S9303, S9306, S9312, and S9300E Series Switches Quick Installation Guide

(Note: This quick installation guide is also the **Installation Template**.)

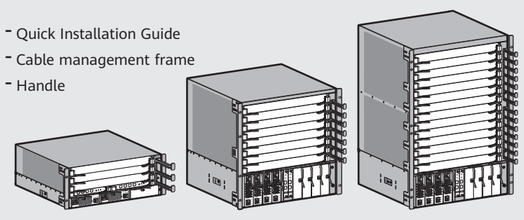
Issue: 09
Part number: 31507799

HUAWEI

1 Device Overview

Packing List

- Chassis
- Cable tie
- Tweezers (for inserting and removing optical fibers)
- Signal cable label
- Power cable label
- ESD wrist strap
- Fiber binding tape
- Serial cable
- Power cable
- Screw
- Panel screw
- Floating nut
- Quick Installation Guide
- Cable management frame
- Handle



Item	S9303&S9303E	S9306&S9306E	S9312&S9312E
Height	175 mm	441.7 mm	663.9 mm
Width x Depth	Without cable management frame: 442 mm x 517.4 mm With cable management frame: 442 mm x 585 mm		
Weight (fully loaded)	S9303: 31.6 kg S9303E: 32.6 kg	S9306: 61.8 kg S9306E: 75.8 kg	S9312: 97 kg S9312E: 116 kg
Max. power consumption	S9303: 1000 W S9303E: 1185 W	S9306: 2200 W S9306E: 2640 W	S9312: 4200 W S9312E: 4906 W
Power parameters	● DC input voltage Rated: -48 V DC/-60 V DC Max. range: 1600 W/2400 W DC power module: -38.4 V DC to -72 V DC 2200 W DC power module: -40 V DC to -72 V DC ● AC input voltage Rated: 110 V AC/220 V AC, 50/60 Hz Max. range: 90 V AC to 290 V AC, 47 Hz to 63 Hz (Max out power reduces to half when input voltage is 90 V AC to 175 V AC) ● HVDC input voltage (3000 W HVDC) Rated: 240 V DC/380 V DC Max. range: 190 V DC to 400 V DC ● HVDC input voltage (3000 W AC) Rated: 240 V DC Max. range: 190 V DC to 290 V DC		

NOTE

- S9300 series terabit routing switches include S9303, S9306, and S9312. S9300E series terabit routing switches include S9303E, S9306E, and S9312E.
- In this document, 03 refers to S9303&S9303E; 06 refers to S9306&S9306E; 12 refers to S9312&S9312E.
- S9300&S9300E series switches are installed in the same way, and S9306 is used as an example here. For more information, see the *Hardware Installation and Component Replacement*.
- Figures in the document are for reference only and may be different from actual devices.
- The type and quantity of items in a packing list vary depending on the product model. Check the delivered items against the actual packing list.

2 Safety Guidelines

Observe all safety regulations and precautions

- To ensure personal and equipment safety, observe all the safety precautions on the equipment and in this document. **DANGER** **WARNING** and **NOTICE** items do not cover all the safety precautions and are only supplementary to the safety precautions.
- Follow all the safety precautions and instructions provided by Huawei. The safety precautions outlined in this document are only requirements of Huawei and do not cover general safety regulations. Huawei is not liable for any consequence that results from violation of regulations pertaining to safe operations or safety codes pertaining to design, production, and equipment use.

Operator qualifications

Only trained and qualified personnel are allowed to install, operate or maintain the equipment. Familiarize yourself with all safety precautions before performing any operation on the equipment.

DANGER

- Do not install or remove the equipment or power cables while power is on.
- To ensure equipment and personal safety, ground the equipment before powering it on.

WARNING

- Use multiple persons to move or lift a chassis and take measures to protect personal safety.
- Laser beams will cause eye damage. Do not look into bores of optical modules or optical fibers without eye protection.

NOTICE

- During equipment transport and installation, prevent the equipment from colliding with objects like doors, walls, or shelves.
- Move an unpacked chassis upright. Do not drag it with it lying down.
- Leave at least 50 mm clearance at the rear and both side of the chassis for heat dissipation.
- Do not touch unpainted surfaces of the equipment with wet or contaminated gloves.

