Connecting to the Network

This chapter contains the following sections:

Guidelines for Connecting Ports

You can use and Small Form-Factor Pluggable (SFP) transceivers to connect the ports on the I/O modules to other network devices, which can include other switches or Fabric Extenders (FEXs). The SFP+ transceivers include Fabric Extender Transceivers (FETs) for connecting I/O modules with FEXs.

The transceivers used with copper cables come already assembled with their cables. The transceivers used with fiber-optic cables come separated from their cables. To prevent damage to the fiber-optic cables and their transceivers, we recommend that you keep the transceivers disconnected from their fiber-optic cables when installing the transceiver in the I/O module. Before removing a transceiver for a fiber-optic cable, remove the cable from the transceiver.

To maximize the effectiveness and life of your transceivers and optical cables, do the following:

- Wear an ESD-preventative wrist strap that is connected to an earth ground whenever handling transceivers. The switch is typically grounded during installation and provides an ESD port to which you can connect your wrist strap.

- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.

- Keep the transceivers and fiber-optic cables clean and dust free to maintain high signal accuracy and to prevent damage to the connectors. Attenuation (loss of light) is increased by contamination and should be kept below 0.35 dB.

  - Clean these parts before installation to prevent dust from scratching the fiber-optic cable ends.

  - Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to your site's fiber-optic connection cleaning procedures.

- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.

- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.

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 configure an IP address for the switch. You can also use the console to perform the following functions, each of which can be performed through the management interface after you make that connection later on:

- 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 one of the following asynchronous serial ports:

- CONSOLE SERIAL PORT

This port is used for direct connections to the console.

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, 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 and DB9F/RJ-45 adapter are provided in the switch accessory kit.

  - Network cabling should already be 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   Route the RJ-45 rollover cable through the center slot in the cable management system and then to the console or modem.

Step 3   Connect the other end of the RJ-45 rollover cable to the console or to a modem.

If the console or modem cannot use an RJ-45 connection, use the DB-9F/RJ-45F PC terminal adapter found in the accessory kit for the switch. Alternatively, you can use an RJ-45/DSUB F/F or RJ-45/DSUB R/P adapter, but you must provide those adapters.

What to do next

You are ready to create the initial switch configuration (see Creating the Initial Switch Configuration, on page 4).

Connecting the Management Interface

The supervisor management port (MGMT ETH) provides out-of-band management, which enables you to use the command-line interface (CLI) or the Cisco Data Center Network Manager (DCNM) interface to manage the switch by its IP address. This port uses a 10/100/1000 Ethernet connection with an RJ-45 interface.

Note   In a dual supervisor switch, you can ensure that the active supervisor module is always connected to the network by connecting the management interface on both supervisor modules to the network (that is, you can perform this task for each supervisor module). That way, no matter which supervisor module is active, the switch automatically has a management interface that is running and accessible from the network.

Caution   To prevent an IP address conflict, do not connect the MGMT 10/100/1000 Ethernet port until the initial configuration is complete. For more information, see Creating the Initial Switch Configuration, on page 4.

Before you begin

You must have completed the initial switch configuration (see Creating the Initial Switch Configuration, on page 4).

Step 1   Connect a modular, RJ-45, UTP cable to the MGMT ETH port on the supervisor module.

Step 2   Route the cable through the central slot in the cable management system.

Step 3   Connect the other end of the cable to a 10/100/1000 Ethernet port on a network device.

What to do next

You are ready to connect the interface ports on each of the I/O modules to the network.

Creating the Initial Switch Configuration

You must 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 enable you 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 at a later time as described in the *Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide*.

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Note   You should also know the unique name 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 netmask needed for the following interfaces:

    - Management (Mgmt0) interface

Step 1   Power up the switch by turning the power switch from standby () to on () with each power supply installed in the switch chassis.

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 as well as letters

Examples of strong passwords include the following:

- If2CoM18

- 2004AsdfLkj30

> • Cb1955S21

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** to not 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.

Connecting Interface Ports to the Network

You can connect optical interface ports on I/O modules with other devices for network connectivity.

Connecting a Fiber-Optic Cable to a Transceiver

To prevent damage to the fiber-optic cables, do not place more tension on them than the rated limit and do not bend them to a radius less than 1 inch (2.54 cm) if there is no tension in the cable or 2 inches (5.08 cm) if there is tension in the cable.

To prevent possible damage to the cable or transceiver, install the transceiver in the port before installing the cable in the transceiver.

Step 1 Attach an ESD-preventative wrist strap and follow its instructions for use.

Step 2 Remove the dust cover from the port connector on the cable.

Step 3 Remove the dust cover from the cable end of the transceiver.

Step 4   Align the cable connector with the transceiver and insert the connector into the transceiver until it clicks into place (see the following figure for SFP or SFP+ transceivers).

Figure 1: Connecting an LC Optical Cable Plug to a Transceiver
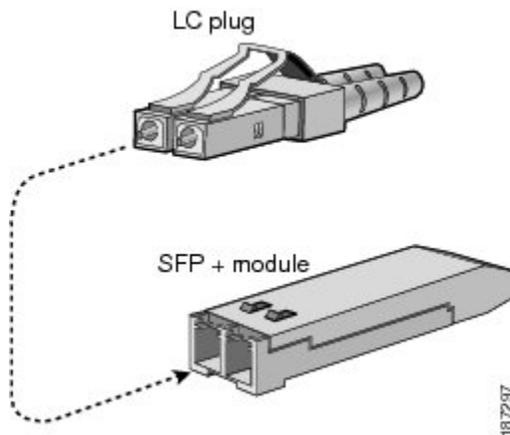
If the cable does not install easily, ensure that it is correctly oriented before continuing.

Disconnecting Optical Ports from the Network

When removing fiber-optic transceivers, you must remove the fiber-optic cables from a transceiver before removing the transceiver from the port.

Maintaining Transceivers and Optical Cables

Transceivers and fiber-optic cables must be kept clean and dust free to maintain high signal accuracy and prevent damage to the connectors. Attenuation (loss of light) is increased by contamination and should be below 0.35 dB.

Consider the following maintenance guidelines:

- Transceivers are static sensitive. To prevent ESD damage, wear an ESD-preventative wrist strap that is connected to the grounded chassis.

- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.

- Keep all optical connections covered when not in use. Clean them before using to prevent dust from scratching the fiber-optic cable ends.

- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.

- Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors if they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to your site's fiber-optic connection cleaning procedures.

- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.