Installing a Network Module

# Network Module Overview

| Network Module[1]	Description
C3850-NM-4-1G	This module has four 1-Gigabit SFP module slots. Any combination of standard SFP modules are supported. SFP+ modules are not supported.
	If you insert an SFP+ module in the 1-Gigabit network module, the SFP+ module does not operate, and the switch logs an error message.
C3850-NM-2-10G	This module has four slots:
	Two slots (left side) support only 1-Gigabit SFP modules and two slots (right side) support either 1-Gigabit SFP or 10-Gigabit SFP modules.
C3850-NM-4-10G	This module has four 10-Gigabit slots or four 1-Gigabit slots.
	This module is supported only on the 48-port switches.
C3850-NM-BLANK	This module has no uplink ports.

1 All network modules are hot-swappable.

Figure 1: C3850-NM-4-1G Network Module
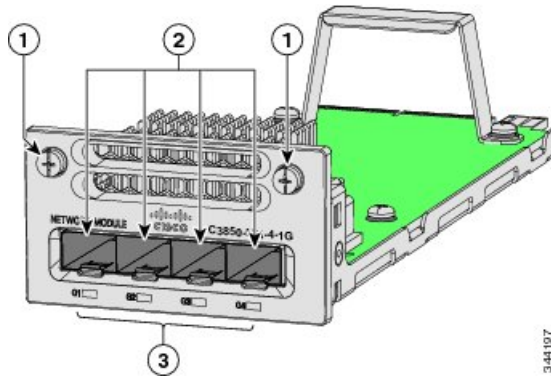
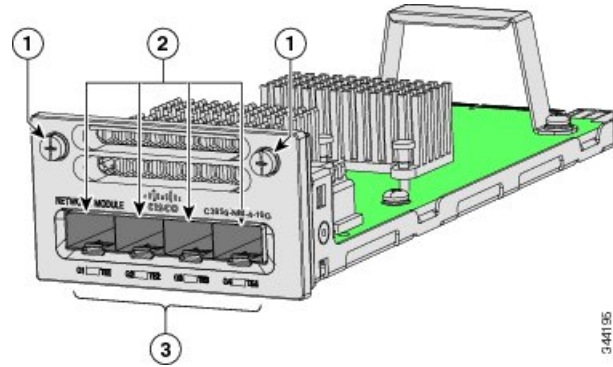| 1	Captive screws	3	LEDs
2	1-Gigabit Ethernet SFP slots		

Figure 2: C3850-NM-2-10G Network Module
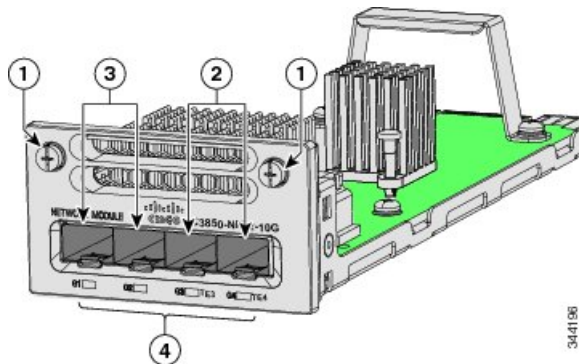
1	Captive screws	3	1-Gigabit Ethernet SFP slots
2	1-Gigabit or 10-Gigabit Ethernet SFP+ slots	4	LEDs

Figure 3: C3850-NM-4-10G Network Module

1	Captive screws	3	LEDs
2	10-Gigabit slots or 1-Gigabit Ethernet SFP slots		

Figure 4: Blank Network Module
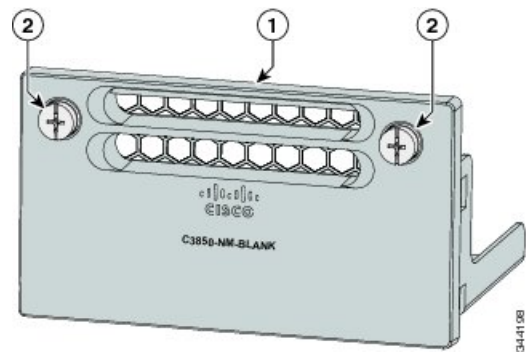
1	Blank module	2	Captive screws