ESD protection

Before installing, operating, or maintaining the equipment, wear an ESD wrist strap and insert the other end into the ESD jack on the chassis or cabinet. Remove conductive objects like jewelry and watches to prevent damages to the equipment and cards caused by short circuits.

3 Installation Requirements

Site environment

- The equipment must be installed in a clean, dry, and well ventilated standard equipment room with controllable temperature. The equipment room must be free from leaking or dripping water, heavy dew, and humidity.
- Take dustproof measures in the equipment room. Dust will cause electrostatic charges on the chassis and affect connections of metal connectors and joints. This shortens equipment service life and may cause failures of the switch.
- The temperature and humidity in the installation site must be within allowed ranges. (See the table below.)

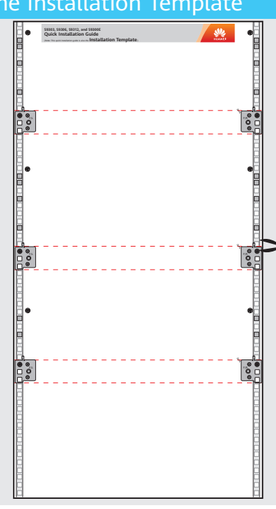
Item	Requirement
Storage temperature	-40°C to +70°C
Storage altitude	< 5000 m
Operating temperature and altitude	● -60 m to +1800 m: 0°C to 45°C ● 1800 m to 4000 m: decrease by 1°C every time the altitude increases by 220 m ● 4000 m: 0°C to 35°C
Relative humidity	5%RH to 95%RH, noncondensing

Cabinet requirements

- S9300&S9300E series switches can be installed in 19-inch standard cabinets. N66E or N68E cabinets are recommended. For more information about cabinets, see the *Hardware Description*.
- Cabinets purchased from other vendors must have enough space for equipment installation (S9303&S9303E ≥ 5U, S9306&S9306E ≥ 11U, S9312&S9312E ≥ 16U). The cabinet depth must be larger than 600 mm.
- If a 600-mm deep cabinet is used, ensure that doors of the cabinet are single-swing doors. Use guide rails or a tray in the cabinet.
- For a 600-mm deep cabinet, the distance between front mounting rails and front door should be at least 95 mm. For an 800-mm deep cabinet, this distance should be at least 100 mm.
- Huawei offers expandable guide rails for switches. Place an order if you need them.

4 Installing the Chassis

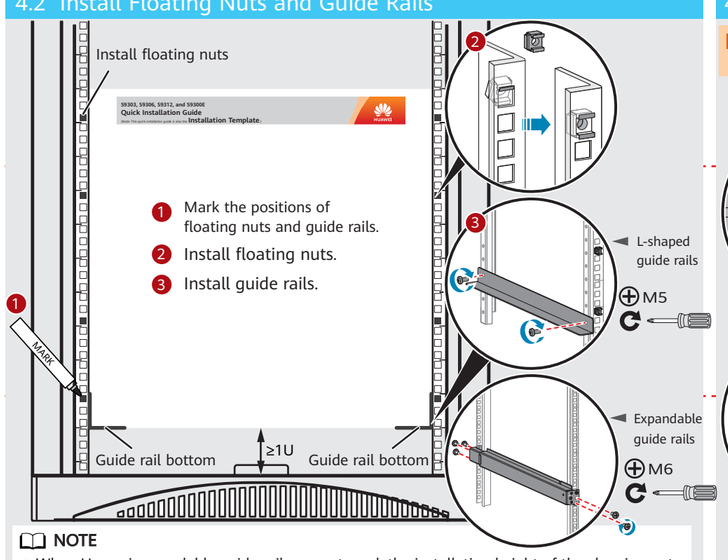
4.1 Cut the Installation Template



NOTE

- 03: If you use Huawei expandable guide rails, cut along the line of "03 (Huawei guide rails used)". If you do not use Huawei expandable guide rails, cut along the line of "03 (Huawei guide rails not used)".
- 06: If you use Huawei expandable guide rails, cut along the line of "06 (Huawei guide rails used)". If you do not use Huawei expandable guide rails, cut along the line of "06 (Huawei guide rails not used)".
- 12: If you use Huawei expandable guide rails, cut along the line of "12 (Huawei guide rails used)". If you do not use Huawei expandable guide rails, cut along the line of "12 (Huawei guide rails not used)".

