Chapter 2
Installation

This chapter outlines the physical installation and network connection for the HP 9304M and HP 9308M routing switches. An outline of this chapter can be found on the next page.

Unpacking a System

Package Contents

For a list of included parts, please refer to the *Read Me First* sheet shipped with your HP 9304M or HP 9308M Routing Switch.

General Requirements

A straight-through EIA/TIA DB-9 serial cable (M/F) is required for serial connection to the HP routing switch. Pinouts for this cable can be found in the **"Attaching a PC or Terminal"** section of this manual.

WARNING: Do not use the handles on the power supply units to lift or carry the routing switch.

Installation Procedures

Summary

Follow the steps listed below to install your routing switch. Details for each of the steps highlighted below is provided in the balance of this chapter.

1. **Preparing the installation site (page 2-4)**. Ensure that the physical environment that will host the routing switch has the proper cabling and ventilation.
2. **Installing (or Removing) Optional Modules (page 2-4**). There are several optional modules designed for any of the module slots on the HP 9304M and HP 9308M Routing Switches. Depending on where you will install the routing switch, it may be easier to install the modules first. However, the modules are “hot swappable”, and can be installed or removed after the routing switch is mounted and powered-on.
3. **(Optional) Installing (or Removing) Redundant Power Supplies (page 2-6)**. The HP 9304M can hold one or two power supplies. The HP 9308M can hold up to four power supplies. If you have a power supply to install, it may be easier to install it before mounting the routing switch, although the power supplies are “hot swappable”, and can be installed or removed after the routing switch is mounted and powered-on.

CAUTION: Remove the power cord from a power supply before you install it in or remove it from the routing switch. Otherwise, damage to the power supply or the routing switch could result. (The routing switch can be running while a power supply is being installed or removed, *but the power supply itself should not be connected to a power source*.)

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4. **Verifying Proper Operation (page 2-8)**. Verify that the system and module LEDs are registering the proper LED state after power-on of the system.
5. **Attaching a PC or Terminal (page 2-9)**. A terminal or PC serial port connection is all that is required to support configuration on the routing switch.
6. **Assigning a Permanent Password (page 2-10)**. No default password is assigned to HP routing switches. For additional access security, the user should assign a password.
7. **Assigning IP Addresses (page 2-11)**. Before attaching equipment to the routing switch, the user needs to assign an interface IP address to the sub-net on which it will be located. Initial IP address assignment is done using the Command Line Interface (CLI) with a direct serial connection. Subsequent IP address assignments can be done via the Web management interface.
8. **Mounting the Routing Switch (page 2-11)**. The HP 9300 routing switches support both desktop and rack-mount installation.
9. **Connecting Power to the Routing Switch (page 2-13).** Once the routing switch is physically installed, plug in the unit into a nearby power source in keeping with regulatory requirements outlined in this manual.
10. **Connecting Network Devices (page 2-13)**. Once the routing switch is powered on and the IP addresses assigned, the system is ready to accept network equipment.

Installation Precautions

Follow these precautions when installing an HP 9304M or 9308M routing switch:

WARNING: The HP 9304M chassis exceeds 40 lbs. (18 kg), or 47.7 lbs.(21.6 kg) when fully populated with modules and power supplies. Also, the HP 9308M chassis exceeds 55 lbs. (24.9 kg) or 69.1 lbs. (31.3 kg) when fully populated with modules and power supplies. TWO OR MORE PEOPLE ARE REQUIRED WHEN LIFTING, HANDLING, OR MOUNTING THESE ROUTING SWITCHES.

WARNING: Do not use the handles on the power supply units to lift or carry the routing switch.

WARNING: The rack or cabinet housing the routing switch should be adequately secured to prevent it from becoming unstable and/or falling over.

WARNING: Devices installed in a rack or cabinet should be mounted as low as possible, with the heaviest device at the bottom and progressively lighter devices installed above.

CAUTION:

- Make sure that the power source circuits are properly grounded, then use the power cord supplied with the routing switch to connect it to the power source.

  If the installation requires a different power cord than the one supplied with the routing switch, be sure to use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the routing switch.
- Ensure that the routing switch does not overload the power circuits, wiring, and over-current protection. To determine the possibility of overloading the supply circuits, add together the ampere ratings of all devices installed on the same circuit as the routing switch. Compare this total with the rating limit for the circuit. The maximum ampere ratings are usually printed on the devices near the AC power connectors.
- Do not install the routing switch in an environment where the operating ambient temperature might exceed 40 degrees C (104 degrees F).
- Make sure the air flow around the front, sides and back of the routing switch is not restricted.
- To provide additional safety and proper airflow to the system, make sure that slot cover plates are installed on all chassis slots that do not have either a module or power supply installed.

