

Mounting the Cisco NCS 2015 Shelf

This chapter describes how to mount the Cisco NCS 2015 shelf.

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- ANSI Rack Installation, on page 1
- ETSI Rack Installation, on page 3
- NTP-L47 Mounting NCS 2015 Shelf, on page 6

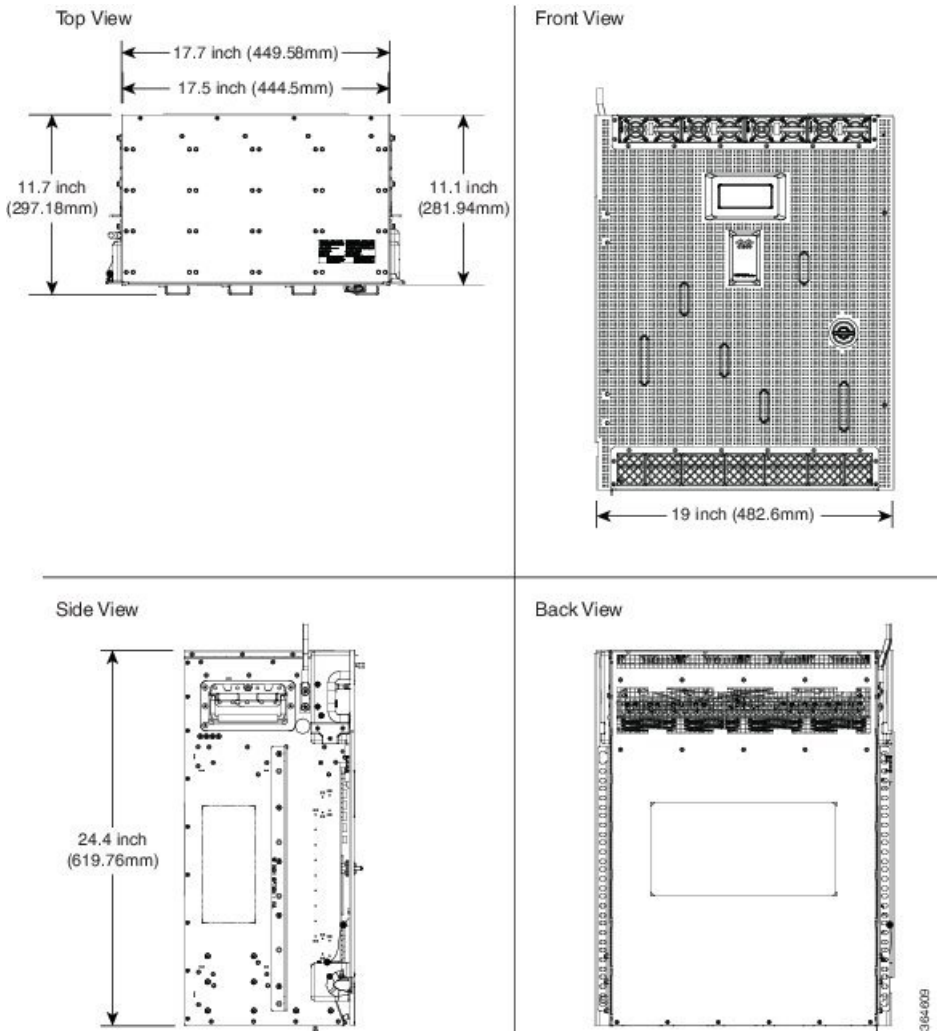
ANSI Rack Installation

The NCS 2015 shelf is mounted on a 19-inch (482.6-mm) or 23-inch (584.2-mm) equipment rack. Make sure that the correct type of 19-inch ANSI rack is used for mounting the NCS 2015 shelf. When the shelf is mounted in the middle position, it projects 4.5 inches (114.3 mm) from the front of the ANSI rack and 4.0 inches (101.6 mm) from the front of the ETSI rack. The shelf mounts in both Electronic Industries Alliance (EIA) standard and Telcordia-standard racks. The shelf is a total of 17.5 inches (431.8 mm) wide with no mounting ears attached.

The NCS 2015 shelf measures 24.4 inches (619.76 mm) high, 17.5 inches (444.5 mm) wide, and 11.7 inches (297.18 mm) deep. You can install up to three NCS 2015 shelves in a 7-foot (2133.6 mm) equipment rack.