4.2 Install Floating Nuts and Guide Rails



NOTE

- When Huawei expandable guide rails are not used, the installation height of the chassis must be a multiple of 1 U (including 1 U, 1U = 44.45 mm).
- Identify the left and right guide rails and the front and rear ends of each guide rail according to the F/R and F/L flags.
- Adjust the length of the guide rails and place them in marked positions on the mounting rails by the plate at the front end and hook at the rear end. Then secure the guide rails with screws.
- Use a tray to support the chassis if no guide rails are available.

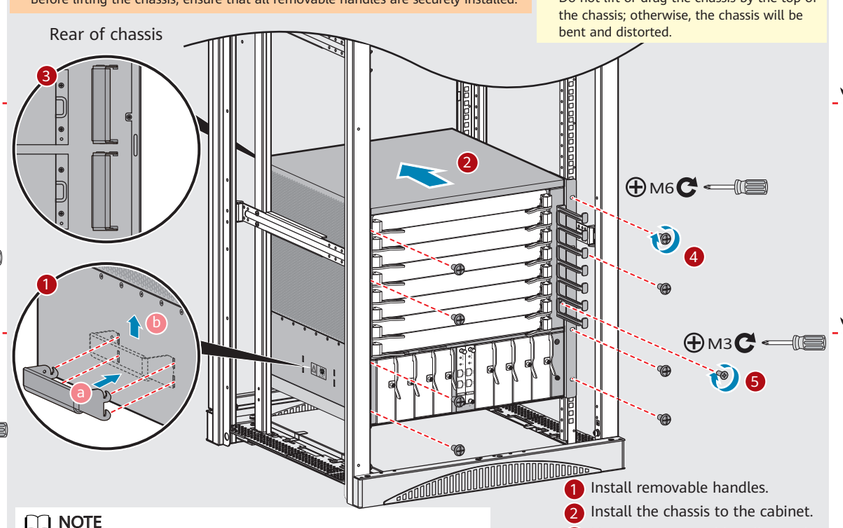
4.3 Install the Chassis

WARNING

Before lifting the chassis, ensure that all removable handles are securely installed.

NOTICE

Do not lift or drag the chassis by the top of the chassis; otherwise, the chassis will be bent and distorted.



1. Install removable handles.
2. Install the chassis to the cabinet.
3. Hang the removed handles at the rear of the chassis.
4. Fix the chassis with M6 screws.
5. Fix the cable management frames with M3 screws.

NOTE

- An 03 chassis has no handles.
- After lifting a 06 or 12 chassis on guide rails, remove the handles and push the chassis into the cabinet. Hang the handles at the rear of chassis.
- Ensure the chassis is completely attached to the guide rails or a tray.

5 Installing Modules

Install cards

NOTICE

- Install filler panels in all the empty slots for electromagnetic shielding in compliance with Electro Magnetic Compatibility (EMC) and efficient heat dissipation.
- Before installing cards, ensure the chassis and cards are free from water drips.
- Reinstall the cards delivered in the chassis to ensure that they are securely installed.
- Slowly, horizontally push a card along the guide rails, and do not shake the card.
- The following cards are not hot swappable: LE0MFSUA, LE2D2VS08000, and LE0D0VSTSA00. Do not install or remove them while the power is on.
- Ensure that all cards are completely seated in the slots.