1. Preparing the Installation Site

Cabling Infrastructure

Ensure that the proper cabling is installed in the site. Refer to **Chapter 5** for a summary of supported cabling types and their specifications.

Installation Location

Before installing the routing switch, plan its location and orientation relative to other devices and equipment. Allow at least 3 inches of space at the front of the device for the twisted-pair, fiber-optic and power cabling. Also, a minimum of 3 inches of space should be allowed between the sides and the back of the device and walls or other obstructions.

2. Installing (or Removing) Optional Modules

Installing Modules

To install a module in the chassis, do the following:

1. Put on an ESD wrist strap and attach the clip end to a metal surface (e.g. an equipment rack) to act as ground.

   WARNING: To avoid risk of shock, do not attach the clip end to the air flow panel of the power supply.

2. Remove the blank face plate from the slot in which the module is to be installed. Place the blank face plate in a safe place for future use.
3. Remove the module from its packaging.
4. Insert the module into the chassis slot and glide the card along the card guide until the card ejectors on the front of the module touch the chassis.

   NOTE: Modules for the 9308M are slid in vertically with the module label (e.g. ProCurve 9300) at the top (**Figure 2.3**). Modules for the 9304M are slid in horizontally with the module label (e.g. ProCurve 9300) on the left (**Figure 2.4**).

5. Push the ejectors toward the center of the module until they are flush with the front panel of the module. The module will be fully seated in the backplane.
6. Tighten the two screws at either end of the module.

   CAUTION: If you do not use one or more of the slots, make sure that a slot cover plate is still attached over each unused slot for safe operation and proper system cooling.

   NOTE: If installing a module into a slot *previously occupied by a different type of module*, you must use the CLI to configure the new module (via the CLI command, ***module <slot number> <module type>***) and then use the ***write memory*** command to save the configuration and the ***reload*** command to reset the routing switch.

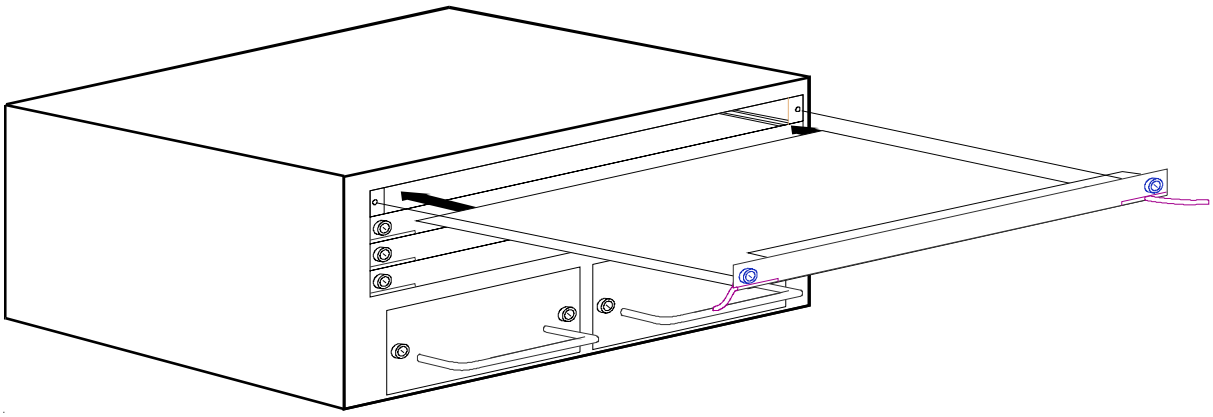

Figure 2.1 Installing a module

Removing Modules

To remove a module from the chassis, do the following:

1. Put on an ESD wrist strap and attach the clip end to a metal surface (e.g. an equipment rack) to act as ground.

WARNING: To avoid risk of shock, do not attach the clip end to the air flow panel of the power supply.

2. Loosen the two screws on the module.
3. Pull the card ejectors towards you, away from the module front panel. The card will unseat from the backplane.
4. Pull the module out of the chassis and place in an anti-static bag for storage.
5. Cover the slot with the blank face plate that shipped with the unit.

