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Installation Job Aid (English) for Avaya Ethernet Routing Switch 5900 Series (NN47211-301, ver 02.02)

How to get help

To access the complete range of services and support that Avaya provides, go to www.avaya.com.

You can also go to www.avaya.com/support to access the following pages:

- technical documentation
- product training
- technical support

If you purchased a service contract for your Avaya product from a distributor or authorized reseller and you need assistance, contact the technical support staff for that distributor or reseller.

Notices

Notice paragraphs alert you about issues that require your attention. The following paragraphs describe the types of notices used in this guide.

Note:

Notes provide tips and useful information regarding the installation and operation of Avaya products.

Electrostatic alert:

ESD

ESD notices provide information about how to avoid discharge of static electricity and subsequent damage to Avaya products.

Caution:

Caution notices provide information about how to avoid possible service disruption or damage to Avaya products.

 **Warning:**

Warning notices provide information about how to avoid personal injury when working with Avaya products.

 **Voltage:**

Danger — High Voltage notices provide information about how to avoid a situation or condition that can cause serious personal injury or death from high voltage or electric shock.

 **Danger:**

Danger notices provide information about how to avoid a situation or condition that can cause serious personal injury or death.

Safety messages

Safety messages are an important part of the technical documentation. The messages alert you to hazards to personnel and equipment and provide guidance for the safe operation of your equipment. Failure to comply with the safety messages could result in equipment damage and personal injury.

Following are the most common types of safety messages.

 **Warning:**

Installation must be performed by qualified service personnel only. Read and follow all warning notices and instructions marked on the product or included in the documentation.

 **Voltage:**

This equipment relies on the building's installation for overcurrent protection. Ensure that a fuse or circuit breaker no larger than 120 VAC/20 A or 240 VAC/16 A is used on the phase conductors.

 **Caution:**

This device is a Class A product. In a domestic environment, this device can cause radio interference, in which case the user may be required to take appropriate measures.

 **Caution:**

When mounting this device in a rack, do not stack units directly on top of one another in the rack. Each unit must be secured to the rack with appropriate mounting brackets. Mounting brackets are not designed to support multiple units.

 **Voltage:**

Use only power cords that have a grounding path. Without a proper ground, a person who touches the switch is in danger of receiving an electrical shock. Lack of a grounding path to the switch can result in excessive emissions.

⚠ Voltage:

The ERS 5952GTS-PWR+ can draw up to 1900 Watts of power when two power supply units are installed and all 802.3at ports are operating at maximum power. In installations operating at 120 VAC, do not operate more than two power supplies from a single 120 VAC/20A circuit.

⚠ Warning:

Disconnecting the power cord is the only way to turn off power to this device. Always connect the power cord in a location that can be reached quickly and safely in case of an emergency.

⚠ Warning:

Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.



⚠ Caution:

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Technical specifications

The following table provides the technical specifications for the individual switches in the Ethernet Routing Switch 5900 Series. Ensure that the area where you install the switch and where it operates meets these requirements.

⚠ Warning:

To avoid bodily injury from hazardous electrical shock and current, never remove the top of the device. No user-serviceable components are inside.

Table 1: Physical specifications

Specifications	5928GTS/5928GTS-PWR+/5928GTS-uPWR/5952GTS/5952GTS-PWR+	✓
Height	44 mm – 1 Rack Unit	
Width	440 mm	
Depth	456 mm, 488 mm at the power supply.	
Weight (Switch weight with one PSU and	<ul style="list-style-type: none">• 5928GTS: 7.6 kg• 5928GTS-PWR+: 8.2 kg	

Table continues...

Specifications	5928GTS/5928GTS-PWR+/5928GTS-uPWR/5952GTS/5952GTS-PWR+	✓
required fan trays. Where, weight of the PSU is approximately 1.3 kg.)	<ul style="list-style-type: none"> • 5928GTS-uPWR: 8.3 kg • 5952GTS: 8.1 kg • 5952GTS-PWR+: 8.6 kg 	

Table 2: Electrical specifications

Power consumption	Refer to table in section AC power specifications on page 4.
Thermal rating	Refer to table in section AC power specifications on page 4.

