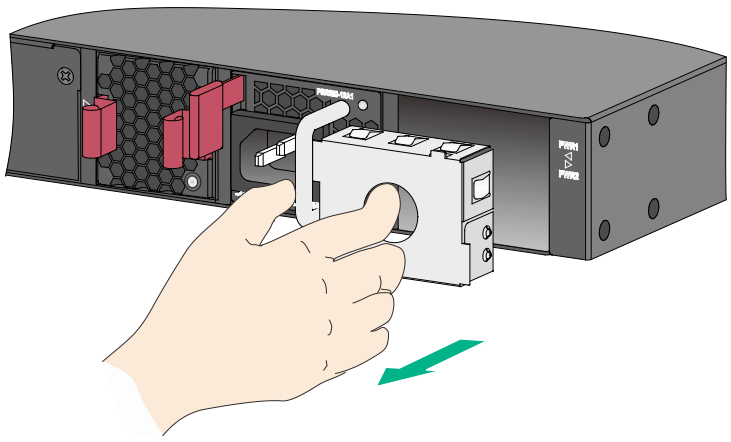
To install a PSR250-12A1 power supply:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Remove the filler panel, if any, from the target power supply slot.

   Put your forefinger into the hole in the filler panel and then pull the filler panel out of the slot gently.

   Keep the removed filler panel secure for future use.

   Figure2-25 Removing the filler panel from the target power supply slot

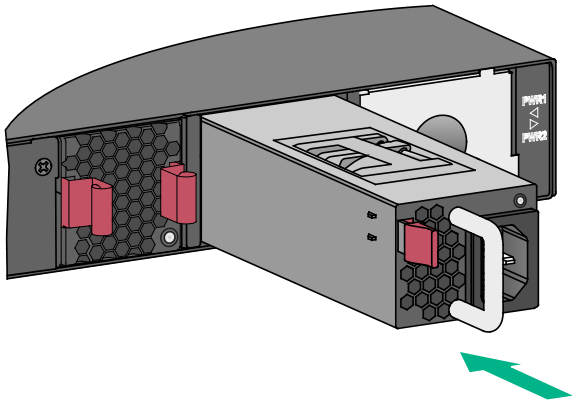


3. Unpack the power supply. Make sure the power supply model is as required.

   Keep the packaging box and packaging bag for the power supply secure for future use.
4. Correctly orient the power supply. Make sure the lettering on the power supply is upward.
5. Align the power supply with the power supply slot. Grasping the handle of the power supply with one hand and supporting its bottom with the other, slide the power supply slowly into the slot along the guide rails until the latch of the power supply clicks into the slot.

   To prevent damage to the power supply or the connectors on the backplane, insert the power supply gently. If you encounter a hard resistance when inserting the power supply, pull out the power supply and insert it again.

Figure2-26 Installing a power supply



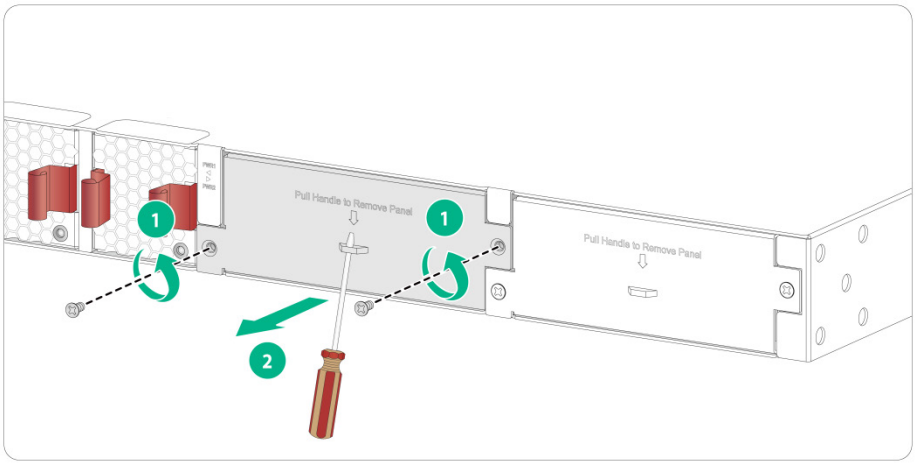
Installing a PSR180-12A-F or PSR180-12A-B power supply

The installation procedure is the same for the PSR180-12A-F and PSR180-12A-B power supplies. The following procedure installs a PSR180-12A-B power supply.

To install a PSR180-12A-B power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Remove the filler panel from the target power supply slot as follows:
   a. Remove the screws from the filler panel.
   b. Use a flathead screwdriver to remove the filler panel.

   Figure2-27 Removing the filler panel

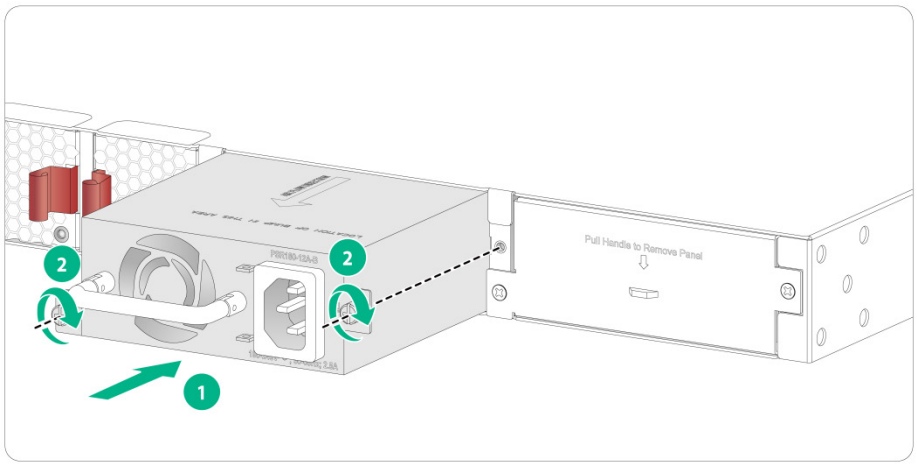


3. Unpack the power supply and verify that the power supply model is correct.
4. Correctly orient the power supply with the power supply slot (use the letters on the power supply faceplate for orientation), grasp the handle of the power supply with one hand and support its bottom with the other, and slide the power supply slowly along the guide rails into the slot (see callout 1 in Figure2-28).
5. Fasten the captive screws on the power supply with a Phillips screwdriver to secure the power supply in the chassis (see callout 2 in Figure2-28). If the captive screw cannot be tightly fastened, verify the installation of the power supply.

   As a best practice, use a torque of 5 kgf-cm (0.49 Nm) to fasten the captive screws.

6. Install the filler panel over the empty power supply slot to prevent dust and ensure good ventilation if you install only one power supply.

Figure2-28 Installing a power supply



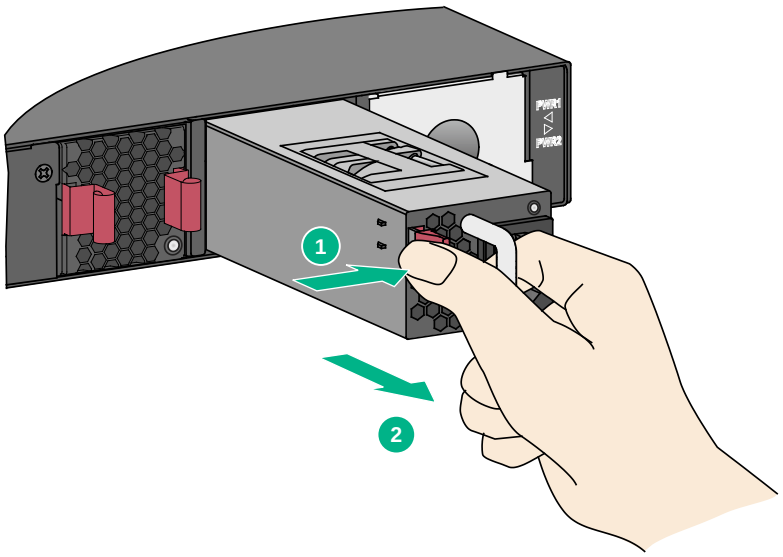
Removing a PSR250-12A, PSR250-12A1, PSR1600-54A-B, PSR920-54A-B, or PSR600-54A-B power supply

The removal procedure is the same for the PSR250-12A, PSR250-12A1, PSR1600-54A-B, PSR920-54A-B, and PSR600-54A-B power supplies.

To remove a PSR250-12A1 power supply:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Press the latch on the power supply towards the handle side, and pull the power supply part way out of the slot along the guide rails.
4. Grasping the handle of the power supply with one hand and supporting module bottom with the other, pull the power supply slowly out of the slot along the guide rails.
5. Place the removed power supply on an anti-static mat or put it into its packaging bag.
6. If you are not to install a new power supply in the slot, install a filler panel in the slot to prevent dust and ensure good ventilation.

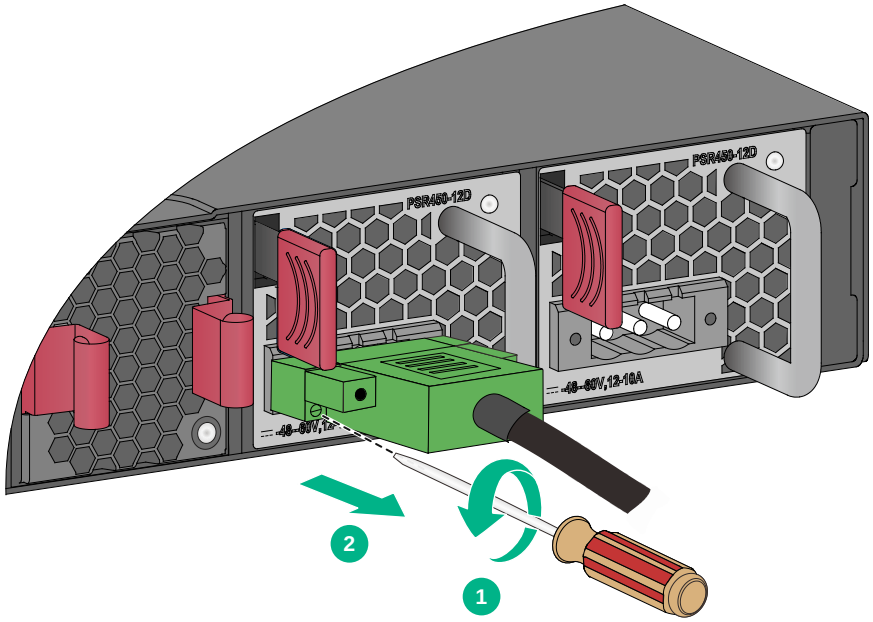
Figure2-29 Removing a power supply



Removing a PSR450-12D power supply

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Remove the power cord from the power supply. As shown in Table3-3, use a flathead screwdriver to loosen the two screws on the power cord connector and then pull the connector out.
3. Holding the power supply handle with one hand and using your thumb to press the latch on the power supply rightwards, pull the power supply part way out of the slot. Supporting the power supply bottom with the other, pull the power supply slowly out of the slot.

