Install Cisco NCS 1004 Modules

This chapter contains procedures to install the modules of Cisco NCS 1004.

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Caution   All the modular slots in the NCS 1004 chassis should always be populated with respective modules (line-cards, controller, PSU & fan units). Empty line card slots to be populated with filler modules, which are shipped with the chassis. The replacement or upgrade of the modules (Online Insertion or Removal, OIR) to be performed only when the ambient temperature is below 30-degree C. The OIR of modules should be completed within five minutes to prevent overheating of the components.

About Line Cards

The Cisco NCS 1004 supports the following line cards:

- 1.2T DWDM Line Card

1.2T Line Card

1.2Tbps DWDM line card can provide up to 12 OTU4 or three 400G client ports. For more details of the 1.2T line card, see the Cisco NCS 1004 datasheet.

- The physical characteristics of the 1.2T line card are:

  - Height—40.4 mm

  - Breadth—191.9 mm

  - Depth—277 mm without the fiber management bracket; 297.97 mm with the fiber management bracket

• Weight—3.2 kg

For the LED details of the line card, see the 1.2T Line Card LEDs section.

Install Line Card

This task has details about installing a line card in to the NCS 1004 chassis. The chassis is shipped with filler cards and/or line cards. The Cisco NCS 1004 chassis supports a maximum of four line cards.

Before you begin

It is mandatory to attach the fiber management brackets to the filler cards and line cards before installing the chassis onto a rack. For a detailed procedure, see the Attach Fiber Management Bracket section.

> **Note**
> The following procedure is not required if the chassis is shipped with preinstalled line cards. For shipping details, see the Shipping and Receiving section.

Step 1   Unscrew the Torx screws of the filler card using a T15 Torx screwdriver.

Step 2   Holding the fiber management bracket of the filler card with one hand and supporting it with the other, remove the filler card from the chassis.

Step 3   Attach the fiber management bracket to the line card that needs to be installed. Follow the procedure as mentioned at the beginning of the section.

Step 4   Orient the line card. Check for the *This Side Up* label.

Step 5   Use both the hands while inserting a line card. Use one hand to hold the line card using the fiber management bracket and the other hand along the base of the card to guide it into the slot.

Figure 1: Installing the 1.2T Line Card
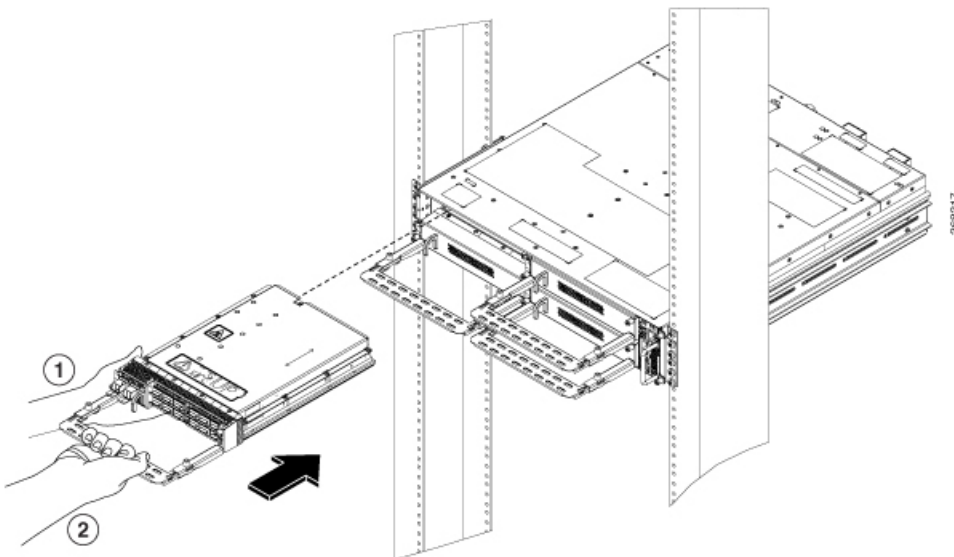
1	Support the line card with your hand at the bottom, while installing (or removing) a line card.
2	Use the fiber management bracket for holding the line card.

Caution Use the fiber management brackets only for pulling out while removing or pushing in the card while installing line cards or filler cards. Do not use the fiber management brackets to carry the cards. Always support the line card (or filler card) at the bottom with your hand.

Step 6 Slide the line card completely inside, into the card guide.

Step 7 Using the Torx screwdriver, tighten the two M3, T15 Torx screws of the line card, to a torque value of 0.65 N-m.