Table 3: Environmental specifications

Operating Temperature	0° to 50°C (32° to 122°F)
Storage Temperature	-40° to 85°C (-40° to 185°F)
Operating Humidity	0 to 95 percent non-condensing
Storage Humidity	10 to 95 percent non-condensing
Maximum Operating Altitude	3048 m (10,000 feet)
Storage Altitude	-304.8 to 12,192 m (-1,000 to 40,000 feet) above sea level
Acoustic Noise	At 25°C Ambient Temperature, less than 52 dBA typical, at 50°C, less than 60 dBA. The system should never exceed 70 dBA.
Miscellaneous Operating Considerations	<ul style="list-style-type: none"> • No heat sources such as hot air vents or direct sunlight located near the switch • No sources of severe electromagnetic interference located near the switch. • No excessive dust in the environment. • An adequate power source is located within 6 feet (1.83 meters) of the switch. One 15-amp circuit is required for each power supply. • At least 2 inches (5 centimeters) on all sides of the switch unit for ventilation • Cables should be dressed to prevent blocking air flow. • Adequate clearance is allotted at the front and rear of the switch for access to cables.

Power specifications

This section provides the following specifications for Ethernet Routing Switch 5900 Series:

- [AC power specifications](#) on page 5
- [Typical power consumption](#) on page 6
- [PoE+ specifications](#) on page 6

The following table describes the AC power specifications.

Table 4: AC power specifications

Model	Power supply configuration	Power supply		Input power (marginied by 10%)		Power consumption (Thermal rating)	
		Rated	Line voltage	Watts (Total)	Amps	Watts	BTUs/hr
ERS 5952GTS-PWR+	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	1665	14.58	221	754.1
	Single supply (1000 W)			932.6	8.06	154.6	527.4
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	1662	7.12	176	600.5
	Single supply (1400 W)			1371.1	5.97	176.1	600.8
ERS 5928GTS-PWR+	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	858	7.52	137	467.4
	Single supply (1000 W)			851	7.4	131	447
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	846	3.77	126	429.9
	Single supply (1400 W)			824.4	3.61	103.4	352.6
ERS 5928GTS-uPWR	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	1662	14.5	218	744
	Single supply (1000 W)			837	7.3	114	389
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	1616	7.1	172	588
	Single supply (1400 W)			1285	5.6	143	487
ERS 5952GTS	Dual supply (450 W/PSU)	450 W/PSU	100–120 VAC	90	0.78	90	307.1
	Single supply (450 W)			60.8	0.54	60.8	207.4
	Dual supply (450 W/PSU)	450 W/PSU	200–240 VAC	88.6	0.46	88.6	302.3
	Single supply (450 W)			61.6	0.32	61.6	210.3
ERS 5928GTS	Dual supply (450 W/PSU)	450 W/PSU	100–120 VAC	77.4	0.7	77.4	264
	Single supply (450 W)			53.9	0.48	53.9	183.9

Table continues...

Model	Power supply configuration	Power supply		Input power (margined by 10%)		Power consumption (Thermal rating)	
		Rated	Line voltage	Watts (Total)	Amps	Watts	BTUs/hr
	Dual supply (450 W/PSU)	450 W/PSU	200–240 VAC	77.2	0.43	77.2	263.4
	Single supply (450 W)			53.7	0.29	53.7	183.3

The following table provides typical power consumption.

Table 5: Typical power consumption

Model	Idle Power consumption (Watts)	Typical Power consumption (Watts)		
		Devices connected to all ports, typical traffic, without SFPs	Devices connected to all ports, typical traffic, 6 W average per PoE device	With Avaya Energy Saver enabled (PoE Saver disabled on PoE models)
ERS 5952GTS-PWR+	56.5	65.6	373.59	56.5
ERS 5928GTS-PWR+	47.8	52.0	207.4	47.8
ERS 5928GTS-uPWR	46.0	50.7	210.6	45.9
ERS 5952GTS	60.4	69.0	NA	60.5
ERS 5928GTS	52.2	56.7	NA	52.2

The following table describes the Power over Ethernet (PoE+) specifications.