CAUTION: If you remove a module and do not replace it, cover the slot opening with one of the blank plates you received with the routing switch to provide additional safety and airflow for the system.

NOTE: Modules can be installed and removed when the unit is powered on (hot swap). There is no need to power the system down.

3. Installing (or Removing) Redundant Power Supplies

Installing Power Supplies

To install a power supply in the chassis, do the following:

CAUTION: Power supplies are hot swappable but they should be disconnected from AC power before being installed or removed. That is, the routing switch can be running while a power supply is being installed or removed, but the power supply itself *should not be connected* to a power source. Otherwise, damage to the power supply or the routing switch could result.

1. Use a screwdriver to remove the blank power supply face plate. This will expose the empty power supply slot.
2. Remove the power supply from its packaging.
3. Holding the bar on the front panel of the power supply, insert the power supply into the empty power supply slot using the module guides provided on either side of the compartment.
4. Continue to slide the power supply towards the back of the unit until the two metal rods and the connector make contact with the back connector. Then push the power supply until the front panel of the power supply is flush with the rest of the chassis.
5. Use a screwdriver to tighten the two screws on either side of the power supply.
6. Connect the power cord to the front of the power supply.
7. Connect the power plug into an outlet.

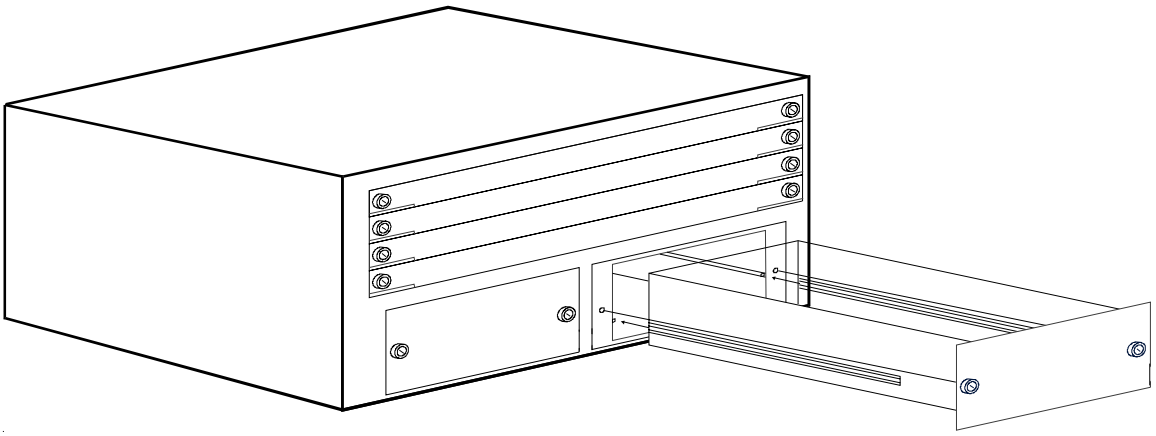

Figure 2.2 Installing a Power Supply

Removing Power Supplies

To remove a power supply module from the chassis, do the following:

CAUTION: Power supplies are hot swappable but they should be disconnected from AC power before being installed or removed. That is, the routing switch can be running while a power supply is being installed or removed, but the power supply itself *should not be connected* to a power source. Otherwise, damage to the power supply or the routing switch could result.

1. Unplug the power supply AC power cord from the outlet.
2. Disconnect the power cord from the power supply.
3. Use a screwdriver to loosen the screws on either side of the power supply.

4. Holding the bar on the front panel of the power supply, pull outward, disconnecting the power supply from the backplane.
5. Continue to pull the power supply until it is removed from the chassis.
6. Place the power supply in an anti-static bag for storage.
7. Cover the power supply slot with the blank power supply cover that came with the unit.
8. Use a screwdriver to tighten the screws.