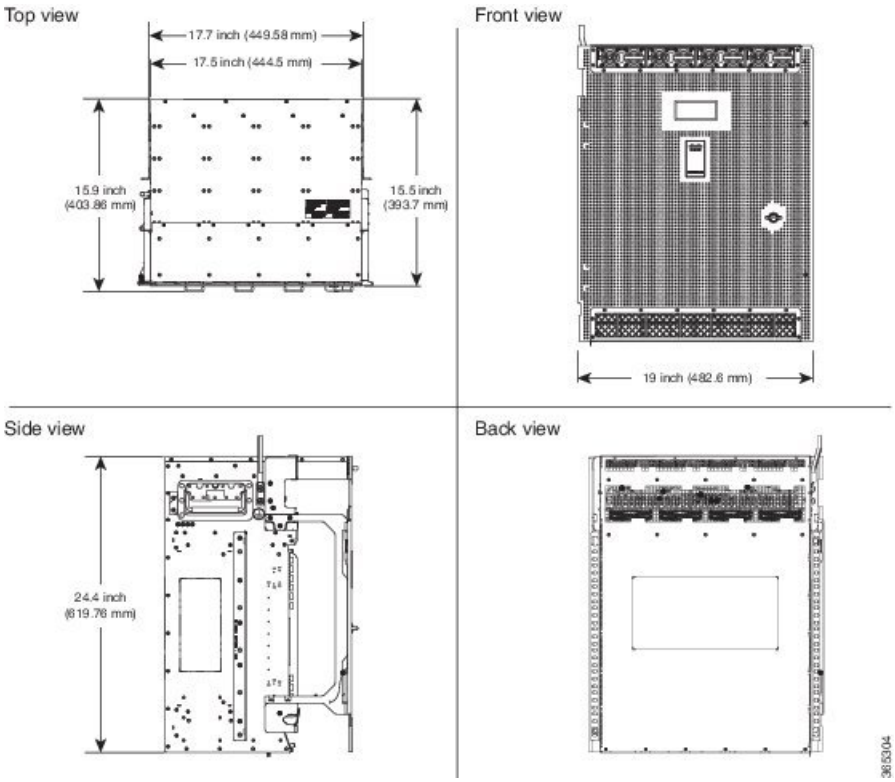
The following figure shows the dimensions of the NCS 2015 DC shelf on a 19-inch (482.6 mm) ANSI rack configuration with brackets mounted in the middle position.

Figure 1: Cisco NCS 2015 DC Shelf Dimensions for a 19-inch ANSI Rack Configuration



The following figure shows the dimensions of the NCS 2015 AC shelf on a 19-inch (482.6 mm) ANSI rack configuration with brackets mounted in the middle position.

Figure 2: Cisco NCS 2015 AC Shelf Dimensions for a 19-inch ANSI Rack Configuration



Mounting a Single Shelf

Mounting the NCS 2015 shelf on a rack requires a minimum of 24.4 inches (619.76 mm) of vertical rack space. To ensure that the mounting is secure, use eight mounting screws for each side of the shelf. For an ANSI rack, the brackets can be mounted in the middle position.

If the NCS 2015 shelf is fully loaded, then two people should install it. For ease of lifting, it is recommended that the shelf be empty.

Mounting Multiple Nodes

Most standard (Telcordia GR-63-CORE, 19-inch (482.6-mm) or 23-inch (584.2-mm) 7-foot (2.133-m) racks can hold three NCS 2015 shelves and a fuse and alarm panel. In an ANSI rack, the brackets can be mounted in the middle position.

The NCS 2015 shelves can be mounted above each other without any space between the shelves.