Table 6: PoE+ specifications

Model	Power supply configuration	Power supply		Power over Ethernet (PoE+) power output		
		Rated	Line voltage	Max Power per Port (Watts)	Max power output Sum of all Ports (Watts)	
ERS 5952GTS-PWR+	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	30	1440	48 ports @ 30 W
	Single supply (1000 W)			30	800	26 ports @ 30 W
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	30	1440	48 ports @ 30 W

Table continues...

Model	Power supply configuration	Power supply		Power over Ethernet (PoE+) power output		
		Rated	Line voltage	Max Power per Port (Watts)	Max power output Sum of all Ports (Watts)	
	Single supply (1400 W)			30	1200	40 ports @ 30 W
ERS 5928GTS-PWR+	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	30	720	24 ports @ 30 W
	Single supply (1000 W)			30	720	24 ports @ 30 W
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	30	720	24 ports @ 30 W
	Single supply (1400 W)			30	720	24 ports @ 30 W
ERS 5928GTS-uPWR	Dual supply (1000 W/PSU)	1000 W/PSU	100–120 VAC	60	1440	24 ports @ 60 W
	Single supply (1000 W)			60	720	12 ports @ 60 W
	Dual supply (1400 W/PSU)	1400 W/PSU	200–240 VAC	60	1440	24 ports @ 60 W
	Single supply (1400 W)			60	1140	19 ports @ 60 W

AC power cord specifications

The following section outlines the AC power cord specifications for various countries. Ensure that you use the correct cord for your location.

Table 7: International power cord specifications

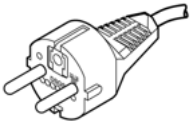
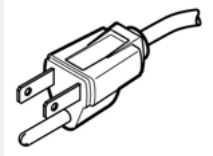
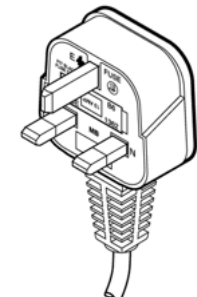
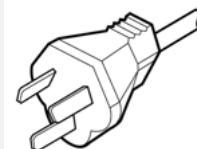
Country / Plug Specification	Specifications	Typical Plug
Continental Europe: <ul style="list-style-type: none"> CEE7 standard VII male plug Harmonized cord (HAR marking on the outside of the cord jacket to comply with the CENELEC Harmonized Document HD-21) 	<ul style="list-style-type: none"> 220 or 230 VAC 50 Hz Single Phase 	 228FA

Table continues...

Country / Plug Specification	Specifications	Typical Plug
United States of America / Canada / Japan: <ul style="list-style-type: none"> • NEMA5-15P male plug • UL-recognized (UL stamped on cord jacket) • CSA-certified (CSA label secured to the cord) 	<ul style="list-style-type: none"> • 100 or 120 VAC • 50 - 60 Hz • Single Phase 	 <p style="text-align: right; margin-right: 10px;">227FA</p>
United Kingdom: <ul style="list-style-type: none"> • BS1363 male plug with fuse • Harmonized cord 	<ul style="list-style-type: none"> • 240 VAC • 50 Hz • Single Phase 	 <p style="text-align: right; margin-right: 10px;">229FA</p>
Australia: <ul style="list-style-type: none"> • AS3112-1981 male plug 	<ul style="list-style-type: none"> • 240 VAC • 50 Hz • Single Phase 	 <p style="text-align: right; margin-right: 10px;">230FA</p>

Installation preparation

To prevent damage, handle the switch carefully by using the following guidelines:

- To prevent damage from electrostatic discharge, always wear an antistatic wrist strap connected to an ESD jack.
- Always place the switch on appropriate antistatic material.
- Support the switch from underneath with two hands. Do not touch components or connector pins with your hand, or damage can result.
- Do not over tighten screws. Tighten until snug. Do not use a power tool to tighten screws.