Install Power Supply

This task has information about installing the PSUs into the NCS 1004 chassis.

Step 1 Orient the PSU correctly before inserting. Check for the *This Side Up* label.

Step 2 Using the handle, slide the PSU into the slot (support the PSU at the bottom with your hand) and push it in until you hear a *click* sound; direction of insertion is shown in the following figure. The click sound indicates that the unit has been latched (the locking latch needs to pressed and released only for removing the PSU).
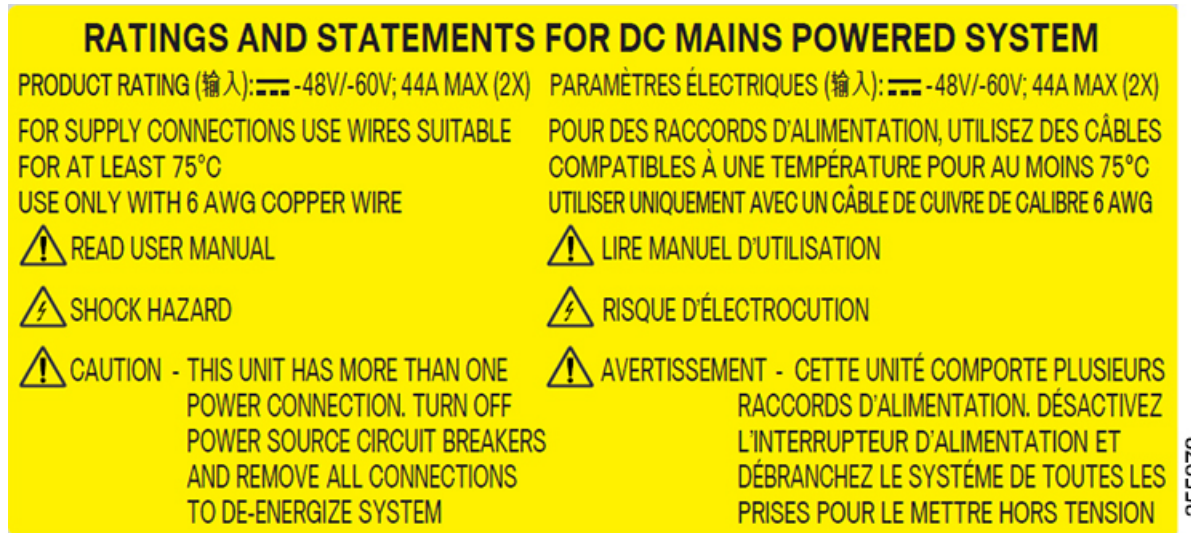
Figure 2: Installing a PSU
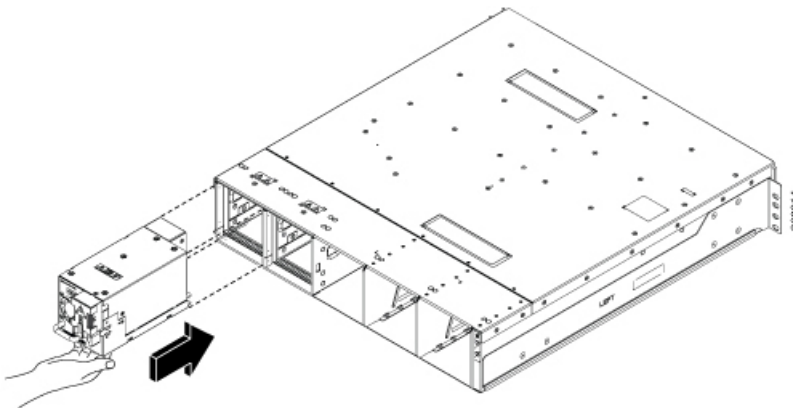
Connect DC Power to NCS 1004

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Caution NCS 1004 relies on the protective devices in the building installation to protect against short circuit, overcurrent, and ground faults. Ensure that the protective devices comply with local and national electrical codes.