ETSI Rack Installation

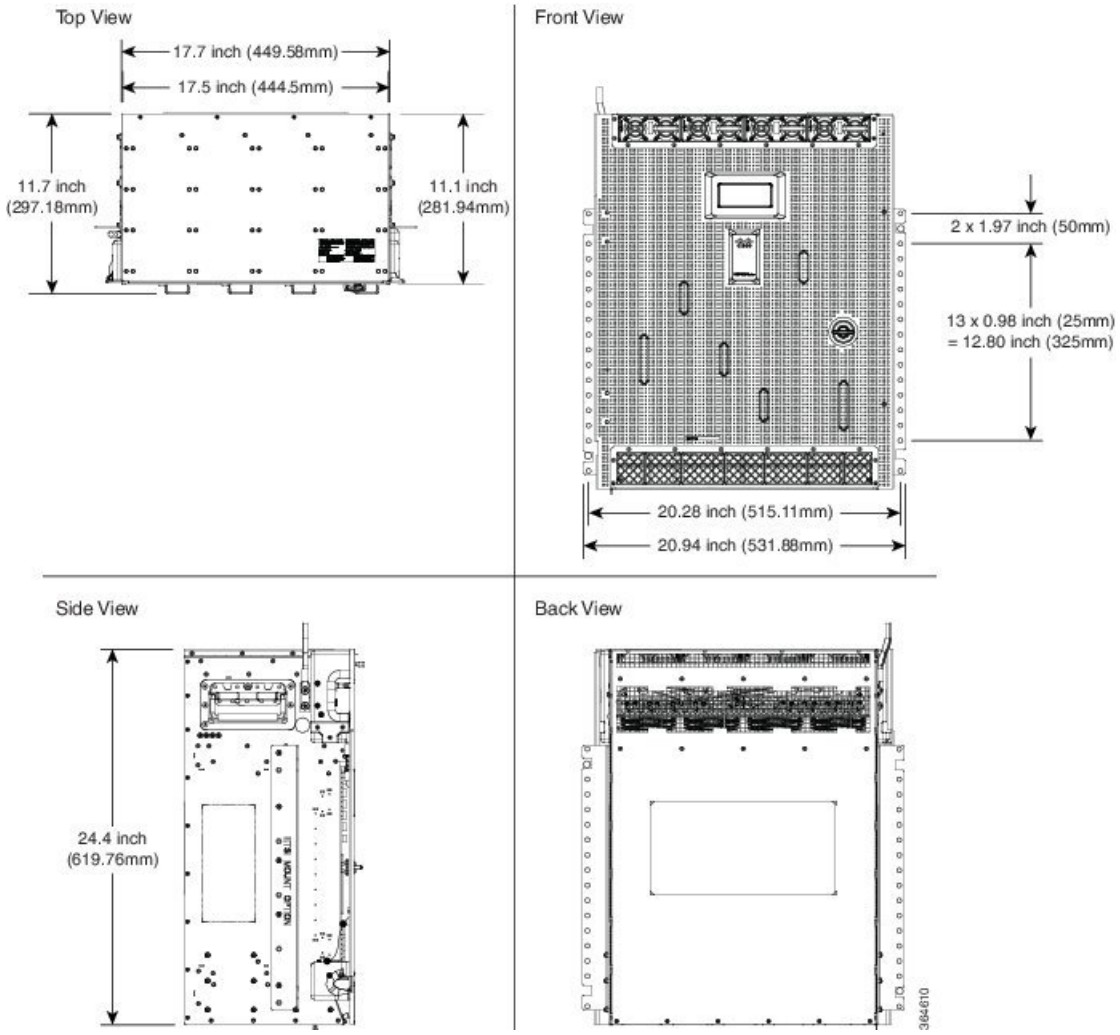
The NCS 2015 shelf can be mounted on a 600 x 300-mm (23.6 x 11.8-inch) or 600 x 600-mm (23.6 x 23.6-inch) ETSI standard equipment rack. In an ETSI rack, the shelf can be mounted in the middle position. The shelf

projects 4.0 inches (101.6 mm) from the front of the rack and is a total of 444.5 mm (17.5 inch) wide with no mounting ears attached.

The NCS 2015 shelf measures 24.44 inches (620.776 mm) high, 17.67 inches (448.81 mm) wide, and 11.10 inches (281.94 mm) deep. You can install up to three NCS 2015 shelves in a 7-foot (2133.6 mm) equipment rack.

