



Installing a Network Module

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Network Modules Overview

The Cisco Catalyst 9300 Series Switches supports the following optional network modules for uplink ports.

Network Module	Description
C9300-NM-4G	This module has four 1G SFP module slots. Any combination of standard SFP modules are supported. Note Supported only on Cisco Catalyst 9300 Series Switches.
C9300-NM-8X	This module has eight 10G SFP+ module slots. Note Supported only on Cisco Catalyst 9300 Series Switches.
C9300-NM-2Q	This module has two 40G QSFP+ module slots. Note Supported only on Cisco Catalyst 9300 Series Switches.
C9300-NM-4M	This module has four Multigigabit Ethernet (mGig) module slots. Note Supported only on Cisco Catalyst 9300 Series Switches.
C9300-NM-2Y	This module has two 25G SFP28 module slots. Note Supported only on Cisco Catalyst 9300 Series Switches.
C3850-NM-4-1G	This module has four 1G SFP module slots. Any combination of standard SFP modules are supported. SFP+ modules are not supported. If you insert an SFP+ module in the 1G network module, the SFP+ module does not operate, and the switch logs an error message.

Network Module	Description
C3850-NM-2-10G	This module has four slots. Two slots (left side) support only 1G SFP modules and two slots (right side) support either 1G SFP or 10G SFP modules.
C3850-NM-4-10G	This module has four 10G slots or four 1G slots.
C3850-NM-8-10G	This module has eight 10G slots with an SFP+ port in each slot. Each port supports a 1G or 10G connection
C3850-NM-2-40G	This module has two 40G slots with a QSFP+ connector in each slot.
Blank Network Module	Insert this blank module when the switch has no uplink ports (this is required for sufficient air flow).

Installing a Network Module in the Switch

Safety Warnings

This section includes the installation cautions and warnings. Translations of the safety warnings are available in the *Regulatory Compliance and Safety Information for Cisco Catalyst 9300 Series Switches*.

Read this section before you install a network module.



Caution

Proper ESD protection is required whenever you handle equipment. Installation and maintenance personnel should be properly grounded by grounding straps to eliminate the risk of ESD damage to the equipment. Equipment is subject to ESD damage whenever you remove it.



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030



Warning

Do not reach into a vacant slot or chassis while you install or remove a module. Exposed circuitry could constitute an energy hazard. Statement 206

Installing a Network Module



Note

The switch can operate without a network module, but a blank module (with no ports or SFP slots) is available and should be installed when uplink ports are not required.



Note The switch generates logs when you insert or remove a network module with SFP/SFP+/SFP28/QSFP+ slots.

Use only supported network modules and Cisco pluggable transceivers. Each module has an internal serial EEPROM that is encoded with security information.

The network module is hot-swappable. If you remove a module, replace it with another network module or a blank module.



Note The switch complies with EMC, safety, and thermal specifications when a network module is present. If no uplink ports are required, install a blank network module.

Before you begin

When installing network modules, observe these precautions:

- Do not remove the blank module from the slot unless you are installing a network module. A module must be in the uplink slot at all times.
- Do not remove the dust plugs from the pluggable transceivers or the rubber caps from the fiber-optic cable until you connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.
- Removing and installing a network module can shorten its useful life. Do not remove and insert a network module more often than is necessary.
- To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.



Note Unlike other network modules, the C9300-NM-8X cannot be fully inserted and secured until the jackscrew is properly tightened.

1. Push the module into the uplink slot until the jackscrew connects with the rightmost tab.
2. You will feel some light resistance, because a spring-loaded tab inside the slot will push back against the C9300-NM-8X module
3. Continue to tighten the jackscrew while gently pushing the front panel of the network module into the slot.