Figure 3: Rating Label for DC Power

RATINGS AND STATEMENTS FOR DC MAINS POWERED SYSTEM

PRODUCT RATING (输入): ⎓ -48V/-60V; 44A MAX (2X)
FOR SUPPLY CONNECTIONS USE WIRES SUITABLE
FOR AT LEAST 75°C
USE ONLY WITH 6 AWG COPPER WIRE

⚠ READ USER MANUAL

⚡ SHOCK HAZARD

⚠ CAUTION - THIS UNIT HAS MORE THAN ONE
POWER CONNECTION. TURN OFF
POWER SOURCE CIRCUIT BREAKERS
AND REMOVE ALL CONNECTIONS
TO DE-ENERGIZE SYSTEM

PARAMÈTRES ÉLECTRIQUES (输入): ⎓ -48V/-60V; 44A MAX (2X)
POUR DES RACCORDS D'ALIMENTATION, UTILISEZ DES CÂBLES
COMPATIBLES À UNE TEMPÉRATURE POUR AU MOINS 75°C
UTILISER UNIQUEMENT AVEC UN CÂBLE DE CUIVRE DE CALIBRE 6 AWG

⚠ LIRE MANUEL D'UTILISATION

⚡ RISQUE D'ÉLECTROCUTION

⚠ AVERTISSEMENT - CETTE UNITÉ COMPORTE PLUSIEURS
RACCORDS D'ALIMENTATION. DÉSACTIVEZ
L'INTERRUPTEUR D'ALIMENTATION ET
DÉBRANCHEZ LE SYSTÉME DE TOUTES LES
PRISES POUR LE METTRE HORS TENSION

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Step 1   Verify that the correct fuse panel is installed in the top mounting space.

Step 2   Measure and cut the cables as needed to reach NCS 1004 from the fuse panel.

Step 3   Dress the power according to local practice.

Step 4   Connect the office battery and return cables according to the fuse panel engineering specifications.

Step 5   Affix the power lug on the unit and tighten it using the two screws. Use #6AWG cables.

Ensure a minimum gap of 50 mm below the chassis, for routing the cables. For ETSI racks, 180-degree power lugs are used to maintain 600 mm footprint.

Figure 4: Connecting DC Power
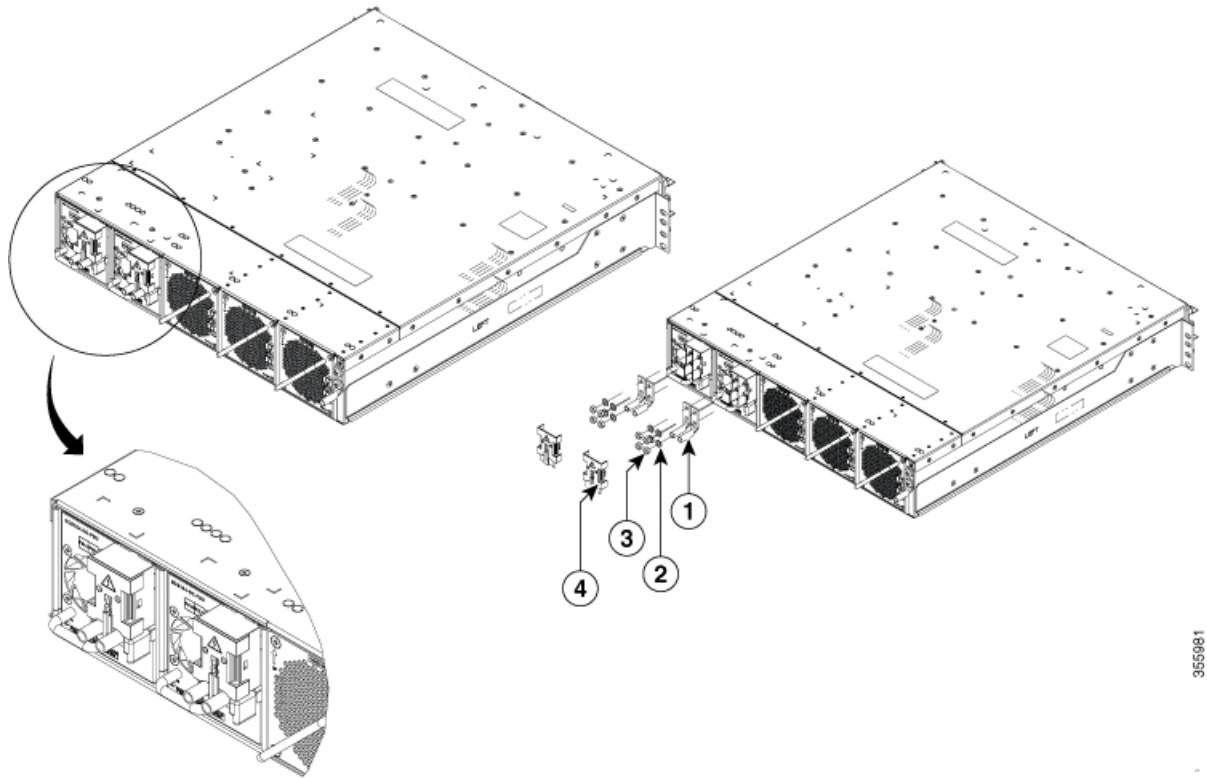
1	Lugs crimped with DC power cords
2,3	Fasteners for DC lugs
4	Protection Cover

Step 6   Use protection covers to keep the lugs in place.

