APPENDIX A

Rack Installation

This appendix provides information on the rack installation and includes the following sections:

Rack Requirements

This section provides the requirements for the following type of racks, assuming an external ambient air temperature range of 32 to 104°F (0 to 40°C):

- Cisco MDS 9250i chassis
- Standard open racks
- Two-post Telco racks

General Requirements for Racks

The rack must be one of the following types:

- Standard 19-inch four-post EIA rack, with mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992. See the "Standard Open Rack Requirements" section on page A-2 and the "Standard Open Rack Requirements" section on page A-2.
- Standard two-post telco rack, with mounting rails that conform to English universal hole spacing per section 1 of ANSI/EIA-310-D-1992.

Rack Requirements for Cisco MDS 9250i Chassis

The rack must also meet the following requirements:

- The minimum vertical rack space per chassis is 1.75 in. (4.4 cm).
- The width between the mounting rails must be at least 17.75 in. (45.1 cm). For four-post EIA racks, this is the distance between the two front rails and rear rails.

Standard Open Rack Requirements

In addition to the requirements listed in the "General Requirements for Racks" section on page A-1, if you are mounting the chassis in an open rack (no side panels or doors), ensure that the rack meets the following requirements:

- The minimum width between two front-mounting rails must be must be one RU (rack unit), equal to 8 inches (20 cm).

- The minimum vertical rack space per chassis is one RU (rack unit), equal to 8 inches (2 cm).

✎
Note   The side rail-mount brackets provided with the Cisco MDS 9250i switch require an additional height of 0.75 inches (1.9 cm). They are required during the installation of the Cisco MDS 9250i switch only, and can be removed or left installed once the front-mounting brackets are securely fastened to the mounting rails.

- The horizontal distance between the chassis and any adjacent chassis should be 6 inches (15.2 cm), and the distance between the chassis air vents and any walls should be 2.5 inches (6.4 cm).

Requirements Specific to Two-Post Telco Rack

In addition to the requirements listed in the "General Requirements for Racks, page A-1", two-post telco racks must meet the following requirements:

- The minimum width between the two mounting rails must be at least 17.75 inches (45.1 cm).

- The distance between the chassis air vents and any walls should be 2.5 inches (6.4 cm).

Rack-Mounting Guidelines

⚠
Caution   If the rack is on wheels, ensure that the brakes are engaged or the rack is otherwise stabilized.

⚠
Caution   If installing this kit in an EIA rack, attach the switch to all four rack-mounting rails; the EIA rails may not be thick enough to prevent flexing of the shelf brackets if only two rails are used.

Before rack-mounting the chassis, ensure that the rack meets the following requirements:

- The specifications listed in the "Rack Requirements" section on page A-1.

- The depth of the rack between the front-mounting and rear-mounting rails is at least 18 in. (45.7 cm) but less than or equal to 30 in. (76.2 cm). This is specific to four-post EIA racks.

- The airflow and cooling are adequate and there is sufficient clearance around the air vents on the switch, as described in Appendix B, "Technical Specifications."

- The rack has sufficient vertical clearance for the chassis plus 2 RU for the shelf brackets, and any desired clearance for the installation process.

- The rack meets the minimum rack load ratings per rack unit listed in the following table:

Rack Type	MDS 9250i
EIA (4-Post)	7.5 lb (3.4 kg)

Before Installing the Rack-Mount Support Brackets

Before installing the rack-mount support brackets for the Cisco MDS 9250i switch, check the contents of your kit. Table A-1 lists the contents of the optional shelf bracket kit.

Table A-1   Contents of Shelf Bracket Kit

Quantity	Part Description
2	Bottom support brackets
20	12-24 x 3/4-in. Phillips screws
20	M6 x 19 mm Phillips binder-head screws

Installing and Removing the Brackets

This section provides information on how to install and remove brackets.

Before installing the shelf brackets, check the contents of your kit. Table A-2 lists the contents of the optional shelf bracket kit.