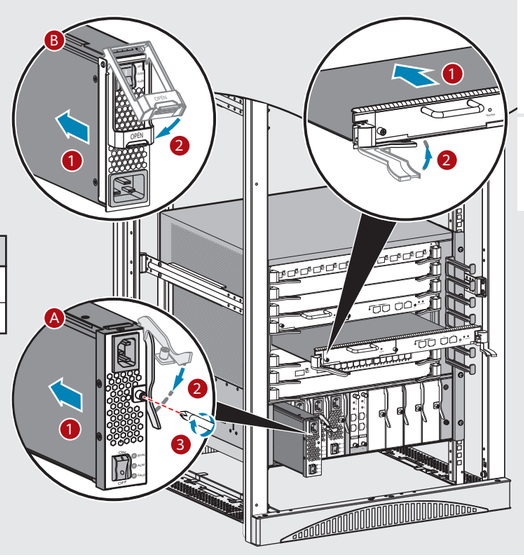
Install power modules

Product support for power modules

Model	1600 W DC	2200 W DC	2400 W DC	800 W AC	2200 W AC	3000 W AC	3000 W HVDC
S9300	Supported	Supported	Supported	Supported	Supported	Supported	Supported
S9300E	Not supported	Supported	Supported	Supported	Supported	Supported	Supported

NOTICE

- Before installing a power module, turn its power switch to OFF.
- For details about whether the AC and DC power modules can be used in the same chassis, see the *Hardware Installation and Component Replacement* of the corresponding product.
- When a switch is used as a PoE switch: If the switch is running V200R005C00 or an earlier version, its PoE slots support only AC power modules and cannot have DC power modules installed. In V200R006C00 and later versions, the PoE slots also support 2200 W DC power modules. In V200R012C00 and later versions, the PoE slots also support 3000 W AC power modules and 3000 W high-voltage DC power modules.
- To use 1600 W DC power modules in 1+1 redundancy on S9306&S9312, install one power module in the active area (PWR1, PWR2) and one in standby area (PWR3, PWR4).
- Ensure that all power modules are completely seated in the slots.

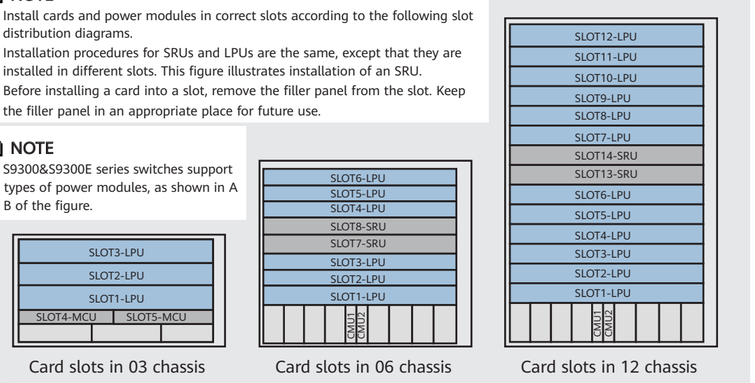


NOTE

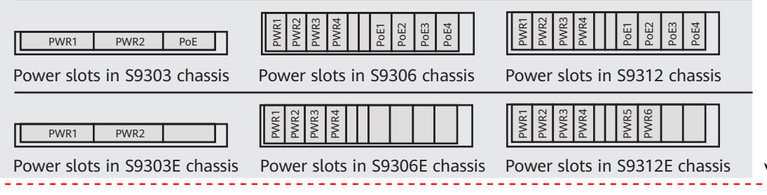
- Install cards and power modules in correct slots according to the following slot distribution diagrams.
- Installation procedures for SRUs and LPUs are the same, except that they are installed in different slots. This figure illustrates installation of an SRU.
- Before installing a card into a slot, remove the filler panel from the slot. Keep the filler panel in an appropriate place for future use.

NOTE

The S9300&S9300E series switches support two types of power modules, as shown in A and B of the figure.



Card slots in 03 chassis | Card slots in 06 chassis | Card slots in 12 chassis



Power slots in S9303 chassis | Power slots in S9306 chassis | Power slots in S9312 chassis

Power slots in S9303E chassis | Power slots in S9306E chassis | Power slots in S9312E chassis

6 Connecting Cables

NOTICE

Connect the ground cable before connecting other cables.

Connect power cables

DANGER

To avoid electric shock, do not install power cables while the power is on.

