

# Hardware Installation Manual

*AudioCodes Mediant™ Family of Session Border Controllers (SBC)*

## Mediant 9000 SBC

Version 7.2





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## Notice

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## WEEE EU Directive

Pursuant to the WEEE EU Directive, electronic and electrical waste must not be disposed of with unsorted waste. Please contact your local recycling authority for disposal of this product.

## Customer Support

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## Abbreviations and Terminology

Each abbreviation, unless widely used, is spelled out in full when first used.

Throughout this manual and unless otherwise specified, the term *device* refers to the Mediant 9000 SBC.

## Related Documentation

Manual Name
SIP Release Notes
Mediant 9000 SBC User's Manual

## Document Revision Record

LTRT	Description
41655	Initial document release for Version 7.2.
41557	Management names of Ethernet ports added.
41658	AC power cable warning (Japanese).
41661	SFP network cabling.
41662	SFP configurations; Replacing Copper NIC with Fiber Network Card (new section); Returning to an Arbitrary Snapshot (updated).

## Documentation Feedback

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# 1 Introduction

This document provides a hardware description and step-by-step cabling procedures for AudioCodes' carrier-grade Mediant 9000 SBC.

## 1.1 Specifications

The table below shows the Mediant 9000 SBC specifications.

**Table 1-1: Mediant 9000 SBC Specifications**

Resource	Specification
<b>Chassis Type</b>	1RU system
<b>CPU</b>	2 x 10 cores, 2.8 GHz, 25M Cache
<b>Memory</b>	64 GB, DDR3-1866/PC3-14900
<b>Network</b>	12 x 1 GbE ports
<b>Disk</b>	Mechanical hard drive, SAS 300 GB
<b>CD/DVD</b>	SATA CD/DVD R/W
<b>Installation Interface</b>	VGA Monitor and Keyboard

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## 2 Physical Description

This section provides a physical description of the device.

### 2.1 Physical Dimensions

The device's physical dimensions are listed in the table below.

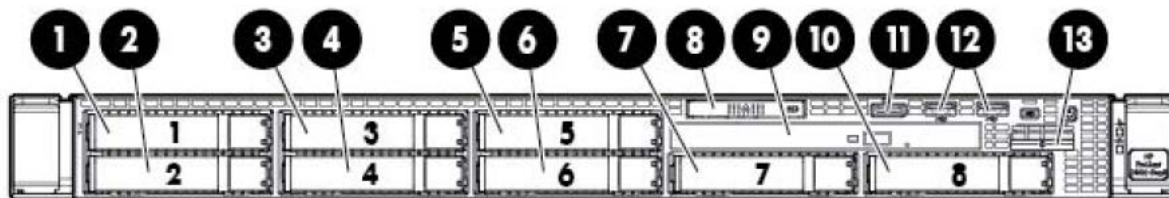
**Table 2-1: Physical Dimensions**

Item	Description
<b>Physical Dimensions</b>	43.45 x 62.23 x 2.97 cm (17.11 x 27.5 x 1.7 in)
<b>Weight</b>	17.4 kg (38.4 lb)
<b>Environmental</b>	Operational: 10 to 35°C

### 2.2 Front Panel

The Mediant 9000 features an 8-SFF (Small Form Factor) cage for standard internal storage hard drives. The device's front panel is shown in the figures below and described in the subsequent table.

**Figure 2-1: Front Panel**



**Table 2-2: Front Panel**

Item #	Description
1	SAS/SATA/SSD drive bay 1
2	SAS/SATA/SSD drive bay 2
3	SAS/SATA/SSD drive bay 3
4	SAS/SATA/SSD drive bay 4
5	SAS/SATA/SSD drive bay 5
6	SAS/SATA/SSD drive bay 6
7	SAS/SATA/SSD drive bay 7
8	Systems Insight Display
9	DVD-ROM drive (optional)
10	SAS/SATA/SSD drive bay 8 (optional)
11	Front video connector (front video port adapter required)
12	USB connectors (2)
13	Serial number tab

## 2.2.1 Front Panel LEDs

The front panel LEDs are shown in the figure below and described in the subsequent table.

**Figure 2-2: Front Panel LEDs**



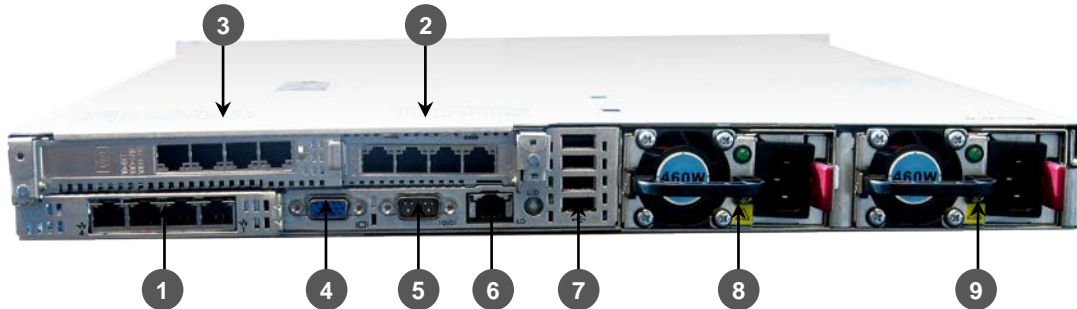
**Table 2-3: Front-Panel LEDs**

Item #	Description	Status
1	UID LED/button	<ul style="list-style-type: none"> <li>• Solid blue = Identification is activated.</li> <li>• Flashing blue = System is being managed remotely.</li> <li>• Off = Identification is deactivated.</li> </ul>
2	Power On/Standby button/LED	<ul style="list-style-type: none"> <li>• Solid green = System is on.</li> <li>• Flashing green = Waiting for server power sequence.</li> <li>• Solid amber = System is in standby, but power is still applied.</li> <li>• Off = Power cord is not attached, power supply failure has occurred, no power supplies are installed, facility power is not available, or the power button cable is disconnected</li> </ul>
3	Health LED	<ul style="list-style-type: none"> <li>• Solid green = System health is normal.</li> <li>• Flashing amber = System health is degraded.</li> <li>• Flashing red = System health is critical.</li> <li>• Fast flashing red = Power fault (check system and devices).</li> </ul>
4	Aggregate network LED	<ul style="list-style-type: none"> <li>• Solid green = Link to network.</li> <li>• Flashing green = Network activity.</li> <li>• Off = No network connection.</li> </ul>

## 2.3 Rear Panel

The rear panel is displayed in the figure below and described in the subsequent table.

**Figure 2-3: Rear Panel**



**Table 2-4: Rear Panel**

Item #	Description
1	Quad 1 GbE copper ports
2	Quad 1 GbE ports (see SFP option in Section 4)
3	Quad 1 GbE ports (see SFP option in Section 4)
4	Video connector
5	Serial connector
6	HP iLO port (see <a href="http://www8.hp.com/us/en/products/servers/ilo/">http://www8.hp.com/us/en/products/servers/ilo/</a> )
7	USB connectors (4)
8	Power supply bay 1 (primary and redundant power supply supported)
9	Power supply bay 2 (primary and redundant power supply supported)

### 2.3.1 Rear Panel LEDs

The rear panel LEDs are shown in the figure below and described in the subsequent table.

Figure 2-4: Rear Panel LEDs

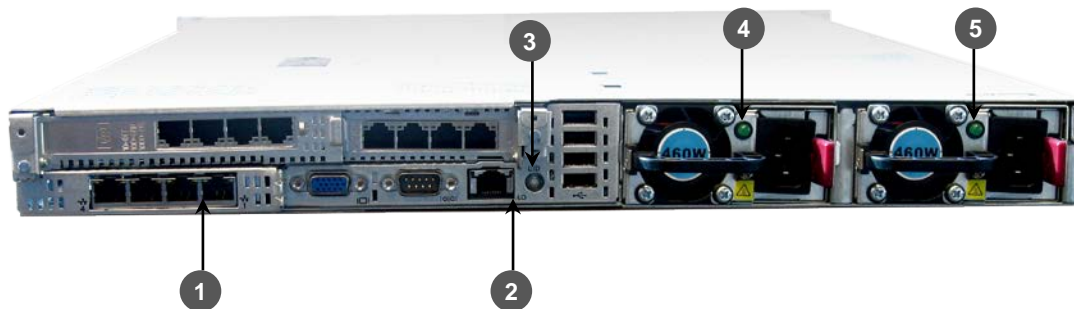


Table 2-5: Rear Panel LEDs

Item #	Description	Status
1	Standard NIC activity LED	<ul style="list-style-type: none"> <li>• Solid green = Activity exists.</li> <li>• Flashing green = Activity exists.</li> <li>• Off = No activity exists.</li> </ul>
2	iLO NIC link LED	<ul style="list-style-type: none"> <li>• Solid green = Link exists.</li> <li>• Off = No link exists.</li> </ul>
3	UID button/LED	<ul style="list-style-type: none"> <li>• Solid blue = Identification is activated.</li> <li>• Flashing blue = System is being managed remotely.</li> <li>• Off = Identification is deactivated.</li> </ul>
4	Power Supply 2 LED	<ul style="list-style-type: none"> <li>• Solid green = Normal.</li> <li>• Off = One or more of the following conditions exists:                             <ul style="list-style-type: none"> <li>✓ AC power unavailable.</li> <li>✓ Power supply failed.</li> <li>✓ Power supply in standby mode.</li> <li>✓ Power supply exceeded current limit.</li> </ul> </li> </ul>
5	Power Supply 1 LED	<ul style="list-style-type: none"> <li>• Solid green = Normal.</li> <li>• Off = One or more of the following conditions exists:                             <ul style="list-style-type: none"> <li>✓ AC power unavailable.</li> <li>✓ Power supply failed.</li> <li>✓ Power supply in standby mode.</li> <li>✓ Power supply exceeded current limit.</li> </ul> </li> </ul>

## 3 Deploying the Device

This section shows how to deploy the device in a commercial rack mount kit.

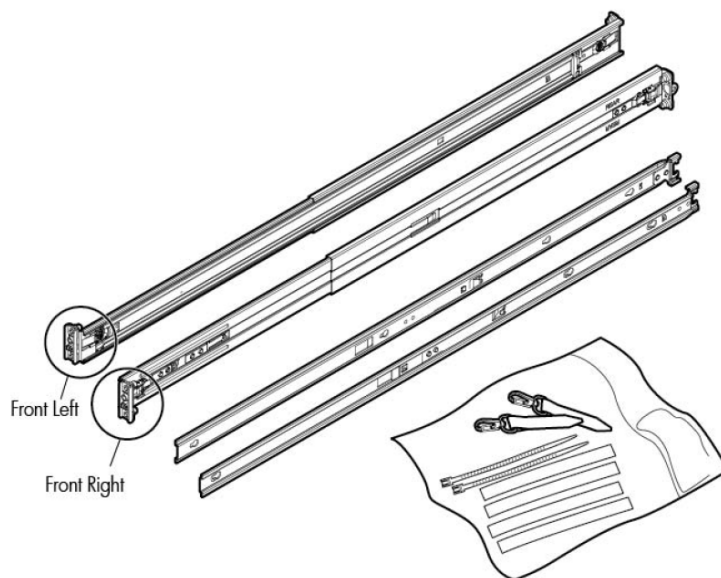
### 3.1 Hardware Kit Contents



**Warning:** To reduce the risk of personal injury or damage to the equipment, at least two people are required to lift the server during installation or removal.



**Note:** When installing the rack rails, be sure they are oriented Front Left and Front Right, as indicated on the rails.



You must provide:

- Screws to secure the slide mounting bracket assemblies in a threaded-hole rack
- Cage nuts for a round-hole rack
- Screws that fit a threaded-hole rack
- The appropriate screwdriver for the screws

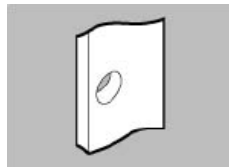
### 3.2 Overview

This rack hardware kit supports a variety of products in round-, square-, or threaded-hole racks. Use the legend to identify installation steps appropriate to the type of rack.