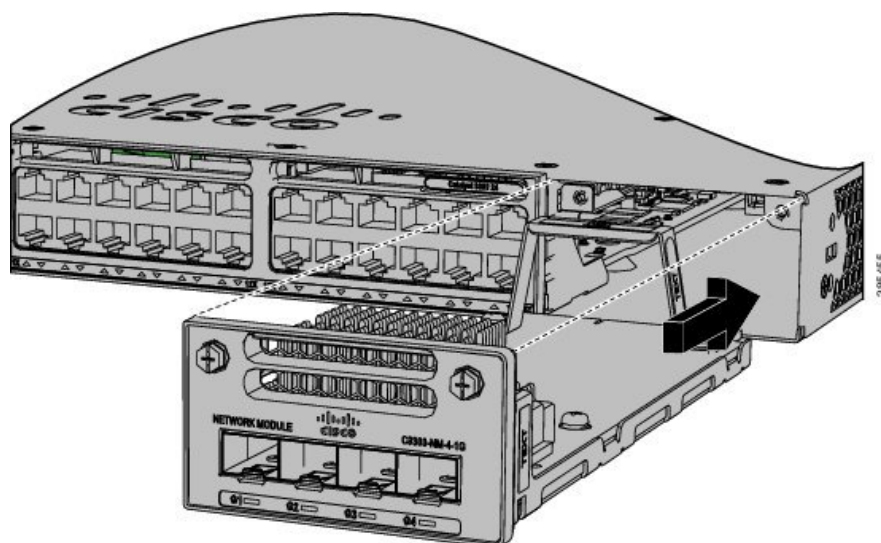
Procedure

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to an earth ground surface.
- Step 2** Remove the module from the protective packaging.
- Step 3** Remove the blank module from the switch and save it. To remove the blank module, loosen the captive screw on the module using a screwdriver until it completely disengages from the chassis.

- Caution** Verify the correct orientation of your module before installing it. Incorrect installation can damage the module.
- Caution** Do not install the network module with connected cables or installed pluggable transceivers. Always remove any cables and transceiver modules before you install the network module.
- Caution** A module interface might become error-disabled when a network module with connected fiber-optic cables is installed or removed. If an interface is error-disabled, you can reenable the interface by using the **shutdown** and **no shutdown** interface configuration commands.

Step 4 Position the module face up to install it in the module slot. Slide the module into the slot until the screw makes contact with the chassis. Fasten the captive screws to secure the network module in place.

Figure 1: Installing the Network Module in the Switch



Network Module Port Configurations

C9300-NM-2Q Module

If you use a 40G QSFP module, the ports default to 40G interfaces. In this case, the 10G interfaces are displayed but not used.

Table 1: C9300-NM-2Q Module with 40G QSFP Module

Interface	Action
FortyGigabitEthernet1/1/1	Configure this interface
FortyGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/1	Disregard

Interface	Action
TenGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/3	Disregard
TenGigabitEthernet1/1/4	Disregard
TenGigabitEthernet1/1/5	Disregard
TenGigabitEthernet1/1/6	Disregard
TenGigabitEthernet1/1/7	Disregard
TenGigabitEthernet1/1/8	Disregard

C9300-NM-4G Module

All ports in the C9300-NM-4G module are natively GigabitEthernet and are configured GigabitEthernet1/1/1 through GigabitEthernet1/1/4. There are only four interfaces that are valid, and the other four should not be used even though they are available in the CLI.

Table 2: C9300-NM-4G Module

Interface	Action
GigabitEthernet1/1/1	Configure this interface
GigabitEthernet1/1/2	Configure this interface
GigabitEthernet1/1/3	Configure this interface
GigabitEthernet1/1/4	Configure this interface
TenGigabitEthernet1/1/1	Disregard
TenGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/3	Disregard
TenGigabitEthernet1/1/4	Disregard

C9300-NM-4M Module

Table 3: C9300-NM-4M Module with 4 Multigigabit Ethernet (mGig) Module

Interface	Action
TenGigabitEthernet1/1/1	Configure this interface
TenGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/3	Configure this interface
TenGigabitEthernet1/1/4	Configure this interface

C9300-NM-2Y Module

Table 4: C9300-NM-2Y Module with 25G SFP28 Module

Interface	Action
TwentyFiveGigabitEthernet1/1/1	Configure this interface
TwentyFiveGigabitEthernet1/1/2	Configure this interface

C9300-NM-8X Module

All ports in the C9300-NM-8X module default to 10 G and should be configured as TenGigabitEthernet1/1/1 through TenGigabitEthernet1/1/8, even when you are operating them as 1 G using SFP.