NOTICE

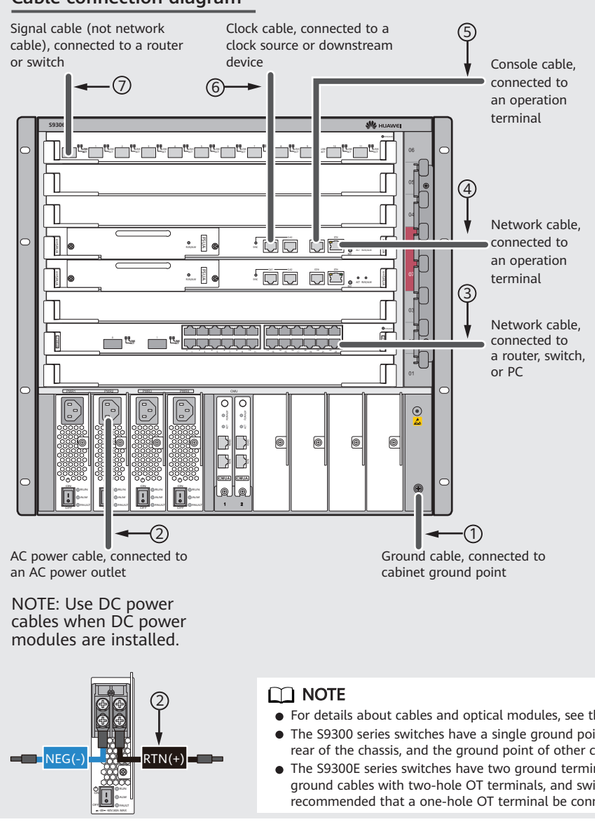
- Before connecting power cables to power modules, make sure the power switches on the power moudle are turned OFF.
- The plug type and current capability of a power cable must be compatible with the device. Therefore, a power cable can only be used on the chassis with which it is delivered.

Connect signal cables

NOTICE

- Cover idle optical ports and optical modules with dust plugs and cover idle optical fibers with dust caps.
- A fiber's bend radius must be larger than 20 times the fiber's diameter, and is generally larger than or equal to 40 mm.
- Do not bundle fibers too tightly. Ensure that you can easily remove a single fiber from the bundle.
- Use a network cable tester to test conductivity of network cables before connecting them.

Cable connection diagram



NOTE: Use DC power cables when DC power modules are installed.

NOTE

- For details about cables and optical modules, see the *Hardware Description*.
- The S9300 series switches have a single ground point on the chassis. The ground point of the S9303 is located on the lower left part at the rear of the chassis, and the ground point of other chassis models is located on the lower right part at the front of the chassis.
- The S9300E series switches have two ground terminals on the lower left at the rear of the chassis. Switches delivered to North America use ground cables with two-hole OT terminals, and switches delivered to other regions use ground cables with one-hole OT terminals. It is recommended that a one-hole OT terminal be connected to the lower ground terminal on the chassis.

Cable connection description

No.	Item	Connect To	Remarks
1	Ground cable	Chassis ground point	Connect the lug with a smaller diameter (OTE-4 terminal) to the switch and the lug with a larger diameter (OTE-6 terminal) to the ground point on the cabinet.
2	AC power cable	AC power outlet	The AC power cables delivered must comply with the standards used in the delivery destination.
	DC power cable	DC power outlet	DC power cables for the S9300& S9300E have dual-hole lugs.
	High-voltage DC power cable	High-voltage DC power outlet	Only the PHD3KS54-CA power module uses this power cable.
3	Network cable	Electrical port	Cat 6e cables are not recommended for 48-port GE electrical interface cards.
4	Network cable	ETH management port	This port connects the switch to an operation terminal or network management station.
5	Console cable	Console port	When the switch is powered on for the first time, use this port for onsite configuration.
6	Clock cable	BITS port	S9300E's BITS port is reserved for future use.
7	Optical module+fiber	Optical port	Select appropriate fibers for optical modules by referring to "Pluggable Modules for Interfaces" in the *Hardware Description*.
	Copper module +network cable		Connect RJ45 network cables to GE copper modules. For more information, see "Pluggable Modules for Interfaces" in the *Hardware Description*.
	High-speed cable		Do not insert high-speed cable plugs in backwards. For more information, see "High-Speed Cable" in the *Hardware Description*.
	AOC cable		Its bend radius must be no less than 30 mm.