Installing the fan trays and power supply

Your switch supports a combination of field-replaceable power supplies and cooling fan trays. Two fan trays are included with your switch. You must install the two fan trays and at least one power supply before using the switch. The switch supports an optional second power supply for redundancy and load sharing.

To install the fan trays and power supplies to your switch, use the following procedure.

! Important:

Supported cooling airflow directions are: front to back or back to front. The airflow direction of fan trays and power supplies are labelled and fixed. Ensure the fan trays and power supplies have the same direction of airflow.

The fan trays and power supplies do not support the ability to change their airflow direction. The first power supply determines the airflow direction.

In a single power supply installation, keep the blanking plate installed over the unused power supply slot for proper cooling. Avaya recommends you use PS 1 (the left most power supply slot when viewed from the front) in a single power supply installation.

Before you begin

Verify that the fan trays and power supply are compatible—ensure that the airflow direction for all fans and power supplies match.

Procedure

1. Insert each fan tray into a rear fan tray slot.
2. Verify that each fan tray is fully seated in the slot and secure each fan tray with two thumb screws.
3. Insert each power supply into a rear power supply slot.

If a blanking plate covers the required power-supply slot, remove the plate before inserting the power supply.

4. Verify that each power supply is fully seated in the slot and securely clipped in place.

Example

The following figure shows how to properly insert the cooling fan trays and power supplies into your switch.

