Avaya

Ethernet Routing Switch 5900 Series
Quick Install Guide

All documents referenced in this Quick Installation Guide can be downloaded at www.avaya.com.

Depending on your hardware model, your switch may appear different than the figures shown in this guide.

1 Before you start

Confirm that you have the tools and package contents as follows:

Tools Required:
- Phillips #2 screwdriver
- Console cable to match the console connector on the switch (DB-9 or RJ-45)
- ESD cable (optional)

Package Contents:
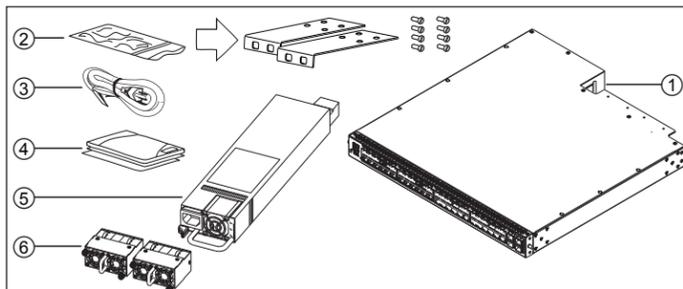
1. Avaya Ethernet Routing Switch 5900 Series.
2. Rack-mounting hardware that includes:
   a. Rack-mount brackets
   b. Screws to attach brackets to the switch
3. AC power cord.
   (Note: A power cord is not included for the A variant of the switch.)
4. Documentation includes the Quick Install poster and Regulatory document.
5. Field Replaceable power supply unit.
   Note: Two field replaceable power supplies are supported for models ERS 5928GTS, ERS 5928GTS-PWR+, ERS 5952GTS, and ERS 5952GTS-PWR+.
6. Two fan tray modules.

Note: Be sure to order Direct Attach cables and SFP or SFP+ Transceivers if required.

For...	Order	Order Code	Quantity
Front-to-Back cooling	AC Power Supply Front2Back Cooling (no Power Cord*)	AL7000A0F-E6 AL1905A3F-E6	1 or 2**
Back-to-Front cooling	AC Power Supply Back2Front Cooling (no Power Cord*)	AL7000A0B-E6 AL1905A3B-E6	1 or 2**
4-post mounting bracket (sold separately)	Four Post Server Rack Mount Kit (optional) for ERS 5928GTS, ERS 5928GTS-PWR+, ERS 5952GTS, and ERS 5952GTS-PWR+	AL5911001-E6	1
Console cabling (sold separately)	Avaya RJ-45/DB-9 Integrated console cable **Note:** 1.8m cable with DB-9 Female for PC and RJ-45 for device console port	AL2011022-E6	1

Be sure to order Direct Attach cables and SFP or SFP+ Transceivers as required. See Installing Transceivers and Optical Components on Avaya Ethernet Switch 5900 Series (NN47211-302) for more information.

* F2B power supply and power cord variants: (non-PWR+)
AL7000B0F-E6 = Europe, AL7000C0F-E6 = UK,
AL7000D0F-E6 = Japan, AL7000E0F-E6 = North America,
AL7000F0F-E6 = Australia/New Zealand

B2F power supply and power cord variants (non-PWR+)
AL7000B0B-E6 = Europe, AL7000C0B-E6 = UK,
AL7000D0B-E6 = Japan, AL7000E0B-E6 = North America,
AL7000F0B-E6 = Australia/New Zealand

* F2B power supply and power cord variants (PWR+):
AL1905B3F-E6 = Europe, AL1905C3F-E6 = UK,
AL1905D4F-E6 = Japan, AL1905E4F-E6 = North America,
AL1905F4F-E6 = Australia/New Zealand

B2F power supply and power cord variants (PWR+)
AL1905B3B-E6 = Europe, AL1905C3B-E6 = UK,
AL1905D4B-E6 = Japan, AL1905E4B-E6 = North America,
AL1905F4B-E6 = Australia/New Zealand

** Avaya recommends two power supplies for redundancy, load sharing and full hot-swap replacement of a power supply for uninterruptible operation.

