Installation Manual

AudioCodes Mediant™ Family of Session Border Controllers (SBC)

Mediant Server Edition (SE)

Session Border Controller

Version 7.2

audiocodes

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Abbreviations and Terminology

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

Related Documentation

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

Document Revision Record

LTRT	Description
10314	Initial document release for Version 7.2.
10316	CLI command updated to `show network physical-port` and `configure troubleshoot`; miscellaneous editing (Section B.2.2).
10318	HP iLO section added.
10319	Licensing section updated.
11020	Access console method; CLI update for changing IP address; CLI update for snapshots.
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11024	HP ProLiant DL360e Gen8 removed; path updated to License Key page in Web interface (Ver. 7.20A.204)
11025	HP ProLiant DL360 Gen10; Gen9 removed; BIOS instructions removed

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1   Introduction

The Mediant Server Edition (SE) Session Border Controller (SBC) is a pure-software server-based product enabling connectivity and security between enterprises' and Service Providers' VoIP networks.

The product provides perimeter defense as a way of protecting companies from malicious VoIP attacks; voice and signaling mediation and normalization for allowing the connection of any PBX and/or IP-PBX to any Service Provider; and service assurance for service quality and manageability.

The product also offers call "survivability", ensuring service continuity to enterprises served by a centralized SIP-based IP-Centrex server or branch offices of distributed enterprises. Survivability functionality enables internal office communication between SIP clients in the case of disconnection from the centralized SIP IP-Centrex server or IP-PBX.

The product features full management through its HTTP/S-based Web server. This user-friendly Web interface allows remote configuration using any standard Web browser (such as Microsoft™ Internet Explorer™).

> **Note:** The scope of this document does not fully cover security aspects for deploying the product in your environment. Security measures should be done in accordance with your organization's security policies. For basic security guidelines, you can refer to *AudioCodes Recommended Security Guidelines* document.

1.1   Product Package

Customers can choose how to obtain the product package according to preference.

Two supply options are available:

■   The product is supplied as a link, provided by AudioCodes, to a downloadable "disk image" (ISO file), that you need to burn onto a CD disk and then install on the designated server. To burn the downloaded "disk image" (ISO file) to a CD disk, read the instructions (applicable to Windows 7) at   http://windows.microsoft.com/en-us/windows7/burn-a-cd-or-dvd-from-an-iso-file

> **Note:** You can use other disk burning software as well to burn the "disk image", for example, ImgBurn (www.imgburn.com).

■   The product is also supplied as an installation CD disk, containing the Mediant SE software.

1.2 Installation Prerequisites

1.2.1 Hardware

The Mediant SE SBC software must be installed on the HPE ProLiant DL360 Gen10 server. For exact specifications and BIOS settings, please contact your AudioCodes sales representative.

> **Note:** For installation on DL360p Gen8 or DL360 Gen9 servers, please refer to the *Mediant Server Edition SBC Installation Manual Ver. 7.0*. However, for new deployments, it's highly recommended to use the DL360 Gen10 server.

1.2.2 Software

All software components required for installation are provided by AudioCodes.

2 Installing the Product

2.1 Hardware Description

For details on installing the supported **HPE ProLiant DL360 Gen10** hardware platform, refer to the server's user guide at https://support.hpe.com.