Route cables

NOTE

- Before routing cables, attach temporary labels on both ends of each cable to identify connected port numbers.
- Power cables should not hinder installation or removal of power modules.
- Bundle power cables at 250-mm intervals and use cable ties to fix them on the rack.
- Power cables and ground cables must be more than 30 mm away from signal cables.
- When many cables are used, place them in 3 layers and route them through the cable management frame. Ensure that the cables do not cross over each other.
- Use cable ties to bundle network cables to the rack at 250-mm intervals.
- Use binding straps to bundle optical fibers at 250-mm intervals and use cable ties to fix them on the rack.
- Run a bundle of optical fibers in a corrugated pipe, and attach adhesive tape at both ends of the corrugated pipe to prevent damage to fibers. Pass the pipe through the cable outlet at the top of cabinet and ensure the pipe is 100 mm inside the cabinet. Fasten the pipe to the rack with cable ties.

7 S9300 Clustering Using CSS Cards

NOTE

- The S9306 and S9312 switches support clustering using Cluster Switching System (CSS) cards. When using this cluster mode, the switches must have LE0MSRUA, LE0DSRUA, LE0D000SRU800, LE1D2SRUH000, LE1D2SRUH002, LE1D2SRUH100, or LE1D2SRUE000 main control units installed, and the main control units must have LE0D0VSTSA00 or LE1D2VS04000 CSS cards installed in their subcard slots.
- The LE0D0VSTSA00 can be installed in the subcard slot of an LE0MSRUA, LE0DSRUA, or LE0D000SRU800. The LE1D2VS04000 can be installed in the subcard slot of an LE1D2SRUH000, LE1D2SRUH002, LE1D2SRUH100, or LE0D000SRUE00.
- MPUs in one chassis must be the same model. MPUs in the local and remote chassis can be the same model or different models; however, the same MPU model is recommended. Two chassis with different SRUs can set up a CSS only in two cases: (1) SRUA in one chassis and SRUB in the other; (2) SRUH in one chassis and SRUE in the other and both chassis run V200R010C00 or a later version.

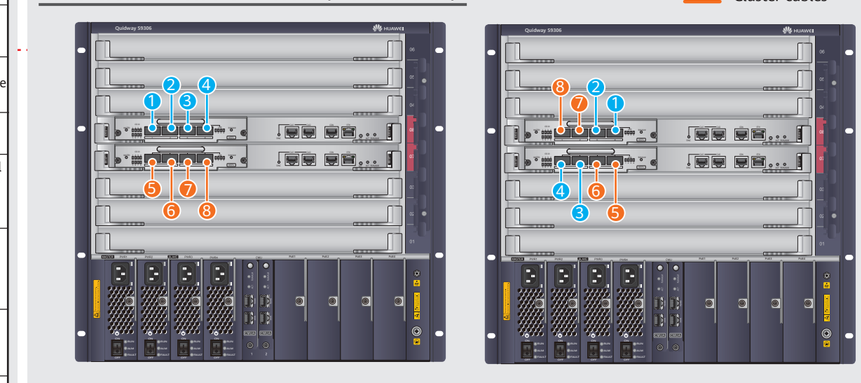
NOTICE

- When installing a copper cable, optical module, or optical fiber, you can determine that it has been installed properly after hearing a click.
- When removing a copper cable, optical module, or optical fiber, push its connector or handle slightly and then pull it out.
- Ensure that the bend radius of the copper cables or optical fibers is greater than the minimum bend rand required. For more information, see the *Hardware Description*.

Attach number labels on both ends of the cluster cables. Connect the stack ports with cluster cables.