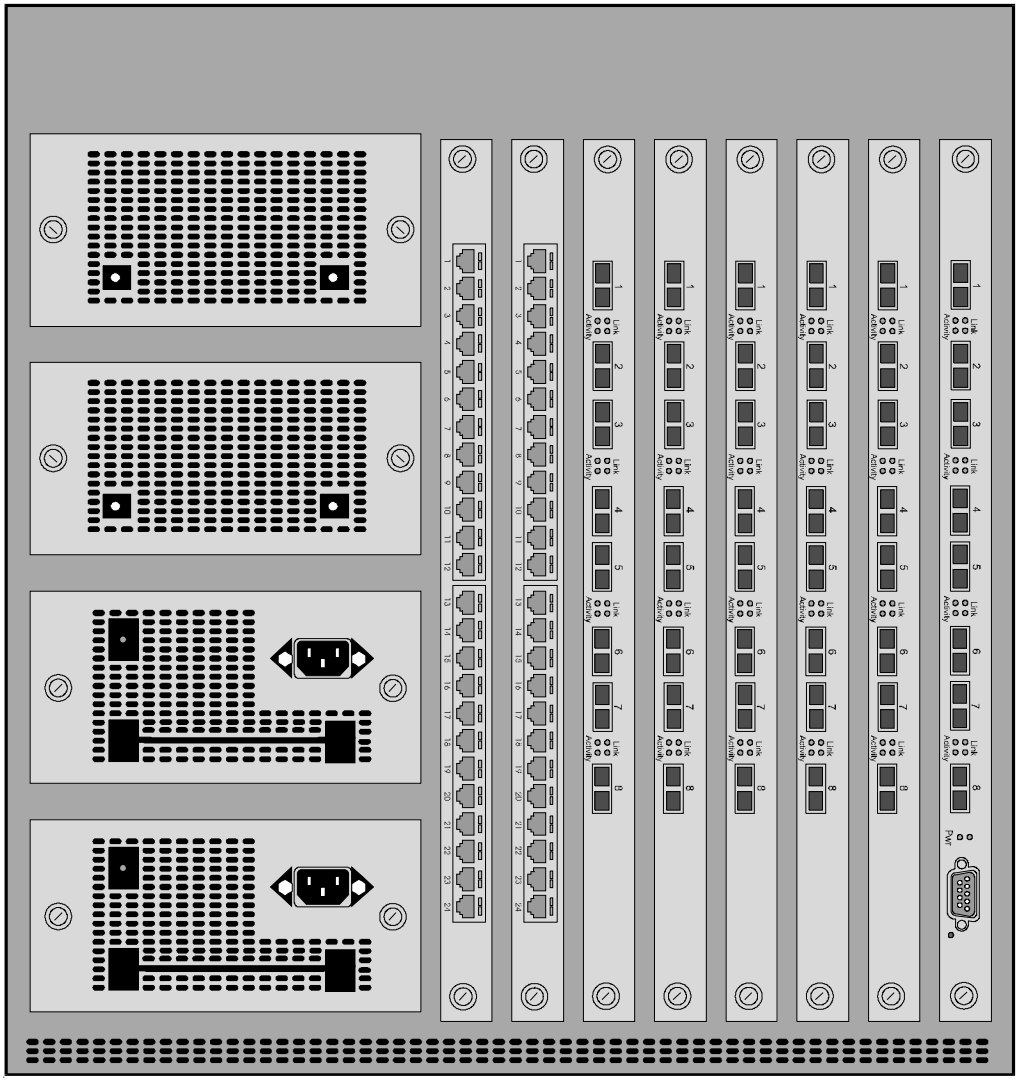

Figure 2.3 Example of the front panel of an HP 9308M routing switch

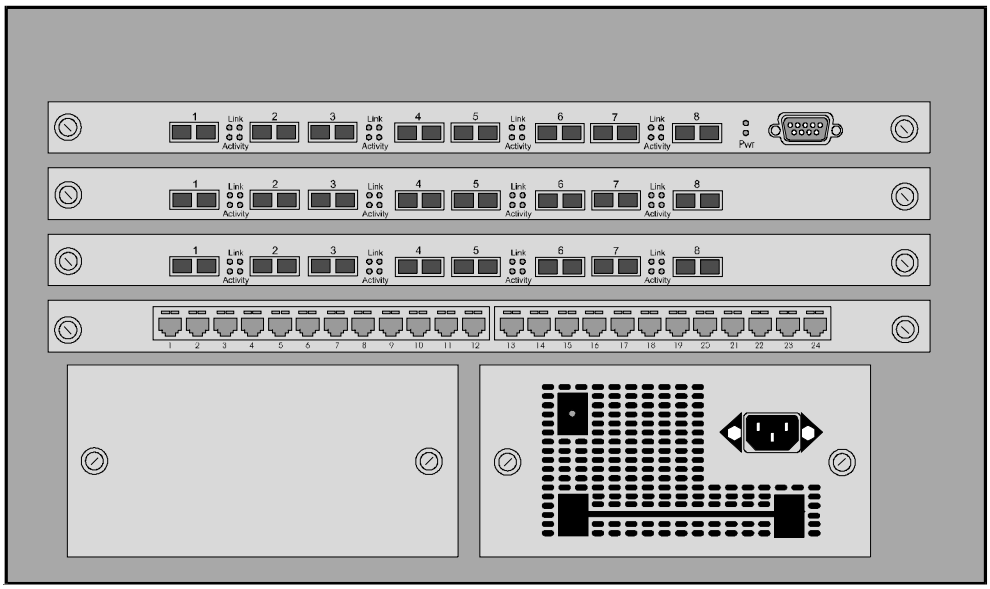

Figure 2.4 Example of the front panel of an HP 9304M routing switch

4. Verifying Proper Operation

After you have installed any modules or redundant power supplies, but before mounting the routing switch in its network location, you should first verify that it is working properly by plugging it into a power source and verifying that it passes its self test.

If your routing switch has more than one power supply installed, repeat this procedure for each power supply.

1. Connect the power cord supplied with the switch to the power connector found on the power supply on the front of the routing switch, and then insert the other end into a properly grounded electrical outlet.
2. Verify that the LED on each power supply is a solid green.

NOTE: The HP 9304M and HP 9308M do not have power switches. They are powered on when the power cord is connected to the routing switch and to a power source.

If your installation requires a different power cord than that supplied with the routing switch, be sure to obtain a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the routing switch.

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3. Check the LEDs on each of the modules. When the system is first powered on, the lights of each installed module will simultaneously light as the system goes through system and module diagnostics. After the initial diagnostics are complete, none of the module LEDs will light until a cable is connected. For more details on specific LED conditions after system start-up, refer to **Chapter 5, page 5-6**.