Snap fit the protection cover towards the top for 90-degrees lugs and push it down for straight lugs.

Connect AC Power to NCS 1004

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Caution   NCS 1004 relies on the protective devices in the building installation to protect against short circuit, overcurrent, and ground faults. Ensure that the protective devices comply with local and national electrical codes.

Figure 5: Rating Label for AC Power

RATINGS AND STATEMENTS FOR AC MAINS POWERED SYSTEM

PRODUCT RATING (输入): 100-127V~; 15A MAX (2X); 50/60 Hz   CHARACTÉRISTIQUES DU PRODUIT (输入): 100-127V~; 15A MAX (2X); 50/60 Hz
200-240V~; 12A MAX (2X); 50/60 Hz   200-240V~; 12A MAX (2X); 50/60 Hz

⚠ READ USER MANUAL   ⚠ LIRE MANUEL D'UTILISATION

⚠ SHOCK HAZARD   ⚠ RISQUE D'ÉLECTROCUTION

⚠ CAUTION - THIS UNIT HAS MORE THAN ONE POWER CONNECTION. TURN OFF POWER SOURCE CIRCUIT BREAKERS AND REMOVE ALL CONNECTIONS TO DE-ENERGIZE SYSTEM   ⚠ AVERTISSEMENT - CETTE UNITÉ COMPORTE PLUSIEUR RACCORDS D'ALIMENTATION. DÉSACTIVEZ L'INTERRUPTEUR D'ALIMENTATION ET DÉBRANCHEZ LE SYSTÈME DE TOUTES LES PRISES POUR LE METTRE HORS TENSION

WARNING - HIGH LEAKAGE CURRENT. EARTH CONNECTION ESSENTIAL BEFORE CONNECTING SUPPLY   ADVERTISSEMENT - COURANT DE FUITE ÉLEVÉ. MISE À LA TERRE ESSENTIELLE AVANT DE BRANCHER L'APPAREIL

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The voltage rating value for AC power ranges either between 200 V to 240 V or between 100 V to 127 V depending on the standards in various countries.

Note   A dual pole breaker is needed for the installation. The rating of the dual pole breaker for each feed is 16A for input voltage 200 Vac to 240 Vac, and 20A for input voltage 100 Vac to 127 Vac.

Step 1   Verify that the AC cable is installed in the correct AC source panel. Ensure that either the fuse is removed or the circuit breaker is in the off position and locked out.

Step 2   Attach the AC power cable to the cable connector in the AC power module.

Note   Ensure that there is a minimum gap of 50 mm for routing the cables. Use a 90-degree exit cable to maintain a footprint of 600 mm for ETSI racks.

Step 3   Close the cable retention clips to secure the power cables and to prevent their accidental removal.

Figure 6: Connecting 90-degree Power Cable
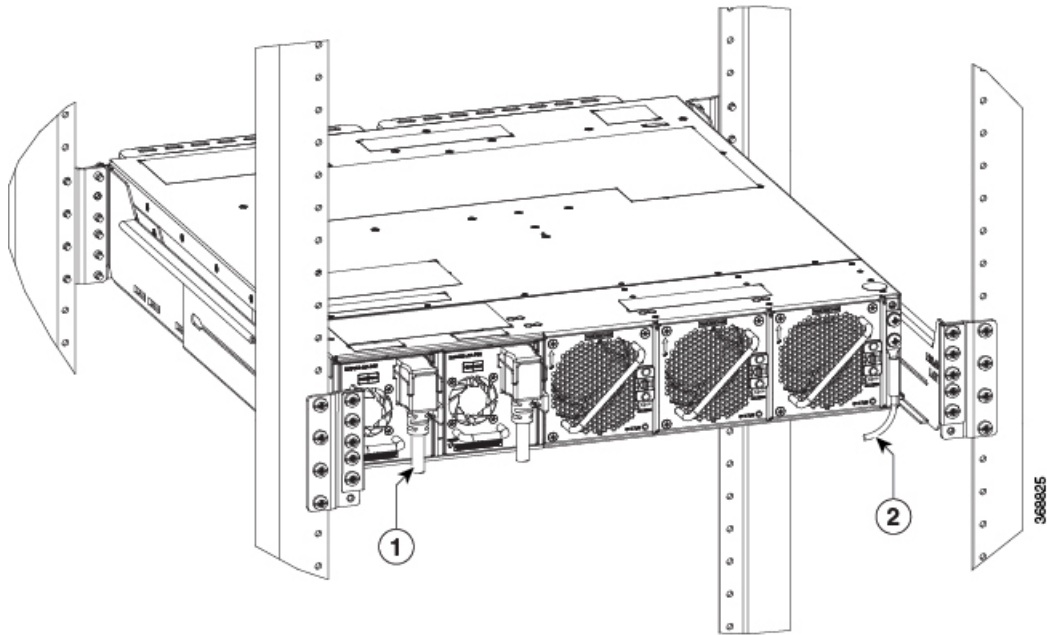
1	90-degree exit cables
2	180-degree ground lug