Table A-2   Contents of Shelf Bracket Kit

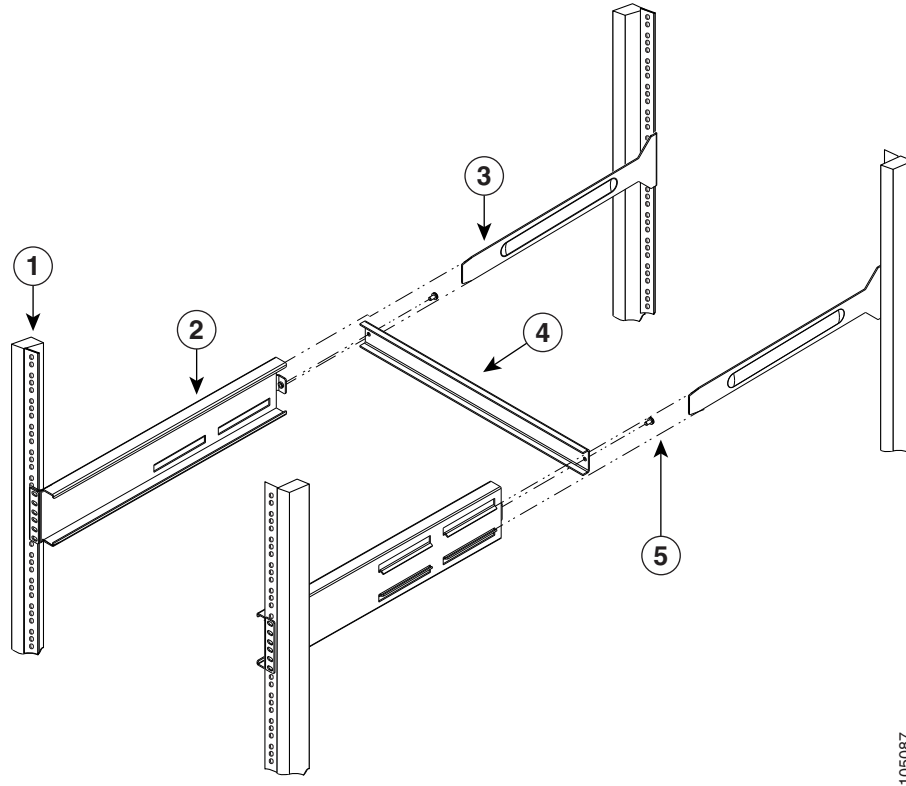| Quantity	Part Description
2	Slider brackets
2	Shelf brackets
1	Crossbar
2	10-32 x 3/8-in. Phillips pan-head screws
16	12-24 x 3/4-in. Phillips screws
16	10-24 x 3/4-in. Phillips screws

Required Equipment

You need the following equipment for this installation:

- Number 2 Phillips screwdriver
- Tape measure and level (to ensure shelf brackets are level)

Installing the Shelf Bracket Kit into a Four-Post EIA Rack

Figure A-1 shows the installation of the shelf bracket kit into a four-post EIA rack.

Figure A-1   *Installing the Shelf Bracket Kit into an EIA Rack*

1	Rack-mounting rail (4x)	4	Crossbar
2	Shelf bracket (2x)	5	10-32 screws (2x)
3	Slider rail (2)		

To install the shelf bracket in an EIA rack, follow these steps:

Step 1   Position a shelf bracket inside the rack-mounting rails as shown in Figure A-1. Align the screw holes at the front of the shelf bracket with the holes in the front rack-mounting rail. Attach the shelf bracket to the front rack-mounting rail using a minimum of four 12-24 or 10-24 screws.

✎
Note   The bottom hole of the shelf bracket should align with the bottom hole of a rack unit on the rack-mounting rail (the hole immediately above the 1/2-in. spacing).

Step 2   Repeat with the other shelf bracket.

Step 3   Verify that the shelf brackets are at the same height (using the level or tape measure as desired).

Step 4   Attach the crossbar to the shelf brackets as shown in Figure A-1, using the 10-32 screws.

Step 5   Insert the slider rails into the shelf brackets as shown in Figure A-1. Attach them to the rear rack-mounting rails using a minimum of four 12-24 or 10-24 screws.

Installing the Switch on the Brackets

This section provides information on how to install the switch on the rack-mount support brackets and on the shelf brackets and includes the following subsections:

- Installing the Switch on the Rack-Mount Support Brackets, page A-5
- Installing the Switch on the Shelf Brackets, page A-8

Installing the Switch on the Rack-Mount Support Brackets

This section provides general instructions for installing the switch on top of the rack-mount support brackets. For detailed installation instructions, see the "Installing the Cisco MDS 9250i Switch Chassis in a Rack" section on page 2-5.

⚠ **Warning**   **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.** Statement 1017

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

✎ **Note**   Before you install, operate, or service the system, see the *Regulatory Compliance and Safety Information for the Cisco MDS 9000 Family* for important safety information.

To install the switch on top of the rack-mount support brackets, follow these steps:

Step 1   Verify that the rack-mount support brackets are level and securely attached to the rack-mounting rails, the support rack-mount support brace is securely attached to the brackets, and the rack is stabilized.

Step 2   Slide a mechanical lift under the switch and lift the switch up onto the rack-mount support brackets, ensuring it is squarely positioned.

Step 3   Attach the switch to the rack-mounting rails. See the "Installing the Cisco MDS 9250i Switch Chassis in a Rack" section on page 2-5.

⚠ **Caution**   We recommend grounding the chassis, even if the rack is already grounded. There is a grounding pad with two threaded M4 holes on the chassis for attaching a grounding lug.

Installing the Cisco MDS 9250i Switch in a Rack

This section describes the procedure for installing a Cisco MDS 9250i switch in a nonthreaded rack. It includes the following information:

Rack-Mounting Guidelines

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Caution   If the rack is on wheels, ensure that the brakes are engaged or the rack is otherwise stabilized.

Before rack-mounting the chassis, ensure that the rack meets the following requirements:

- The specifications listed in the "Rack Requirements" section on page A-1.
- The depth of the rack between the front-mounting and rear-mounting rails is fixed at 18 inches (45.7 cm).
- The rack-mounting rails are nonthreaded.
- The airflow and cooling are adequate and there is sufficient clearance around the air vents on the Cisco MDS 9250i switch, as described in Appendix B, "Technical Specifications."
- The rack has sufficient vertical clearance for the chassis and any desired clearance for the installation process.

