Connecting the Switch to the Network

Overview of Network Connections

After you install the switch in a rack and power it up, you are ready to make the following network connections:

- Console connection—This is a direct local management connection that you use to initially configure the switch. You must make this connection first to initially configure the switch and determine its IP address, which is needed for the other connections.

- Management connection—After you complete the initial configuration using a console, you can make this connection to manage all future switch configurations.

- Uplink and downlink interface connections—These are connections to hosts and servers in the network.

Each of these connection types is explained in one of the sections that follow.

Note When running cables in overhead or subfloor cable trays, we strongly recommend that you locate power cables and other potential noise sources as far away as practical from network cabling that terminates on Cisco equipment. In situations where long parallel cable runs cannot be separated by at least 3.3 feet (1 meter), we recommend that you shield any potential noise sources by housing them in a grounded metallic conduit.

Connecting a Console to the Switch

Before you create a network management connection for the switch or connect the switch to the network, you must create a local management connection through a console terminal. And then configure an IP address for

the switch. You can use the console to perform the following functions, each of which can be performed through the management interface after you make that connection:

- Configure the switch using the command-line interface (CLI).

- Monitor network statistics and errors.

- Configure Simple Network Management Protocol (SNMP) agent parameters.

- Download software updates.

You make this local management connection between the asynchronous serial port on a supervisor module and a console device capable of asynchronous transmission. Typically, you can use a computer terminal as the console device. On the supervisor modules, you use the console serial port.

Note Before you can connect the console port to a computer terminal, make sure that the computer terminal supports VT100 terminal emulation. The terminal emulation software makes communication between the switch and computer possible during setup and configuration.

Before you begin

- The switch must be fully installed in its rack, which is connected to a power source, and grounded.

- The necessary cabling for the console, management, and network connections must be available.

  - An RJ-45 rollover cable provided in the switch accessory kit.

  - Network cabling is routed to the location of the installed switch.

Step 1 Configure the console device to match the following default port characteristics:

- 9600 baud

- 8 data bits

- 1 stop bit

- No parity

Step 2 Connect an RJ-45 rollover cable to the console port on the switch.

You can find this cable in the accessory kit.

Step 3 Route the RJ-45 rollover cable to the console or modem.

Step 4 Connect the other end of the RJ-45 rollover cable to the console or to a modem.

What to do next

You are ready to create the initial switch configuration (see Creating the Initial Switch Configuration, on page 3).

Creating the Initial Switch Configuration

You assign an IP address to the switch management interface so that you can then connect the switch to the network.

When you initially power up the switch, it boots up and asks you a series of questions to configure the switch. To connect the switch to the network, you can use the default choices for each configuration except the IP address, which you must provide. You can perform the other configurations later as described in the *Cisco Nexus 9000 Series NX-OS Fundamentals Configuration Guide*.

Note   Know the unique name that is needed to identify the switch among the devices in the network.

Before you begin

- A console device must be connected with the switch.

- The switch must be connected to a power source.

- Determine the IP address and the netmask that is needed for the Management (Mgmt0) interface.

Step 1   Power up the switch by connecting each installed power supply to an AC circuit.

If you are using the input-source (*n*+*n*) power mode, connect half of the power supplies to one AC circuit. And connect the other half of the power supplies to another AC circuit.

The Input and Output LEDs on each power supply light up (green) when the power supply units are sending power to the switch, and the software asks you to specify a password to use with the switch.

Step 2   Enter a new password to use for this switch.

The software checks the security strength of your password and rejects your password if it is not considered to be a strong password. To increase the security strength of your password, make sure that it adheres to the following guidelines:

- At least eight characters

- Minimizes or avoids the use of consecutive characters (such as "abcd").

- Minimizes or avoids repeating characters (such as "aaabbb").

- Does not contain recognizable words from the dictionary.

- Does not contain proper names.

- Contains both uppercase and lowercase characters

- Contains numbers and letters

Note   Clear text passwords cannot include the dollar sign ($) special character.

Tip   If a password is trivial (such as a short, easy-to-decipher password), the software will reject your password configuration. Be sure to configure a strong password as explained in this step. Passwords are case-sensitive.

If you enter a strong password, the software asks you to confirm the password.

Step 3   Enter the same password again.

If you enter the same password, the software accepts the password and begins asking a series of configuration questions.

Step 4   Until you are asked for an IP address, you can enter the default configuration for each question.

Repeat this step for each question until you are asked for the Mgmt0 IPv4 address.

Step 5   Enter the IP address for the management interface.

The software asks for the Mgmt0 IPv4 netmask.

Step 6   Enter a network mask for the management interface.

The software asks if you need to edit the configuration.

Step 7   Enter **no** not to edit the configuration.

The software asks if you need to save the configuration.

Step 8   Enter **yes** to save the configuration.

What to do next

You can now set up the management interface for each supervisor module on the switch.

Setting Up the Management Interface

The RJ-45 and/or SFP management ports provide out-of-band management, which enables you to use the command-line interface (CLI) to manage the switch by its IP address. You can use one of these ports depending on the cable and connecters that you are using to connect the management interface to the network.

Before you begin

- The switch must be powered on.
- The switch must be initially configured using a console.

Step 1   Connect the management cable into the management port on the switch. For shorter connections, you can use a cable with RJ-45 connectors. For longer connections, you can use an optical cable with SFP transceivers (LH or SX type).

Note   Use only one of these management ports—the switch does not support the use of both management ports.

Step 2   Connect the other end of the cable to a 10/100/1000 or SFP port on a network device.

Connecting Interface Ports to Other Devices

After you perform the initial configuration for the switch and create a management connection, you are ready to connect the interface ports on the switch to other devices. Depending on the types of interface ports on the switch, you will need to use interface cables with QSFP28, QSFP+, SFP+, SFP transceivers, or RJ-45 connectors to connect the switch to other devices.

Note If you need to use SFP+ or SFP transceivers in a QSFP+ or QSFP28 uplink port, install a QSFP-to-SFP adapter, such as the CVR-QSFP-SFP10G adapter, in the QSFP port and then install the SFP+ or SFP transceiver. The switch automatically sets the port speed to the speed of the installed transceiver.

If the transceivers that you are using can be separated from their optical cables, install the transceivers without their cables before inserting the cables into the transceivers. This helps to prolong the life of both the transceiver and cables. When removing transceivers from the switch, it is best to remove the optical cable first and then remove the transceiver.

To determine which transceivers, adapters, and cables are supported by this switch, see the Cisco Transceiver Modules Compatibility Information document.

Uplink Connections

For a list of transceivers and cables used by this switch for uplink connections, see http://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html.

The 12 uplink ports support 40- and 100-Gigabit Ethernet using QSFP28 transceivers.

Warning **Statement 1051**—Laser Radiation

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

Downlink Connections

The Cisco Nexus 92240YC-FX2 switch has 48 downlink ports that connect to servers. Each of these ports supports 1-Gigabit, 10-Gigabit, and 25-Gigabit speeds over 10-Gigabit optical cables using SFP+ transceivers.

For a listing of the transceivers and cables that the optical downlink ports support, see http://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html