Connecting the Switch to the Network

Setting Up the Management Interface

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

Before you begin

The switch must be powered on.

Step 1 Connect the RJ-45, UTP cable to the MGMT ETH port on the switch.

Step 2 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 line cards to the network.

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.

For the top 32 ports, you must install transceivers right-side up (Cisco transceiver labels facing down). For the bottom 32 ports, you must install transceivers upside down (Cisco transceiver labels facing up).

By default, the 40-Gigabit uplink ports operate at 40 Gbps, but you can use the **speed-group 10000** command to change the administrative speed to 10 Gbps. If you change the speed, you must also use a QSFP-to-SFP

adapter and a supported SFP+ transceiver in each of the converted SFP+ ports. All of the ports in a group of ports must operate at the same speed or you will see an error with a "check speed-group config" message.To return the administrative speed to 40 Gigabits, use the **no speed-group 10000** command.

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 92304QC switch has 56 downlink ports that connect to servers. Each of these ports supports 1-Gigabit, 10-Gigabit, and 40-Gigabit speeds over 40-Gigabit optical cables using QSFP+ 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

Guidelines for Connecting Ports

You can use Quad Small Form-Factor Pluggable Plus (QSFP+) transceivers for ports 1 to 56, QSFP+ breakout cables with four SFP+ transceivers to connect to server hosts for ports 1 to 16. You can use QSFP28 transceivers for ports 57 to 64. For ports 1 to 32, you must install transceivers right-side up (Cisco transceiver labels on the bottom). For ports 33 to 64, which are upside down, you must install transceivers upside down (Cisco transceiver labels on the top)).

For information about the transceivers currently being used with the switch, use the **show inventory all** command.

Prevent damage to the fiber-optic cables that can separate from their cables. Keep the transceivers disconnected from their fiber-optic cables when installing the transceiver in the line card. Before removing such a transceiver from the switch, 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. Contamination causes increased attenuation (loss of light), 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.
- To minimize the chance of damaging transceivers when installing them, slide them gently into their switch slots. Never force transceivers all the way into the slots. If the transceiver stops part way into the slot, it might be upside down. Remove the transceiver before turning it over and reinstalling it. If positioned correctly, the transceiver slides all the way into the slot and clicks when fully installed.

Note For slots 1 to 32, position the transceiver right-side up (Cisco transceiver label on the bottom) when sliding it into the switch slot. For slots 33 to 64, the ports are upside down and you must turn the transceiver upside down (Cisco transceiver label on top) before installing it into the slot.

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Warning **Statement 1055—**Class 1/1M Laser

Warning – Invisible Laser Radiation. Do not expose users of telescopic optics. Class 1/1M Laser Products.

Warning **Statement 1056—**Unterminated Fiber Cable

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.

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.