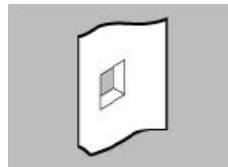


**Note:** If you are shipping the server installed in a rack, see the additional instructions located in "Preparing the product for integrated shipping in a rack" before proceeding.

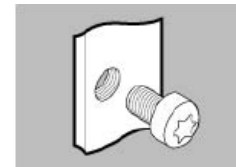
### 3.3 Rack Identification Legend



Round-hole racks  
No tools required

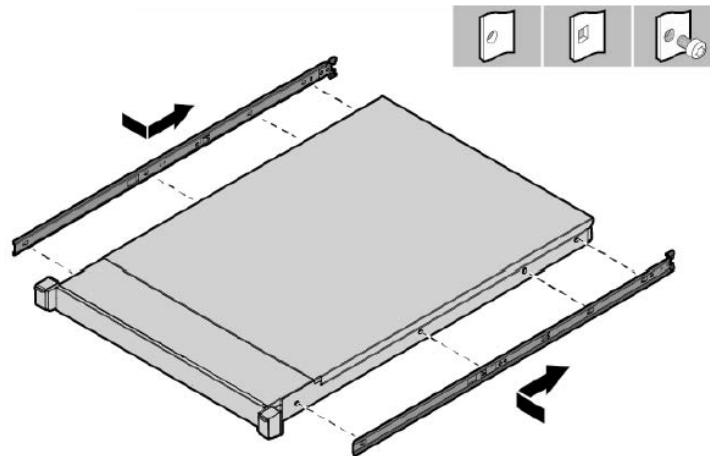


Square-hole racks  
No tools required



Threaded-hole racks  
-

### 3.4 Installing the Rail Kit into a Rack

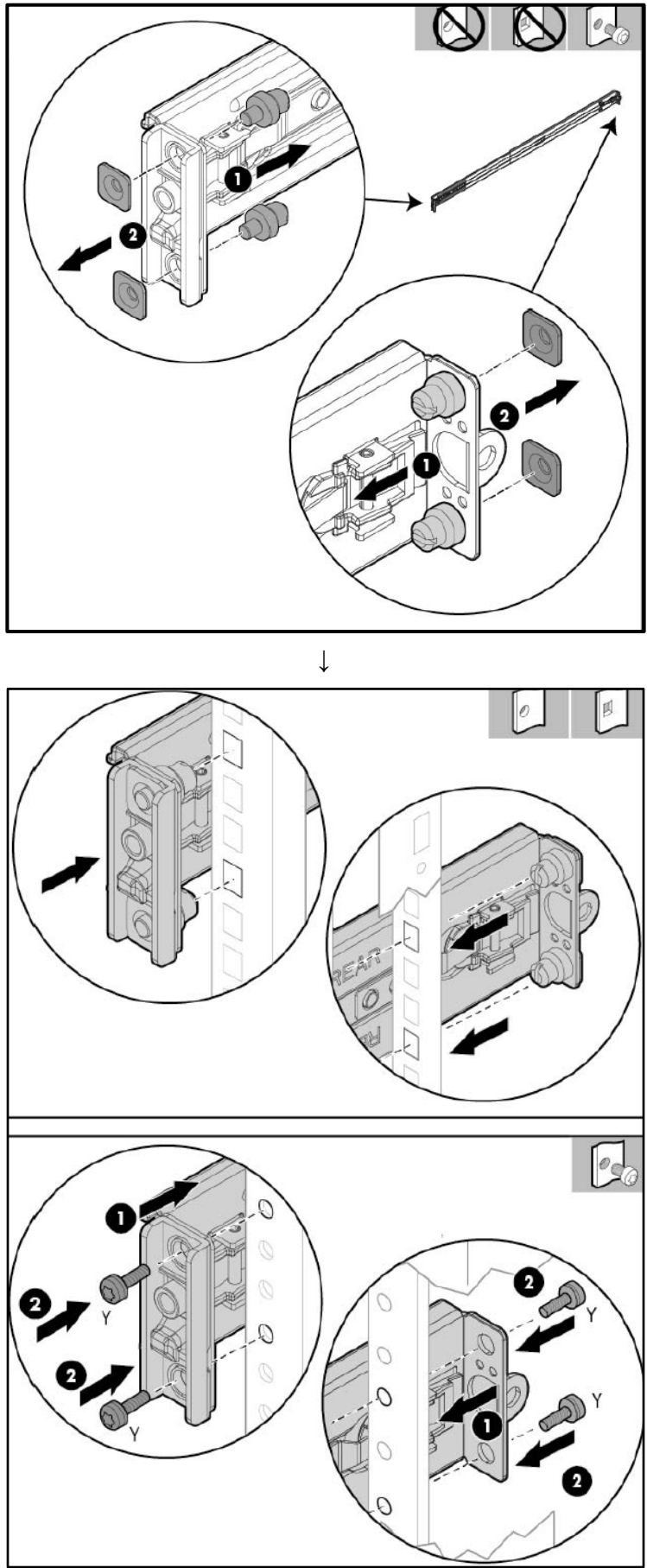


**Warning:** To avoid risk of personal injury or damage to the equipment, do not stack anything on top of rail-mounted equipment or use it as a work surface when extended from the rack.



**Caution:** Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.







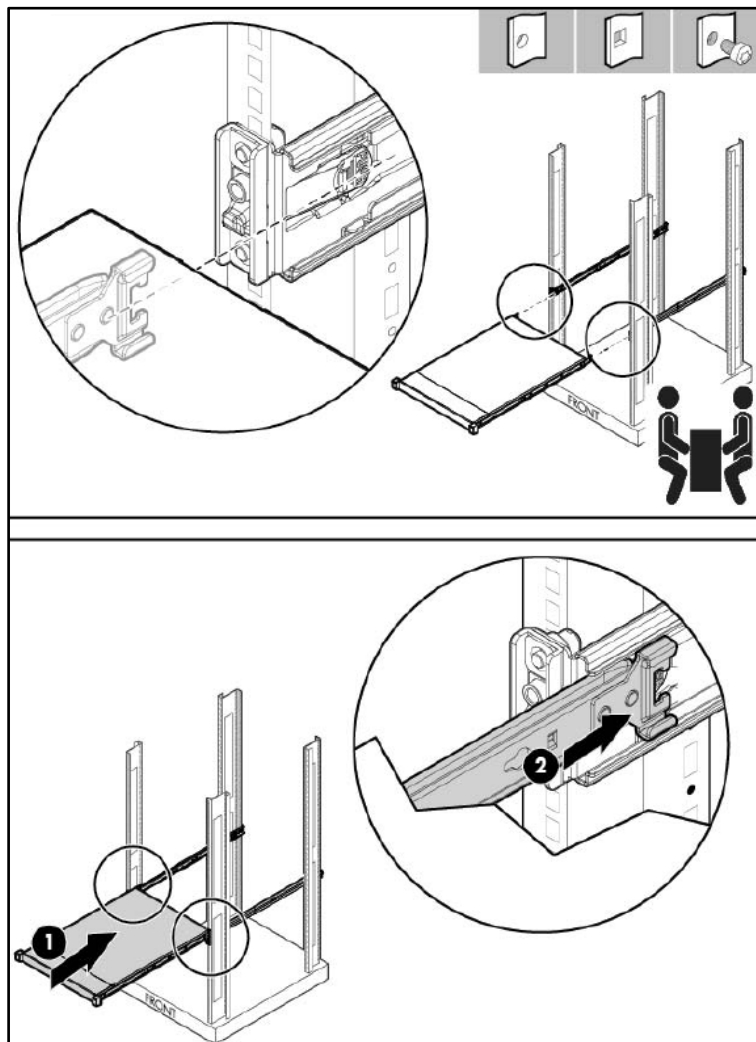
**Warning:** To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before sliding the inner slides into the slide mounting bracket assemblies.



**Warning:** To reduce the risk of personal injury or damage to the equipment, at least two people are required to lift the server during installation or removal.

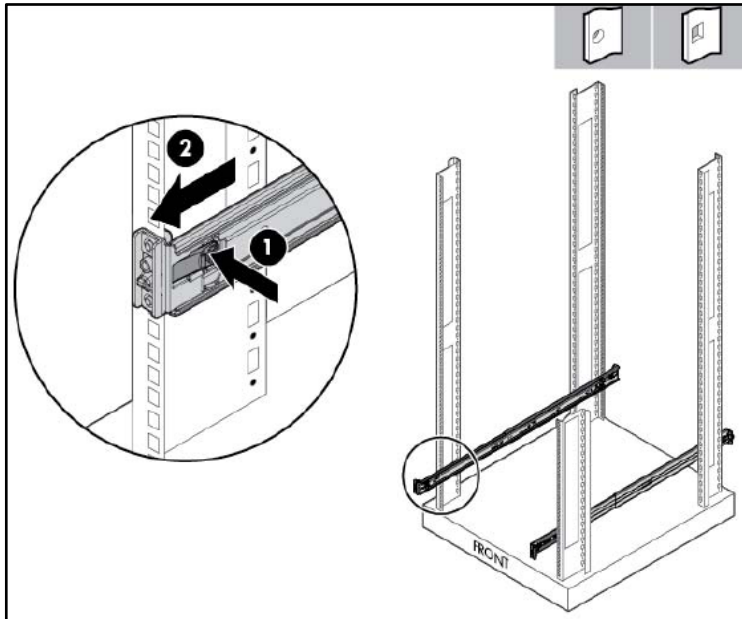


**Caution:** Be sure to keep the product parallel to the floor when sliding the inner slides into the slide mounting bracket. Tilting the product up or down could result in damage to the slides.

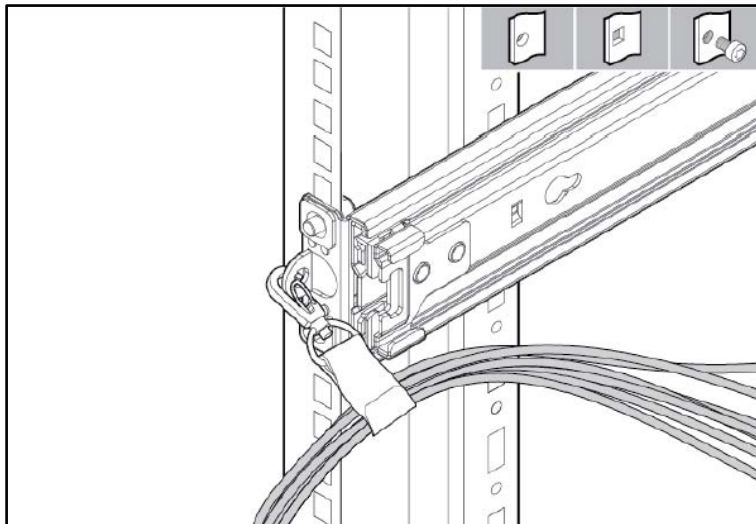


### 3.5 Removing the Rail

When removing the rail from the rack, always remove the front of the rail first.



### 3.6 Securing the Cables



### 3.7 Connecting the Power Cords

After completing all installation and cable management procedures, you can connect the power cords to the facility power source. See Section 5.2 on page 24 for detailed information. The installation is complete.