Figure2-30 Removing the power cord from a PSR450-12D power supply



(1) Use a flathead screwdriver to loosen the two screws on the power cord connector
(2) Pull the power cord connector out

Removing a PSR180-12A-F or PSR180-12A-B power supply

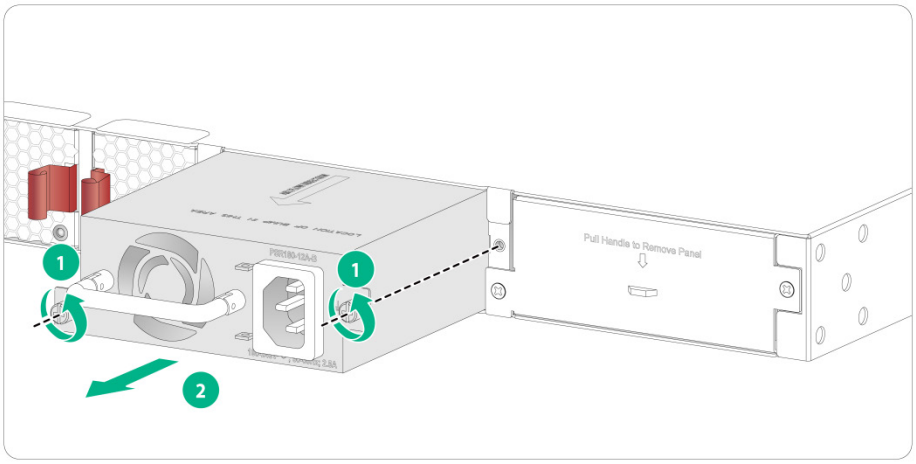
The removal procedure is the same for the PSR180-12A-F and PSR180-12A-B power supplies. The following procedure removes a PSR180-12A-B power supply.

To remove a PSR180-12A-B power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Disconnect the power cord.
3. Loosen the captive screws on the power supply with a Phillips screwdriver until they are completely disengaged.
4. Grasp the handle of the power supply with one hand and pull it out a little, support the bottom with the other hand, and pull the power supply slowly along the guide rails out of the slot.

   Put away the removed power supply in an antistatic bag or the power supply package bag for future use.

Figure2-31 Removing a power supply



Connecting the power cord

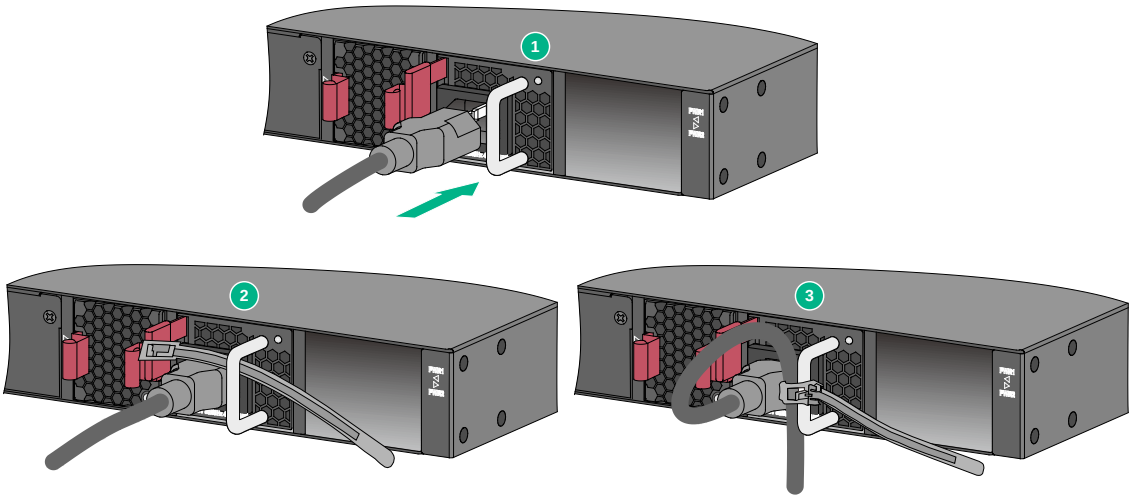
Connecting the power cord for a PSR250-12A, PSR250-12A1, PSR1600-54A-B, PSR920-54A-B, or PSR600-54A-B power supply

The power cord connection procedure is the same for the PSR250-12A, PSR250-12A1, PSR1600-54A-B, PSR920-54A-B, and PSR600-54A-B power supplies. The following procedure connects the power cord for a PSR250-12A1 power supply.

To connect the power cord for a PSR250-12A1 power supply:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Plug the female connector of the power cord into the power receptacle on the power supply, as shown by callout 1 in Figure2-32.
3. Use a cable tie to secure the power cord to the handle of the power supply, as shown by callout 2 and callout 3 in Figure2-32.
4. Connect the other end of the power cord to an AC power source or a high-voltage DC power source.

Figure2-32 Connecting the power cord for a PSR250-12A1 power supply



Connecting the power cord for a PSR180-12A-F or PSR180-12A-B power supply

The power cord connection procedure is similar for the PSR180-12A-F and PSR180-12A-B power supplies. The following procedure connects the power cord for a PSR180-12A-B power supply.

To connect the power cord for a PSR180-12A-B power supply:

1. Wear an ESD wrist strap and make sure it makes good skin contact and is reliably grounded.
2. Attach the power cord retainer clip (supplied with the power supply) into the two holes next to the AC-input power receptacle on the power supply, and pull the retainer clip leftwards (see Figure2-33).
3. Connect the female connector of the AC power cord supplied with the power supply to the power receptacle (see callout 1 in Figure2-34).
4. Pull the retainer clip rightwards to secure the connector to the AC-input power receptacle (see callout 2 in Figure2-34).
5. Connect the other end of the power cord to an AC power source.

Figure2-33 Connecting a power cord (1)

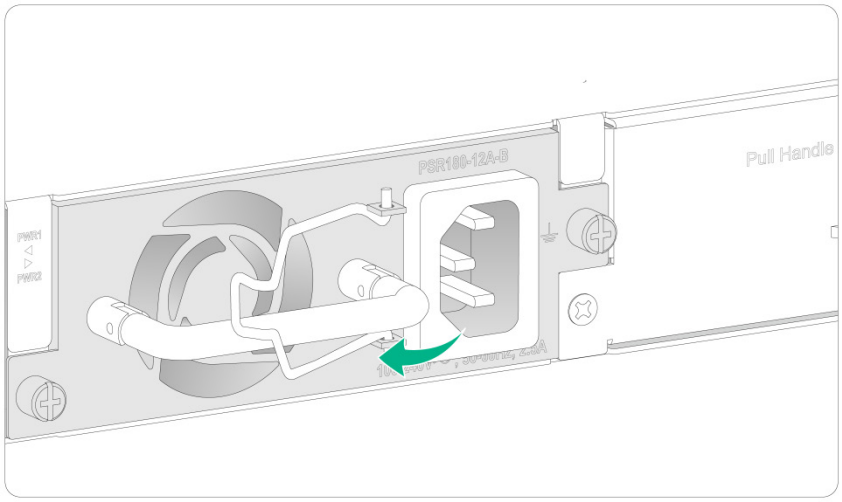
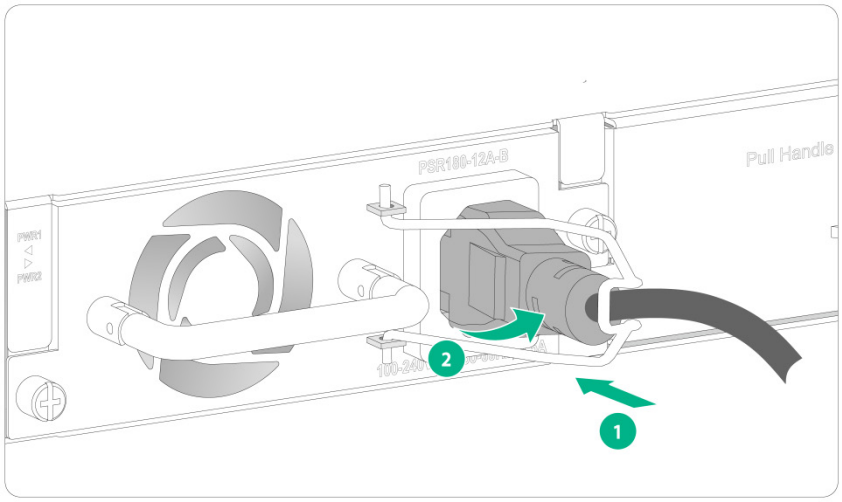


Figure2-34 Connecting a power cord (2)

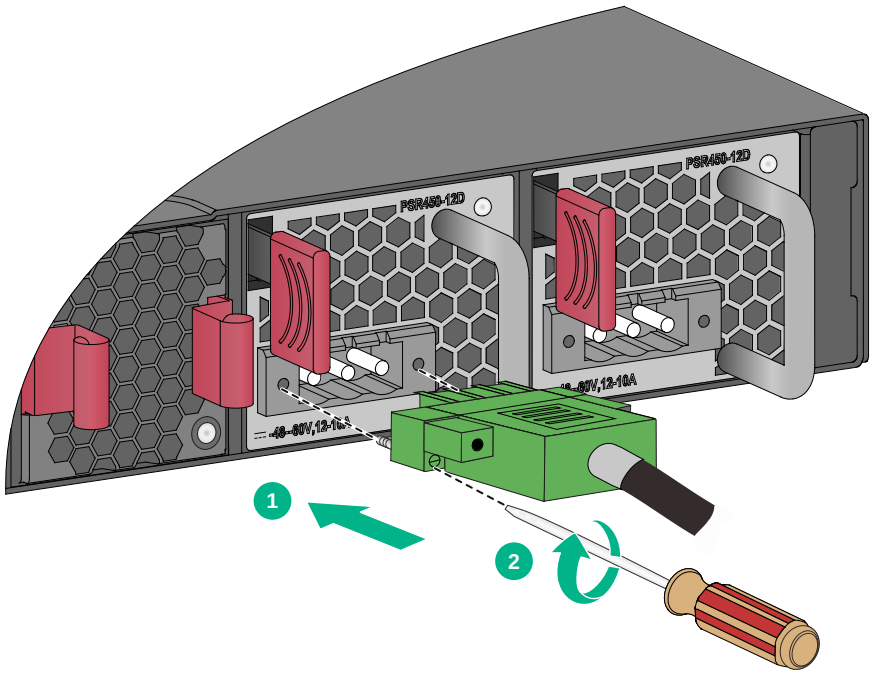


Connecting the DC power cord for a PSR450-12D power supply

1. Correctly orient the DC power cord connector and insert it into the DC power input receptacle on the power supply, as shown by callout 1 in Figure2-35.