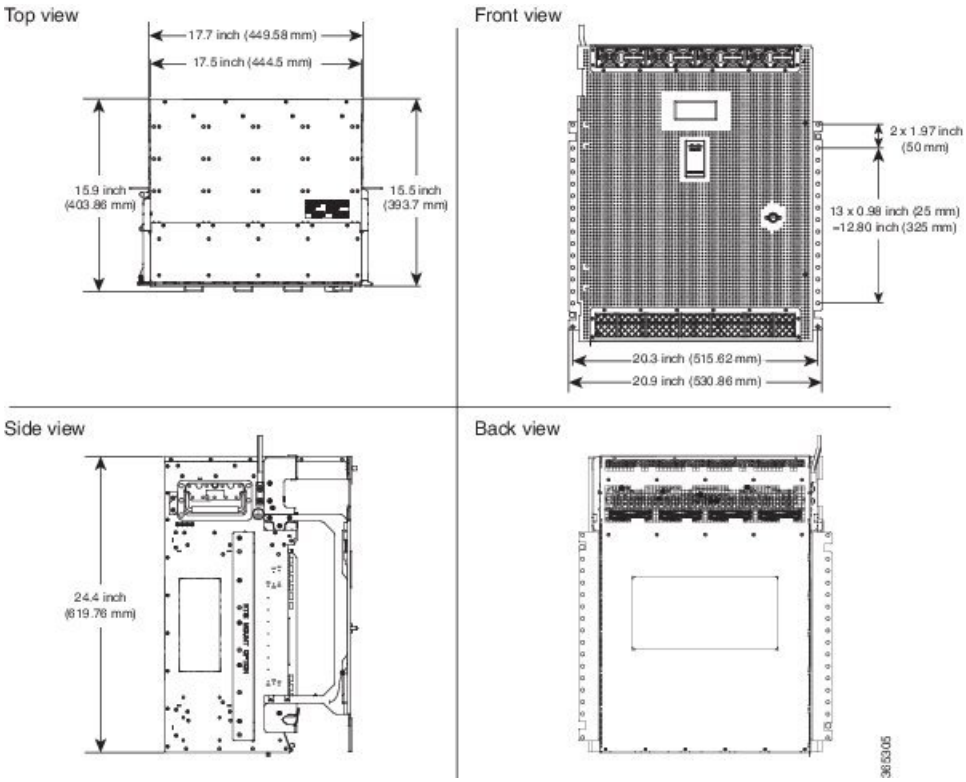
The following figure provides the dimensions of the NCS 2015 shelf installed on a 600 x 300-mm (23.6 x 11.8-inch) or 600 x 600-mm (23.6 x 23.6-inch) ETSI standard equipment rack.

Figure 3: Cisco NCS 2015 DC Shelf Dimensions for an ETSI Rack Configuration



The following figure provides the dimensions of the NCS 2015 shelf installed on a 600 x 300-mm (23.6 x 11.8-inch) or 600 x 600-mm (23.6 x 23.6-inch) ETSI standard equipment rack.

Figure 4: Cisco NCS 2015 AC Shelf Dimensions for an ETSI Rack Configuration



Caution The standard ETSI racks can hold three NCS 2015 shelves. When mounting a shelf in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack. If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Important Notes for ETSI Rack Installation

- The NCS 2015 shelf can only be installed in an ETSI 300 mm deep open rack.
- If an ETSI 600 mm deep closed cabinet is used, it must have proper thermal management to dissipate the total heat load from the equipment.
- A minimum of six inches (152.5 mm) of clearance must be maintained for the air exhaust.
- The exhaust side of the NCS 2015 shelf must not be exposed to the exhaust of any other equipment in a back to back installation.

Mounting a Single Shelf

The NCS 2015 requires 24.4 inches (619.76 mm) minimum of vertical rack space. To ensure the mounting is secure, use eight mounting screws for each side of the shelf. If a shelf is the only unit in the rack, it should be mounted at the bottom of the rack.

In an ETSI rack, the brackets are mounted in the middle position.

While it is possible for one person to install an empty NCS 2015 shelf, if the NCS 2015 shelf is fully loaded, then two people should install it. For ease of lifting, it is recommended that the shelf be empty. For information on the NCS 2015 shelf weight, see the NCS 2015 Shelf Specifications.

Mounting Multiple Shelves

Most standard 600 x 300 x 2200 mm racks can hold three NCS 2015 shelves, and a fuse and alarm panel. In an ETSI rack, the brackets are mounted only in the middle position.

The NCS 2015 shelves can be mounted above each other without any space between the shelves.

NTP-L47 Mounting NCS 2015 Shelf

Purpose	This procedure helps in mounting the NCS 2015 shelf. **Note** In an ANSI and ETSI rack, the chassis can be installed in the middle position.