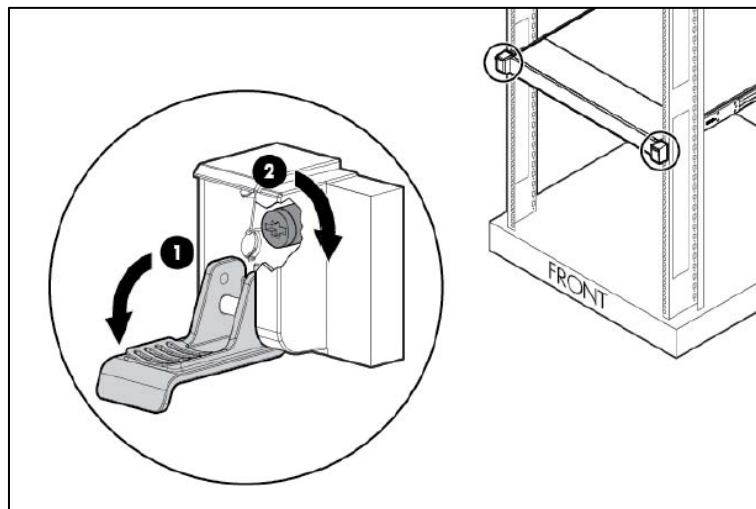
### 3.8 Preparing the Product for Integrated Shipping in a Rack



**Note:** You must provide screws to secure the slide mounting bracket assemblies in a threaded-hole rack.

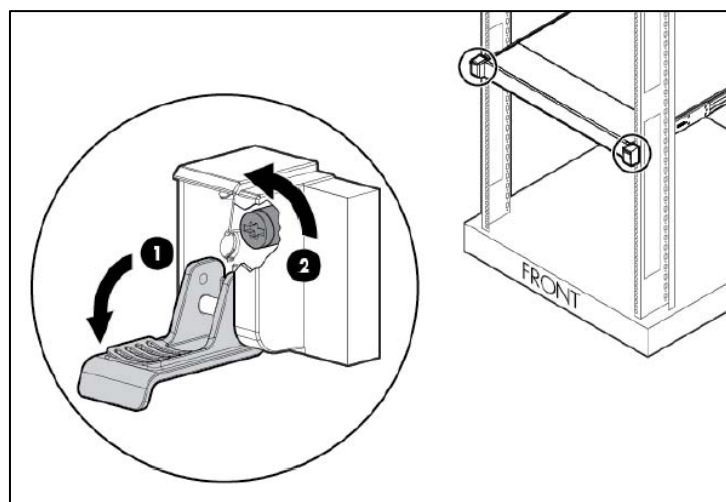


**Note:** Use the integrated shipping hardware included with this kit to prepare a square-hole rack for integrated shipping.



### 3.9 Loosening the Shipping Screws

To slide the server out of the rack, open the latches and loosen the shipping screws.



## 4 Fiber Network Card Support

This section describes the device's fiber network card support.

### 4.1 Supported Configurations

Slot 1 always occupies the quad 1 GbE copper ports. For the Network cards located in PCIe slots 2 and 3 (as described in Figure 2-3), you can replace them with SFP cards in any of the following supported configurations:

**Table 4-1: Supported Configurations with SFP Network Cards**

Slot 2	Slot 3	Total Network Ports (incl. Slot 1)
Quad 1 GbE Copper	Quad SFP (1G) with LX transceivers	8 x 1 GbE Copper + 4 x 1G SFP LX
Quad 1 GbE Copper	Quad SFP (1G) with SX transceivers	8 x 1 GbE Copper + 4 x 1G SFP SX
Quad SFP (1G) with LX transceivers	Quad SFP (1G) with LX transceivers	4 x 1 GbE Copper + 8 x 10G SFP+ LX
Quad SFP (1G) with SX transceivers	Quad SFP (1G) with SX transceivers	4 x 1 GbE Copper + 8 x 10G SFP+ SX
Quad 1 GbE Copper	Quad SFP+ 10G with LX transceivers	8 x 1 GbE Copper + 4 x 10G SFP+ LX
Quad 1 GbE Copper	Quad SFP+ 10G with SX transceivers	8 x 1 GbE Copper + 4 x 10G SFP+ SX
Quad SFP+ 10G with LX transceivers	Quad SFP+ 10G with LX transceivers	4 x 1 GbE Copper + 8 x 10G SFP+ LX
Quad SFP+ 10G with SX transceivers	Quad SFP+ 10G with SX transceivers	4 x 1 GbE Copper + 8 x 10G SFP+ SX



**Note:** The Network cards “Quad SFP (1G) with LX transceivers”, “Quad SFP (1G) with SX transceivers”, “Quad SFP+ 10G with LX transceivers” and “Quad SFP+ 10G with SX transceivers” must be ordered from AudioCodes.

## 4.2 Replacing Copper NIC with Fiber Network Card

If you want to replace the copper NIC with the Fiber Network Card, follow the below procedure.

➤ **To replace the copper NIC with Fiber Network Card:**

1. Upgrade the device to Version 7.20A.150 or later.



**Note:** Version 7.2.150 is required for 10G SFP+ support and for Hyper-Threading support that is required for performance improvement. If you have purchased a Mediant 9000 with Version 7.2.150 or later, Hyper-Threading is enabled by default. If you purchased your Mediant 9000 with a version earlier than 7.2.150, Hyper-Threading is disabled by default and you need to enable it in the device's BIOS.

2. Power off the server and disconnect it from the power source.
3. Disconnect the network cables from the slots to be replaced (1, or both 1 and 2).
4. Extract the PCI-e Riser cards, as described in [https://h20566.www2.hp.com/hpsc/doc/public/display?docLocale=en\\_US&docId=emr\\_na-c03453781&sp4ts.oid=7252820](https://h20566.www2.hp.com/hpsc/doc/public/display?docLocale=en_US&docId=emr_na-c03453781&sp4ts.oid=7252820).
5. If you are replacing one card only, replace the Copper GbE card in Slot 3 with the new fiber card. Otherwise, replace both cards.
6. Connect the optic cables as described in Section 5.5.
7. Power on the server, and then enter the BIOS Setting (F9).
8. Enable 'Hyper-Threading' (under **Processor** options).
9. Save the BIOS changes, and then exit the BIOS; the server restarts.
10. When the device finishes loading, the new SFPs are labeled "GE\_9" through to "GE\_12" if a single card was replaced, or "GE\_5" through to "GE\_12" if both cards were replaced.

## 5 Cabling

This section shows how to cable the device. Intra-building connections of the device require the use of shielded cables grounded at both ends.



**Caution:** The intra-building ports of the equipment are suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building ports of the equipment must not be metallically connected to interfaces that connect to the Outside Plant (OSP) or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports, as described in GR-1089–CORE, Issue 4) and requires isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

### 5.1 Grounding

The device is intended for use in both common bonding networks and isolated bonding networks. Grounding must comply with local, national, and other applicable government codes and regulations. Dedicated safety grounds are implemented on both the AC and DC versions of the product. The AC product uses a standard three wire cord that includes a safety ground for each power supply. The DC product has a dedicated ground screw on each power supply.



**Warning:** To ensure the safety ground, at least one power supply with an appropriately terminated ground lead must be installed at all times.



**Tip:** To ensure the safety ground, at least one power supply with an appropriately terminated ground lead must be installed at all times.

## 5.2 Connecting to Power

This section shows how to connect the device to the power supply. The device can be connected to an AC or DC power source.

You can connect both Power Supply modules (1 and 2), for 1+1 power load-sharing and redundancy. Each module provides a power socket on the device's rear panel. If both power modules are used, make sure that you connect each one to a different power supply socket.



**Note:** When connecting both Power Supply modules, the two AC power sources must have the same ground potential.



**Warning:** The device must be connected (by service personnel) to a socket-outlet with a protective earthing connection.

### 5.2.1 Connecting to AC Power Source

The AC power supply specifications are listed in the table below.

**Table 5-1: AC Power Supply Specifications**

Specification	Value
<b>Input requirements</b>	
Rated input voltage	100 V AC–240 V AC
Rated input frequency	50 Hz or 60 Hz
Rated input current	3.5 - 8.5A
Rated input power	<ul style="list-style-type: none"> <li>▪ 843 W at 100 V AC input</li> <li>▪ 811 W at 200 V AC input</li> </ul>
Btus per hour	<ul style="list-style-type: none"> <li>▪ 2878 at 100 V AC input</li> <li>▪ 2769 at 200 V AC input</li> </ul>
<b>Power supply output</b>	
Rated steady-state power	<ul style="list-style-type: none"> <li>▪ 750 W at 100 V to 120 V AC input</li> <li>▪ 750W at 200 V to 240 V AC input</li> </ul>
Maximum peak power	<ul style="list-style-type: none"> <li>▪ 750W at 100 V to 120 V AC input</li> <li>▪ 750W at 200 V to 240 V AC input</li> </ul>



**Warning:** Use only the AC power cord supplied with the device.



**ご注意**

本製品に添付の電源ケーブルは、Mediant 9000 に専用設計されているため、汎用性がありません。本電源ケーブルを他の機器に使用されないよう、ご注意ください。





**Caution:** To reduce the risk of electric shock or damage to the equipment:

- Do not disable the power cord grounding plug. The grounding plug is an important safety feature.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it can be walked on or pinched by items placed against it. Pay particular attention to the plug, electrical outlet, and the point where the cord extends from the server.



**Note:**

- This equipment is intended for installation where the NEC (National Electrical Code) applies.
- The safety ground of the AC power cord must terminate the chassis to the interior equipment grounding system.

➤ **To connect the device to the AC power supply:**

1. Connect the AC power cord (supplied) to one of the power sockets located on the rear panel.

**Figure 5-1: Connecting AC Power Cords to AC Electrical Outlets**



2. Connect the other end of the power cord to a standard AC electrical outlet (100-240V~50-60 Hz).
3. For load sharing and power redundancy, repeat steps 1 through 2, but using the power socket of the second Power Supply module and connecting this to a different supply circuit.
4. Turn on the power at the power source (if required).
5. Check that the **POWER** LED on each Power Supply module (front panel) is lit green. This indicates that the device is receiving power.

## 5.2.2 Connecting to DC Power Source

The DC power supply module is shown below:

**Figure 5-2: DC Power Supply Module**



The DC power supply specifications are listed in the table below.

**Table 5-2: DC Power Supply Specifications**

Specification	Value
<b>Input requirements</b>	-
Rated input voltage	<ul style="list-style-type: none"> <li>▪ -36 V DC to -72 V DC</li> <li>▪ -48 V DC nominal input</li> </ul>
Rated input current	<ul style="list-style-type: none"> <li>▪ 23 A at -36 V DC input</li> <li>▪ 17 A at -48 V DC input, nominal input</li> <li>▪ 12 A at -72 V DC input</li> </ul>
Rated input power (W)	<ul style="list-style-type: none"> <li>▪ 840 W at -36 V DC input</li> <li>▪ 820 W at -48 V DC input, nominal input</li> <li>▪ 830 W at -72 V DC input</li> </ul>
Rated input power (Btus per hour)	<ul style="list-style-type: none"> <li>▪ 2865 at -36 V DC input</li> <li>▪ 2796 at -48 V DC input, nominal input</li> <li>▪ 2830 at -72 V DC input</li> </ul>
<b>Power supply output</b>	-
Rated steady-state power (W)	750 W
Maximum peak power (W)	750 W

**Caution:**

This equipment is designed to permit the connection of the earthed conductor of the DC supply circuit to the earthing conductor at the equipment. If this connection is made, all of the following must be met:

- This equipment must be connected directly to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode conductor is connected.
- This equipment must be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system must be earthed elsewhere.
- The DC supply source is to be located within the same premises as the equipment.
- Switching or disconnecting devices must not be in the earthed circuit conductor between the DC source and the point of connection of the earthing electrode conductor.

**Caution:**

To reduce the risk of electric shock or energy hazards:

- This equipment must be installed by trained service personnel, as defined by the NEC and IEC 60950-1, Second Edition, the standard for Safety of Information Technology Equipment.
- Connect the equipment to a reliably grounded SELV source. An SELV source is a secondary circuit that is designed so normal and single fault conditions do not cause the voltages to exceed a safe level (60 V DC).
- The branch circuit overcurrent protection must be rated 24 A.