   If you orient the DC power cord connector upside down, you cannot insert it into the DC power input receptacle.
2. Use a flathead screwdriver to fasten the two screws on the power cord connector to secure the connector in place, as shown by callout 2 in Figure2-35.
3. Connect the other end of the DC power cord to an external DC power supply system.

Figure2-35 Connecting the DC power cord for a PSR450-12D power supply



Connecting a hybrid copper-fiber cable

Only the S6520X-54HC-UPWR-EI switch model supports connections by using hybrid copper-fiber cables.

About a hybrid copper-fiber cable

A hybrid copper-fiber cable combines optical fibers and conductive copper wires within the same jacket. It connects a hybrid optical-electrical switch and APs or remote modules. It transmits DC power and data over the same medium, significantly reducing the cabling cost.

A complete hybrid copper-fiber cable consists of three sections: pigtail of the hybrid optical-electrical switch, main cable, and pigtail of the powered device. You must connect the main cable to the two pigtails on site.

Connecting a hybrid copper-fiber cable

1. Use a utility knife to peel off an appropriate length of the black outer sheath from the main cable, exposing the inside four cables, of which the two yellow ones are optical fibers, and the red and blue ones are conductive copper wires.
2. Connect the two conductive copper wires to the network port connector provided with the switch, with the red wire connected to terminal A, and the blue wire connected to terminal B, as shown by callout 1 in Figure2-36.
3. Connect the network connector to a copper port on the switch, as shown by callout 2 in Figure2-36.
4. Fusion splice the optical fibers to the pigtail with LC connectors.

5. Connect the LC connectors to a fiber port on the switch, as shown by callout 2 in Figure2-37.

Figure2-36 Connecting conductive copper wires

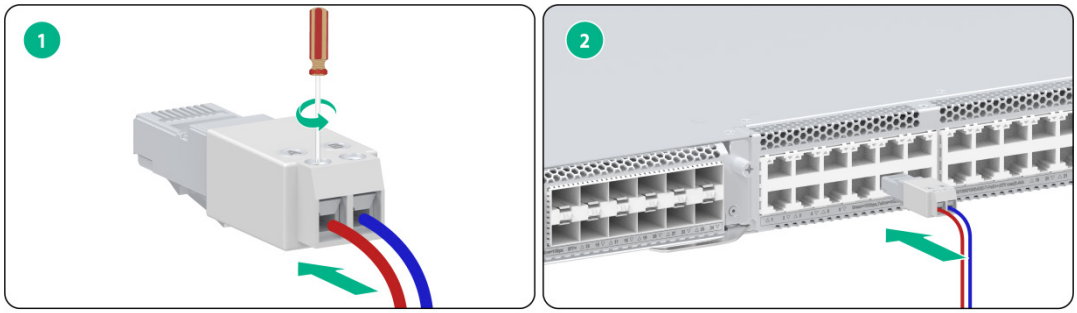
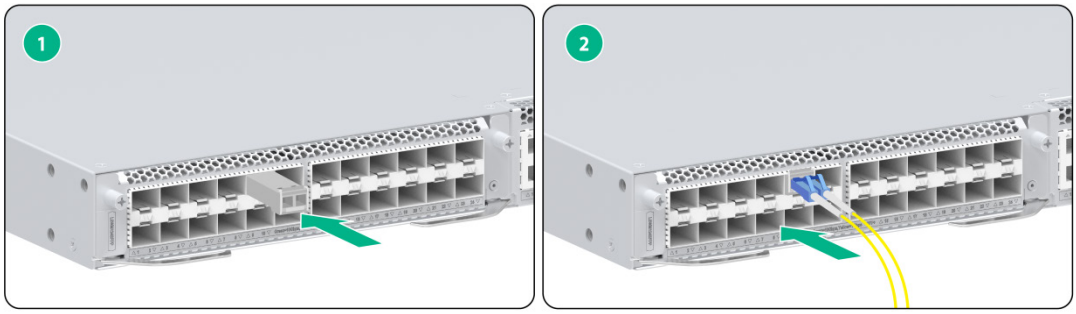


Figure2-37 Connecting optical fibers



Installing and removing an expansion card

CAUTION:

- Do not touch the surface-mounted components on an expansion card directly with your hands.
- Do not use excessive force when you install or remove an expansion card.
- You can install or remove an expansion card when the switch is operating correctly. Do not install or remove an expansion card while the switch is starting up.
- Only the LSWM124MUPWR interface module cannot be hot swapped. The other interface modules can be hot swapped.

The S6520X-30QC-EI, S6520X-54QC-EI, S6520X-30HC-EI, S6520X-54HC-EI, S6520X-30QC-HI, S6520X-54QC-HI, S6520X-30HC-HI, and S6520X-54HC-HI switches each provide two expansion slots on the rear panel. The S6520X-54HC-UPWR-EI switch provides an expansion slot on both the front and rear panels. For the expansion cards available for the switch, see hardware information and specifications for the switch series.

The installation and removal procedures are similar for expansion cards. The following procedures install and remove LSWM4SP8PM (with one ejector lever), LSWM124SFPP (with two ejector levers), and LSPM6FWD (without an ejector lever) interface modules.

Installing an expansion card

To install an expansion card:

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.

2. Use a Phillips screwdriver to remove the screw on the filler panel in the target expansion slot. Then remove the filler panel.

   Keep the filler panel secure for future use.

   For interface modules other than the LSWM124SFPP and LSWM124MUPWR, use method 1 to remove the filler panel.

   For the LSWM124SFPP and LSWM124MUPWR interface modules, use method 2 to remove the filler panel.

   Figure2-38 Removing the filler panel from the target expansion slot (method 1)

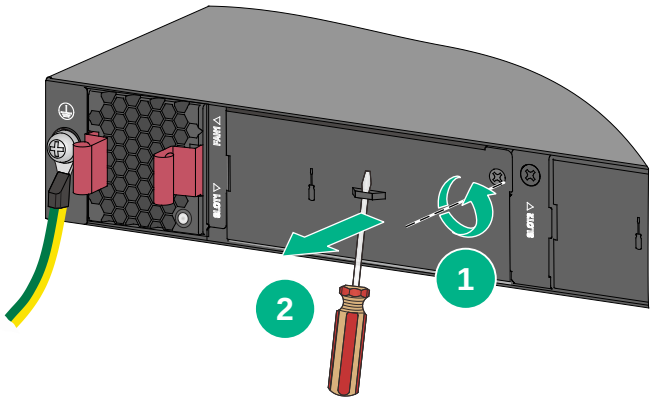
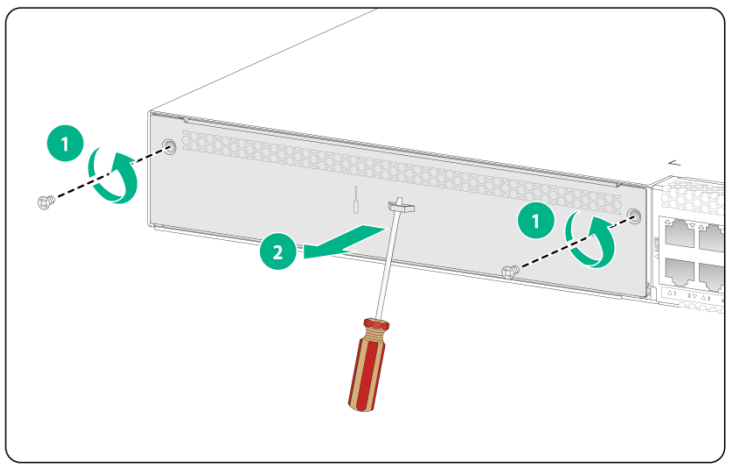
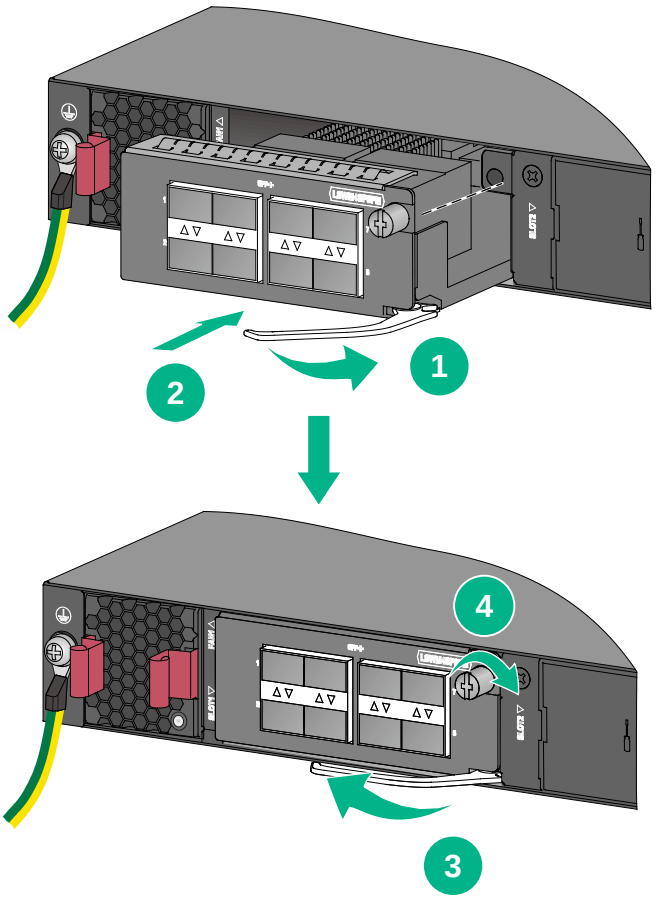


   Figure2-39 Removing the filler panel from the target expansion slot (method 2)