Tools/Equipment	• #2 Phillips Dynamometric screwdriver
	• Medium slot-head screwdriver
	• Small slot-head screwdriver
	• ETSI only:
	  • 16 M6 x 20 mm pan-head Phillips mounting screws
	• ANSI only:
	  • 16 #12-24 x 0.50 inch pan-head Phillips mounting screws

Prerequisite Procedures	DLP-L62 Unpacking and Verifying the Shelf DLP-L63 Inspecting the Shelf NTP-L48 Mounting Brackets on NCS 2015 Shelf for ANSI Rack Configuration
Required/As Needed	Required
Onsite/Remote	Onsite
Security Level	None



Warning **Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.** Statement 1048



Warning **This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.** Statement 1045



Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 40A and between -40.5 VDC to -57.6 VDC.** Statement 1005



Warning **This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 10A-20A, 100-240 VAC~.** Statement 1005



Warning **To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: 131°F (55°C).** Statement 1047



Warning **Take care when connecting units to the supply circuit so that wiring is not overloaded.** Statement 1018



Warning **To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:**

- **This unit should be mounted at the bottom of the rack if it is the only unit in the rack.**
- **When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.**
- **If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.** Statement 1006



Warning **To prevent airflow restriction, allow clearance around the ventilation openings to be at least:1 inch (25.4 mm)** Statement 1076



Note Make sure that the correct type of 19-inch ANSI rack is used for mounting the NCS 2015 shelf.



Warning T**o comply with EN50121-4:2006 - Railway applications, Electromagnetic compatibility, a shielded cable must be used to connect to the EMS port. This cable must be less than 30 meters in length and not placed in the 3 meter boundary, as defined in EN50121-4:2006, Table 2, note 1.** Statement 8010

Warning **To comply with EN50121-4:2006 - Railway applications, Electromagnetic compatibility, DC power cables must be less than 30 meter long**. Statement 8011

Procedure

Complete the necessary task as applicable:

- DLP-L72 Mounting NCS 2015 Shelf on a Rack (One Person), on page 8
- DLP-L73 Mounting NCS 2015 Shelf on a Rack (Two People) , on page 10
- DLP-L74 Mounting Multiple NCS 2015 Shelves on a Rack , on page 11

Stop. You have completed this procedure.

DLP-L72 Mounting NCS 2015 Shelf on a Rack (One Person)

Purpose	This task allows one person to mount the shelf on a rack.
Tools/Equipment	• # 2 Phillips Dynamometric screwdriver • ETSI: 16 M6 x 20 mm pan-head Phillips mounting screws • ANSI: 16 #12-24 x 0.50 inch pan-head Phillips mounting screws
Prerequisite Procedures	none
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note The NCS 2015 requires a minimum of 24.4 inches (619.76 mm) high vertical rack space. To ensure that the mounting is secure, use eight mounting screws on each side of the shelf. A shelf should be mounted at the bottom of the rack if it is the only unit in the rack.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one according to manufacturer instructions:

- For a DC power supply, the fuse rating must not exceed 60 A.
- For an AC power supply, the fuse rating must not exceed 20A. For North America, the branch circuit protection must be rated 20A. The overcurrent/short circuit protection must be in accordance with local and national electrical codes.

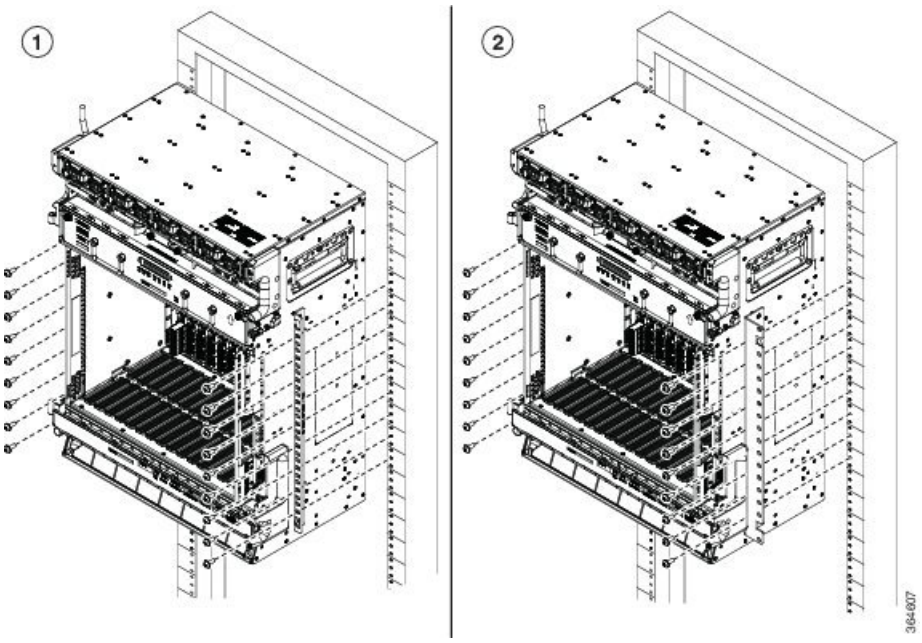
Step 2 Ensure that the shelf is mounted on the appropriate rack equipment:

- 23-inches (584.2 mm) or 19-inches (482.6 mm) for ANSI racks.
- 600 x 300-mm (23.6 x 11.8-inch) for ETSI racks.

Diagram 1 of the figure below shows the NCS 2015 DC shelf mounted on an ANSI rack in the middle position using 19-inch mounting brackets.

Diagram 2 of the figure below shows the NCS 2015 DC shelf mounted on an ETSI rack in the middle position.

Figure 5: Mounting an NCS 2015 DC Shelf on a Rack



1	ANSI equipment rack	2	ETSI equipment rack

Step 3 Lift the shelf to the desired position in the rack. If the rack is empty, place the shelf at the bottom of the rack. The placement of the shelf depends on where you want to install the new equipment in the rack.

Note
To ensure proper cooling of the NCS 2015 shelf, make sure that the space in front of the air flow vents are free of cables, fibers, and mechanical fixtures for fiber and cable management.

Step 4 Align the screw holes on the mounting brackets with the mounting holes in the rack.

Step 5 Using the Phillips Dynamometric screwdriver, install one mounting screw in each side of the assembly. Tighten the screw to a torque value of 22 in-lb (2.5 N-m).

Step 6 When the shelf is secured to the rack, install the remaining mounting screws.

Step 7 Return to your originating procedure (NTP).

DLP-L73 Mounting NCS 2015 Shelf on a Rack (Two People)

Purpose	This task allows two people to mount the shelf on a rack when the shelf is installed with all the ancillaries.
Tools/Equipment	• # 2 Phillips Dynamometric screwdriver • ETSI: 16 M6 x 20 mm pan-head Phillips mounting screws • ANSI: 16 #12-24 x 0.50 inch pan-head Phillips mounting screws
Prerequisite Procedures	none
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note The NCS 2015 shelf requires a minimum of 24.4 inches (619.76 mm) vertical rack space. To ensure that the mounting is secure, use eight mounting screws on each side of the shelf. If the shelf is the only unit in the rack, it should be mounted at the bottom of the rack.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one as per the instructions of the manufacturer:

- For a DC power supply, the fuse rating must not exceed 60 A.
- For an AC power supply, the fuse rating must not exceed 20A. For North America, the branch circuit protection must be rated 20A. The overcurrent/short circuit protection must be in accordance with local and national electrical codes.

Step 2 Ensure that the shelf is mounted on the appropriate rack equipment:

- 23-inches (584.2 mm) or 19-inches (482.6 mm) for racks.
- 600 x 300-mm (23.6 x 11.8-inch) for ETSI racks.

Step 3 Lift the shelf to the desired position in the rack. If the rack is empty, place the shelf at the bottom of the rack. The placement of the shelf is dependent on where you want to install the new equipment in the rack.

Note
To ensure proper cooling of the NCS 2015 shelf, make sure that the space in front of the air flow vents are free of cables, fibers, and mechanical fixtures for fiber and cable management.

Step 4 Align the screw holes on the mounting brackets with the mounting holes in the rack.

Step 5 Have one person hold the shelf in place while the other person uses the Phillips Dynamometric screwdriver to install one mounting screw in each side of the assembly. Tighten the screw to a torque value of 22 in-lb (2.5 N-m).

Step 6 When the shelf is secured to the rack, install the remaining mounting screws.

Step 7 Return to your originating procedure (NTP).

DLP-L74 Mounting Multiple NCS 2015 Shelves on a Rack

Purpose	This task installs multiple shelves in a rack.
Tools/Equipment	• #2 Phillips Dynamometric screwdriver • ETSI: 16 M6 x 20 mm pan-head Phillips mounting screws • ANSI: 16 #12-24 x 0.50 inch pan-head Phillips mounting screws
Prerequisite Procedures	NTP-L48 Mounting Brackets on NCS 2015 Shelf for ANSI Rack Configuration
Required/As Needed	As needed
Onsite/Remote	Onsite
Security Level	None

Note A standard rack can hold three NCS 2015 shelves. When mounting a shelf in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack. If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

Note The NCS 2015 shelf requires 24.4 inches (619.76 mm) minimum of vertical rack space.