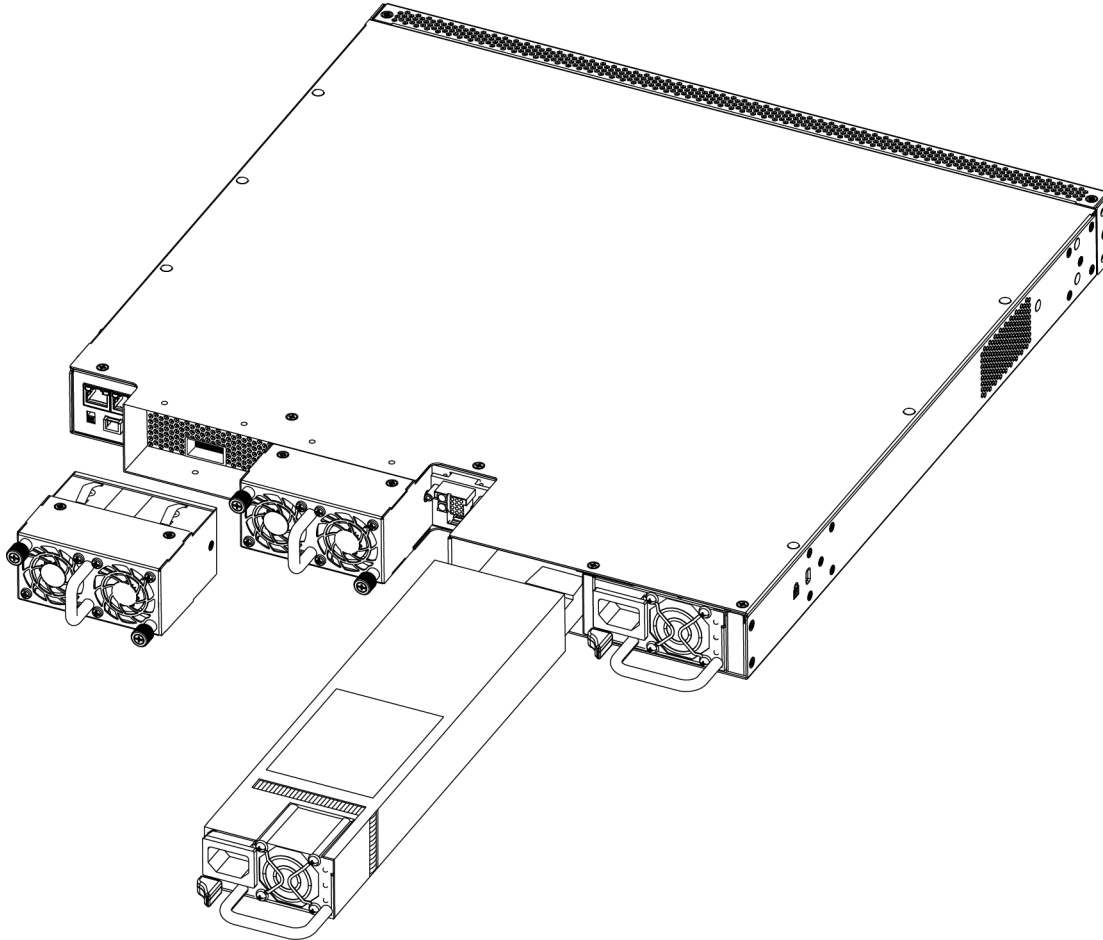


Figure 1: Installing the fan trays and power supplies

Next steps

After you install the two fan trays and at least one power supply, you can install and connect power to the switch.

Installing the switch in an equipment rack

Avaya recommends you install the switch in an equipment rack.

Before you begin

Tool requirements

- Phillips screwdriver to attach brackets to the switch and the switch to the rack

Rack requirements

- Space of 2.8 inches (7.1 cm) for each switch is available in an E1A or 1EC standard 19 inch (48.2 cm) equipment rack and T1A 23 inch (58.5 cm) equipment rack.
- Appropriate rack space is available to accommodate 1U switch height (44 mm).
- Rack is bolted to the floor and braced if necessary.

- Rack is grounded to the same grounding electrode used by the power service in the area. The ground path must be permanent and must not exceed 1 Ohm of resistance from the rack to the grounding electrode.

*** Note:**

Avaya does not supply the bolts used to secure the switch to the rack. Ensure you obtain the appropriate bolts to secure the switch to your specific rack before you begin.

Procedure

1. Ensure power is disconnected from the switch.
2. Attach a bracket to each side of the switch with the included screws.

You have different options for front and rear mounting positions. Attach the brackets in the best position for your specific equipment rack.