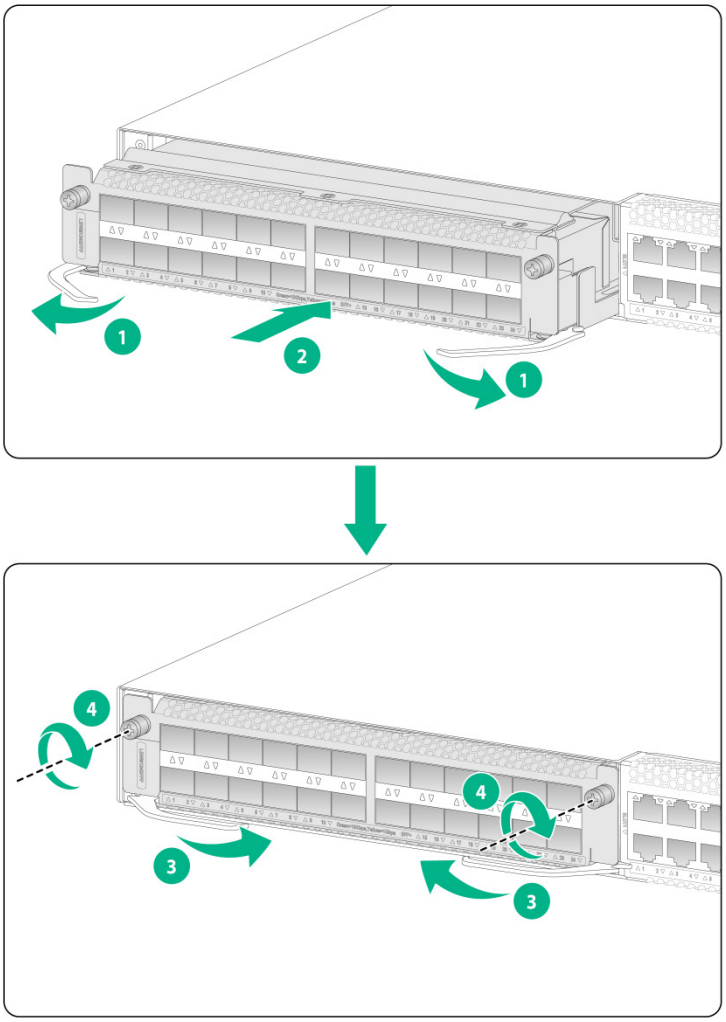
3. Unpack the expansion card.
4. (Optional.) If the expansion card has one ejector lever, perform the following steps to install it:
   a. Fully open the ejector lever, as shown by callout 1 in Figure2-40.
   b. Gently push the expansion card into the slot along the guide rails until the expansion card has good contact with the chassis. See callout 2 in Figure2-40.
   c. Close the ejector lever, as shown by callout 3 in Figure2-40.
   d. Use a Phillips screwdriver to fasten the captive screw on the expansion card to secure the card in the slot. See callout 4 in Figure2-40.

Figure2-40 Installing an expansion card with one ejector lever



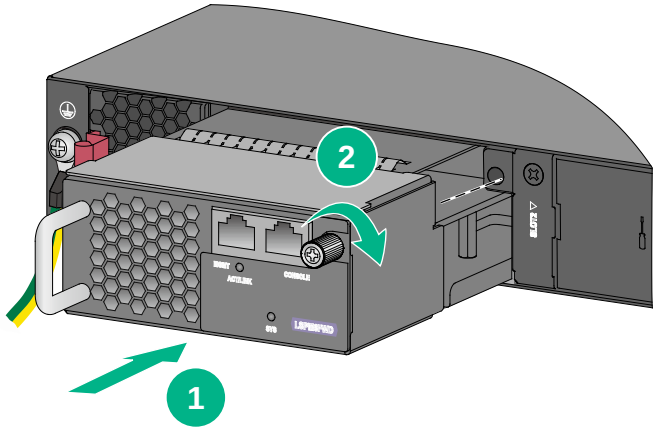
5. (Optional.) If the expansion card has two ejector levers, perform the following steps to install it:
   a. Rotate outwards the left and right ejector levers of the card, as shown by callout 1 in Figure2-41.
   b. Gently push the expansion card into the slot along the guide rails until the expansion card has good contact with the chassis, as shown by callout 2 in Figure2-41.
   c. Rotate inwards the left and right ejector levers, as shown by callout 3 in Figure2-41.
   d. Use a Phillips screwdriver to fasten the captive screws on the expansion card, as shown by callout 4 in Figure2-41.

Figure2-41 Installing an expansion card with two ejector levers (LSWM124SFPP)



6. (Optional.) If the expansion card does not have an ejector lever, perform the following steps to install it:
   a. Gently push the expansion card into the slot along the guide rails until the expansion card has good contact with the chassis. See callout 1 in Figure2-42.
   b. Use a Phillips screwdriver to fasten the captive screw on the expansion card to secure the card in the slot. See callout 2 in Figure2-42.

Figure2-42 Installing an expansion card without an ejector lever (LSPM6FWD)



NOTE:

An LSPM6FWD firewall card including its handle adds 75 mm (2.95 in) to the chassis depth.

Removing an expansion card

1. Wear an ESD wrist strap. Make sure the strap makes good skin contact and is reliably grounded.
2. Use a Phillips screwdriver to remove the captive screw on the expansion card.
3. Fully open the ejector lever.

   Skip this step for an expansion card that does not have an ejector lever.
4. Gently pull the expansion card out of the slot along the guide rails.
5. If you are not to install a new expansion card, install a filler panel in the slot to prevent dust and ensure good ventilation in the switch.

Verifying the installation

Before powering on the switch, verify the following items:

- There is enough space around the switch for heat dissipation.
- The rack or workbench on which the switch is mounted is stable.
- The grounding cable is securely connected.
- The power source specifications are as required by the device.
- The power cords are correctly connected.
- If part of the network cable for a port is routed outdoors, verify that a network port lightning protector is used for the port.
- If a power line is routed from outdoors, verify that a surge protected power strip is used for the switch.

NOTE:

For information about lightning protection for the switch, see *H3C Lightning Protection Guide*.

3 Accessing the switch for the first time

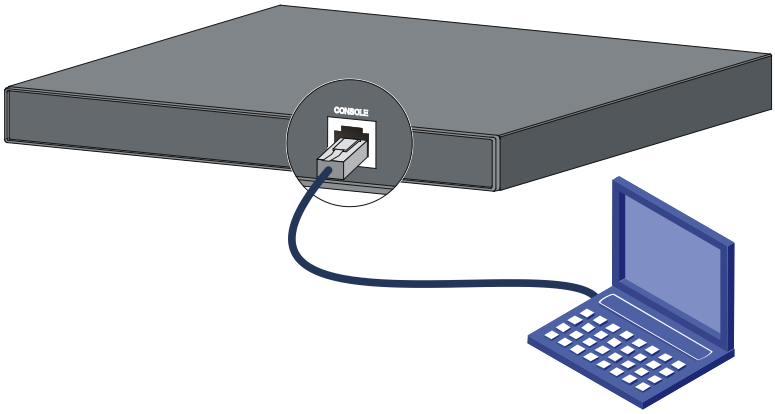
Connecting the switch to a configuration terminal

The S6520X-30QC-EI, S6520X-54QC-EI, S6520X-30HC-EI, S6520X-54HC-EI, S6520X-30QC-HI, S6520X-54QC-HI, S6520X-30HC-HI, and S6520X-54HC-HI switches each provide a serial console port and a micro USB console port for connecting to a configuration terminal. If you connect configuration terminals to both ports, only the micro USB console port is effective.

The S6520X-30HF-EI, S6520X-54HF-EI, S6520X-30HF-HI, S6520X-54HF-HI, and S6520X-54HC-UPWR-EI switches each provide only a serial console for connecting to a configuration terminal.

In Figure3-1, the switch is connected to a configuration terminal (PC as an example) from the serial console port.

Figure3-1 Connecting the switch to a configuration terminal



As shown in Table3-1, three types of console cables can be used for connecting the switch to a configuration terminal. The switch is not provided with a serial console cable or a micro USB console cable.

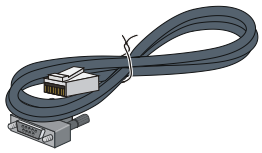
Table3-1 Connection methods and console cables

Connection method	Applicable switch models	Console cable type	Configuration terminal-side connector	Switch-side connector
Using the serial console port for connection	All S6520X-EI and S6520X-HI models	DB9-to-RJ45 console cable	DB-9 female connector	RJ-45 connector
		USB-to-RJ45 console cable	USB connector	RJ-45 connector
Using the micro USB console port for connection	S6520X-30QC-EI S6520X-54QC-EI S6520X-30HC-EI S6520X-54HC-EI S6520X-30QC-HI S6520X-54QC-HI S6520X-30HC-HI	Micro USB console cable	USB connector	Micro USB connector

Connection method	Applicable switch models	Console cable type	Configuration terminal-side connector	Switch-side connector
	S6520X-54HC-HI			

The signal pinout for the RJ-45 connector of a serial console cable varies by vendor. To avoid abnormal configuration terminal display, use a serial console cable provided by H3C. For more information, see Table3-2. To prepare a serial console cable yourself, make sure the signal pinout for the RJ-45 connector is the same as that shown inTable3-3.

Table3-2 Console cable views

Console cable type	Console cable view	Product code for the recommended H3C console cable
DB9-to-RJ45 console cable		04042967
USB-to-RJ45 console cable		0404A1EE
Micro USB console cable		User supplied,

Connecting a DB9-to-RJ45 console cable

CAUTION:

Follow these guidelines when you connect a DB9-to-RJ45 console cable:

- Identify the mark on the serial console port and make sure you are connecting to the correct port.
- The serial ports on PCs do not support hot swapping. To connect a PC to an operating switch, first connect the PC end. To disconnect a PC from an operating switch, first disconnect the switch end.

A DB9-to-RJ45 console cable is an 8-core shielded cable, with a crimped RJ-45 connector at one end for connecting to the serial console port of the switch, and a DB-9 female connector at the other end for connecting to the serial port on the console terminal.

Figure3-2 DB9-to-RJ45 console cable

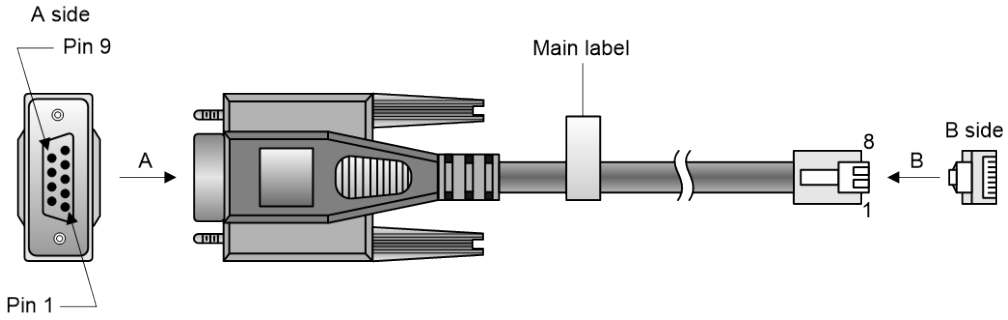


Table3-3 DB9-to-RJ45 console cable signal pinout

RJ-45	Signal	DB-9	Signal
1	RTS	8	CTS
2	DTR	6	DSR
3	TXD	2	RXD
4	SG	5	SG
5	SG	5	SG
6	RXD	3	TXD
7	DSR	4	DTR
8	CTS	7	RTS

To connect the switch to a configuration terminal (for example, a PC) through a DB9-to-RJ45 console cable:

1. Plug the DB-9 female connector of the DB9-to-RJ45 console cable to the serial port on the PC.
2. Connect the RJ-45 connector to the serial console port on the switch.