⚠️ **Note:** Connect your VGA monitor and keyboard to the server. These will be used to perform Mediant SE SBC installation and initial IP address configuration.
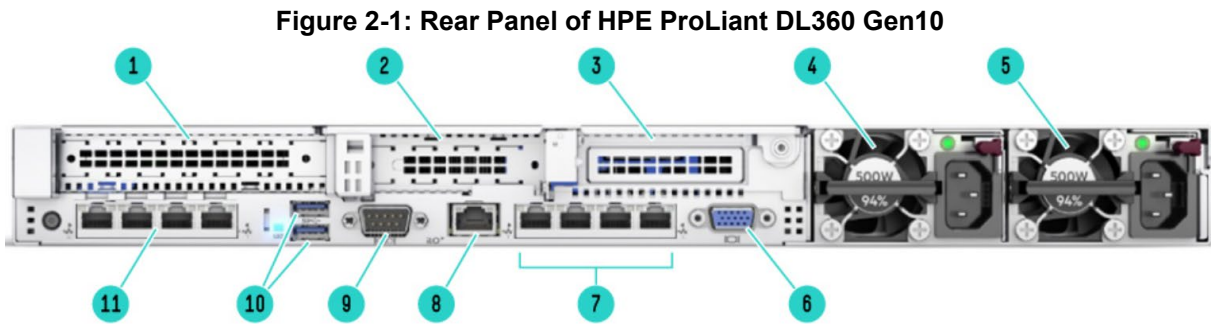
Figure 2-1: Rear Panel of HPE ProLiant DL360 Gen10

Table 2-1: Rear Panel of HPE ProLiant DL360 Gen10

Item #	Description
1	Slot 1 PCIe 3.0 - HPE Ethernet 1Gb 4-port 366T Adapter (P/N 811546-B21)
2	Slot 2 PCIe 3.0 - HPE Ethernet 1Gb 4-port 366T Adapter (P/N 811546-B21), or 10Gb Adapter from AudioCodes (see Section 2.2 on page 10)
3	(Not used)
4	Power Supply 2
5	Power Supply 1
6	VGA port
7	Embedded 4x1GbE adapter **Note:** These ports must **not** be used for media (RTP/SRTP) traffic.
8	iLO management port
9	(Optional) Serial port
10	USB 3.0 ports
11	FlexibleLOM - HPE Ethernet 1Gb 4-port 366FLR Adapter (P/N 665240-B21)

2.2 Fiber Network Card Support

This section describes the devices fiber network card support.

2.2.1 Supported Configurations

Slot 11 always occupies the quad 1 GbE copper ports. For the Network cards located in PCIe slots 1 and 2 (as described in Section Hardware on page 9), you can replace them with SFP cards in any of the following supported configurations:

Table 2-2: Supported Configurations with SFP Network Cards

Slot 1	Slot 2	Total Network Ports (incl. Slot 11)
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.

2.2.2 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 7.2.204 or later.
2. Power off the server and disconnect it from the power source.
3. Disconnect the network cables from the slots to be replaced (2, or both 1 and 2).
4. Extract the PCI-e Riser cards, as described at https://support.hpe.com/hpsc/doc/public/display?docId=emr_na-a00026394en_us.
5. If you are replacing one card only, replace the Copper GbE card in Slot 2 with the new fiber card; otherwise, replace both cards.
6. Connect the optic cables.

7. Power on the server.

8. Contact your AudioCodes sales representative for instructions on changing the BIOS settings (if needed).

2.3   HPE iLO Functionality Limitations

For installation of Mediant SE SBC using the local CD/DVD drive, as described in the chapter, if you are connected through HPE Integrated Lights-Out (iLO) remote console to the server on which you are intending to install Mediant SE SBC, you **must disconnect** (log off) HPE iLO **prior to installation**.

Alternatively, you can install Mediant SE SBC solely from the iLO remote console (using remote CD/DVD drive / ISO.

2.4   Server BIOS Settings

The server BIOS settings should be configured for optimal Mediant SE SBC performance. Contact your AudioCodes sales representative for instructions on BIOS settings.

2.5 Software

Mediant SE SBC installation involves:

1. Installing the Mediant SE SBC – see Section 2.5.1.

2. Connecting the Mediant SE SBC to the IP Network – see Section 2.5.2.

3. Reconfiguring the Default IP Address to Match Customer Network Settings – see Section 2.5.3.

2.5.1 Installing the Mediant SE SBC

Installing the Mediant SE SBC involves booting the server after inserting the CD and following the installation instructions.