Note: Cable trays can be provided as an option.

2 Unpack equipment

- Unpack the Avaya Ethernet Routing Switch 5900.
- Observe ESD precautions when unpacking.
- The switch ships with a filler panel in the second power supply position. This filler panel must stay in place if you do not intend to install a second power supply.

3

a. Prepare the rack
- Provide the equivalent of one rack of vertical space for each 5928 or 5952 model in an EIA or IEC-standard 19-inch (48.2-centimeter) equipment rack.
- Ensure that the equipment rack is stable and securely attached to a permanent structure.
- Ground the rack 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. AVAYA recommends using a filter or surge suppressor.

b. When you install the switch into a network, ensure to use the following cables:
- Category 5E or higher specification cabling must be used for 1 Gbps/1000 Mbps operation.
- RJ-45 and DB-9 console port cables and adaptors are as follows:

PEC Code	Name	Short Description
AL2011022-E6	Avaya RJ-45/DB-9 CONSOLE CABLE	1.8m cable with DB-9 Female for terminal/PC on one end and RJ-45 for device console port connectivity on the other.

---

c. Stacking cables:

PEC Code	Description
AA1404037-E6	QSFP+ to QSFP+ 40G 0.5 m (Passive)
AA1404029-E6	QSFP+ to QSFP+ 40G 1 m (Passive)
AA1404031-E6	QSFP+ to QSFP+ 40G 3 m (Passive)
AA1404032-E6	QSFP+ to QSFP+ 40G 5 m (Passive)

4 Rack mounting

1. Attach a bracket to each side of the switch.
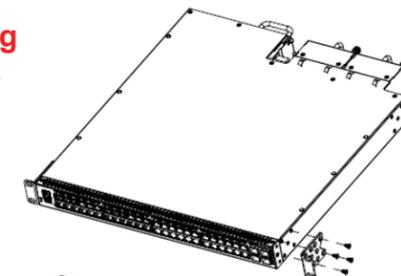
2. Slide the switch into the rack. Insert and tighten the rack-mount screws.
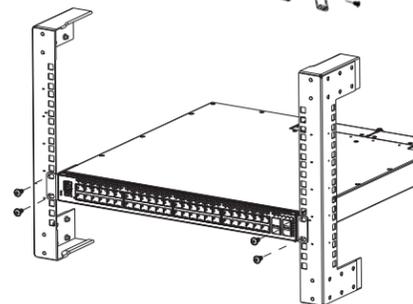
Install using the optional 4-port rack mount bracket

1. Attach a front bracket to each guide bracket with four M2 x 3mm long flat head machine screws.
2. Attach the guide brackets to the switch chassis, using four M4 flat head Phillips machine screws to attach the front of each guide bracket to the switch chassis, and using four M4 low profile undercut flat head hex machine screws to attach the rear of each guide bracket to the switch chassis. Verify that the rear screws seat flush in the guide brackets.
3. Install the switch into the equipment rack temporarily using only the front rack mounts and screws.
4. Slide the adjustable rear brackets into channels of the front brackets and then fasten the rear mount brackets to the rack.
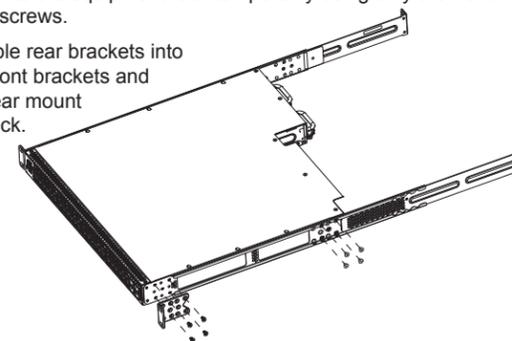
5 Install two Fan Trays in the ERS 5900 switch

There are two ways to install an Avaya ERS 5900 switch in an equipment rack. Refer to one of the following sections:
- Mount the switch using the supplied bracket.
- Mount the switch using the optional slide rack mount kit.