Connecting a USB-to-RJ45 console cable

IMPORTANT:

- To use a USB-to-RJ45 console cable to connect the switch to a configuration terminal, first download and install the USB-to-RJ45 console driver on the configuration terminal and then connect the USB-to-RJ45 console cable to the configuration terminal.
- If you have connected a USB-to-RJ45 console cable to the configuration terminal before driver installation, you must remove and reconnect the USB-to-RJ45 console cable to the configuration terminal.

For information about the signal pinout for the RJ-45 connector of a USB-to-RJ45 console cable, see Table3-3.

The following installs the driver on the Windows system. To install the driver on other operating systems, see the installation guide in the driver compression package named by the corresponding operating system.

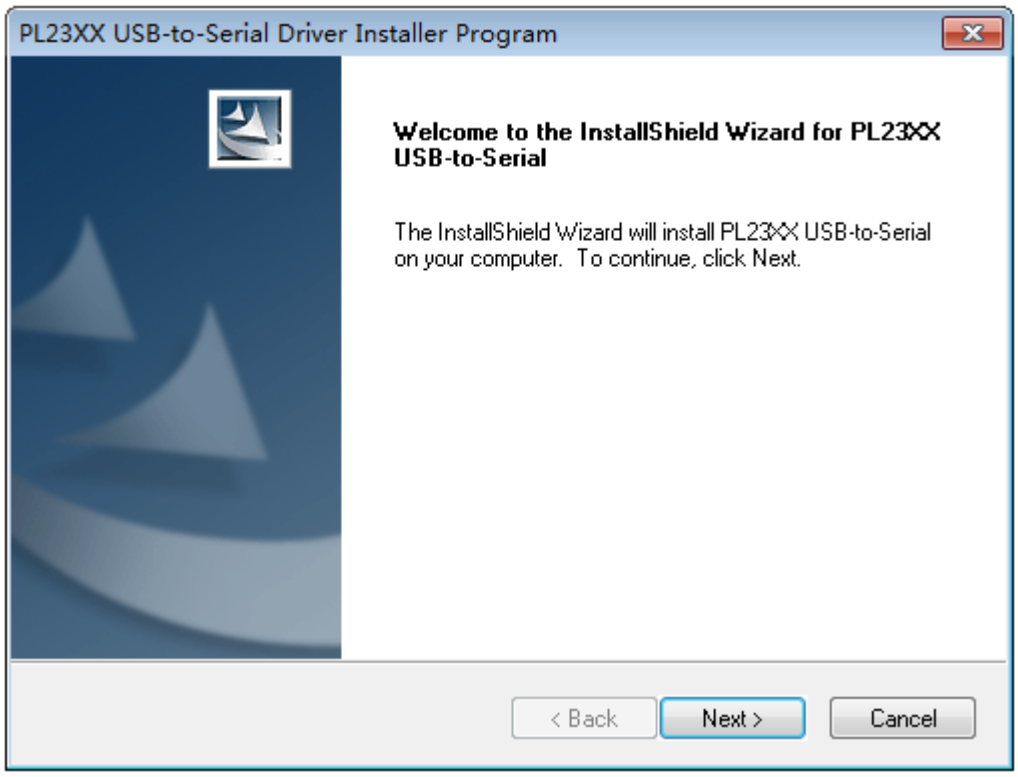
To connect the switch to the configuration terminal through a USB-to-RJ45 console cable:

1. Click the following link, or copy it to the address bar on your browser and download the USB-to-RJ45 console driver.

http://www.h3c.com/en/home/USB_to_RJ45_Console/

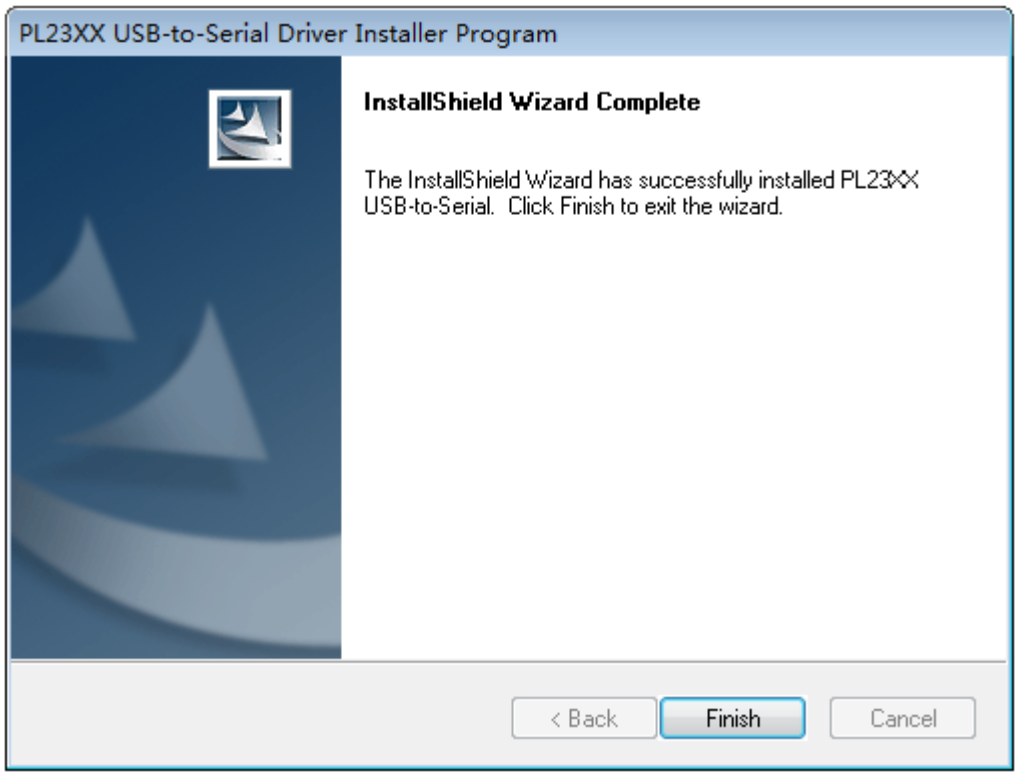
2. View the TXT file **Read me** in the Windows folder to check whether the Windows system of the configuration terminal supports the driver.
3. If the Windows system supports the driver, install **PL23XX-M_LogoDriver_Setup_v200_20190815.exe**.
4. Click **Next** on the welcome page of the driver installation wizard.

Figure3-3 Driver installation wizard



5. Click **Finish** after the drive installation is completed.

Figure3-4 Finishing the driver installation



6. Connect the standard USB connector of the cable to the USB port of the configuration terminal.
7. Connect the RJ-45 connector of the cable to the console port of the switch.

Connecting a micro USB console cable

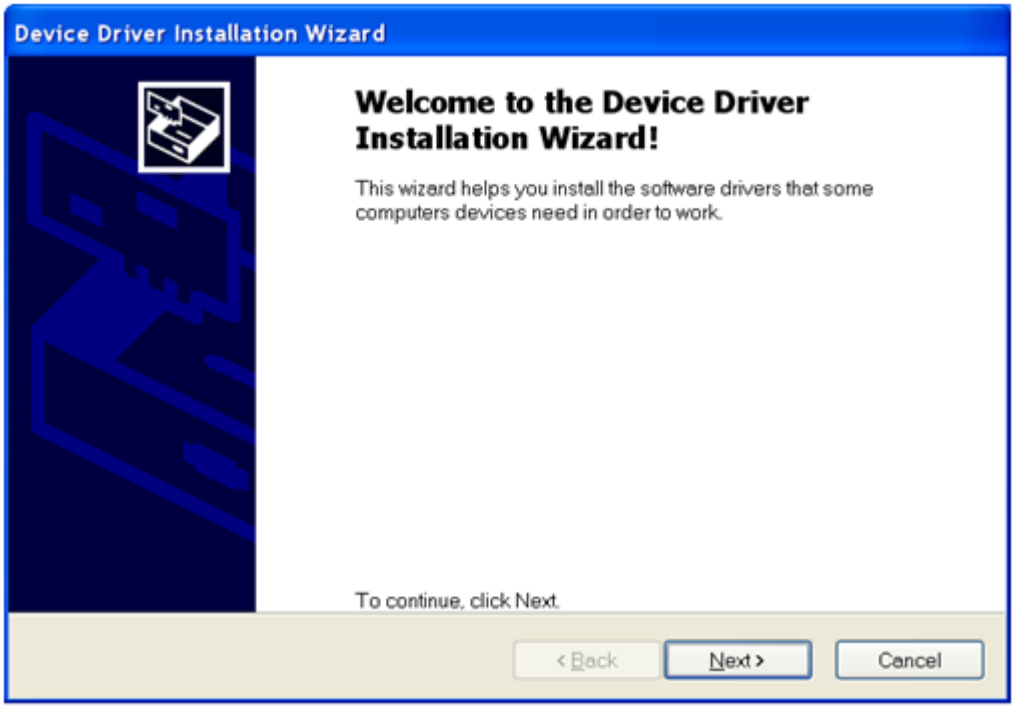
A micro USB console cable has a micro USB Type B connector at one end to connect to the micro USB console port of the switch, and a standard USB Type A connector at the other end to connect to the USB port on the configuration terminal.

To connect to the PC through a micro USB console cable:

1. Connect the standard USB Type A connector to the USB port of the PC.
2. Connect the micro USB Type B connector to the micro USB console port of the switch.
3. Click the following link, or copy it to the address bar on the browser to log in to download and install the USB console driver on the configuration terminal.

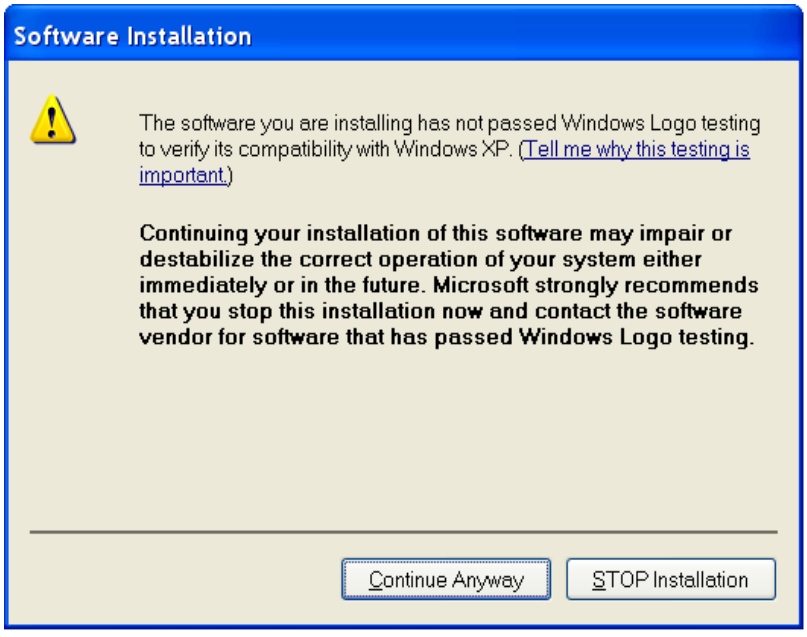
   http://www.h3c.com/en/home/USB_Console/
4. Select a driver program according to the operating system you use:
   - **XR21V1410_XR21B1411_Windows_Ver1840_x86_Installer.EXE**—32-bit operating system.
   - **XR21V1410_XR21B1411_Windows_Ver1840_x64_Installer.EXE**—64-bit operating system.
5. Click **Next** on the installation wizard.