**Caution:**

- When installing a DC power supply, the ground wire must be connected before the positive or negative leads.
- Remove power from the power supply before performing any installation steps or maintenance on the power supply.

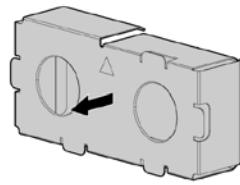
**Notes:**

- The DC power cord is not supplied.
- If you are not using an HP input cable, use an HP-approved 10 or 12 AWG green and yellow ground cable, no shorter than 150 cm (59.06 in), and 10 or 12 AWG power cables.

**➤ To connect the device to the DC power supply:**

1. Make sure that the power supply module is partially extracted from the chassis slot. This facilitates cable attachment described hereafter.
2. Remove the blank cover protecting the DC power inlet on the rear panel.

Figure 5-3: Removing Blank Cover



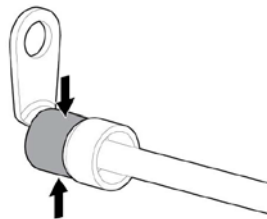
3. Make sure that the cable is disconnected from the 48V DC power source.
4. Cut the DC power cord wire ends no shorter than 150 cm (59.06 in), and then crimp (using a crimping tool) ring tongues to the power and ground wires from the 48V power source.



**Notes:**

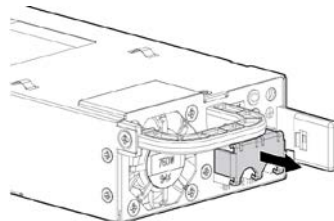
- The power supply uses two power ring tongues and one ground ring tongue; they are not interchangeable.
- The ring tongues must be UL approved and accommodate 12 gauge wires.

Figure 5-4: Wire Crimped on Ring Tongue



5. Remove the safety cover from the terminal block on the front of the power supply module.

Figure 5-5: Removing Safety Cover

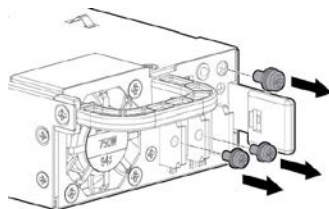


6. Remove the screws from the terminal block.



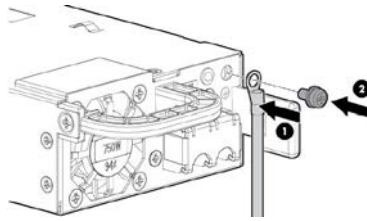
**Note:** The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in); the diameter of a screw type terminal must be 4.0 mm (0.157 in).

Figure 5-6: Removing Terminal Block Screws



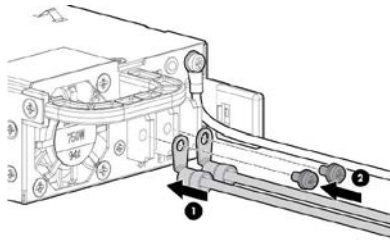
7. Attach the ground (earthed) wire to the ground screw and washer, and tighten to 1.47 N m (13 lb-in) of torque. The ground wire must be connected before the positive or negative lead wires.

**Figure 5-7: Attaching Ground Wire**



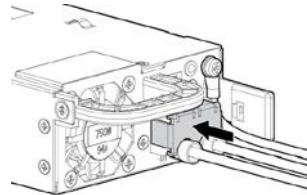
8. Attach the power ring tongues to the terminal block, following the polarity label below the terminal block, and then tighten the screws to 1.47 N m (13 lb-in) of torque.

**Figure 5-8: Attaching Power Wires**



9. Replace the safety cover.

**Figure 5-9: Replacing Safety Cover**



10. Insert the power supply module into the chassis' power supply bay (slot) until it clicks into place.
11. Route the power cord at your installation site, as required.
12. Make sure the 48V DC power source is off or the PDU breaker is in the off position, and then connect the power cord to the 48V DC power source or PDU.
13. Turn on the 48V power source or switch the PDU breaker to the on position to supply 48V to the power supply.
14. Verify that the green power supply LED is on.

### 5.3 Connecting Display and Keyboard

To perform initial configuration, display and keyboard are required.

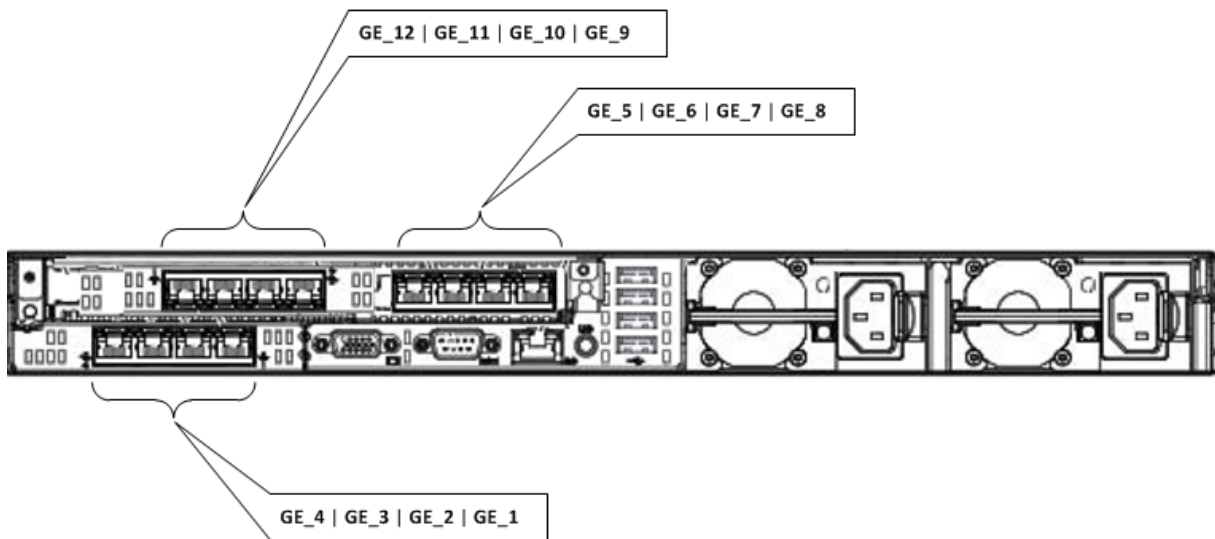
- Connect the display to the 15-pin HD D-Sub (HD-15) VGA port on the Mediant 9000.
- Connect the keyboard to the USB port.

### 5.4 Connecting Device to IP Network for 1-GbE Copper

This section shows how to connect the device to the IP network using the copper 1-GbE ports.

The device's management interface uses special string names to represent the Ethernet ports, as shown in the figure below:

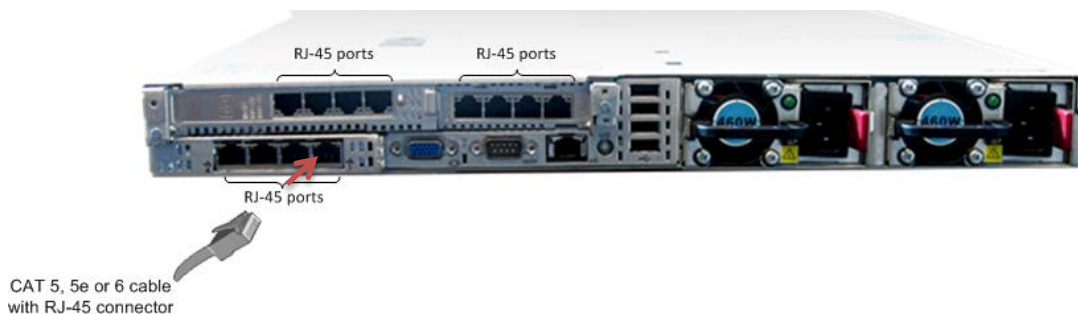
**Figure 5-10: Management String Name per Physical Ethernet Port**



➤ **To connect the device to the IP network:**

- Use an Ethernet cable to connect an RJ-45 network port on the server's rear panel to the LAN.

**Figure 5-11: Connecting the Device to the IP Network**



**Note:**



- Port GE\_1 is used for OAM&P.
- The HP iLO port is not used for management of the SBC application; it's used only for hardware management. For more information, see <http://www8.hp.com/us/en/products/servers/ilo/>.

## 5.5 Connecting Device to IP Network with SFP

The following procedure describes how to cable the device to the network, using the 1.25 Gbps optical Small Form-Factor Pluggable (SFP) transceiver modules.



### Caution Laser

This device contains a Class 1 LED/Laser emitting device, as defined by 21CFR 1040 and IEC825. Do not stare directly into the beam or into fiber optic terminations as this can damage your eyesight.



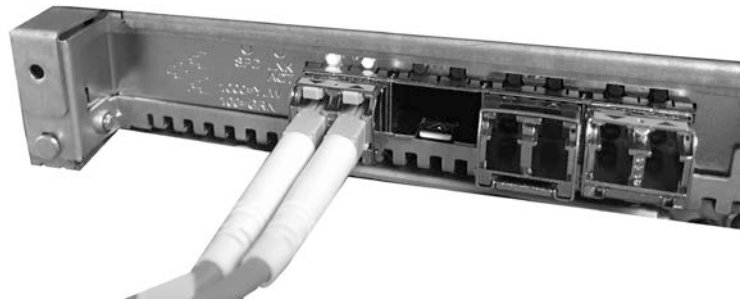
### Care in Handling Fiber Optic Cabling:

1. Excessive bending of the Fiber Optic Cable can cause distortion and signal losses.
2. Ensure the minimum bending radius recommended by the Fiber Optic Cable supplier.
3. Incoming optic cabling from the network infrastructure can originate from the top of the rack or from another shelf within the rack. Preserve the minimum-bending ratio indicated by the cable manufacturer.
4. To ensure full high-availability capabilities, the configuration of the interface to the IP backbone must include certain redundant features from which two separate fiber optic cables are entering the device.

#### ➤ To connect to the network using SFP:

1. Remove the protective dust plug from the SFP transceiver module.
2. Connect a cable with LX-type or SX-type plugs to the SFP transceivers:

**Figure 5-12: Cabling Network using SFP**



## 5.6 Viewing Network Port Status

Use the `show network physical-port` CLI command to view network port status (up/down) and MAC address:

**Figure 5-13: Viewing Network Port Status**

```
# show network physical-port
```

Port Num	Port Name	MAC Address	Speed	Duplexity	Link Status	Native VLAN	Driver Info
1	GE_1	f4:ce:46:a5:3f:98			UP	1	igb rx-zc
2	GE_2	f4:ce:46:a5:3f:99			DOWN	1	igb rx-zc
3	GE_3	f4:ce:46:a5:3f:9a			DOWN	1	igb rx-zc
4	GE_4	f4:ce:46:a5:3f:9b			DOWN	1	igb rx-zc
5	GE_5	f4:ce:46:a5:4f:98			DOWN	1	igb rx-zc
6	GE_6	f4:ce:46:a5:4f:99			DOWN	1	igb rx-zc
7	GE_7	f4:ce:46:a5:4f:9a			DOWN	1	igb rx-zc
8	GE_8	f4:ce:46:a5:4f:9b			DOWN	1	igb rx-zc
9	GE_9	f4:ce:46:a5:a4:40			DOWN	1	igb rx-zc
10	GE_10	f4:ce:46:a5:a4:41			DOWN	1	igb rx-zc
11	GE_11	f4:ce:46:a5:a4:42			DOWN	1	igb rx-zc
12	GE_12	f4:ce:46:a5:a4:43			DOWN	1	igb rx-zc

For 10G ports, the 'Driver Info' column displays "ixgbe" instead of "igb", but the port name remains the same (i.e., "GE\_n").



## 6 Initial Configuration

### 6.1 Reconfiguring Default IP Address to Match Customer Network Settings

The Mediant 9000 is supplied with software preinstalled. By default, the device is assigned with a default IP address that will most likely be inaccessible from the customer's network.