5. Attaching a PC or Terminal

Please use the following steps to attach a station using the serial port:

1. Connect a PC or terminal to the serial port of the system via a straight-through cable. The serial port is a male DB-9 connector. Generally, a PC port will require a cable with a female DB-9 connector. Terminal connections will vary, requiring either a DB-9 or DB-25 connector, male or female.

   Cable pin-outs and signalling for the serial cable are shown in **Figures 2.3** and **2.4**

2. The PC should be running a terminal emulation program.

3. Set the terminal or PC terminal emulation program to the parameters shown below:

   Baud: 9600 bps

   Data bits: 8

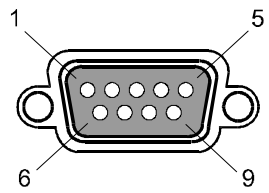
   Parity: None

   Stop bits: 1

   Flow control: None

   Once connectivity to the routing switch is established, the user will see the following CLI prompt:

   ```
   HP9300>
   ```



Pin Assignment	Pin Number	Switch Signal
DB-9 male	1	Not Used
	2	TXD (output)
	3	RXD (input)
	4	Not Used
	5	GND
	6	Not Used
	7	CTS (input)
	8	RTS (output)
	9	Not Used

Figure 2.5 Serial port pin and signalling details

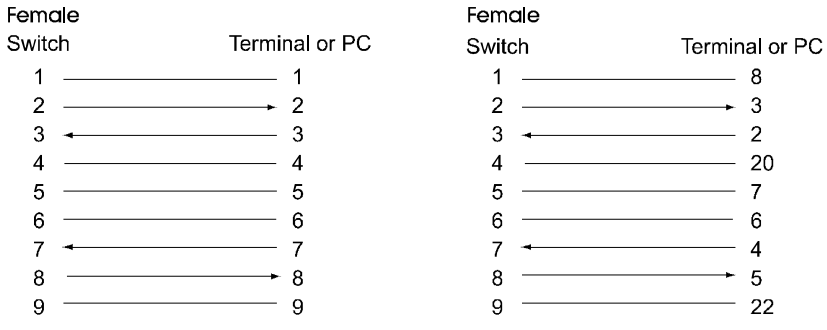


Figure 2.6 Serial port pin assignment showing cable connection options to a terminal or PC

6. Assigning a Permanent Password

The user must be connected to the CLI to assign a password. A password cannot be assigned through the Web management interface.

When the user is first connected to the CLI, he or she is at the **user EXEC level** of the CLI. This is the first level of the CLI. The user will need to get to the **global CONFIG level** of the CONFIG command structure to assign a permanent password.