Note: For more information, see Installing the Avaya ERS 5900 (NN47211-300).
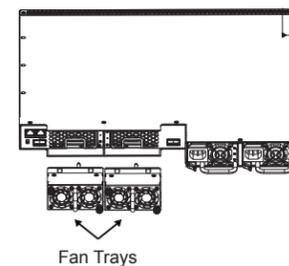
Fan Trays

For correct switch operation, install both Fan Trays so that the airflow direction matches the primary Power Supply.

Fan trays can only be inserted in one direction.

- Use the location pin on the Fan Tray to ensure correct orientation in the chassis. The Fan Tray is upright if the location pin is at the top.

Fan Tray

Upright

Location pin
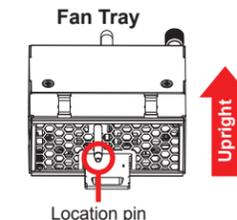
- Once the Fan Tray is installed, tighten the thumbscrews.

Stacking

The Avaya Ethernet Routing Switch 5900 Series provides fail-safe stackability. You can connect up to eight 5900 Series devices in a stack to provide uninterrupted connectivity for up to 384 ports. You can manage the stack as a single unit.

The Avaya Ethernet Routing Switch 5900 series back panel provides a Base Unit switch, Cascade Down connector, and Cascade Up connector for stacking purposes as shown below:

Base Select Switch
Cascade Down Port   Cascade Up Port
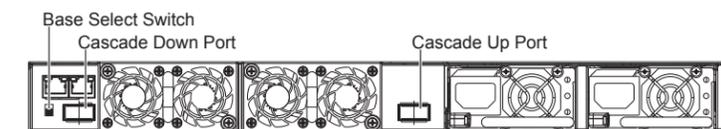
Base Unit Switch – used to designate the base unit in a stack. When set to the RIGHT position, this unit acts as the Base Unit for the stack

Cascade Down and Cascade Up connectors – used connect a switch to the next unit in the stack through a cascade cable. Connect one end of the Cascade Down cable to the Cascade Up connector of the next switch in the stack (shown in the simple three-switch stack connection block diagram below):

Simplified Stacking diagram
1 = Base unit
2 = Last unit
3 = 0.5m Cascade/Stack cable
4 = 1.0m Cascade/Stack cable
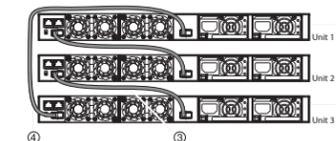
To create a stack connection, order the appropriate Avaya Ethernet Routing Switch 5900 Series cascade cables to ensure fail-safe stacking. For stacking three or more units (maximum eight units per stack), order 0.5 m, 1 m, 3 m or 5 m cables as applicable.

1. Ensure that all switches for the stack are rack mounted.
2. Slide the Unit Select switches on the back of the units to the appropriate position, depending on whether they are a base unit or non-base unit:
   - **Base Unit (Unit 1)** - Slide the Base Unit switch to the DOWN position.
   - **Non-Base Unit (Units 2-8)** - Slide the Unit Select switch to the UP position. Because stack parameters are associated with the base unit, the physical stack order depends on the base unit position and whether you configure the stack cascade up (stack up) or cascade down (stack down). This designation depends on the stack cabling arrangement.

   NOTE: Avaya recommends you use a Cascade Down (stack down) configuration.

3. For a Cascade Down configuration, connect stack cables as shown below:

Cascade Down configuration
1 = Base unit
2 = Last unit
3 = 0.5m Cascade/Stack cable
4 = 1.0m Cascade/Stack cable (Return cable)

Note: Return cable length may vary depending on unit spacing. Please ensure proper length return cable is ordered to provide adequate strain relief.
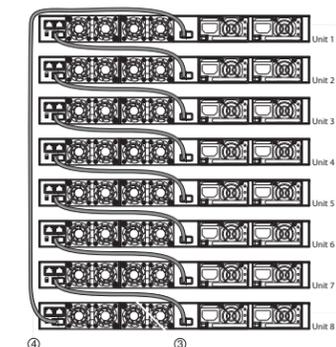
6 Powering Up

You can install an AC or DC power supply into either power supply slot in the switch.