Figure3-5 Device Driver Installation Wizard



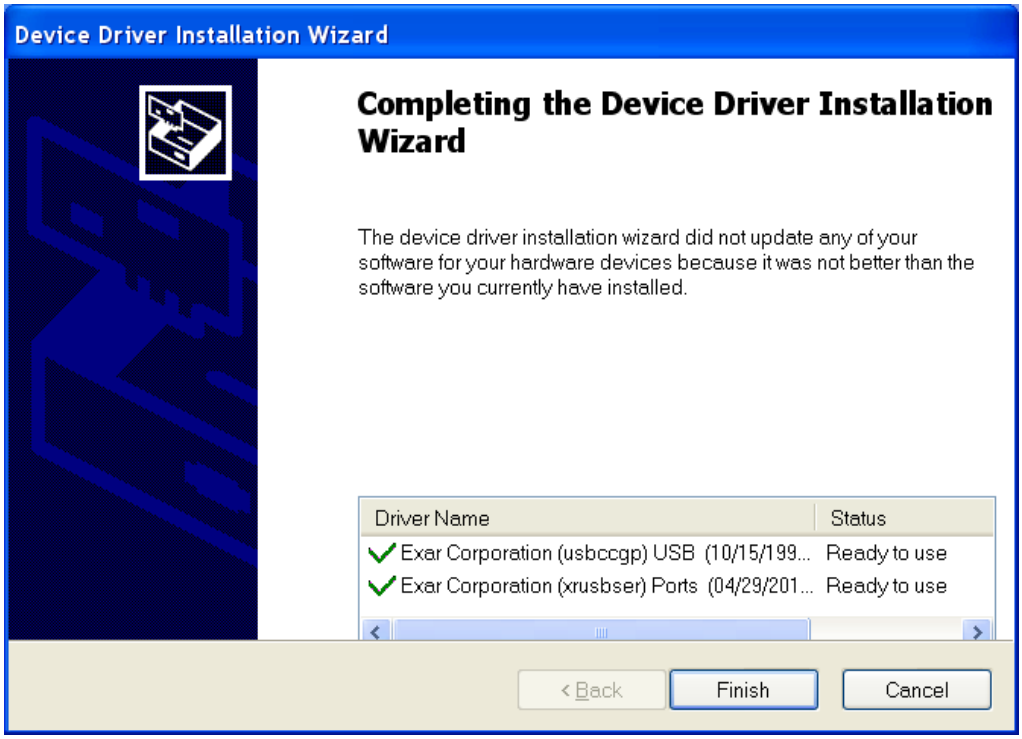
6. Click **Continue Anyway** if the following dialog box appears.

Figure3-6 Software Installation



7. Click **Finish**.

Figure3-7 Completing the device driver installation wizard



Setting terminal parameters

To configure and manage the switch through the console port, you must run a terminal emulator program, such as TeraTermPro, on your configuration terminal. You can use the emulator program to connect a network device, a Telnet site, or an SSH site. For more information about the terminal emulator programs, see the user guides for these programs.

Configure the terminal parameters as follows:

- **Bits per second**—9,600.
- **Data bits**—8.
- **Parity**—None.
- **Stop bits**—1.
- **Flow control**—None.

Starting the switch

Pre-start checklist

Before powering on the switch, verify the following items:

- Each fan tray slot is installed with a fan tray.
- The power cord is correctly connected.
- The input power voltage is as required by the switch.
- The console cable is correctly connected.
- The PC has started, and the terminal parameters have been correctly configured.

Powering on the switch

During the startup process, you can access Boot ROM menus to perform tasks such as software upgrade and file management. The Boot ROM interface and menu options differ with software versions. For more information about Boot ROM menu options, see the software-matching release notes for the device.

After the startup process is completed, you can access the CLI to configure the switch.

For more information about the configuration commands and CLI interface, see the configuration guides and command references for the switch series.

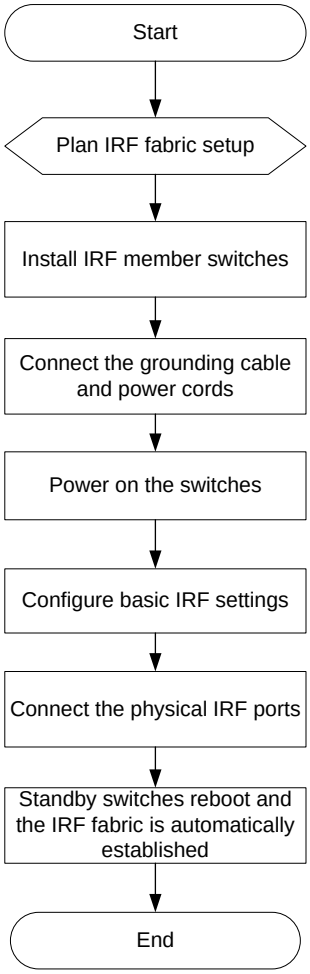
4 Setting up an IRF fabric

You can use H3C IRF technology to connect and virtualize S6520X-EI or S6520X-HI switches into a large virtual switch called an "IRF fabric" for flattened network topology, and high availability, scalability, and manageability.

An S6520X-EI or S6520X-HI switch can set up an IRF fabric only with switches from the same switch series.

IRF fabric setup flowchart

Figure4-1 IRF fabric setup flowchart



To set up an IRF fabric:

Step	Description
1. Plan IRF fabric setup	Plan the installation site and IRF fabric setup parameters: • Planning IRF fabric size and the installation site • Identifying the master switch and planning IRF member IDs • Planning IRF topology and connections

Step	Description
	• Identifying physical IRF ports on the member switches • Planning the cabling scheme
2. Install IRF member switches	See "Installing the switch in a 19-inch rack" or "Mounting the switch on a workbench."
3. Connect grounding cables and power cords	See "Grounding the switch" and "Connecting the power cord."
4. Power on the switches	N/A
5. Configure basic IRF settings	See the virtual technologies configuration guide in the configuration guides for the switch series.
6. Connect the physical IRF ports	Connect physical IRF ports on switches. All switches except the master switch automatically reboot, and the IRF fabric is established.

Planning IRF fabric setup

This section describes issues that an IRF fabric setup plan must cover.

Planning IRF fabric size and the installation site

Choose switch models and identify the number of required IRF member switches, depending on the user density and upstream bandwidth requirements. The switching capacity of an IRF fabric equals the total switching capacities of all member switches.

Plan the installation site depending on your network solution, as follows:

- Place all IRF member switches in one rack for centralized high-density access.
- Distribute the IRF member switches in different racks to implement the ToR access solution for a data center.

NOTE:

For the maximum IRF member devices supported by the switch, see the release notes that come with the switch.

Identifying the master switch and planning IRF member IDs

Determine which switch you want to use as the master for managing all member switches in the IRF fabric.

An IRF fabric has only one master switch. You configure and manage all member switches in the IRF fabric at the CLI of the master switch. IRF member switches automatically elect a master.

You can affect the election result by assigning a high member priority to the intended master switch. For more information about master election, see virtual technologies configuration guide in the configuration guides for the switch series.

Prepare an IRF member ID assignment scheme. An IRF fabric uses member IDs to uniquely identify and manage its members, and you must assign each IRF member switch a unique member ID.

Planning IRF topology and connections

You can create an IRF fabric in daisy chain topology or more reliable ring topology. In ring topology, the failure of one IRF link does not cause the IRF fabric to split as in daisy chain topology. Instead, the IRF fabric changes to a daisy chain topology without interrupting network services.

You connect the IRF member switches through IRF ports, the logical interfaces for the connections between IRF member switches. Each IRF member switch has two IRF ports: IRF-port 1 and IRF-port 2. To use an IRF port, you must bind a minimum of one physical port to it.

When connecting two neighboring IRF member switches, you must connect the physical ports of IRF-port 1 on one switch to the physical ports of IRF-port 2 on the other switch.

The switch can provide 5G/10GE/25G/40GE/100GE IRF connections. See Table4-1 for the available IRF physical ports. You can bind several IRF physical ports to an IRF port for increased bandwidth and availability.

Figure4-2 and Figure4-3 show the topologies of an IRF fabric made up of three S6520X-54QC-EI switches. The IRF port connections in the two figures are for illustration only, and more connection methods are available.