To get to that level, the user will need to step through a number of levels before reaching it. Those steps are outlined below.

1. At the opening prompt, enter the following:

   ```
   HP9300> enable
   ```

   NOTE: At initial log on, before a password is assigned, entering ***enable*** and hitting the return key will launch the user into the **Privileged Level** of the CLI. The user will need to access the **Configuration Level** of the CLI to assign a permanent password.

2. Access the configuration level of the CLI by entering the following command:

   ```
   HP9300# configure terminal              Privileged EXEC Level
   HP9300(config)#                         Global CONFIG Level
   ```

3. To set a permanent password at this level, enter one of the following:

   ```
   HP9300(config)# enable super-user-password <text>
   HP9300(config)# enable read-only-password <text>
   HP9300(config)# enable port-config-password <text>
   ```

   NOTE: A **super user** password allows a user unlimited access to all levels of the CLI. This level is generally reserved for the system administrator. The super user is also the only user that can assign other password levels to users. A **port-config** password assignment allows a user to configure interface parameters and view show displays. A **read-only** password assignment limits a user to view configurations only.

How to Recover From a Lost Password

Recovery from a lost password requires direct access to the serial port and a system reset of the HP routing switch.

To recover from a lost password:

1. Start a terminal session.
2. Reboot the system.
3. At the initial boot prompt at system startup enter '***b***' to initiate boot monitor mode.
4. Enter ***no password*** at the prompt. This command cannot be abbreviated.
5. Enter ***boot system flash primary***. This will cause the device to bypass the system password check.
6. Assign a new password upon entry into the device console.

7. Assigning IP Addresses

Before attaching a device to the routing switch, the user needs to assign an IP address to the interface on which the sub-net will be located. The first IP address needs to be assigned using the CLI and a direct serial connection. Subsequent IP address assignments can be done via the Web management interface.

To assign an IP address and mask to a router interface, enter the following at the global configuration level of the CLI. Notice that the user needs to know both the physical slot number of the module and the port number to assign an IP address:

```
HP9300(config)# int e 1/5
```

```
HP9300(config-if-1/5)#ip address 192.22.3.44 255.255.255.0
```

syntax: ip address <ip address> <ip mask> OR ip address <ip address /sub-net mask length>

8. Mounting the Routing Switch

The HP 9304M and 9308M routing switches can be installed on a desktop or in a rack.

WARNING: The HP 9304M chassis exceeds 40 lbs. (18 kg), or 47.7 lbs.(21.6 kg) when fully populated with modules and power supplies. Also, the HP 9308M chassis exceeds 55 lbs. (24.9 kg) or 69.1 lbs. (31.3 kg) when fully populated with modules and power supplies. TWO OR MORE PEOPLE ARE REQUIRED WHEN LIFTING, HANDLING, OR MOUNTING THESE ROUTING SWITCHES.

WARNING: Do not use the handles on the power supply units to lift or carry the routing switch.

WARNING: The rack or cabinet housing the routing switch should be adequately secured to prevent it from becoming unstable and/or falling over.

WARNING: Routing switches installed in a rack or cabinet should be mounted as low as possible, with the heaviest device at the bottom and progressively lighter devices installed above. HP recommends that the HP 9304M or 9308M be installed at the bottom of the rack or installed with a shelf and mounting brackets.

Desktop Installation

1. Set the routing switch on a flat desktop, table or shelf. Use a sturdy surface in an uncluttered area. You may want to secure the networking cables and power cord to the table legs or other part of the surface structure to help prevent people from tripping over them.
2. Please make sure that adequate ventilation is provided for the system—a minimum of 3 inch clearance is recommended on all sides.

   NOTE: Make sure the air flow is not restricted around the front, sides and back of the routing switch.

3. Proceed with the **Connecting Power to the Routing Switch** section.

Rack Mount Installation

1. Remove the rack mount kit from the shipping carton. There will be two L-shaped mounting brackets and mounting screws.

   NOTE: A Phillips head screwdriver is required for installation.

2. Attach the mounting brackets to the sides of the routing switch as illustrated in **Figure 2.7**.
3. Attach the system in the rack as illustrated in **Figure 2.7**.
4. Proceed with **Connecting Power to the Routing Switch**.