Figure 7: Connecting Straight Power Cable
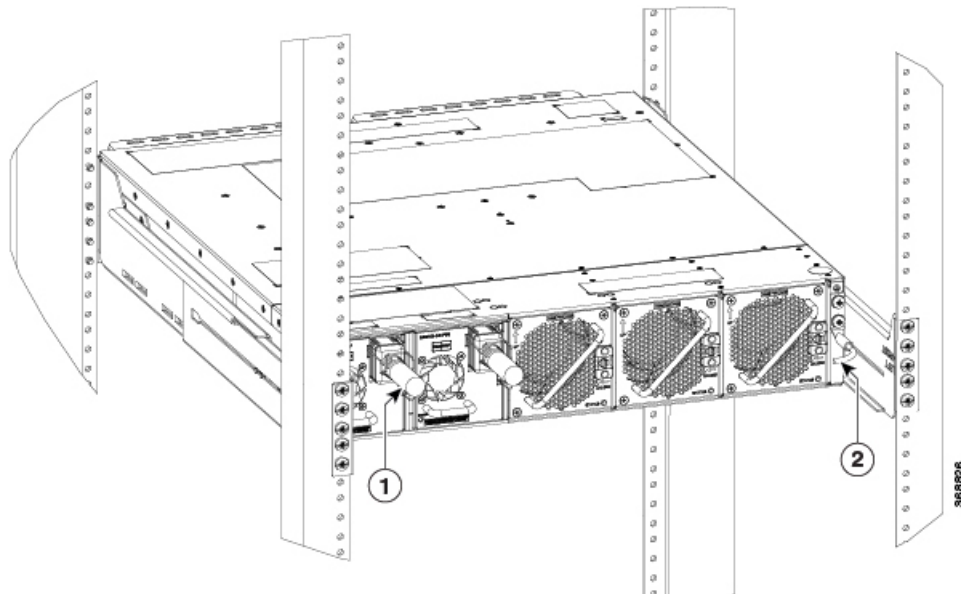
1	Straight exit cables

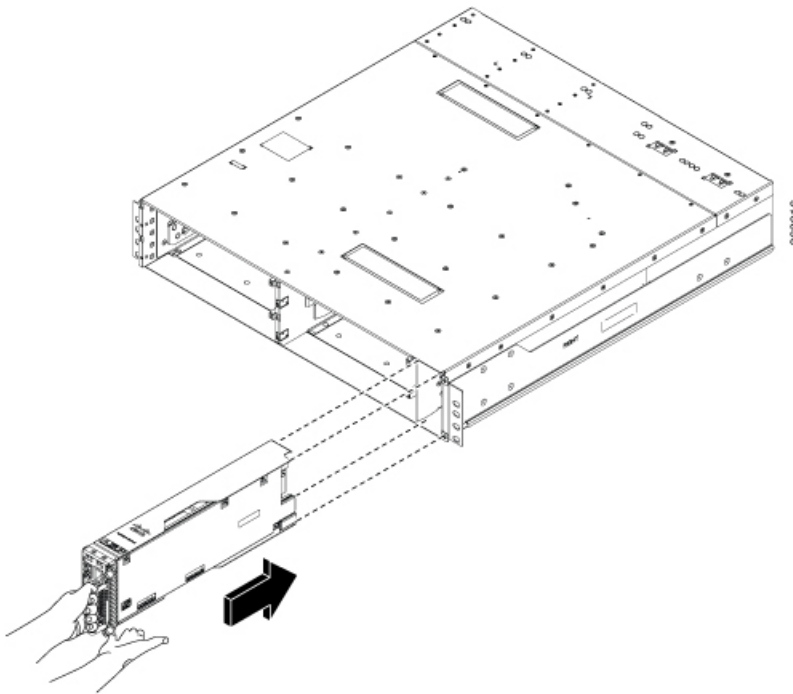| 2	90-degree ground lug

Install Controller

This task has information about installing the controller into the chassis.