Figure4-2 IRF fabric in daisy chain topology

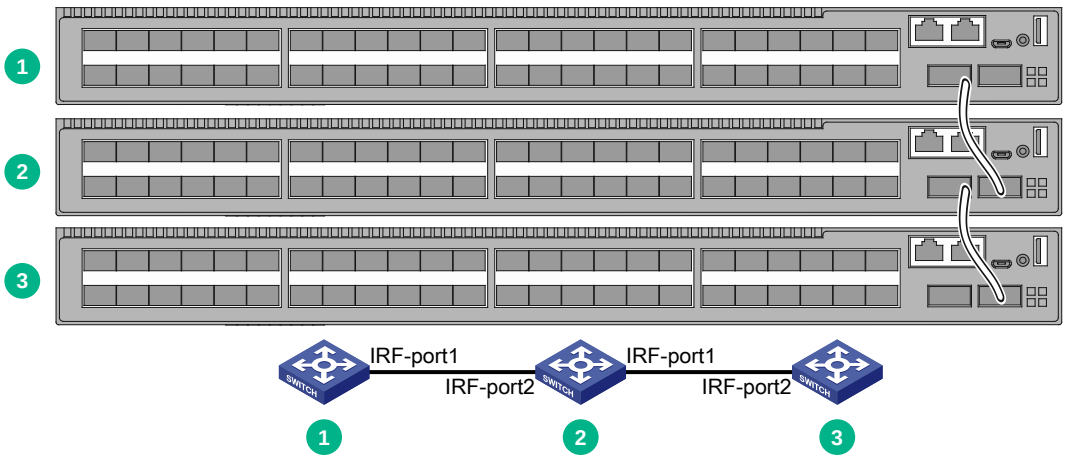
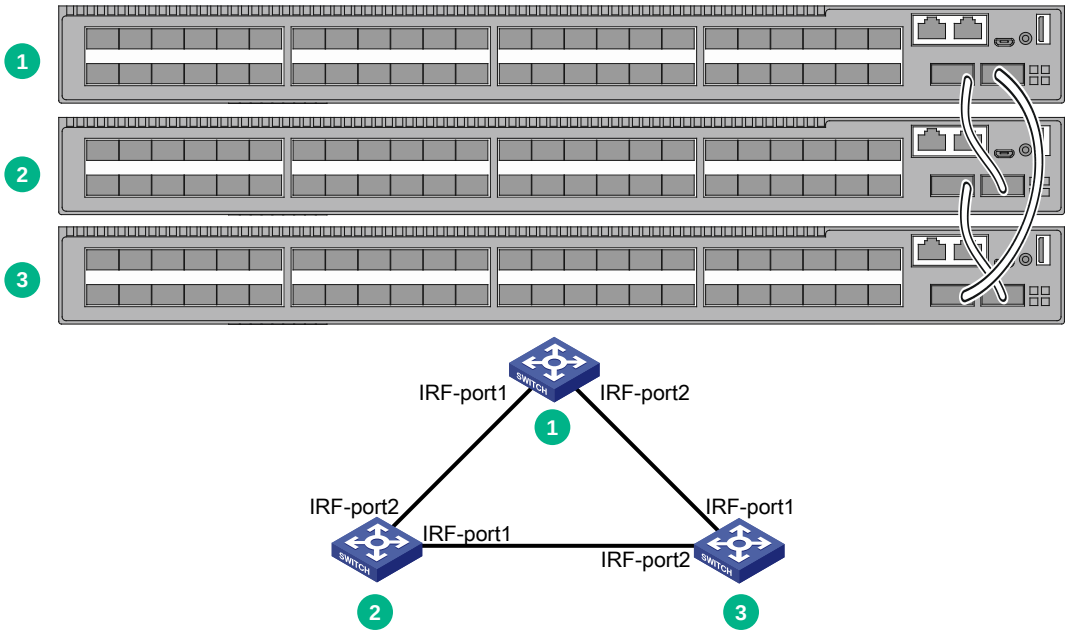


Figure4-3 IRF fabric in ring topology



Identifying physical IRF ports on the member switches

Identify the physical IRF ports on the member switches according to your topology and connection scheme.

Table4-1 shows the physical ports that can be used for IRF connection and the port use restrictions.

Table4-1 Candidate physical IRF ports and their use restrictions

Chassis	Candidate physical IRF ports	Use restrictions

S6520X-30QC-EI
S6520X-30QC-HI
	• 24 × SFP+ ports on the front panel
	• 2 × QSFP+ ports on the front panel
	• The following ports provided on the expansion cards:
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ QSFP+ ports
		• Physical ports on interface modules and the front panel can be bound to the same IRF logical interface.
		• All physical ports to be bound to an IRF logical interface must have the same data rate.
		• A QSFP+ port that is split into four virtual SFP+ ports cannot be used as a physical IRF port.
		• A QSFP28 port that is split into four virtual SFP28 ports cannot be used as a physical IRF port.

S6520X-54QC-EI
S6520X-54QC-HI
	• 48 × SFP+ ports on the front panel
	• 2 × QSFP+ ports on the front panel
	• The following ports provided on the expansion cards:
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ QSFP+ ports	

Chassis	Candidate physical IRF ports	Use restrictions

S6520X-30HC-EI
S6520X-30HC-HI
	• 24 × SFP+ ports on the front panel
	• 2 × QSFP28 ports on the front panel
	• The following ports provided on the expansion cards:
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ QSFP+ ports	

S6520X-54HC-EI
S6520X-54HC-HI
	• 48 × SFP+ ports on the front panel
	• 2 × QSFP28 ports on the front panel
	• The following ports provided on the expansion cards:
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ QSFP+ ports	

S6520X-54HC-UPWR-EI	• 24 × SFP+ ports on the front panel
	• 4 × QSFP28 ports on the front panel
	• The following ports provided on the expansion cards installed on the front panel:
	  ○ 10G/5G/2.5G/1000/100BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	• The following ports provided on the expansion cards installed on the rear panel:
	  ○ 5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000BASE-T autosensing Ethernet ports
	  ○ 10G/5G/2.5G/1000/100BASE-T autosensing Ethernet ports
	  ○ SFP+ ports
	  ○ QSFP+ ports
	  ○ SFP28 ports
	  ○ QSFP28 ports	

S6520X-30HF-EI S6520X-30HF-HI	• 24 × SFP+ ports on the front panel • 6 × QSFP28 ports on the front panel	• All physical ports to be bound to an IRF logical interface must have the same data rate. • An SFP+ port can be used as an IRF physical port only when it operates in 10 Gbps. • A QSFP28 port can be used as an IRF physical port only when it operates at 100 Gbps.

Chassis	Candidate physical IRF ports	Use restrictions
S6520X-54HF-EI S6520X-54HF-HI	• 48 × SFP+ ports on the front panel • 6 × QSFP28 ports on the front panel	• All physical ports to be bound to an IRF logical interface must have the same data rate. • An SFP+ port can be used as an IRF physical port only when it operates in 10 Gbps. • A QSFP28 port can be used as a IRF physical port only when it operates at 100 Gbps.

Planning the cabling scheme

Use the following cables to connect the IRF physical ports on the switch :

- **5G/2.5G/1000BASE-T, 10G/5G/2.5G/1000BASE-T, and 10G/5G/2.5G/1000/100BASE-T autosensing Ethernet ports**—For the available cables, see hardware information and specifications for the switch series.
- **SFP+ ports**—SFP+ transceiver modules and optical fibers or SFP+ cables. For the available models, see hardware information and specifications for the switch series.
- **QSFP+ ports**—QSFP+ transceiver modules and optical fibers or QSFP+ cables. For the available models, see hardware information and specifications for the switch series.
- **SFP28 ports**—SFP28 transceiver modules and optical fibers or SFP28 cables. For the available models, see hardware information and specifications for the switch series.
- **QSFP28 ports**—QSFP28 transceiver modules and optical fibers or QSFP28 cables. For the available models, see hardware information and specifications for the switch series.

For a short-distance IRF connection in an equipment room, use a twisted pair/SFP+/QSFP+/SFP28/QSFP28 cable.

For a long-distance IRF connection, use SFP+/QSFP+/SFP28/QSFP28 transceiver modules and optical fibers.

The following subsections describe several H3C recommended IRF connection schemes by using SFP+ cables and SFP+ transceiver modules and fibers. All these schemes use a ring topology.

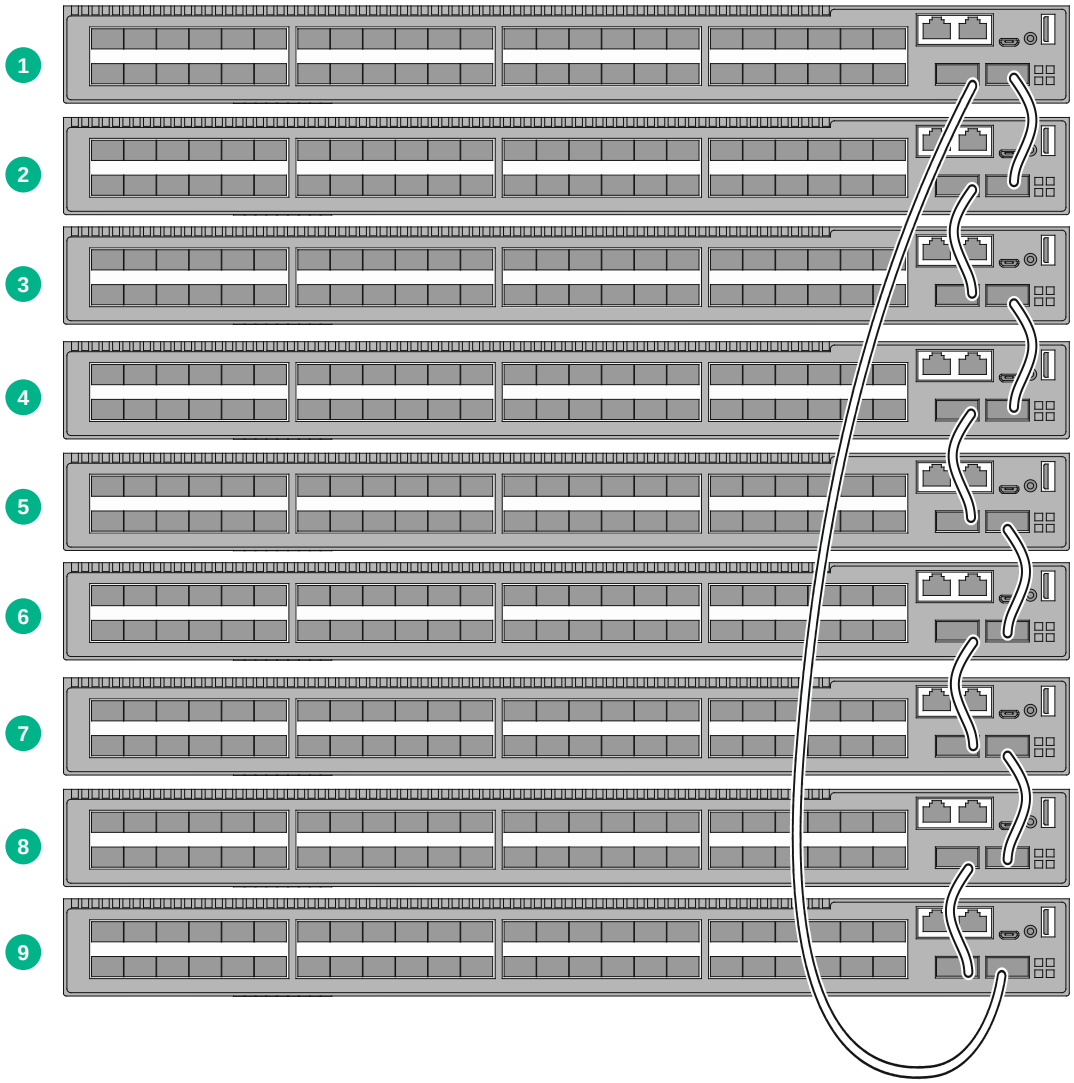
IMPORTANT:

In these schemes, all physical IRF ports are located on the same side. If physical IRF ports are on different sides, you must measure the distance between them to select an appropriate cable.

Connecting the IRF member switches in one rack

Connect the IRF member switches (9 switches in this example) in a rack as shown in Figure4-4. The switches in the ring topology (see Figure4-5) are in the same order as connected in the rack.