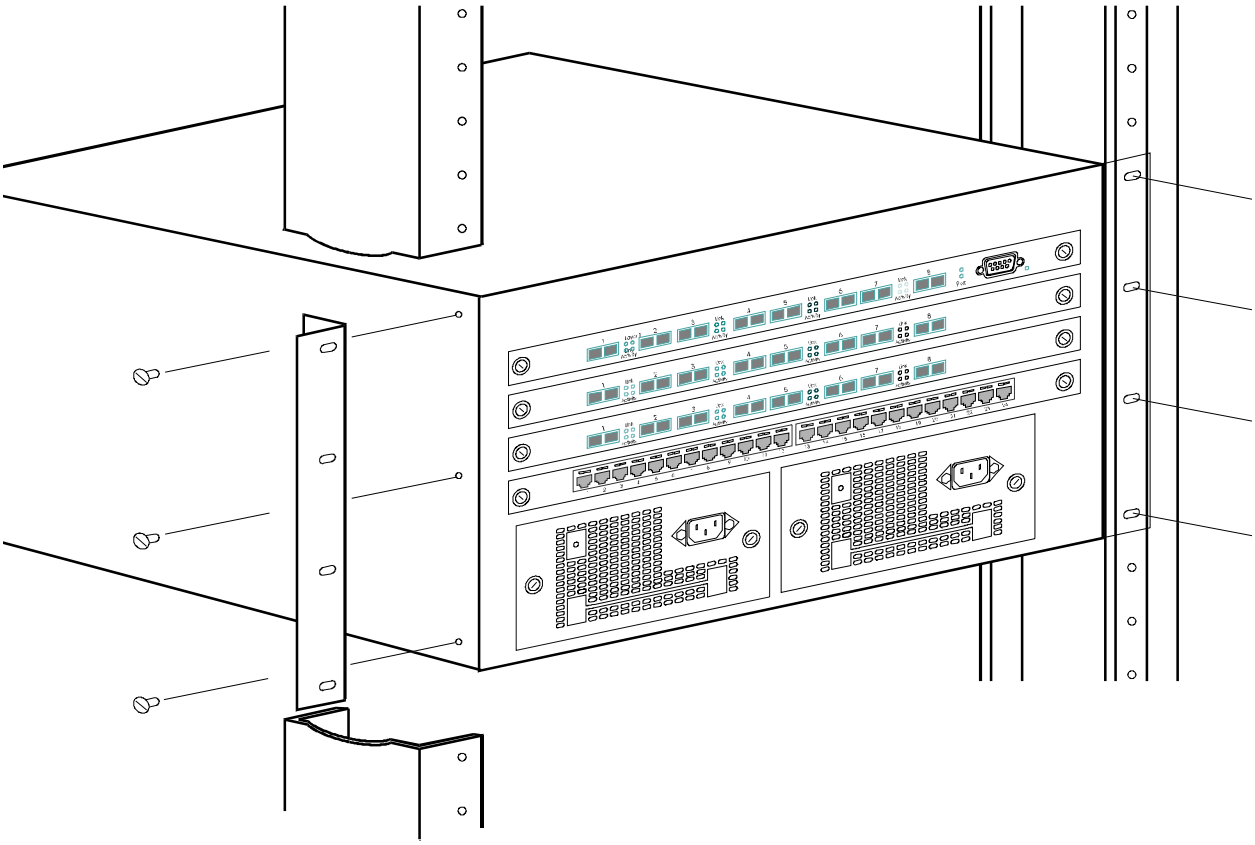


Figure 2.7 Installing a 9304M routing switch in a rack mount

9. Connecting Power to the Routing Switch

With physical installation of the routing switch complete, it is now time to power up the system and connect the network devices.

CAUTION: There is no separate on/off power switch for the HP routing switches. They are powered on when the power cord is connected to a power supply and to a power source. To turn the system off, simply unplug the power cord(s).

CAUTION: The power sockets should be installed near the routing switch and should be easily accessible.

CAUTION: If your installation requires a different power cord than the one supplied with the routing switch, be sure to use a power cord displaying the mark of the safety agency that defines the regulations for power cords in your country. The mark is your assurance that the power cord can be used safely with the system.

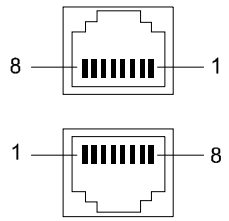
1. Remove the power cord from the shipping package.
2. Attach the AC power cord to the AC connector on the front panel. If more than one power supply is installed, attach a power cord for each power supply. The AC connectors are found on the front of the unit, embedded within each power supply.
3. Insert the power cord plug(s) into an appropriate outlet(s).

