



# Connecting the Switch to the Network

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## Preparing for Network Connections

When preparing your site for network connections to your switch, consider the following for each type of interface and gather all the required equipment before connecting the ports:

- Cabling required for each interface type
- Distance limitations for each signal type
- Additional interface equipment required

## Connecting to a Console

You can connect the switch to a console to perform the following functions:

- Configuring the switch using the CLI
- Monitoring network statistics and errors
- Configuring SNMP agent parameters
- Downloading software updates



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**Note** We recommend that you use this port to create a local management connection to set the IP address and other initial configuration settings before connecting the switch to the network for the first time.

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The console port on the switch is an RS-232 port with an RJ-45 interface. This is an asynchronous (async) serial port; any device connected to this port must be capable of asynchronous transmission.



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**Caution** The console port can be used to connect to a modem. If you do not connect it to a modem, connect it either before powering the switch on or after the switch has completed the boot process.

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### Before you begin

Before you connect the switch to a console, ensure that you have the following:

- Computer terminal that supports VT100 terminal emulation. The terminal emulation software (such as HyperTerminal or Procomm Plus) makes communication between the switch and a computer possible during setup and configuration.

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**Step 1** Configure the terminal emulator program to match each of the following default port characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity

**Step 2** Connect the DB-9 connector on the other end of the cable to the computer serial port.

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### What to do next

You are ready to configure the switch.

## Connecting the Management Interface

### Before you begin

To prevent an IP address conflict, you must complete the initial configuration and establish an IP address for the switch.

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**Step 1** Connect the appropriate modular cable to on the switch.

**Step 2** Connect the other end of the cable to the switch, hub, or router.

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## 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 QSFP+, SFP+, or SFP transceivers or RJ-45 connectors to connect the switch to other devices.

The transceivers used with many fiber-optic cables come separated from their cables. To prevent damage to the fiber-optic cables and their transceivers, we recommend that you keep these transceivers disconnected from their fiber-optic cables when installing the transceiver in the interface port. Before removing a transceiver for a fiber-optic cable, you must 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.



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**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

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## Installing SFP+ and SFP Transceivers



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**Note** Excessively removing and installing an SFP or SFP+ transceiver can shorten its life. Unless it is absolutely necessary, do not remove and insert SFP or SFP+ transceivers. To prevent damage to an optical cable and transceiver, we recommend that you disconnect cables before installing or removing transceivers.

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**Note** If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

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- Step 1** Attach an ESD-preventive wrist strap and follow its instructions for use.
- Step 2** Remove the dust cover from the port cage.
- Step 3** Remove the dust cover from the port end of the transceiver.
- Step 4** Insert the transceiver into the port as follows:
- If the transceiver has a Mylar tab latch, position the transceiver with the tab on the bottom, and then gently insert the transceiver into the port until it clicks into place.
  - If the transceiver has a bale clasp latch, position the transceiver with the clasp on the bottom, close the clasp by pushing it up over the transceiver, and then gently insert the transceiver into the port until it clicks into place.
- Caution** If the transceiver does not install easily, ensure that it is correctly positioned and the tab or clasp are in the correct position before continuing.
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## Installing QSFP+ Transceivers

The QSFP+ transceiver module can have either a bail-clasp latch or a pull-tab latch.



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**Caution** The QSFP+ transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling QSFP+ transceiver modules or coming into contact with system modules.

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- Step 1** Attach an ESD wrist strap to yourself and a properly grounded point on the chassis or the rack. Follow its instructions for use.
- Step 2** Remove the QSFP+ transceiver module from its protective packaging.
- Step 3** Remove the dust cover from the port end of the transceiver.
- Step 4** Check the label on the QSFP+ transceiver module body to verify that you have the correct model for your network.
- Step 5** For optical QSFP+ transceivers, remove the optical bore dust plug and set it aside.
- Step 6** For transceivers equipped with a bail-clasp latch, do the following:
- a) Keep the bail-clasp aligned in a vertical position.
  - b) Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.
- Step 7** For QSFP+ transceivers equipped with a pull-tab, do the following:
- a) Hold the transceiver so that the identifier label is on the top.
  - b) Align the QSFP+ transceiver in front of the module's transceiver socket opening and carefully slide the QSFP+ transceiver into the socket until the transceiver makes contact with the socket electrical connector.
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## Installing SFP+ and SFP Optical Cables



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**Note** To prevent damage to an optical cable and transceiver, disconnect cables before installing or removing transceivers.

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- Step 1** Attach an ESD-preventive wrist strap and follow its instructions for use.
- Step 2** Remove the dust cover from the 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.
- Caution** If the cable does not install easily, ensure that it is correctly positioned before continuing.
- Note** If you cannot install the cable into the transceiver, insert or leave the dust plug in the cable end of the transceiver.

For instructions on verifying connectivity, see the appropriate Cisco Nexus Series configuration guide.

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## 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. Contamination increases attenuation (loss of light) 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 the fiber-optic connection cleaning procedures for your site.
- 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.

# 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*.



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

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## 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.

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**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.

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### What to do next

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