**Table 6-1: Default IP Address**

Parameter	Value
<b>IP Address</b>	192.168.0.1
<b>Subnet Mask</b>	255.255.255.0

Reconfigure the IP address in order to connect to the Mediant 9000's Web-based management tool (hereafter referred to as 'Web interface').

➤ **To reconfigure the IP address using CLI:**

1. Use the VGA monitor and keyboard to connect to the CLI management interface.
2. At the prompt, type the username (default is **Admin** - case sensitive), and then press ENTER:

```
Username: Admin
```

3. At the prompt, type the password (default is **Admin** - case sensitive), and then press ENTER:

```
Password: Admin
```

4. At the prompt, type **enable** and press ENTER:

```
> enable
```

5. At the prompt, type the password again and press ENTER:

```
Password: Admin
```

6. At the prompt, type the following commands to access the network interface configuration:

```
# configure network
(config-network)# interface network-if 0
```



**Note:** Use the Tab key to auto-complete partially entered commands.

7. At the prompt, type the following commands to configure the IP address, prefix length and default gateway:

```
(network-if-0)# ip-address 10.4.212.155
(network-if-0)# prefix-length 16
(network-if-0)# gateway 10.4.0.1
(network-if-0)# exit
```

8. At the prompt, type **exit** to complete the **network-if** configuration.

9. If Mediant 9000 is connected to the IP network that uses VLAN ID (for example, VLAN ID 10), type the following commands to configure it in the Ethernet Device table (otherwise skip to step 10):

```
(config-network)# interface network-dev 0
(network-dev-0)# vlan-id 10
(network-dev-0)# tagging tagged
(network-dev-0)# exit
```

10. At the prompt, type **exit** to complete the configuration:
11. At the prompt, make sure that port #1 is connected (Link is UP) using the **show network physical-port** CLI command, as described in Section 0 on page 31. Port #1 is mapped to network-if-0 by default.
12. At the prompt, type **reload now** to reset the product and activate the new configuration:

```
# reload now
```

After the Mediant 9000 restarts, connect to its Web interface to continue the provisioning. See the *Mediant 9000 User's Manual* for details.

## 6.2 Licensing the Mediant 9000

The Mediant 9000 is supplied with software and License Key preinstalled. Use the preinstalled License Key to enable the call capacity and features that you ordered.

### 6.2.1 Upgrading your License Key

The procedure below describes how to upgrade your License Key.

➤ **To upgrade your License Key:**

1. Make a note of the product's serial number. The serial number is displayed in the 'Serial Number' field on the Web interface's Device Information page (**Monitor** menu > **Monitor** menu > **Summary** tab > **Device Information**).
2. Send the serial number to your AudioCodes representative when requesting the upgraded License Key.
3. When you receive the new License Key file, check it as follows:
  - a. Open the file with any text-based program such as Notepad.
  - b. Verify that the first line displays "[LicenseKeys]".
  - c. Verify that the file contains a line in the following format:  
"S/N<serial number of the device> = <License Key string>".

**Figure 6-1: License Key File with S/N Line**

```
[LicenseKeys]
;Board Type 29
SN241182 =
okRTr5topwYMBIZd4INN2a3Qhm4NJJfidaagUyehso94APbBF85fF4by0cmQZf2B8bMcze7JQ9kMSa5h641R1aOkeEb9AddF894Zx
SN242519 = trxTr5to0mIMbIZdoPd2a3Qh9zJJfidafilyehsogOQPbBF8pj4by0c9pdx2B8eOoze7JQgywSa5h6o391aOkeTIIAddF8c6Fx
SN226403 = trxTr5to0sMblZdoOB2a3Qh9yJJfidafilyehsogN4PbBF8piZ4by0c9pdx2B8eOoze7JQgwgSa5h6o2x1aOkeTJIAddF8c6Fx
SN226417 = r6xTr5to25sMblZdfiB2a3Qh5OJJfida92yehsoix4PbBF8eOZ4by0c52xif2B88voze7JQINqSa5h6tyx1aOkeXZIAddF8amFx
```

- d. Verify that the "S/N" value reflects the serial number of your product.



**Warning:** Do not modify the contents of the License Key file.

## 6.2.2 Installing your License Key

The procedure below describes how to install the newly obtained License Key.


### 6.2.2.1 Installing on Standalone Devices

When the device operates as a standalone device, the installation of a License Key can also be done from a License Key file.



**Note:** The License Key installation process includes a device reset and is therefore, traffic-affecting. To minimize the disruption of current calls, it is recommended to perform this procedure during periods of low traffic.

➤ **To install a License Key file for standalone devices through Web interface:**

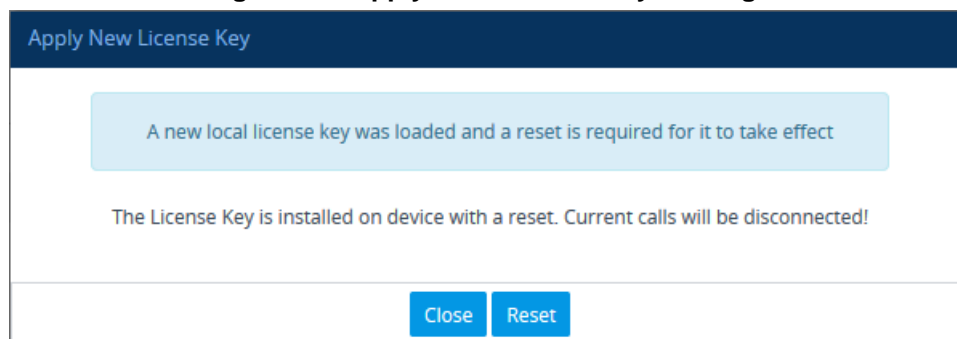
1. Open the License Key page (**Setup** menu > **Administration** tab > **Maintenance** folder > **License Key**).
2. Back up the currently installed License Key, as a precaution. If the new License Key does not comply with your requirements, you can re-load this backed-up License Key to restore the device's original capabilities. To back up the License Key, click  and save it as file on your PC.
3. Click the **Load By File** button, navigate to the License Key file on your computer, and then select the file to load to the device; the **Apply New License Key** button appears. The License Key page uses color-coded icons to indicate the changes between the previous License Key and the newly loaded License Key.



**Note:** If want to cancel installation, reset the device without a save to flash. For more information, see Resetting the Device.

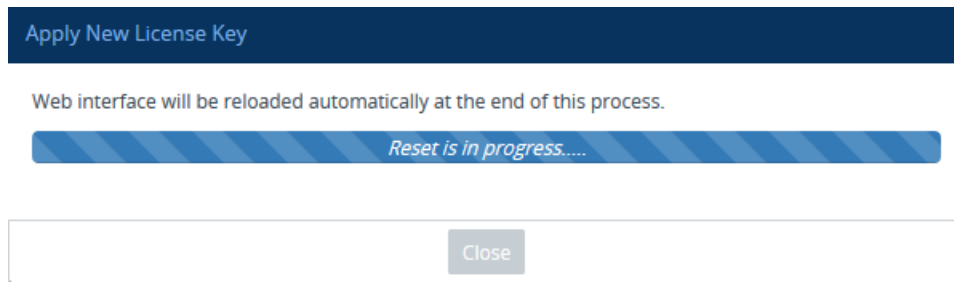
4. Click **Apply New License Key**; the following message box appears:

**Figure 6-2: Apply New License Key Message**



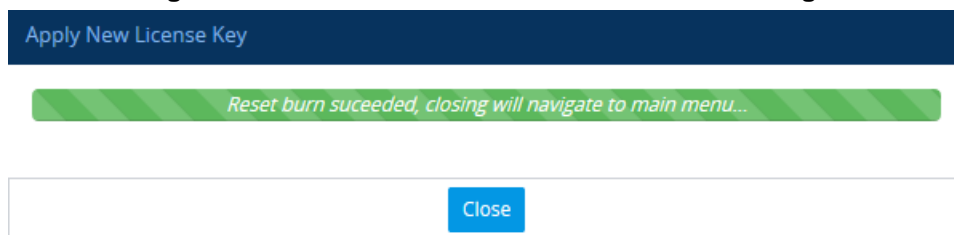
- Click **Reset**; the device begins to save the file to flash memory with a reset and the following progress message box appears:

**Figure 6-3: Reset in Progress for License Key**



When installation completes, the following message box appears:

**Figure 6-4: Reset and Save-to-Flash Success Message**



- Click **Close** to close the message box; you are logged out of the Web interface and prompted to log in again. The features and capabilities displayed on the License Key page now reflect the newly installed License Key.


### 6.2.2.2 Installing on HA Devices

When the device operates in HA mode, the installation of a License Key can be done only from a License Key file. You can install the License Key using one of the following methods:

- Hitless Upgrade:** The License Key is installed on both devices without affecting traffic, by employing the following mechanism:
  - The License Key file is loaded to the active device.
  - The active device sends the file to the redundant device.
  - The redundant device installs the file, by saving it to flash memory with a reset.
  - The active device saves the file to flash memory (without a reset).
  - The devices undergo an HA switchover, whereby the active device becomes redundant and the redundant device becomes active. Current calls are maintained and handled by the active device (previously the redundant device).
  - The redundant device (previously the active device) resets to install the file.
- Non-hitless Upgrade:** The License Key is installed on both devices simultaneously (both reset at the same time). Therefore, this method is traffic-affecting and current calls are terminated. The installation process is as follows:
  - The License Key file is loaded to the active device.
  - The active device sends the file to the redundant device.
  - Both devices install the file, by saving it to flash memory with a reset.



**Note:** The License Key file for HA contains two License Keys - one for the active device and one for the redundant device. Each License Key has a different serial number ("S/N"), which reflects the serial number of each device in the HA system.

- **To install a License Key file for HA through Web interface:**
- 1. Open the License Key page (**Setup** menu > **Administration** tab > **Maintenance** folder > **License Key**).
- 2. Back up the currently installed License Key, as a precaution. If the new License Key does not comply with your requirements, you can re-load this backed-up License Key to restore the device's original capabilities. To back up the License Key, click  and save it as file on your PC.
- 3. Click the **Load By File** button, navigate to the License Key file on your computer, and then select the file to load to the device; the **Apply New License Key** button appears. The License Key page uses color-coded icons to indicate the changes between the previous License Key and the newly loaded License Key.



**Note:** If want to cancel installation, reset the device without a save to flash.

- 4. Click **Apply New License Key**; the following appears:

Apply New License Key

A new local license key was loaded. For the license key to take effect, perform a hitless license key update (Hitless-Apply) or reset the device

<p>The License Key is installed on both devices with a reset, using the active-redundant switchover method which doesn't affect current traffic.</p> <p style="text-align: center;"><a href="#" style="background-color: #003366; color: white; padding: 5px 10px; text-decoration: none;">Hitless Upgrade</a></p>	<p>The License Key is installed simultaneously on both devices with a reset. Current calls will be disconnected!</p> <p style="text-align: center;"><a href="#" style="background-color: #003366; color: white; padding: 5px 10px; text-decoration: none;">Non-Hitless Upgrade</a></p>
--	--

[Close](#)

- 5. Click one of the following buttons:
  - **Hitless Upgrade:** Installs the License Key without affecting traffic by employing the HA switchover mechanism. When you click the button, the process starts and a message box is displayed indicating the installation progress:

**Figure 6-5: Hitless License Key Upgrade - Progress**

Apply New License Key

The web interface will be refreshed automatically at the end of this process.