Table 5: C9300-NM-8-10X Module

Interface	Action
TenGigabitEthernet1/1/1	Configure this interface
TenGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/3	Configure this interface
TenGigabitEthernet1/1/4	Configure this interface
TenGigabitEthernet1/1/5	Configure this interface
TenGigabitEthernet1/1/6	Configure this interface
TenGigabitEthernet1/1/7	Configure this interface
TenGigabitEthernet1/1/8	Configure this interface

C3850-NM-4-1G Module

All ports in the C3850-NM-4-1G module are natively GigabitEthernet and are configured GigabitEthernet1/1/1 through GigabitEthernet1/1/4. There are only four interfaces that are valid, and the other four should not be used even though they still show up in the CLI.

Table 6: C3850-NM-4-1G Module

Interface	Action
GigabitEthernet1/1/1	Configure this interface
GigabitEthernet1/1/2	Configure this interface
GigabitEthernet1/1/3	Configure this interface
GigabitEthernet1/1/4	Configure this interface
TenGigabitEthernet1/1/1	Disregard

Interface	Action
TenGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/3	Disregard
TenGigabitEthernet1/1/4	Disregard

C3850-NM-4-10G Module

All ports in the C3850-NM-4-10G module default to 10 G and should be configured as TenGigabitEthernet1/1/1 through TenGigabitEthernet1/1/4, even when you are operating them as 1 G using SFPs. Only four interfaces are valid; the other four should not be used even though they still show up in the CLI.

Table 7: C3850-NM-4-10G Module

Interface	Action
GigabitEthernet1/1/1	Disregard
GigabitEthernet1/1/2	Disregard
GigabitEthernet1/1/3	Disregard
GigabitEthernet1/1/4	Disregard
TenGigabitEthernet1/1/1	Configure this interface
TenGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/3	Configure this interface
TenGigabitEthernet1/1/4	Configure this interface

C3850-NM-2-10G Module

In the C3850-NM-2-10G module, the first two ports are natively 1-G ports and the last two ports are natively 10-G ports. So, you configure the 1-G ports as GigabitEthernet1/1/1 through GigabitEthernet1/1/2, and configure the last two ports as TenGigabitEthernet1/1/3 through TenGigabitEthernet1/1/4, even when you are operating the last two ports as 1-G. Only four interfaces are valid, and the other four should not be used even though they still show up in the CLI.

Table 8: C3850-NM-2-10G Module

Interface	Action
GigabitEthernet1/1/1	Configure this interface
GigabitEthernet1/1/2	Configure this interface
GigabitEthernet1/1/3	Disregard
GigabitEthernet1/1/4	Disregard
TenGigabitEthernet1/1/1	Disregard

Interface	Action
TenGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/3	Configure this interface, even when operating as 1-G
TenGigabitEthernet1/1/4	Configure this interface, even when operating as 1-G

C3850-NM-8-10G Module

All ports in the C3850-NM-8-10G module default to 10 G and should be configured as TenGigabitEthernet1/1/1 through TenGigabitEthernet1/1/8, even when you are operating them as 1 G using SFP.

Table 9: C3850-NM-8-10G Module

Interface	Action
TenGigabitEthernet1/1/1	Configure this interface
TenGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/3	Configure this interface
TenGigabitEthernet1/1/4	Configure this interface
TenGigabitEthernet1/1/5	Configure this interface
TenGigabitEthernet1/1/6	Configure this interface
TenGigabitEthernet1/1/7	Configure this interface
TenGigabitEthernet1/1/8	Configure this interface

C3850-NM-2-40G Module

The default port connections for the C3850-NM-2-40G module depends on whether you use a 40 G QSFP module or a 4x10G breakout cable.

If you use a 40 G QSFP module, the ports default to 40 G interfaces. In this case, the 10 G interfaces are displayed but not used.

Table 10: C3850-NM-2-40G Module with 40 G QSFP Module

Interface	Action
FortyGigabitEthernet1/1/1	Configure this interface
FortyGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/1	Disregard
TenGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/3	Disregard
TenGigabitEthernet1/1/4	Disregard

Interface	Action
TenGigabitEthernet1/1/5	Disregard
TenGigabitEthernet1/1/6	Disregard
TenGigabitEthernet1/1/7	Disregard
TenGigabitEthernet1/1/8	Disregard

If you use a 4x10G breakout cable, the ports default to 10 G interfaces.