The airflow direction of the power supply in PS1 determines the primary airflow direction for the switch. If PS1 is not present, PS2 determines the airflow direction. If any power supply location is unpopulated, a PSU Filler Panel must be installed.

1. Insert the first power supply into the rear PS1 power supply slot. If a blanking plate covers the required power supply slot, remove the plate before inserting the power supply. A small angle on the top corner of the power supply ensures that the power supply can only be installed in one orientation in the switch.

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

3. **Optional:** Install the second power supply into the rear PS2 power supply slot. The airflow direction must match the primary Power Supply. The switch ships with a filler panel in PS2 position. Leave the filler panel in place if you do not install a second power supply.

PS2   PS1
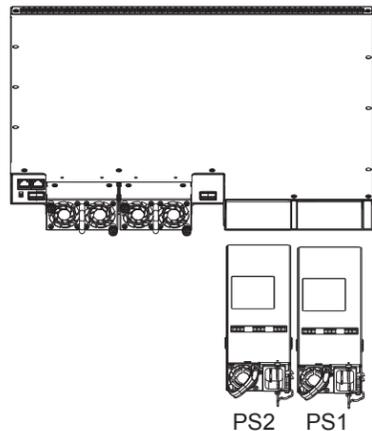
Warning: You must use a power cord set approved for the 5900 Series switch and the power receptacle type in your country. Ensure you have properly grounded the switch before powering up the unit.
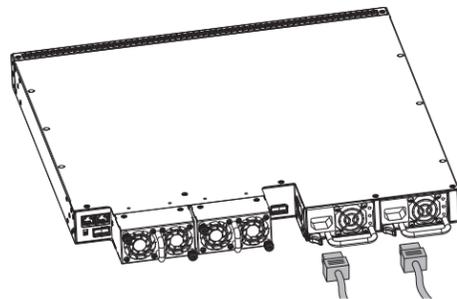
The switch will power on immediately when it is connected to a suitable AC power source. The switch does not have a power switch.

Check the front-panel LEDs as the device powers on to be sure the PWR LED is lit. If not, check if the power cord is correctly connected.

Check LED status of the fans and power supplies. Status LEDs are on the left front side of the switch. For more information on all status LEDs, see *Installing Avaya ERS 5900 Series* (NN47211-300).

Your Setup	
All Setups	Status LED (Blinks) Green until agent software is loaded, then goes (Solid) Green
Front to Back Fans	Fan1 – Blue (Solid) Fan2 – Blue (Solid)
Back to Front Fans	Fan1 – Violet (Solid) Fan2 – Violet (Solid)
One Power Supply	PS1 – Green (Solid) PS2 – Off
Two Power Supplies	PS1 – Green (Solid) PS2 – Green (Solid)

Base ⊙⊙ Status
Up ⊙⊙ Down

Fan1 ⊙⊙ Fan2
Fan1 ⊙⊙ Fan2

PS1 ⊙⊙ PS2
PS1 ⊙⊙ PS2

7 Install SFP and SFP+ transceivers

Before installing, ensure the switch is up and running, and operating normally. Verify that the SFP or SFP+ transceivers and network cabling support your network configuration. Note: The ERS 5900 supports Hot-Swapping of SFP and SFP+ transceivers and direct attach cables.

1. If you are installing SFP direct attach cables, remove packaging, insert the transceiver connector into a switch port and insert the opposite end into the SFP port of the corresponding network device.

OR

If you are installing SFP or SFP+ optical transceivers, remove packaging and insert the pluggable transceiver connector into a switch port.

2. Remove the network interface cover from the transceiver connector (if applicable) and insert an appropriate network interface cable into the transceiver.