Step 1   Orient the controller correctly before inserting. Check for the *This Side Up* label.

Step 2   Supporting the controller at the bottom with one of your hands, slide the controller into the slot, using the handle.

Figure 8: Installing the Controller Unit

Step 3   Using a T15 Torx screwdriver, tighten the two M3 T15 torx screws to a torque value of 0.65 N-m.

Install Fan Unit

This task has information about installing the fan units into the chassis.

Step 1   Orient the fan unit correctly before inserting. Check for the *This Side Up* label.

Step 2   Holding the handle with one hand and supporting the fan unit with the other hand, insert the fan unit in to the slot on the rear side of the chassis.
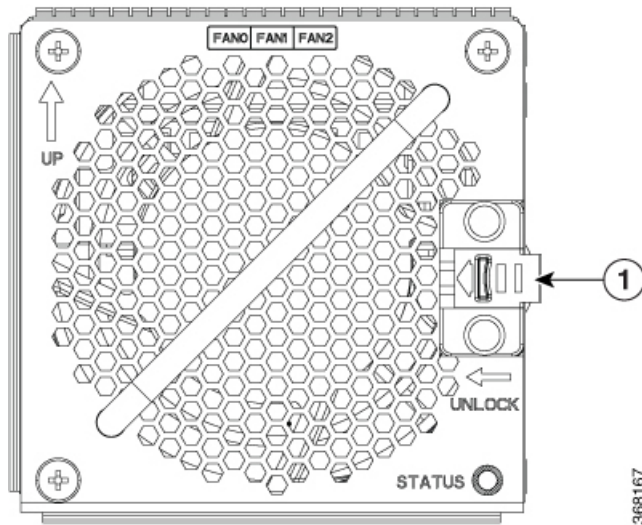
Push the spring loaded lever to the left and hold it in the unlock position (holding position) using your thumb while inserting the fan unit.

Figure 9: Inserting a Fan unit
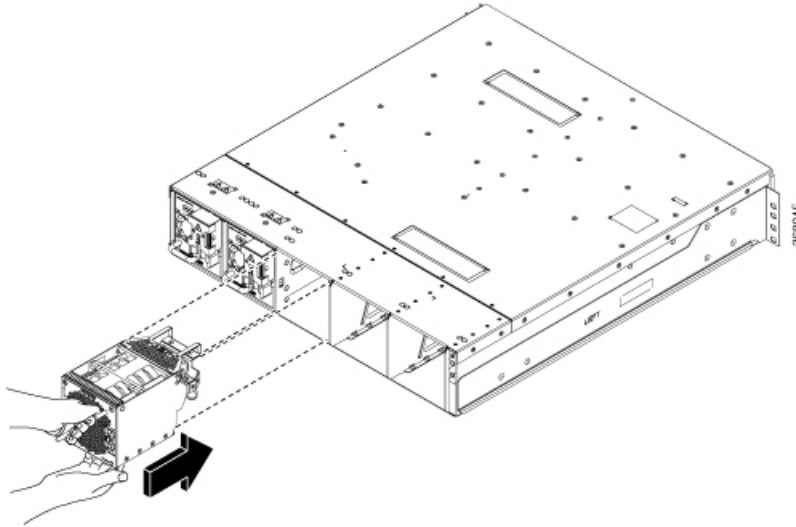
Step 3   Release the spring-loaded lever to lock the fan unit in its position.

Figure 10: Spring-loaded Lever in Released Condition

1	Sping-loaded lever

Attach Fiber Management Bracket

This task has details about attaching a fiber management bracket to a line card or filler card.

Step 1   Fix the fiber management bracket to the card (line card or filler card, as the case may be).

Step 2   Using a Torx screwdriver, tighten the two M3 T15 Torx screws of the fiber management bracket to a torque value of 0.65 N-m.

The procedure to adjust the length of the fiber management bracket is discussed in the subsequent section.

# Adjust Fiber Management Bracket of the 1.2T Line Card

This task has details about how to adjust the length of the fiber management bracket.

Note   It is recommended to maintain the fiber management bracket in the shorter position for ETSI racks, to maintain 600 mm footprint.

Step 1   Push the plunger pins downwards on both the sides of the bracket.