Related Topics

Network Module LEDs

Network Module LEDs

Figure 5: Network Module LEDs
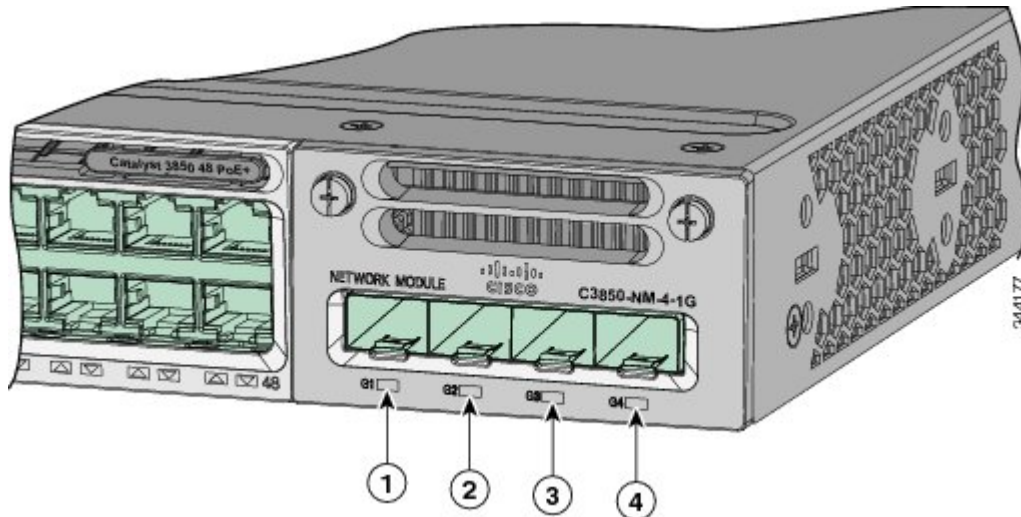
1	G1 LED	3	G3 LED
2	G2 LED	4	G4 LED

Color	Network Module Link Status
Off	Link is off.
Green	Link is on; no activity.
Blinking green	Activity on a link; no faults. **Note** The LED will blink green even when there is very little control traffic.
Blinking amber	Link is off due to a fault or because it has exceeded a limit set in the switch software. **Caution** Link faults occur when noncompliant cabling is connected to an SFP or SFP+ port. Use only standard-compliant cabling to connect to Cisco SFP and SFP+ ports. You must remove from the network any cable or device that causes a link fault.
Amber	Link for the SFP or SFP+ has been disabled.

Installing a Network Module in the Switch

Safety Warnings

This section includes the installation cautions and warnings. Translations of the safety warnings appear in the *Regulatory Compliance and Safety Information for the Catalyst 3850 Switches* on Cisco.com: http://www.cisco.com/go/cat3850_hw

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

Equipment That You Need

- Ratcheting torque screwdriver with a number-2 Phillips head that exerts up to 15 pound-force inches (lbf-in.) of pressure.

- Panduit crimping tool with optional controlled-cycle mechanism (model CT-720, CT-920, CT-920CH, CT-930, or CT-940CH).

- Wire-stripping tools.

- 12-gauge copper ground wire (insulated or not) for the single-ground connection.

- 8-gauge copper ground wire (insulated or not) for the dual-ground connection.

- Ground lug screw (not included in the accessory kit) and ring lug connector in the switch accessory kit. For a dual-ground connection, also use the dual-ground adapter and dual lug connector. (The dual-hole ground lug is optional and is not included with the switch).

- Four leads of 14-gauge copper wire.

- Four fork-type terminals from the DC power supply accessory kit. The terminals must be the proper size for M3 screws in a Dinkle DT-35-B25-style terminal block.

Installing Network Modules

✎ **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 slots.

Use only supported network modules and SFP or SFP+ modules. Each module has an internal serial EEPROM that is encoded with security information. For information about supported SFP modules, see SFP and SFP+ Modules.

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 EMC plug from the 10-Gigabit Ethernet slot until you install an SFP or SFP+ module. Either a module or a dust plug must be in the slot at all times.

- Do not remove the dust plugs from the fiber-optic SFP modules 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.

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 10-Gigabit Ethernet module slot EMC plug, and save it.
 **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 SFP modules. Always remove any cables and 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 back of the module faceplate is flush with the switch faceplate. Fasten the captive screws to secure the network module in place.