Table 11: C3850-NM-2-40G Module with 4x10G breakout cable

Interface	Action
FortyGigabitEthernet1/1/1	Disregard
FortyGigabitEthernet1/1/2	Disregard
TenGigabitEthernet1/1/1	Configure this interface
TenGigabitEthernet1/1/2	Configure this interface
TenGigabitEthernet1/1/3	Configure this interface
TenGigabitEthernet1/1/4	Configure this interface
TenGigabitEthernet1/1/5	Configure this interface
TenGigabitEthernet1/1/6	Configure this interface
TenGigabitEthernet1/1/7	Configure this interface
TenGigabitEthernet1/1/8	Configure this interface

Removing a Network Module



Note

The switch complies with EMC, safety, and thermal specifications when a network module is present. If no uplink ports are required, install a blank network module.

Procedure

Step 1

Attach an ESD-preventive wrist strap to your wrist and to an earth ground surface

Caution Do not remove the network module with connected cables or installed pluggable transceiver modules. Always remove any cables and modules before you remove the network module.

Caution A module interface might become error-disabled when a network module with connected fiber-optic cables is installed or removed. If an interface is error-disabled, you can reenable the interface by using the **shutdown** and **no shutdown** interface configuration commands.

Step 2 Disconnect the cables from the pluggable transceiver module.

Step 3 Remove the pluggable transceiver module from the network module.

Step 4 Loosen the captive screws that hold the network module in place until it completely disengages from the chassis.

Note The C3850-NM-8-10G module is held secure in the switch by only one jackscrew. This screw also helps to eject the module from its connector interface. Before the module can be removed completely, the screw must be unscrewed all the way out. When removing the screw, a spring pushes the module out when the screw is completely disengaged. Ensure that you hold the module securely until it is completely removed.

Step 5 Carefully slide the network module out of the slot.

Step 6 Install a replacement network module or a blank module in the slot.

Step 7 Place the module that you removed in an antistatic bag or other protective environment.

Installing and Removing Cisco Transceiver Modules

Installing a Cisco Pluggable Transceiver Module

Before you begin

You must have an installed network module to use the transceiver modules. See the switch release notes on Cisco.com for the list of supported pluggable transceiver modules. Use only supported pluggable transceivers on the switch. For the latest information about supported transceiver modules, refer to the [Cisco Transceiver Modules Compatibility Information](#).

For information about installing, removing, cabling, and troubleshooting pluggable transceiver modules, see the module documentation that shipped with your device.

Observe these precautions:



Warning

Class 1 laser product. Statement 1008

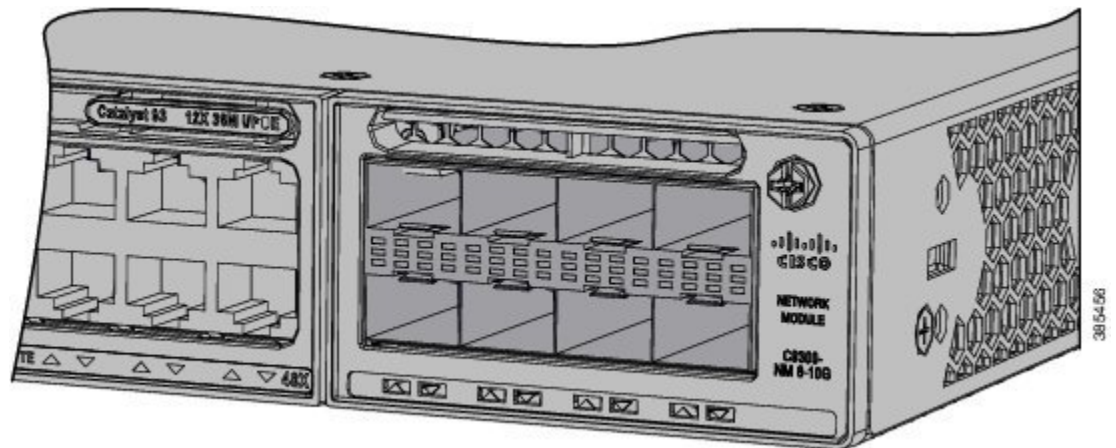
- Do not remove the dust plugs from the pluggable transceiver modules or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.
- Removing and installing a pluggable transceiver module can shorten its useful life. Do not remove and insert any module more often than is necessary.
- To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.