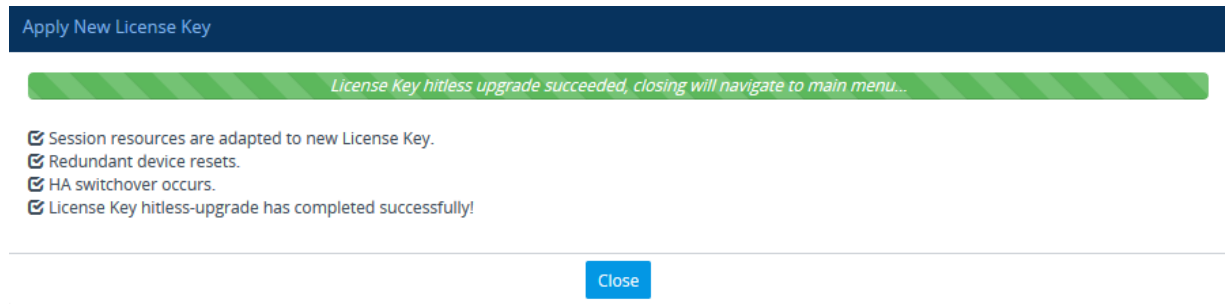
*License Key hitless upgrade is in progress.....*

- Session resources are adapted to new License Key.
- Redundant device resets.
- HA switchover occurs.
- License Key hitless-upgrade has completed successfully!

[Close](#)

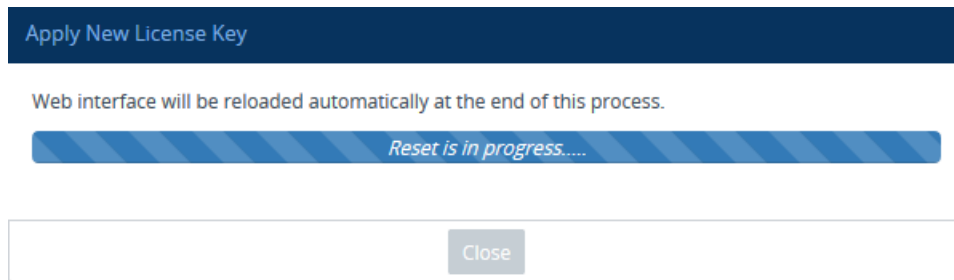
When installation completes, the following message box appears:

**Figure 6-6: Hitless License Upgrade Successfully Completed**



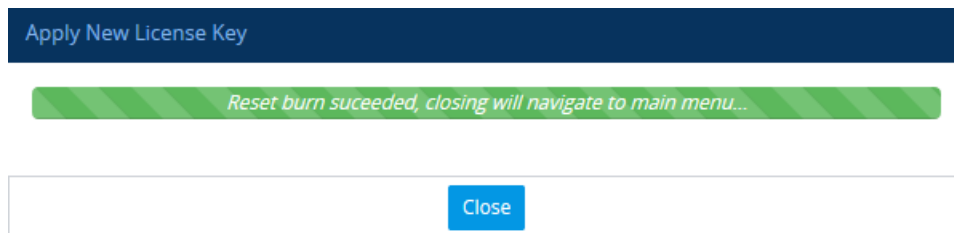
- **Non-Hitless Upgrade:** Installs the License Key simultaneously on both devices where both undergo a reset and therefore, current calls are terminated. When you click the button, the process starts and the following progress message box appears:

**Figure 6-7: Reset in Progress for License Key**



When installation completes, the following message box appears:

**Figure 6-8: Reset and Save-to-Flash Success Message**



6. Click **Close** to close the message box; you are logged out of the Web interface and prompted to log in again. The features and capabilities displayed on the License Key page now reflect the newly installed License Key.

## 6.3 Installing an HA System

Users can configure two Mediant 9000 devices to work in a High Availability (HA) configuration.

➤ **To configure an HA system:**

- Reconfigure a temporary IP address for each, as described in Section 5.2.
- Follow the instructions described under the section 'High Availability System' in the *User's Manual* document to set network topology correctly, and configure each accordingly using the Web interface.

## 6.4 Upgrading

Users can update the Mediant 9000 in order to (for example) implement software fixes. For detailed information, see the *User's Manual*.



## 7 Hardware Maintenance

The device is designed as a modular chassis and allows you to order any module as a Field Replacement Unit (FRU). This section describes the procedures for installing or replacing modules.



**Warning:** Maintenance service of this device must be made only by qualified service personnel in restricted access locations and connected to an earthed power socket.



**Note:** Ensure that all unoccupied module chassis slots are covered with blank panels. This allows optimal internal airflow pressure within the chassis.

### 7.1 Prerequisites

Before performing any maintenance procedures, read this section.

#### 7.1.1 Grounding the Device

Before performing any maintenance procedures, ensure that your device is properly grounded.

#### 7.1.2 Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) due to improper handling of the device's modules and components can cause irreversible damage to the equipment. Adhere to the following guidelines for preventing ESD:

- When handling modules, always wear a grounded ESD wrist strap or ankle strap at a grounded work area to prevent ESD. Connect the equipment end of the strap to a grounded workstation or computer chassis.
  - To prevent static electrical damage to the module, do not touch the electrical components of the module. Instead, hold the module only on the edges where no electrical components are located.
  - Ensure that the modules are securely installed in the chassis.
- **To attach an ESD wrist strap to the chassis:**
1. Attach the ESD wrist strap to your body (typically, the wrist) so that it is in direct contact with your skin.
  2. Attach the other end of the wrist strap (e.g., an alligator clip) to a grounded workstation or computer chassis.

## 7.2 Replacing Power Supply Modules

This section shows how to replace the power supply modules.

### 7.2.1 Replacing AC Power Supply



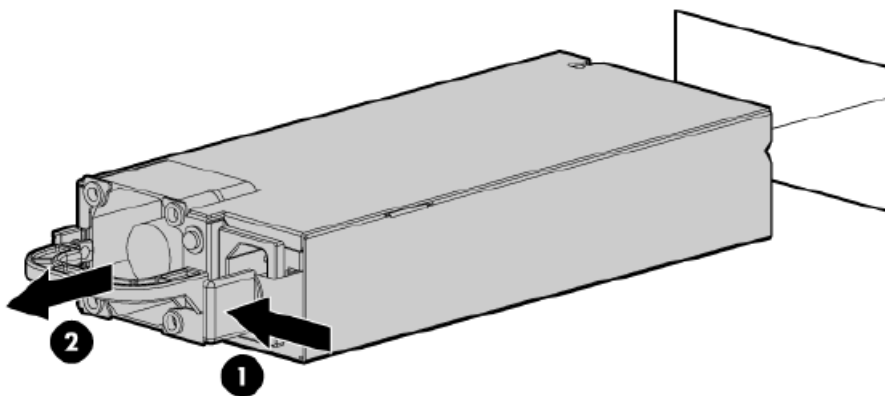
**Caution:** To prevent improper cooling and thermal damage, do not operate the server unless all bays are populated with either a component or a blank.

➤ **To remove the component:**

1. Power down the server.
2. Remove all power:
  - a. Disconnect each power cord from the power source.
  - b. Disconnect each power cord from the server.
3. Access the product rear panel.
4. Remove the power supply.



**Warning:** To reduce the risk of personal injury from hot surfaces, allow the power supply or power supply blank to cool before touching it.



To replace the component, reverse the removal procedure.

### 7.2.2 Replacing 48V DC Power Supply

One of the following optional HP input cables with pre-fastened ring tongues may be purchased from HP or an authorized reseller:

- A5S97A—1.3-m (7.55-ft) 48V DC Power Cable Kit
- A5S98A—2.5-m (3.94-ft) 48V DC Power Cable Kit

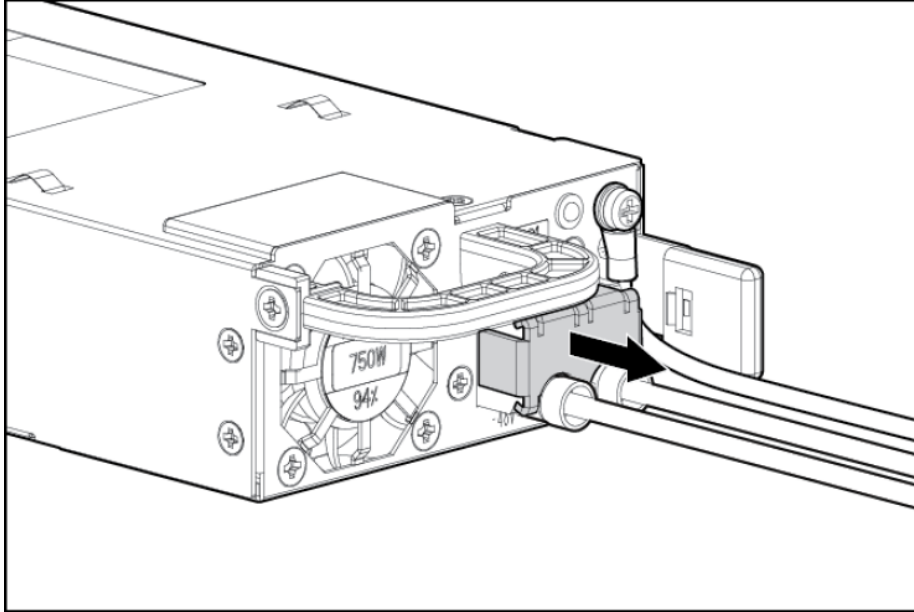
If you are not using an optional HP input cable, use an HP-approved 10 or 12 AWG green and yellow ground cable, no shorter than 150 cm (59.06 in), and 10 or 12 AWG power cables.



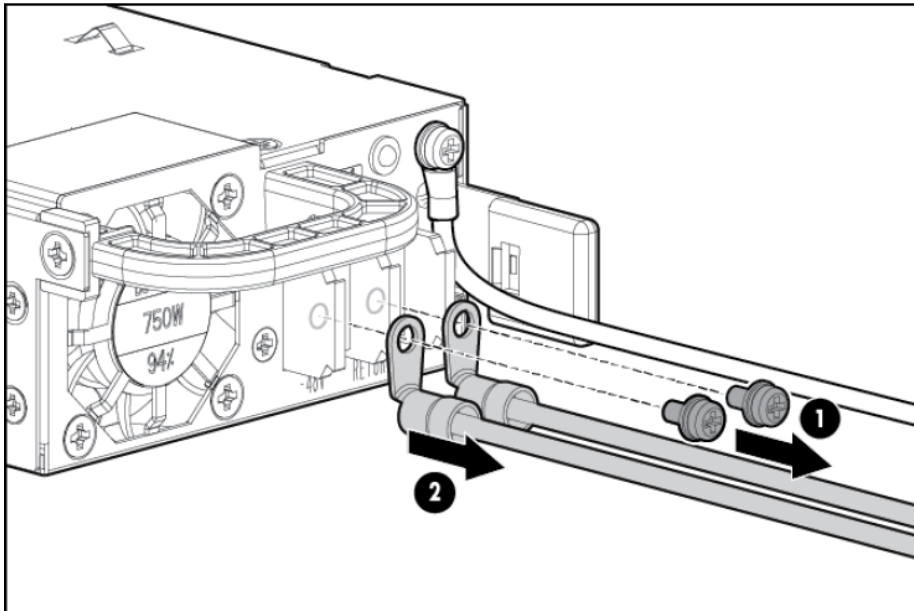
**Caution:** Use only the ring terminals provided with the power supply for customer-built power connections. Be sure no wire protrudes from the bottom of the ring terminal barrels.