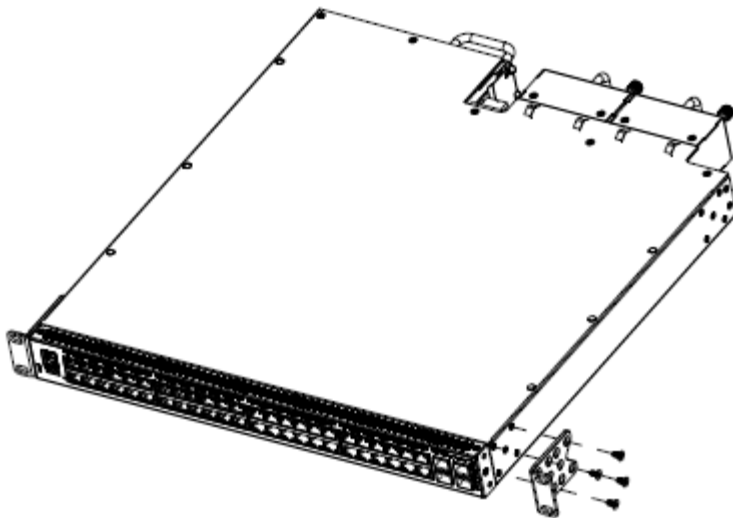


Figure 2: Front-mounted rack bracket installation

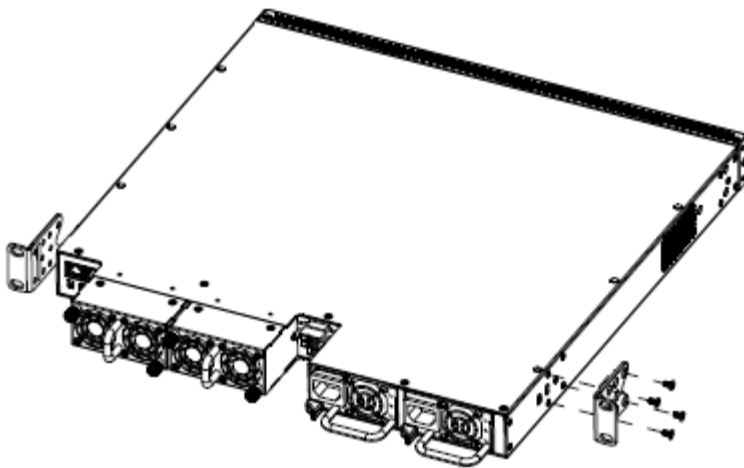


Figure 3: Rear-mounted rack bracket installation

3. Slide the switch into the rack.
4. Insert and tighten the rack mount screws.

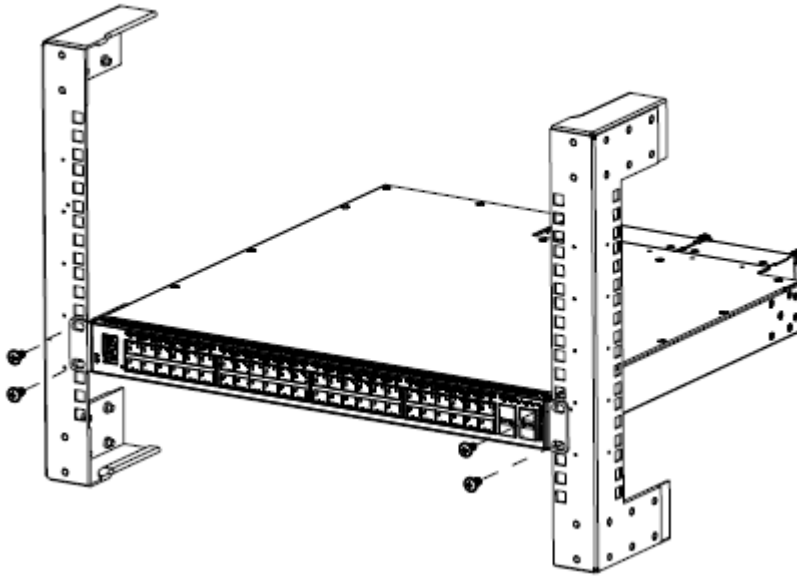


Figure 4: Front-mounted rack installation

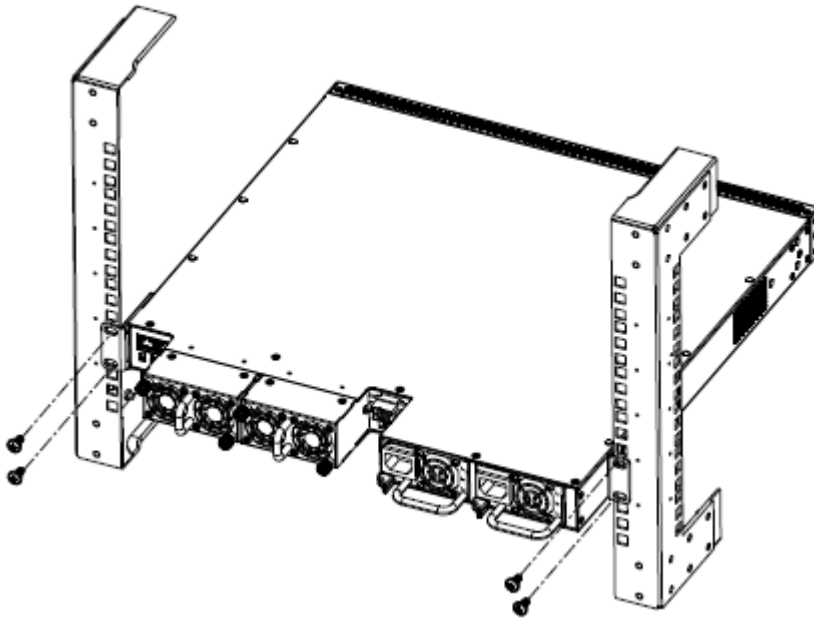


Figure 5: Rear-mounted rack bracket installation

For four-post equipment rack installations, an optional four-post rack mounting kit (sold separately) is available that includes adjustable rear brackets. For more information, see *Installing Avaya Ethernet Routing Switch 5900 Series*, NN47211-300.