Procedure

Step 1 Verify that the proper fuse and alarm panel has been installed in the top mounting space. If a fuse and alarm panel is not present, you must install one according to manufacturer's instructions:

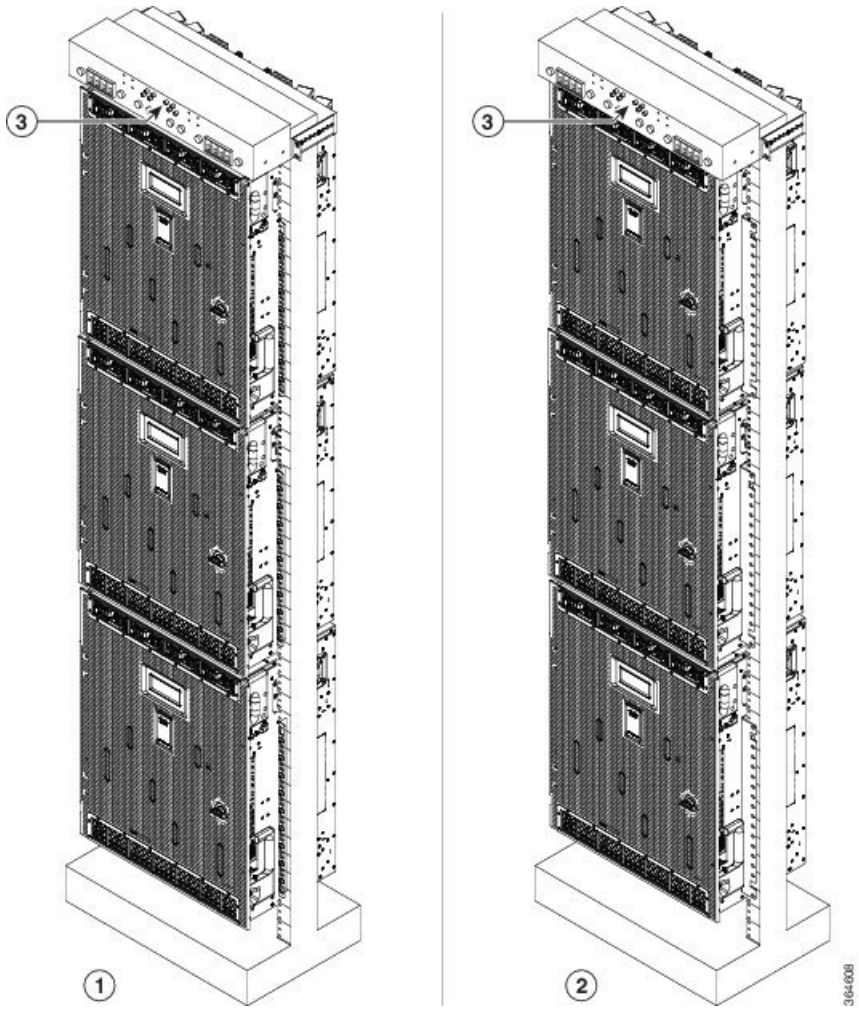
- For a DC power supply, the fuse rating must not exceed 60 A.
- For an AC power supply, the fuse rating must not exceed 20A. For North America, the branch circuit protection must be rated 20A. The overcurrent/short circuit protection must be in accordance with local and national electrical codes.

Step 2 Mount the first shelf in the bottom of the rack using DLP-L72 Mounting NCS 2015 Shelf on a Rack (One Person), on page 8 or DLP-L73 Mounting NCS 2015 Shelf on a Rack (Two People) , on page 10.

Diagram 1 of the figure below shows multiple NCS 2015 DC shelf assemblies mounted on the ANSI rack.

Diagram 2 of the figure below shows multiple NCS 2015 DC shelf assemblies mounted on the ETSI rack.

Figure 6: Multiple NCS 2015 DC Shelves Mounted on the Rack



1	ANSI equipment rack	2	ETSI equipment rack
3	Fuse and alarm panel		

Step 3 Repeat 2 for every shelf you need to install.

Step 4 Return to your originating procedure (NTP).