3. Connect the opposite end of the network interface cable to your network.

4. In both cases, ensure that the device clicks and locks into place.
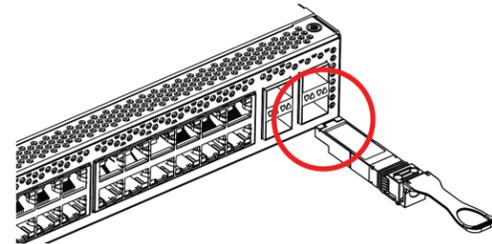
Commissioning the ERS 5900

1 Connect the console cable to the ERS 5900
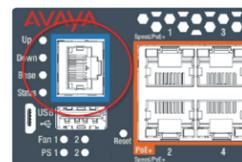
The console port is the RJ-45 port shown with a blue border outline on the front of your ERS 5900 Series switch (note orientation). Use the console cable (AL2011022-E6) to connect the switch console port to your management terminal. The maximum length of a console cable is 25 feet (8.3 meters). The following table describes the RJ-45 console port pin-out information. You can use the pin-out information to verify or create a console cable for use with your maintenance terminal.

Connector	Pin Number	Signal
	1	Ready to send (RTS) — optional
	2	Data terminal ready (DTR) — optional, can swap or link with pin Transmit data (TXD) — mandatory
	3	Carrier detect (DCD) — optional
	4	Ground (GND) — mandatory
	5	Receive data (RXD) — mandatory
	6	Data set ready (DSR) — optional
	7	Clear to send (CTS) — optional,
	8	can swap or link with pin 1.

1. Connect the console cable from the terminal to the console port of the switch to allow initial configuration. Any terminal or PC with the appropriate terminal emulator can be used as the management station.

2. Set the terminal protocol on the terminal or terminal emulation program to VT100 or VT100/ANSI.

3. Connect to the switch using the terminal or terminal emulation application.

4. The Avaya switch banner appears when you connect to the switch through the Console port. There is no default password for the switch for CLI console access. Enter `Ctrl+Y` and type the following CLI commands:

```
enable
install
```

Note: Avaya provides two console cable options to connect the ERS 5900's DB9 (m) to a standard Pc/Laptop DB9 (m).

1. A 1.5 m integrated RJ45/DB9 (f) Console Cable (AL2011022-E6) in conjunction with a DB9(f)/RJ45 Adapter (AL2011020-E6)

OR

2. Two DB9(f)/RJ45 Adapter (AL2011020-E6) connected together using a standard Cat5e Ethernet Cable (purchased separately)

Terminal emulation settings

Property	Value
Baud Rate	9600 bps
Data Bits	8
Stop Bits	1
Parity	None
Flow Control	None

2

The CLI Quickstart welcome screen helps you enter the information requested at each prompt.

Note: The ERS 5900 uses the default IP address of 192.168.1.1/24 if the switch does not get its IP address from another source.

Note: the default IP address is not applicable to the out-of-band management port.

```
##############################################################
Welcome to the 5952GTS-PWR+ setup utility.
You will be requested to provide the switch basic connectivity settings.
After entering the requested info, the configuration will be applied and
stored into the switch NVRAM.

Once the basic connectivity settings are applied, additional configuration
can be done using the available management interfaces.
Use Ctrl+C to abort the configuration at any time.
##############################################################

Please provide the Quick Start VLAN <1-4094>.[1]:
Please provide the In-band IP Address[192.0.2.1]:
Please provide the in-band sub-net mask[255.255.255.0]:
Please provide the Default Gateway[192.0.2.1]:
Please provide the management sub-net mask[0.0.0.0]:
Please provide the management IP Address[0.0.0.0]:
Please provide the management Default Gateway[0.0.0.0]:
Please provide the Read-Only Community String[**********]:
Please provide the Read-Write Community String[**********]:
Please provide the in-band IPV6 Address/Prefix length[::/0]:
Please provide the in-band IPV6 Default Gateway[::]:
Please provide the management IPV6 Address/Prefix length[::/0]:
Please provide the management IPV6 Default Gateway[::]:

Basic stack parameters have now been configured and saved.
##############################################################
```

Avaya Command Line Interface (ACLI)

You can manually load the ACLI script from the console menu or automatically load the script at startup.