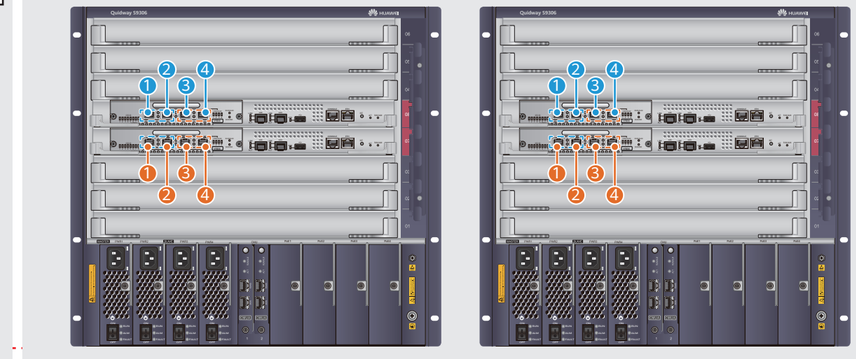
Cluster cables

Cluster cable connections for S9306 (LE0D0VSTSA00)



Cluster cable connections for S9306 (LE1D2VS04000)

Group 1 Group 2 Cluster cables



NOTE

- If LE0D0VSTSA00 are used, two member chassis must be connect all CSS ports on the CSS cards. If LE1D2VS04000 are used, it is recommended that you connect all the CSS ports on the CSS cards, and the connected ports must have the same port number.
- For more information, see the *Hardware Installation and Component Replacement*.

8 S9300E Clustering Using CSS Cards

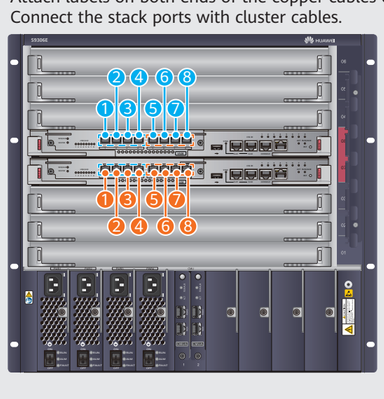
NOTE

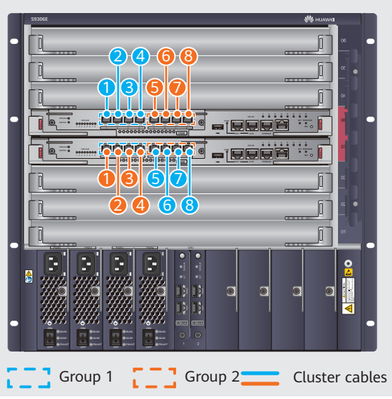
- The S9306E and S9312E switches support clustering using Cluster Switching System (CSS) cards. When using this cluster mode, the switches must have double main control units installed. In addition, the main control units must be the LE2D2SRUC000 model and have LE2D2VS08000 CSS cards installed in subcard slots.
- It is recommended that you connect all the CSS ports on the CSS cards.

NOTICE

- When installing a copper cable, optical module, or optical fiber, you can determine that it has been installed properly after hearing a click.
- When removing a copper cable, optical module, or optical fiber, push its connector or handle slightly and then pull it out.
- Ensure that the bend radius of the copper cables or optical fibers is greater than the minimum bend rand required. For more information, see the *Hardware Description*.

Attach labels on both ends of the copper cables or optical fibers, with numbers 1 to 8 on the labels. Connect the stack ports with cluster cables.





Group 1 Group 2 Cluster cables

NOTE

- Each CSS card has eight SFP+ ports, which are divided into two groups. (Group 1 includes ports 1 to 4, and group 2 includes 5 to 8.) See the following figure to connect cables between groups. Ports in a group can be connected in any sequence, but each group must have at least one cable connected. For example, any port in group 1 in chassis 1 can be connected to any port in group 1 in chassis 2.
- For more information, see the *Hardware Installation and Component Replacement*.