10. Connecting Network Devices

HP routing switches can support connections to other vendors' routers, switches, and hubs as well other HP routers, switches and hubs.

Connectors

- 10/100BaseTX ports come with RJ45 jacks for standard unshielded twisted pair (UTP/Category 5) cable connections.
- 100BaseFX ports come equipped with MT-RJ connectors.
- 1000BaseSX ports come equipped with SC(MMF) connectors.
- 1000BaseLX ports come equipped with SC(SMF) connectors.



	10BaseT		100BaseTX	
Pin assignment	Pin#	MDI-X ports	Pin #	MDI-X ports
	1	RD+	1	RD+
	2	RD-	2	RD-
	3	TD+	3	TD+
	4	Not Used	4	CMT
	5	Not Used	5	CMT
	6	TD-	6	TD-
	7	Not Used	7	CMT
	8	Not Used	8	CMT

Figure 2.8 Pin assignment and signalling for 10BaseTX and 100BaseTX ports

Cable Length

Table 2.1 Cable length summary table

	1000BaseSX	1000BaseLX	1000BaseSX	1000BaseLX	1000BaseLX
Fiber Type	MMF	MMF	MMF	MMF	SMF
Core Diameter	62.5	62.5	50	50	9
Transceiver Conditioning	Internal	External	Internal	External	—
Distance Covered	—	—	—	550 meters	5 km
160 MHz	220 meters	—	—	—	—
200 MHz	275 meters	—	—	—	—
400 MHz	—	—	500 meters	—	—
500 MHz	—	—	550 meters	—	—

NOTE: Cable installation and network configuration will affect overall transmission capability. The numbers provided above represent the accepted recommendations of the various standards. For network-specific recommendations, the user should consult their local HP or HP reseller system engineer.

Connecting to Other Routers, Switches, Ethernet or Fast Ethernet Hubs

For UTP connections to Ethernet or Fast Ethernet hubs, a 10/100 Mbps switch or another HP switch or router, a crossover cable is required (**Figure 2.9**). If the hub is equipped with an uplink port, it will require a straight-through cable versus a crossover cable.

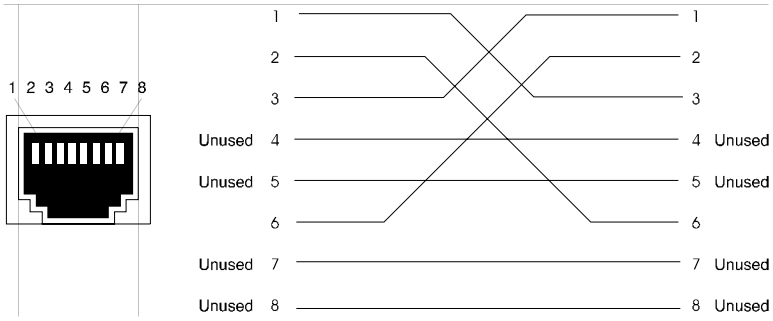


Figure 2.9 UTP crossover cable

Connecting to Workstations, Servers or Routers

Straight-through UTP cabling is required for direct UTP attachment to workstations, servers or routers via network interface cards (NICs).

Fiber cabling with SC connectors is required for direct attachment to Gigabit NICs or switches and routers.

Troubleshooting Network Connections

- For the indicated port, verify that both ends of the cabling, at the routing switch and the connected device, are snug.
- Verify the connected device and routing switch are both powered on and operating correctly.

- Verify that you have used the correct cable type for the connection:
  - for twisted-pair connections to an end node, in general, straight-through cabling should be used; and
  - for fiber-optic connections, verify that the transmit port on the routing switch is connected to the receive port on the connected device, and that the receive port on routing switch is connected to the transmit port on the connected device.
- Verify that the port has not been disabled through a configuration change. You can use the CLI or if you have configured an IP address on the routing switch, you can use the Web management interface.
- If the other procedures don't resolve the problem, try using a different port or a different cable.

Next Steps

Once the initial installation steps are completed, you can proceed with enabling routing protocols and configuring specific features on the routing switch as highlighted in Chapter 4.

Configuration details for all protocols and features of the routing switch can be found in Chapters 7 through 14 of this manual.