Figure 6: Installing the Network Module in the Switch
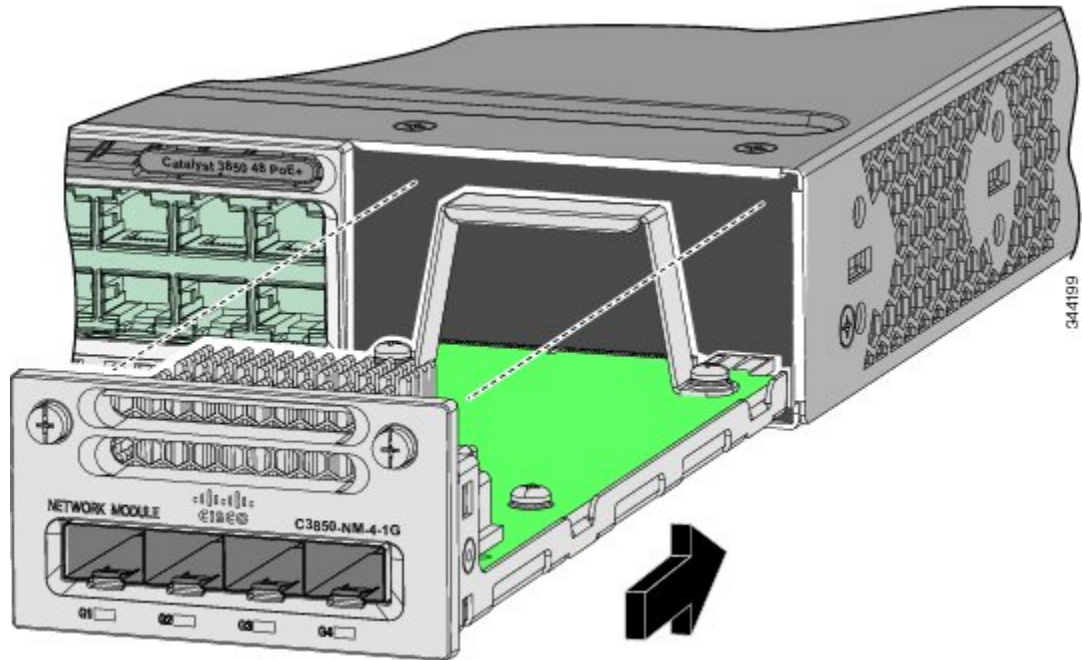
Network Module Port Configurations

All ports in this module are natively GigabitEthernet and are configured GigabitEthernet1/1/1 though 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 1: 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

All ports in this 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 2: 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

The first two parts are natively 1-G ports and the last two ports are natively 10-G ports. So, you configure the 1-G posts 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 3: C3850-NM-2-10G Module

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

Interface	Action
GigabitEthernet1/1/4	Disregard
TenGigabitEthernet1/1/1	Disregard
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

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 SFP modules. Always remove any cables and 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 2   Disconnect the cables from the SFP modules.

Step 3   Remove the SFP modules from the network module.

Step 4   Loosen the captive screws that hold the network module in place.

Step 5   Carefully press the tab on the right side of the network module to release it. Grasp the edges of the module, and carefully slide it 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.

SFP and SFP+ Modules

Installing SFP and SFP+ Modules

Before You Begin

You must have an installed network module to use SFP and SFP+ modules (except for the Catalyst 3850-12S and 3850-24S). The downlink ports on the Catalyst 3850-12S and 3850-24S support standard SFP modules.

See the switch release notes on Cisco.com for the list of supported SFP and SFP+ modules. Use only supported SFP modules on the switch. For the latest information about supported SFP and SFP+ modules, refer to the Cisco Transceiver Modules Compatibility Information at http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

For information about installing, removing, cabling, and troubleshooting SFP 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 SFP 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 an SFP module can shorten its useful life. Do not remove and insert any SFP 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.
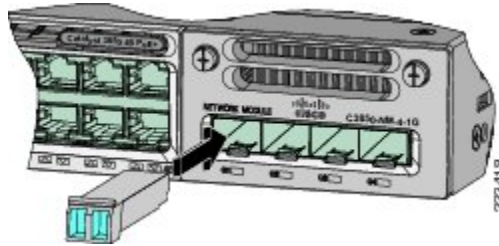
Procedure

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 SFP module.

On some SFP 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 SFP 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 7: Installing an SFP Module in the Network Module

Step 5   If the module has a bale-clasp latch, close it to lock the SFP module in place.

Step 6   Remove the SFP dust plugs and save.

Step 7   Connect the SFP cables.

Figure 8: Network Module with SFP Modules Installed

Removing SFP and SFP+ 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 SFP 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 SFP module to keep the optical interfaces clean.

Step 4   If the 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 SFP module, and carefully remove it from the slot.

Step 6   Place the SFP 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 9: Network Module Serial Number Location