9 S9300&S9300E Clustering Using Service Ports

NOTE

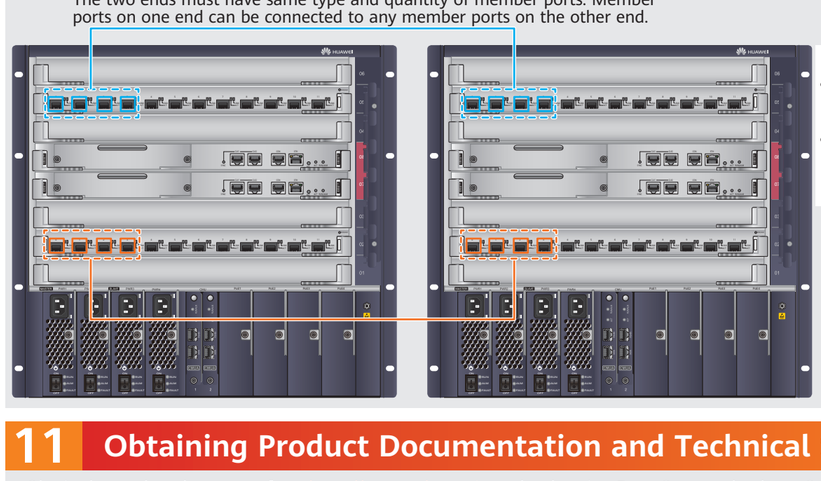
- The S9306&S9312 ,S9306E&S9312E switches support service port clustering. To use this clustering mode, each switch must have at least one main control unit. In addition, each switch can use at most two Line Processing Units (LPUs) for cluster connection. It is recommended that the two LPUs be the same model. The two chassis must use the same type of ports for cluster connection, for example, 10GE SFP+ optical ports.
- MPUs in one chassis must be the same model. MPUs in the local and remote chassis can be the same model or different models; however, the same MPU model is recommended. Two chassis with different SRUs can set up a CSS only in two cases: (1) SRUA in one chassis and SRUB in the other; (2) SRUH in one chassis and SRUE in the other and both chassis run V200R010C00 or a later version.

NOTICE

- When installing a copper cable, optical module, or optical fiber, you can determine that it has been installed properly after hearing a click.
- When removing a copper cable, optical module, or optical fiber, push its connector or handle slightly and then pull it out.
- Ensure that the bend radius of the copper cables or optical fibers is greater than the minimum bend rand required. For more information, see the *Hardware Description*.

Attach number labels on both ends of the cluster cables. Connect the stack ports with cluster cables.

The two ends must have same type and quantity of member ports. Member ports on one end can be connected to any member ports on the other end.



NOTE

- Recommended: Install LPUS symmetrically beside MPU slots.
- For more information, see the *Hardware Installation and Component Replacement*.

10 Powering On the Chassis

WARNING

Before powering on the chassis, ensure that switches on all the power modules and connected circuit breakers are turned OFF.

1. Check that the input voltage is within the operating voltage range of the power moduels.
2. Turn on the external power source, and then turn on the power modules of the switch.
3. Check indicators of other modules when the ● RUN or ● INPUT ● OUTPUT indicators of the power modules are steady green.

Indicator status when the equipment is working normally

Module	Indicators	Status
Power module	RUN (Green) INPUT (Green) OUTPUT (Green)	● Steady green
MPU LPU Fan module CMU	RUN/ALM (Red, Green, Yellow)	● Slow blinking green
	RUN/ALM (Red, Green)	

NOTE

For more information about indicators, see the *Hardware Description*.

11 Obtaining Product Documentation and Technical Support

- Obtain the product documents from https://support.huawei.com by choosing **Data Communication** > **S Switch**. It is recommended that you use your work email to register as an equipment customer for login to Huawei support website.
- For any help, contact Huawei technical support personnel.
- If the instructions contained in the product documentation are insufficient to resolve problems that occur during device operation or maintenance, contact Huawei Technical Assistance Center for technical support. Email: support@huawei.com

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Unique Identifier: trade name: HUAWEI; product name: Switch; model number: S9300&S9300E series switches
Responsible Party- U.S. Contact Information
Huawei Technologies USA Inc.
5700 Tennyson Parkway, Suite 500
Plano, Texas 75024
Main: 214-919-0592 / TAC Hotline: 877-448-2934
FCC Compliance Statement (for products subject to Part 15)
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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