Figure 11: Adjusting the Fiber Managemen Bracket
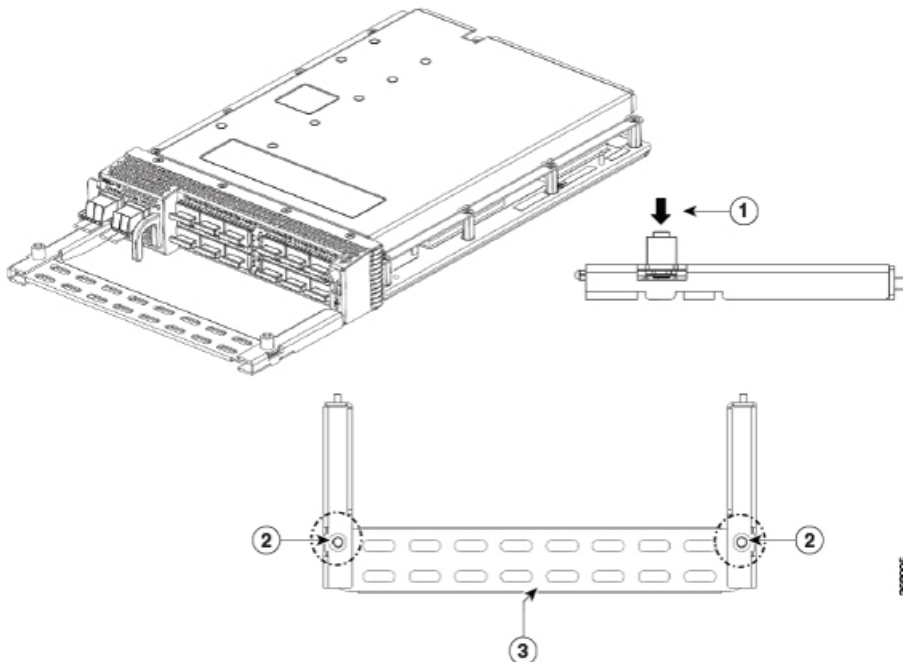

1	Press the plunger pins in the direction, as shown
2	Plunger pins
3	Horizontal bar

Step 2   Continue to press the plunger pins and pull the horizontal bar of the fiber management bracket outwards to increase the length of the bracket.

The plunger pins lock the bracket as soon as the horizontal bar is fully extended.

Figure 12: Fiber Management Bracket in the Extended Position
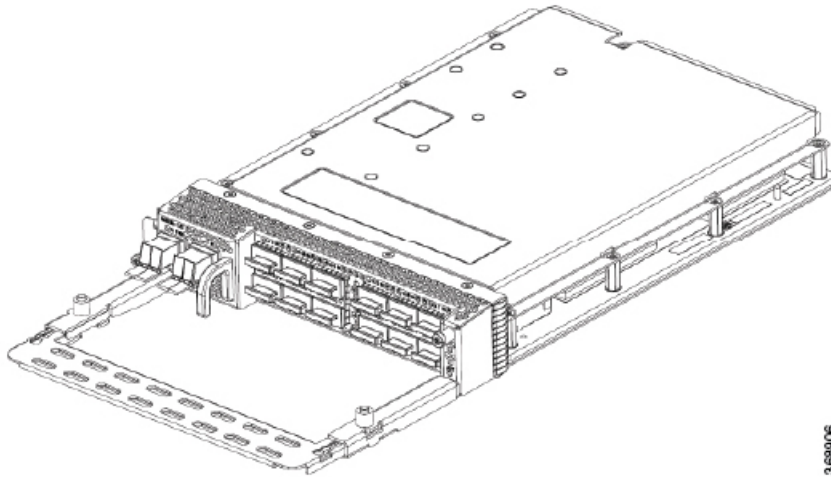
Install Pluggables

This task has information about installing the QSFP pluggable on a line card. The line card is shipped with dust caps.

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Caution   Protect the line card by inserting dust caps into the pluggable slots when no pluggable is inserted.

Transceivers, fiber-optic cables and optical ports on the line cards must be kept clean and free of dust to maintain high signal accuracy and to prevent damage to the connectors. They must be covered with protection or dust cap when not in use.

Step 1   Remove the dust plugs.

You can retain and reuse the dust plugs.