➤ **To remove the component:**

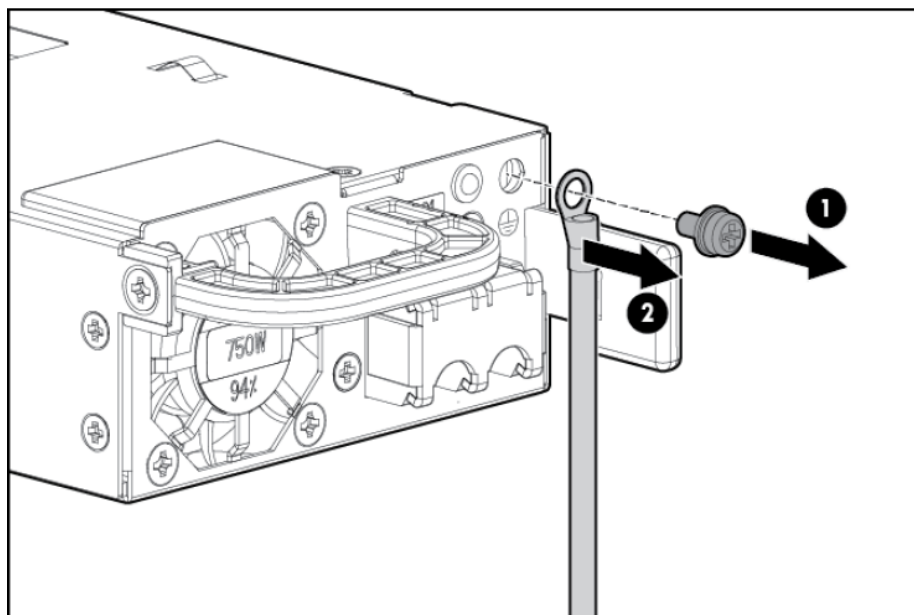
1. Make sure the 48V DC power source is off or the PDU breaker is in the off position, and then disconnect the power cord from the 48V DC power source or PDU.
2. Remove the power cord from the cable management arm, if installed.
3. Remove the safety cover.



4. Remove the power ring tongues from the terminal block.



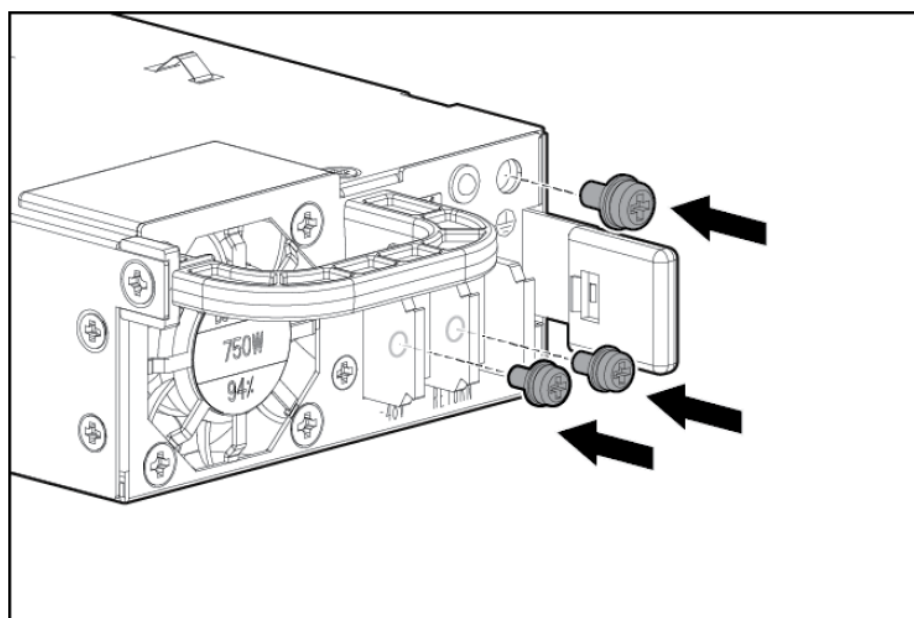
5. Remove the ground (earthed) wire from the ground screw and washer.



6. Attach the screws to the terminal block.



**Note:** The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in); the diameter of a screw type terminal must be 4.0 mm (0.157 in).



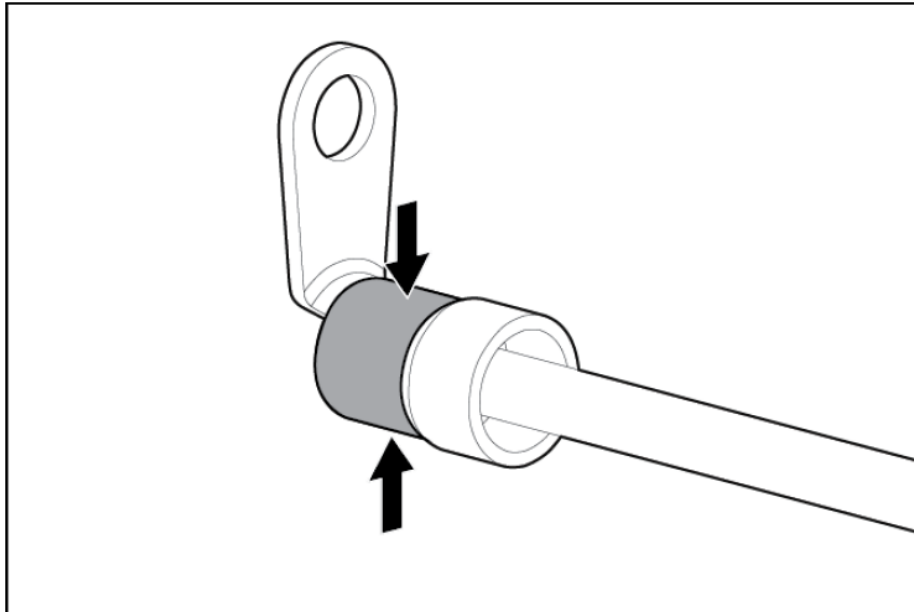
7. Remove the power supply from the power supply bay.
8. If you are not immediately replacing the power supply, install the safety cover.

➤ **To replace the component:**

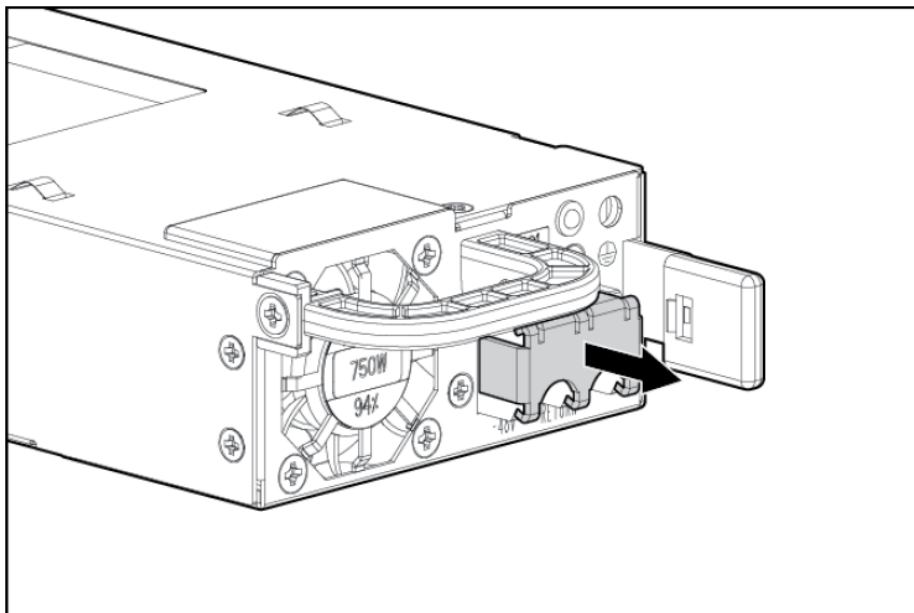
1. If you are not using an optional HP input cable or the ring tongues you crimped previously, with the ground cable disconnected from the 48V power source, crimp the ring tongues to the power and ground cables coming from the 48V source.



**Note:** The power supply uses two power ring tongues and one ground ring tongue. They are not interchangeable.



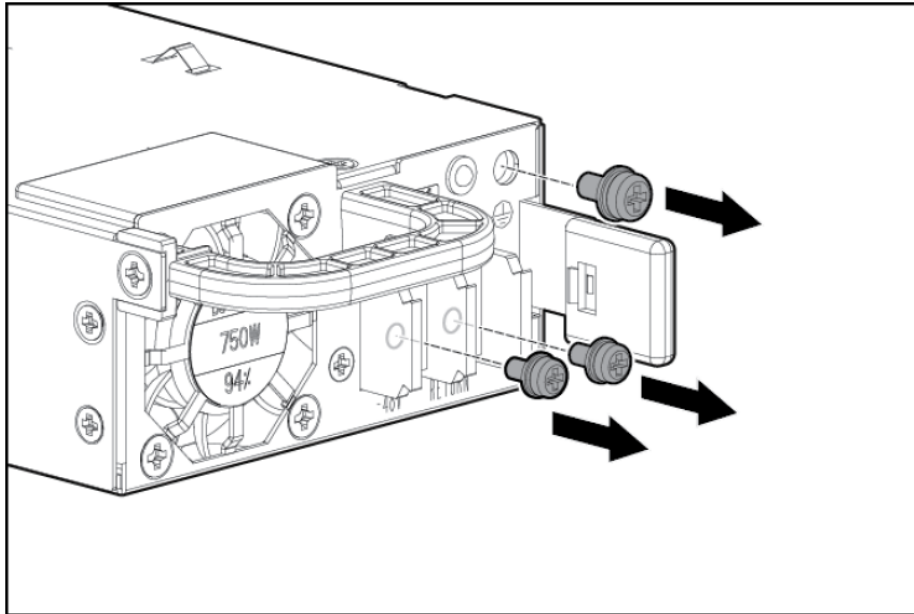
2. Remove the safety cover from the terminal block on the front of the power supply.



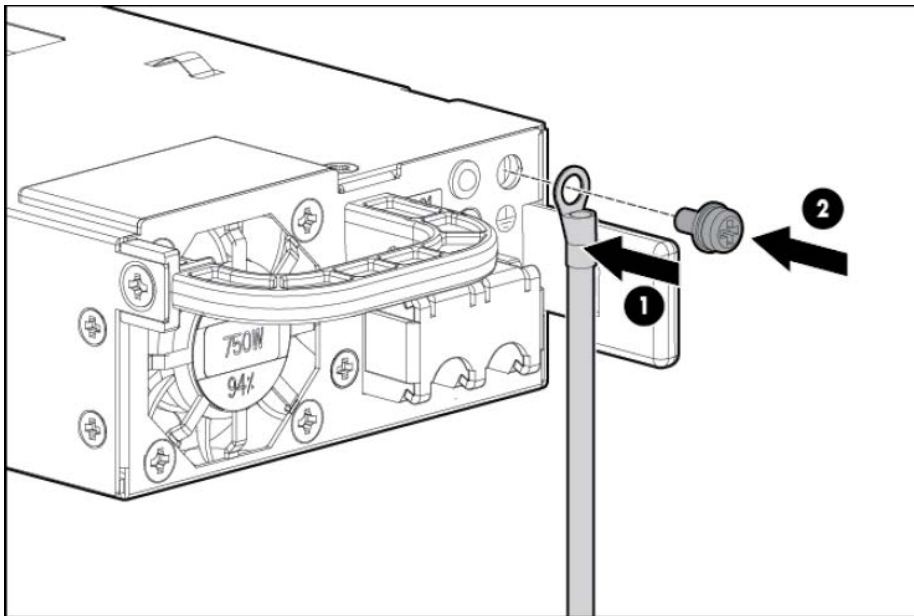
3. Remove the screws from the terminal block.