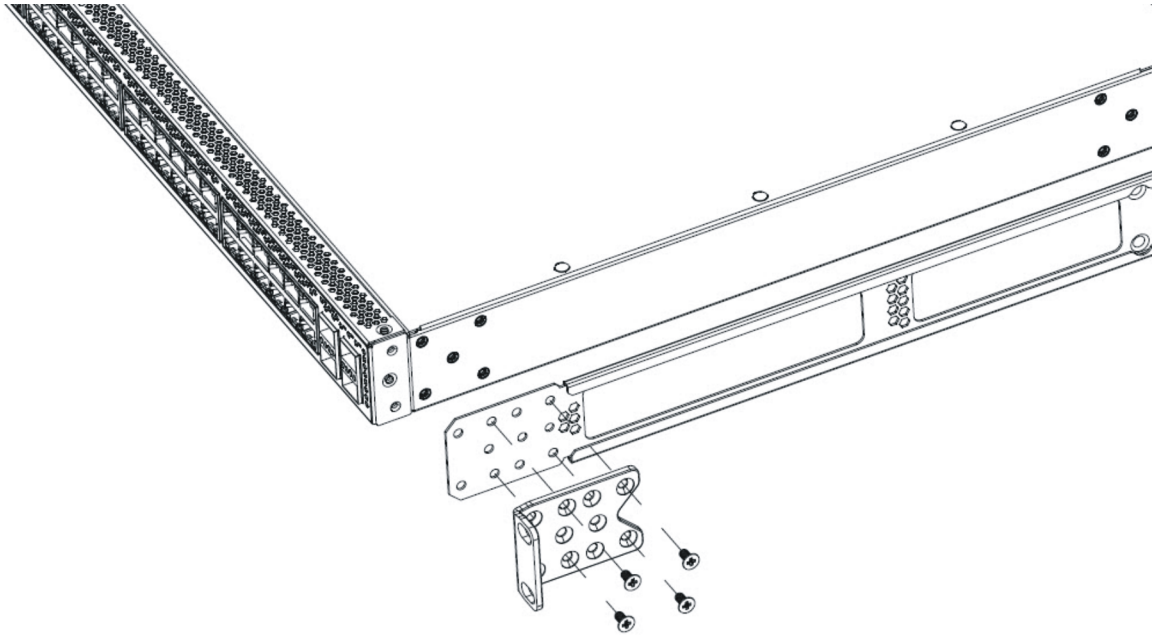


Figure 6: Rack mount attachment screws

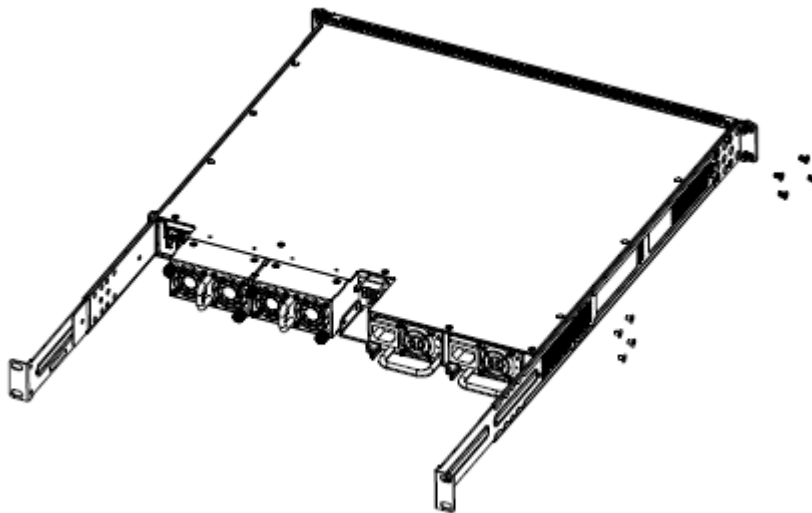


Figure 7: Optional four-post rack mount brackets

5. Slide the switch into the rack.
6. Fasten the switch to the equipment rack with rack mount screws.

For four-post equipment rack installations, fasten the switch to the equipment rack with rack mount screws on all four corners.

7. Verify that the switch is securely fastened to the rack.

You can proceed with the installation by connecting power and network connections to the switch.