Step 2   Orient the pluggable as shown in the following figure and slide it into the slot.
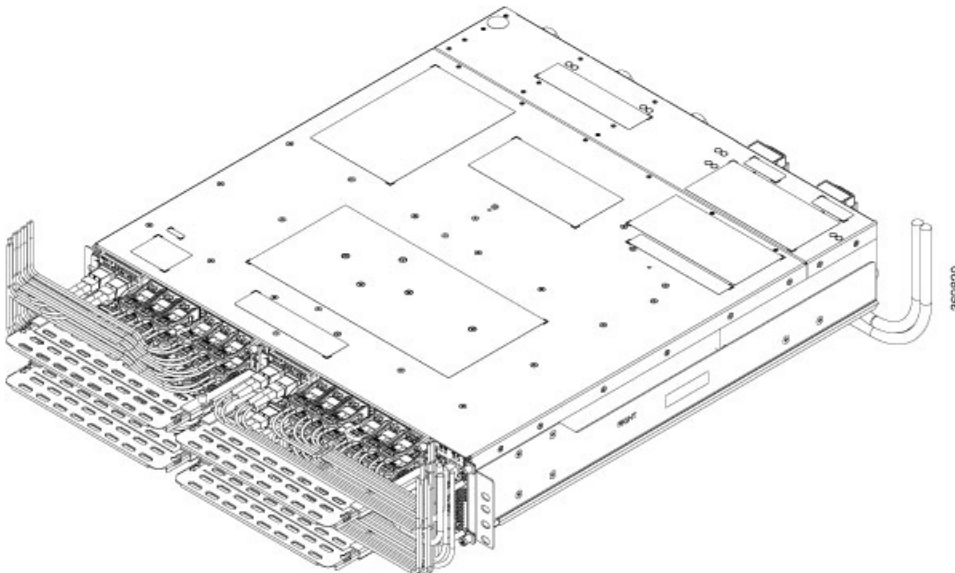
Figure 13: Inserting QSFP Pluggable (1.2T Line Card)
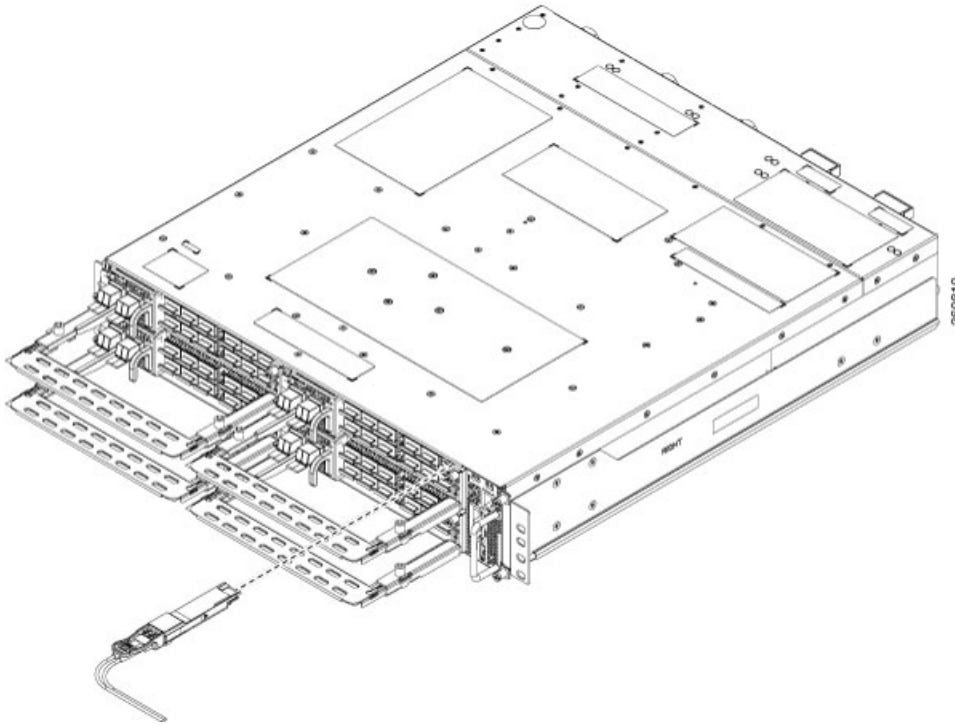
Do not forcibly push the pluggable into the slot, this might damage the pluggable and/or the slot.

Step 3   Route the cables emerging from the pluggables using the fiber management bracket as shown in the following figure.

Figure 14: Fiber Management Bracket with fibers from Pluggables (1.2T Line Card)

Guidelines for managing the fibers and cables:

  • Use velcro tapes to tie the fibers to the fiber management bracket.

- Fibers from the left line cards should exit from the left and fibers from the right line cards should exit from the right.

- Fibers and cables from the controller should exit from the right. Maintain sufficient slack to extract the controller during OIR.

- Cables from the PSU should exit from the left (when viewed from the rear side).

- Ground cable should exit from the right (when viewed from the rear side).

- For ETSI racks, route the power and the ground cables in the 50 mm space below the chassis, to maintain a chassis footprint of 600 mm.

Install Pluggables