- When you insert several pluggable transceiver modules in multiple switch ports, wait for 5 seconds between inserting each module. This will prevent the ports from going into error disabled mode. Similarly, when you remove a pluggable transceiver module from a port, wait for 5 seconds before reinserting it.

Procedure

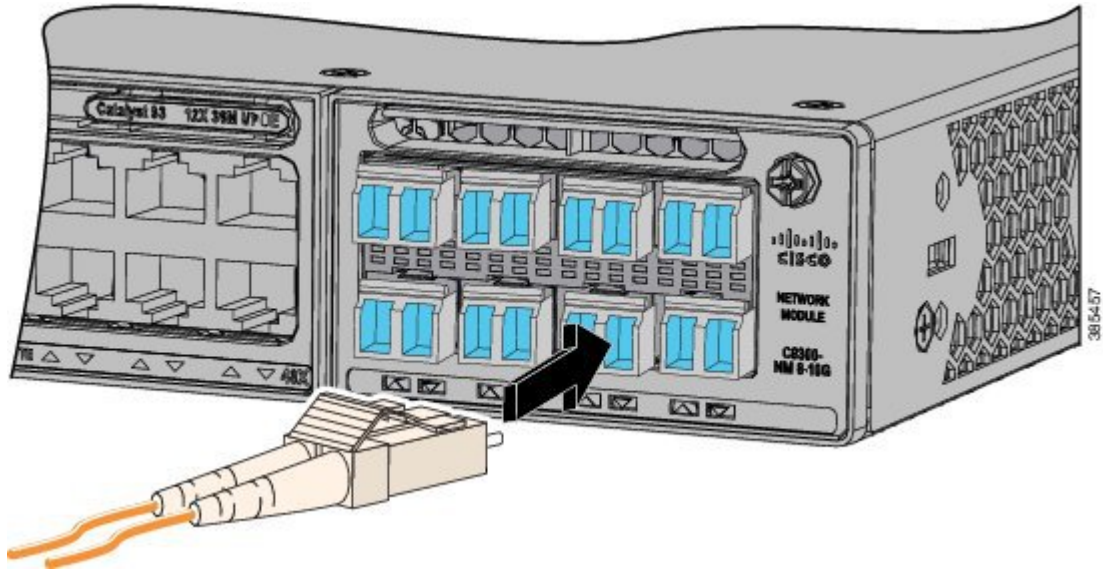
- Step 1** Attach an ESD-preventive wrist strap to your wrist and to an earth ground surface.
- Step 2** Find the send (TX) and receive (RX) markings that identify the top of the transceiver module. On some modules, the send and receive (TX and RX) markings might be shown by arrows that show the direction of the connection.
- Step 3** If the pluggable transceiver module has a bale-clasp latch, move it to the open, unlocked position.
- Step 4** Align the module in front of the slot opening, and push until you feel the connector snap into place.

Figure 2: Installing a Pluggable Transceiver Module in the Network Module



- Step 5** If the module has a bale-clasp latch, close it to lock the module in place.
- Step 6** Remove the dust plugs and save.
- Step 7** Connect the transceiver cables.

Figure 3: Network Module with Pluggable Transceiver Modules Installed



Removing Cisco Pluggable Transceiver Modules

Procedure

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to an earth ground surface.
- Step 2** Disconnect the cable from the transceiver module. For reattachment, note which cable connector plug is send (TX) and which is receive (RX).
- Step 3** Insert a dust plug into the optical ports of the transceiver module to keep the optical interfaces clean.
- Step 4** If the transceiver module has a bale-clasp latch, pull the bale out and down to eject the module. If you cannot use your finger to open the latch, use a small, flat-blade screwdriver or other long, narrow instrument to open it.
- Step 5** Grasp the transceiver module, and carefully remove it from the slot.
- Step 6** Place the transceiver module in an antistatic bag or other protective environment.

Finding the Network Module Serial Number

If you contact Cisco Technical Assistance regarding a network module, you need to know its serial number.

Figure 4: Network Module Serial Number Location