Connecting AC power

The Ethernet Routing Switch 5900 Series does not have a power switch. When you connect the AC power cord to a suitable AC power outlet, the switch powers up immediately.

Connect the AC power cord to the back of the switch, and then connect the cord to a power outlet. Ensure that you use the correct power cord for the switch and power supply.

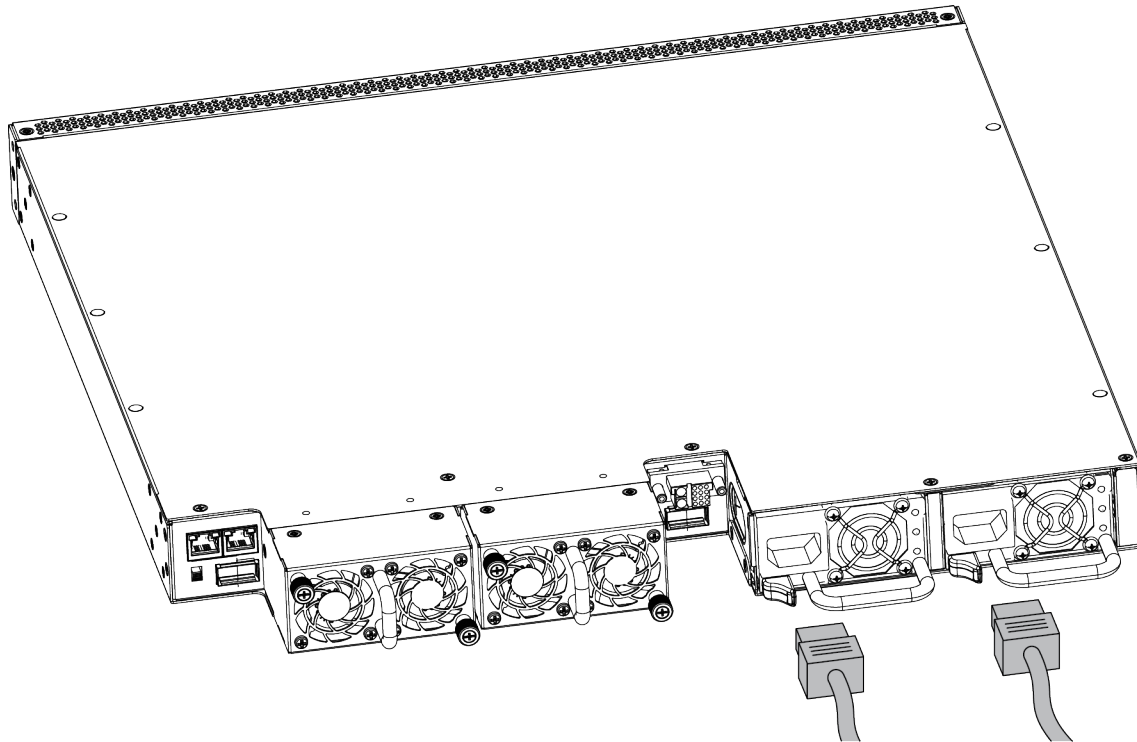


Figure 8: Connecting the AC power cord to the Ethernet Routing Switch 5900 Series