Figure4-4 Connecting the switches in one rack



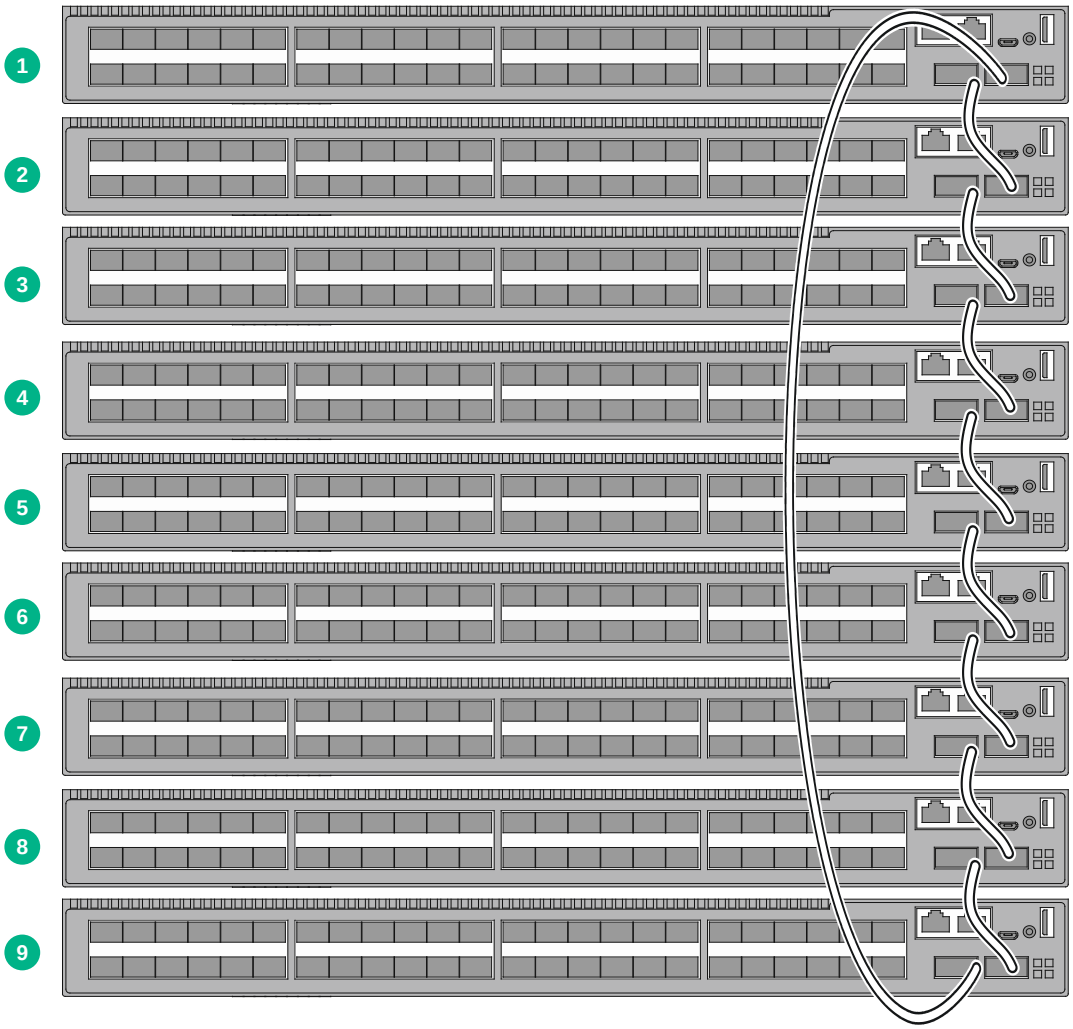
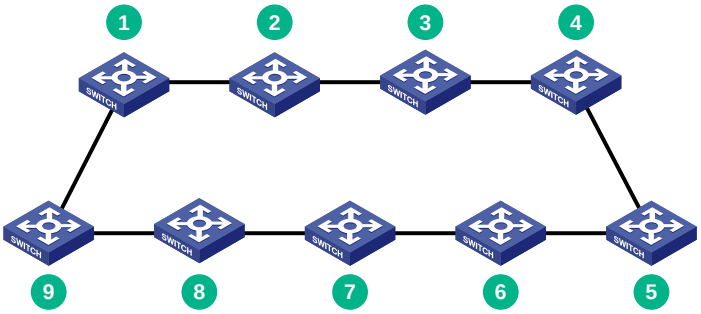


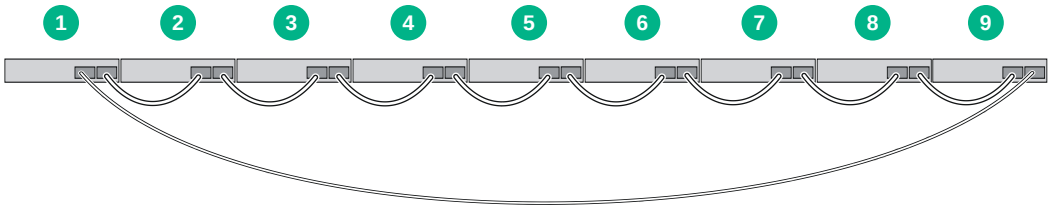
Figure4-5 IRF fabric topology



Connecting the IRF member switches in a ToR solution

You can install IRF member switches in different racks side by side to deploy a top of rack (ToR) solution.

Figure4-6 ToR cabling



Configuring basic IRF settings

After you install the IRF member switches, power on the switches, and log in to each IRF member switch (see the fundamentals configuration guide in the configuration guides for the switch series) to configure their member IDs, member priorities, and IRF port bindings.

Follow these guidelines when you configure the switches:

- Assign the master switch higher member priority than any other switch.
- Bind physical ports to IRF port 1 on one switch and to IRF port 2 on the other switch. You perform IRF port binding before or after connecting IRF physical ports depending on the software release.
- To bind the ports on an interface module to an IRF port, you must install the interface module first.
- Execute the **`display irf configuration`** command to verify the basic IRF settings.

For more information about configuring basic IRF settings, see the virtual technologies configuration guide in the configuration guides for the switch series.

Connecting the physical IRF ports

Use twisted pair/SFP+/QSFP+/SFP28/QSFP28 cables or SFP+/QSFP+/SFP28/QSFP28 transceiver modules and fibers to connect the IRF member switches as planned.

Wear an ESD wrist strap when you connect twisted pair/SFP+/QSFP+/SFP28/QSFP28 cables or SFP+/QSFP+/SFP28/QSFP28 transceiver modules and fibers. For how to connect them, see *H3C Transceiver Modules and Network Cables Installation Guide*.

Verifying the IRF fabric setup

To verify the basic functionality of the IRF fabric after you finish configuring basic IRF settings and connecting IRF ports:

1. Log in to the IRF fabric through the console port of any member switch.
2. Create a Layer 3 interface, assign it an IP address, and make sure the IRF fabric and the remote network management station can reach each other.
3. Use Telnet, web, or SNMP to access the IRF fabric from the network management station. (See the fundamentals configuration guide in the configuration guides for the switch series.)
4. Verify that you can manage all member switches as if they were one node.
5. Display the running status of the IRF fabric by using the commands in Table4-2.

Table4-2 Displaying and maintaining IRF configuration and running status

Task	Command
Display information about the IRF fabric.	**display irf**
Display all members' IRF configurations that take effect at a reboot.	**display irf configuration**
Display IRF fabric topology information.	**display irf topology**

NOTE:

To avoid IP address collision and network problems, configure a minimum of one multi-active detection (MAD) mechanism to detect the presence of multiple identical IRF fabrics and handle collisions. For more information about MAD detection, see the virtual technologies configuration guide in the configuration guides for the switch series.

5 Maintenance and troubleshooting

Power supply failure

The S6520X-30QC-EI, S6520X-54QC-EI, S6520X-30HC-EI, S6520X-54HC-EI, S6520X-30QC-HI, S6520X-54QC-HI, S6520X-30HC-HI, and S6520X-54HC-HI switches each provide two power supply status LEDs PWR1 and PWR2. The PSR250-12A, PSR250-12A1, PSR450-12D, PSR1600B-12A-B, PSR600-54A-B, and PSR920-54A-B power supplies provide also LEDs. You can observe the power supply status LEDs on the switch in combination with the LEDs on the power supplies to identify power supply failures. For information about the LEDs on the power supplies, see the manuals for the power supplies.

For the S6520X-30HF-EI, S6520X-54HF-EI, S6520X-30HF-HI, and S6520X-54HF-HI switches, you can determine whether a power supply failure has occurred by observing the system status LED (SYS). For information, see hardware information and specifications for the switch series.

Symptom

- S6520X-30QC-EI, S6520X-54QC-EI, S6520X-30HC-EI, S6520X-54HC-EI, S6520X-30QC-HI, S6520X-54QC-HI, S6520X-30HC-HI, and S6520X-54HC-HI switches

  The status LED on a power supply in combination with the power supply status LED on the switch indicates that the power supply has failed.
- S6520X-30HF-EI, S6520X-54HF-EI, S6520X-30HF-HI, and S6520X-54HF-HI switches

  The system status LED on the switch indicates a power supply failure.

Solution

To resolve the issue:

1. Verify that the power cord is correctly connected.
2. Verify that the power source meets the requirement.
3. Verify that the operating temperature of the switch is in an acceptable range and the power supply has good ventilation.
4. If the issue persists, contact H3C Support.

To replace a power supply, see "Installing and removing a power supply."

Fan tray failure

WARNING!

- If both fan trays fail during switch operation, replace them within 2 minutes.
- If one fan tray fails, perform either of the following tasks:
  - If the ambient temperature is not higher than 27°C (80.6°F), replace the fan tray within 24 hours and make sure the failed fan tray remains in position before the replacement.
  - If the ambient temperature is higher than 27°C (80.6°F), replace the fan tray immediately.

The switch uses removable fan trays. If a fan tray fails, see "Installing and removing a fan tray" to replace the fan tray.

Configuration terminal display issues

If the configuration environment setup is correct, the configuration terminal displays booting information when the switch is powered on. If the setup is incorrect, the configuration terminal displays nothing or garbled text.

No display

Symptom

The configuration terminal does not have display when the switch is powered on.

Solution

To resolve the issue:

1. Verify that the power supply is supplying power to the switch correctly.
2. Verify that the console cable is correctly connected.
3. Verify that the console cable does not have any issues and the terminal settings are correct.
4. If the issue persists, contact H3C Support.

Garbled display

Symptom

The display on the configuration terminal is garbled.

Solution

To resolve the issue:

1. Verify that the following settings are configured for the terminal:
   - **Baud rate**—9,600.
   - **Data bits**—8.
   - **Stop bits**—1.
   - **Parity**—None.
   - **Flow control**—None.
2. If the issue persists, contact H3C Support.