Command Mode	Description	Entrance Commands	Exit Commands
User Executive (Exec mode) 5900>	• Default and Initial access mode • Requires only Read access • Used for basic commands such as show, ping, and logoff	No entrance command, default mode	`exit` or `logout`
Privileged EXEC (PrivExec mode) 5900#	• Used for basic switch level management tasks; e.g., downloading software images, setting passwords, starting the switch • Default and Initial access mode • Requires only Read access	`enable`	`exit` or `logout`
Global Configuration (Config mode) 5900(config)#	• Used to set and display general switch parameters such as IP address, ANMP parameters, Telnet access and VLANs • Requires Read-Write access	From Privileged EXEC mode, enter: `configure`	`exit` or `logout`
Interface Configuration (ifconfig mode) 5900(config-if)#	• Used to configure parameters for each port or VLAN such as speed, duplex mode, and rate limiting • Requires Read-Write access	From Global Configuration mode, to configure a port, enter: `interface ethernet <port_number>` To configure a VLAN, enter: `interface vlan <vlan_number>`	To return to Global Configuration mode, enter: `exit` To return to Privileged EXEC mode, enter: `end` To exit ACLI completely, enter: `logout`
Router Configuration (config-router mode) 5900(config-router)#	• Used to configure routing parameters for Routing Information Protocol (RIP), Open Shortest Path First (OSPF), and Virtual Router Redundancy PRotocol (VRRP) • Requires Read-Write access	From Global Configuration mode, to configure RIP, enter: `router rip` To configure OSPF, enter: `router spf` To configure VRRP, enter: `router vrrp`	To return to Global Configuration mode, enter: `exit` To return to Privileged EXEC mode, enter: `end` To exit ACLI completely, enter: `logout`

For more information on additional modes, see *Using ACLI and EDM on Avaya ERS 5900 Series* (NN47211-104)

Manual Configuration

You can manually configure the in-band management IP address at any time with the following ACLI command:

```
ip address <A.B.C.D> [netmask <A.B.C.D>] [default-gateway <A.B.C.D>]
```

Example:

1. Enter Privileged Exec mode:
   ```
   5952GTS>enable
   ```

2. Enter the Global Config mode:
   ```
   5952GTS#config terminal
   ```

3. Manually configure in-band management IP information:
   ```
   5952GTS(config)#ip address 192.0.2.1 netmask 255.255.255.0
   default-gateway 192.0.2.0
   ```

4. Verify the information
   ```
   5952GTS(config)show ip
   Bootp/DHCP Mode: BootP When Needed
   ```

```
                        Configured      In Use        Last BootP/DHCP
                        ------------    ------------   ---------------
Stack IP Address:       0.0.0.0                        0.0.0.0
Switch IP Address:      192.0.2.1       192.0.2.1      0.0.0.0
Switch Subnet Mask:     255.255.255.0   255.255.255.0  0.0.0.0
Mgmt Stack IP Address:  0.0.0.0
Mgmt Switch IP Address: 0.0.0.0
Mgmt Subnet Mask:       0.0.0.0
Mgmt Def Gateway:       0.0.0.0
Default Gateway:        192.0.2.0       192.0.2.0      0.0.0.0
```

ACLI boot and factory-default commands:

`boot` - reboot the switch

`boot default` - reboot and use the factory default configuration

`boot partial-default` - reboot and use the partial factory default configuration

`restore factory-default` - reset the switch to factory default configuration

General notes

• The micro-USB port on the front panel of the ERS 5900 is not enabled

• The SDN port on the rear panel of the ERS 5900 is not enabled

Recommended reading

For more information, go to http://support.avaya.com and download the following ERS 5900 guides:

• Locating Documentation (NN47211-100)
• Documentation Reference (NN47211-103)
• Installation (NN47211-300)
• Installation Job Aid (NN47211-301)
• Release Notes (NN47211-400)

AVAYA

http://support.avaya.com
1-800-242-2121 (U.S.A.)
1-866 GO-AVAYA
1-866-462-8292 (US Sales)
© 2015 Avaya Inc.