Before Installing the Shelf Brackets

Before installing the shelf brackets, check the contents of your kit. Table A-3 lists the contents of the optional shelf bracket kit.

Table A-3   Contents of Cisco MDS 9250i Shelf Bracket Kit

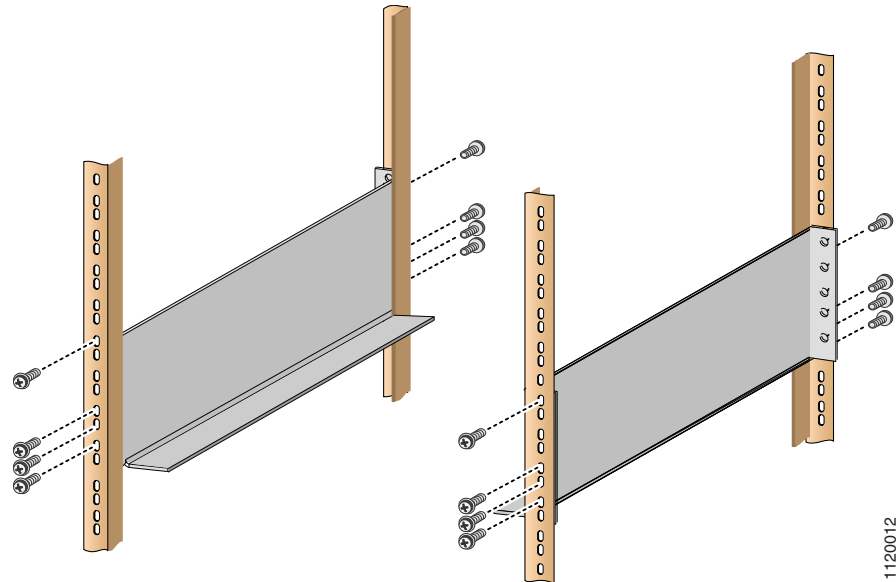| Quantity	Part Description
2	Shelf brackets
16	1/4-20 x 3/4 in. Phillips pan-head screws with lock washers
12	10-32 x 1/3 in. Phillips pan-head screws with lock washers
12	10-32 clip nuts

Required Equipment

You need the following equipment for this installation:

- Number 2 Phillips screwdriver
- Tape measure and level (to ensure shelf brackets are level)

Installing the Cisco MDS 9250i Shelf Bracket Kit into a Rack

Figure A-2 shows the installation of the Cisco MDS 9250i Shelf Bracket Kit into a four-post rack.

Figure A-2   *Installing the Shelf Bracket Kit into a Rack*

To install the shelf brackets in a rack, follow these steps:

Step 1   Position a shelf bracket inside the rack-mounting rails as shown in Figure A-2. Align the screw holes at the front of the shelf bracket with the holes in the front rack-mounting rail, and then attach the shelf bracket to the front rack-mounting rail using a minimum of four 1/4-20 screws.

✎
Note   The bottom hole of the shelf bracket should align with the bottom hole of a rack unit on the rack-mounting rail (the hole immediately above the 1/2-inch spacing).

Step 2   Align the screw holes at the back of the shelf bracket with the holes in the back rack-mounting rail, and then attach the shelf bracket to the back rack-mounting rail using a minimum of four 1/4-20 screws.

Step 3   Repeat Step 1 and Step 2 with the other shelf bracket.

Step 4   Verify that the shelf brackets are at the same height (using the level or tape measure as desired).

Installing the Switch on the Shelf Brackets

This section provides general instructions for installing the Cisco MDS 9250i switch on top of the shelf brackets. For detailed installation instructions, see

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Warning   **This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.** Statement 1017

⚠️

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

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Caution   Cisco recommends that you use a mechanical lift when the chassis is being moved or lifted. The Cisco MDS 9250i switch weighs approximately 449.5 lb (203.8 kg) when fully loaded with all modules and power supplies.

✎

Note   Before you install, operate, or service the system, see the *Regulatory Compliance and Safety Information for the Cisco MDS 9000 Family* for important safety information.

To install the Cisco MDS 9250i switch on top of the shelf brackets, follow these steps:

Step 1   Verify that the shelf brackets are level and securely attached to the rack-mounting rails, and the rack is stabilized.

Step 2   Slide the Cisco MDS 9250i switch onto the shelf brackets, ensuring it is squarely positioned.

Step 3   Attach the Cisco MDS 9250i switch to the rack-mounting rails. Slide the clip nuts over the holes on the nonthreaded rails on the rack. These clip nuts provide the threading for the screws that will secure the chassis to the rack. Use the12 10-32 x 1/2 inch screws provided in this shelf bracket kit to secure the chassis to the rack. See

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Caution   We recommend grounding the chassis, although the rack is already grounded. There is a grounding pad with two threaded M4 holes on the chassis for attaching a grounding lug.