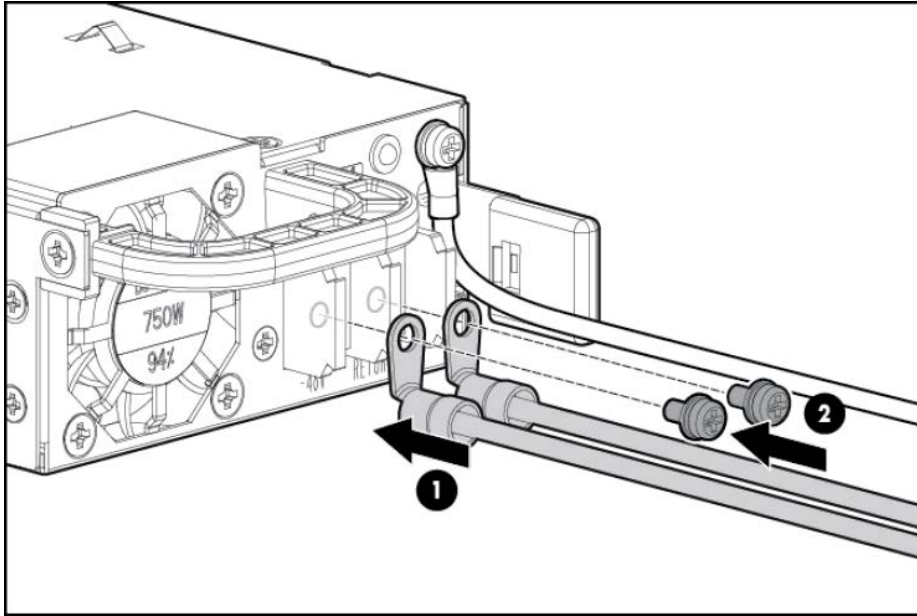
**Note:** The minimum nominal thread diameter of a pillar or stud type terminal must be 3.5 mm (0.138 in); the diameter of a screw type terminal must be 4.0 mm (0.157 in).



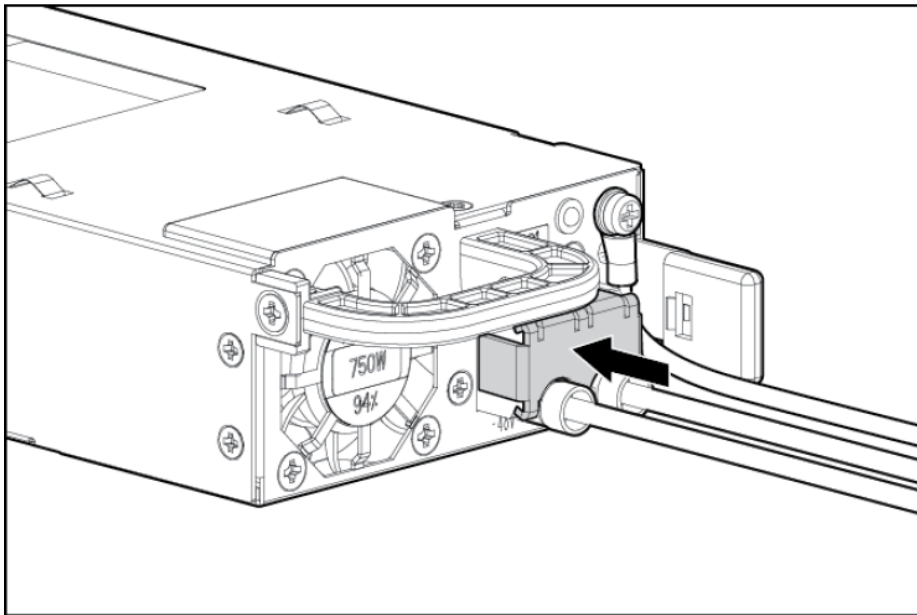
4. Attach the ground (earthed) wire to the ground screw and washer and tighten to 1.47 N m (13 lb-in) of torque. The ground wire must be connected before the positive or negative lead wires.



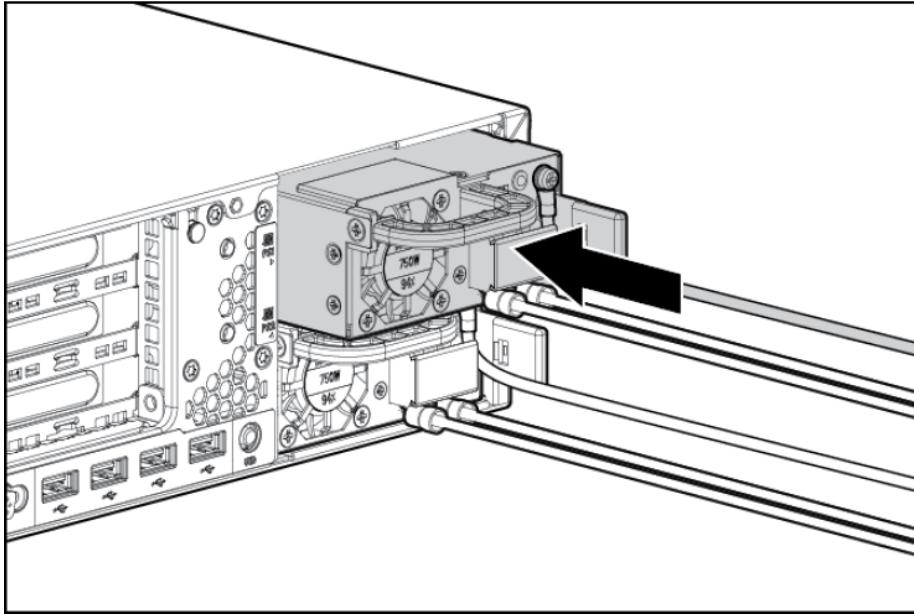
5. Attach the power ring tongues to the terminal block, following the polarity label below the terminal block, and then tighten the screws to 1.47 N m (13 lb-in) of torque.



6. Replace the safety cover.



7. Insert the power supply into the power supply bay until it clicks into place.



8. Route the power cord. Use best practices when routing power cords and other cables. A cable management arm is available to help with routing. To obtain a cable management arm, contact an HP authorized reseller.
9. Make sure the 48V DC power source is off or the PDU breaker is in the off position, and then connect the power cord to the 48V DC power source or PDU.
10. Turn on the 48V power source or switch the PDU breaker to the on position to supply 48V to the power supply.
11. Be sure that the green power supply LED is on.

### 7.3 Troubleshooting Device Failures

Contact AudioCodes RMA at [www.audiocodes.com/support](http://www.audiocodes.com/support) to troubleshoot device failures (such as fan alarms).



# A Rescue Options

The Mediant 9000 SBC features a System Snapshots mechanism that provides the capability of returning the system to a previous state. The mechanism may be used as a rescue option if a system malfunction occurs.

## A.1 Taking a Snapshot

Taking a System Snapshot captures a complete state of the Mediant 9000 SBC, including:

- installed Mediant 9000 SBC software
- the current configuration
- auxiliary files
- the License Key

The first 'factory' snapshot is automatically taken when initial installation is performed. Additional snapshots (up to 10) may be taken. The Mediant 9000 SBC can be returned to a snapshot, as described below.

➤ **To take a snapshot using the CLI:**

1. Connect to the CLI interface as described under Section 5.2.
2. At the prompt, type `enable` and press ENTER:

```
> enable
```

3. At the prompt, type the password and press ENTER:

```
Password: Admin
```

4. At the prompt, save the current configuration (burn) before creating a snapshot:

```
# write
```

5. Type the following commands to take a snapshot:

```
# configure troubleshoot
```

```
(config-troubleshoot) # startup-n-recovery
```

```
(startup-n-recovery) # create-system-snapshot <name>
```

## A.2 Viewing Available Snapshots

Currently available system snapshots can be viewed by using the `show-system-snapshots` command. The 'default' snapshot is indicated by asterisk.

```
(startup-n-recovery)# show-system-snapshots
first-install-2010-01-01_03-18-29
pre-production-6.70.037.010-2010-01-08_00-39-58
*production-6.70.037.010-2010-01-08_00-41-30
```

## A.3 Changing the Default Snapshot

The 'default' snapshot indicates a restore point that is used by Automatic Recovery in the case of software malfunction (see Section A.6) and/or Manual Recovery (see Section A.5). The last user-created snapshot is automatically set as 'default' though it can be changed using the `set-default-snapshot` command.

```
(startup-n-recovery)# set-default-snapshot pre-production-
6.70.037.010-2010-01-08_00-40-27
```

## A.4 Deleting a Snapshot

To delete a snapshot, use the `delete-system-snapshot` command:

```
(startup-n-recovery)# delete-system-snapshot pre-production-
6.70.037.010-2010-01-08_00-39-58
```

## A.5 Manual Recovery

Manual recovery is performed on user request. When the Mediant 9000 SBC reboots, a GRUB menu is displayed that allows users to select one of the following rescue options:

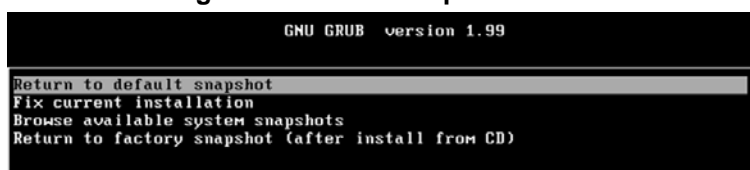
- Return to default snapshot
- Fix current installation
- Browse available system snapshots
- Return to factory snapshot (after install from CD)

### A.5.1 Returning to the Default Snapshot

➤ **To return to the default snapshot:**

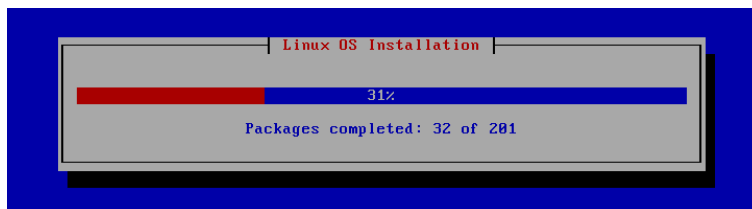
1. Reboot the server.
2. In the GRUB menu that's displayed for 5 seconds during the server start-up, press the Down ↓ key to select **Rescue Options**, and then press **Enter**.
3. In the Rescue Options menu, select **Return to default snapshot** and then press **Enter**.

Figure A-1: Rescue Options Menu



The system returns to the default snapshot, restoring the software version and the full configuration (see Section A.3). The process can take up to 10 minutes to complete.

Figure A-2: **System Returning to Snapshot State**



## A.5.2 Fixing the Current Installation

- **To fix the current installation:**
  - In the GRUB menu, select **Fix current installation** and press **Enter**; the system is repaired while the currently installed software version and its configuration are preserved. The process can take up to 10 minutes to complete.

## A.5.3 Returning to an Arbitrary Snapshot

- **To return to an arbitrary (non-default) system snapshot:**
  - GRUB Menu:
    1. Select **Browse available system snapshots**, and then press Enter; you're prompted to select a snapshot.
    2. Select a snapshot, and then press Enter; the system returns to the selected snapshot, restores the software version and the full configuration. The process may take up to 10 minutes to complete.
  - CLI:

```
# configure troubleshoot
(config-troubleshoot)# startup-n-recovery
(startup-n-recovery)# load-from-snapshot <Name of Snapshot>
```

## A.5.4 Returning to a Factory Snapshot

- **To return to a factory snapshot (after install from CD):**
  - In the GRUB menu, select **Return to factory snapshot (after install from CD)**, and then press **Enter**; the system returns to the first snapshot automatically taken when initial installation from CD was performed. The process can take up to 10 minutes to complete.

## A.6 Automatic Recovery

The Mediant 9000 SBC activates Automatic Recovery when it encounters a severe software malfunction that prevents it from successfully booting for three subsequent attempts. Automatic Recovery returns the system to the 'default' snapshot and may take up to 10 minutes to complete.

### **International Headquarters**

1 Hayarden Street,  
Airport City  
Lod 7019900, Israel  
Tel: +972-3-976-4000  
Fax: +972-3-976-4040

### **AudioCodes Inc.**

27 World's Fair Drive,  
Somerset, NJ 08873  
Tel: +1-732-469-0880  
Fax: +1-732-469-2298

**Contact us:** [www.audiocodes.com/contact](http://www.audiocodes.com/contact)

**Website:** [www.audiocodes.com](http://www.audiocodes.com)

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