➢ **To install Mediant SE SBC:**

1. Insert the installation CD into the CD/DVD drive.

2. Boot the server from the CD by using (for example) the 'Power Off' button. Some servers may prompt users to 'Press any key' (see the server documentation for details).
   The server boots from the CD (see Figure 2-2) and the Mediant SE SBC Installation Menu is displayed (see Figure 2-3).
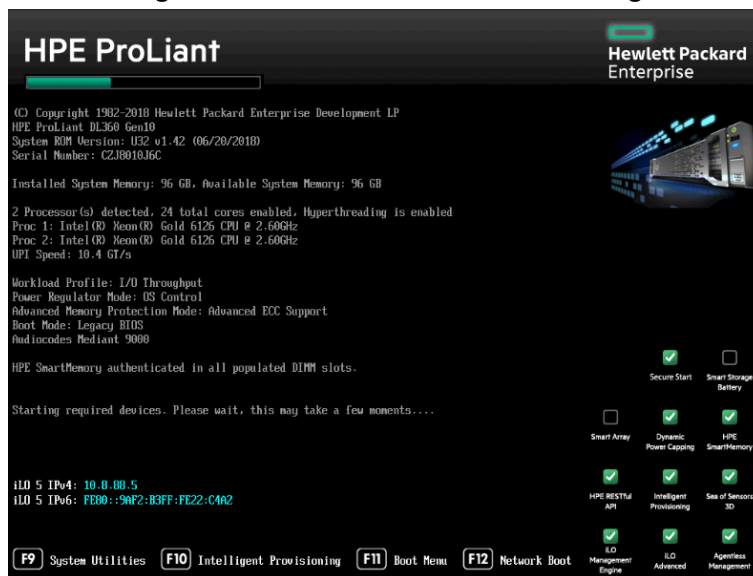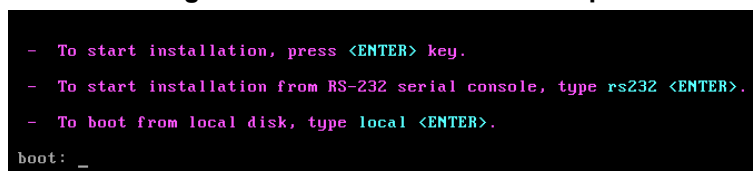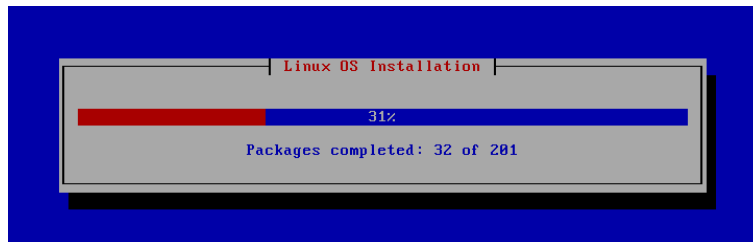
Figure 2-2: HPE ProLiant Server Booting

Figure 2-3: Installation Start Prompt

3. Press the ENTER key; installation commences; a bar shows installation progress.

Figure 2-4: Installation in Progress

> ⚠️ **Note:** If installation fails and a "no hard disc found" error is indicated, disable the RAID controller and restart the installation.

4. Wait for the 'Complete' prompt, notifying you when installation is complete, to be displayed. Installation takes approximately 10 minutes.

Figure 2-5: Installation Complete
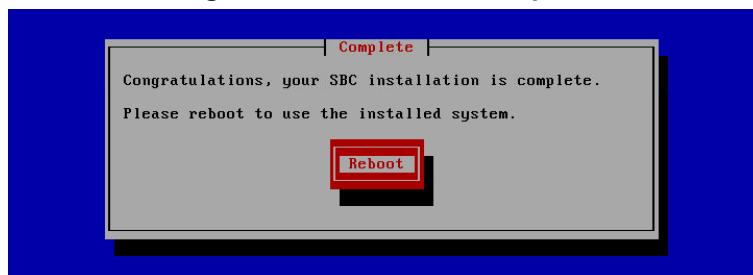
5. Press ENTER to reboot the server; after rebooting, the CD is ejected and the server boots from the local disk to the newly installed Mediant SE SBC software.

> ⚠️ **Note:** If, for some reason, the CD is not ejected and the server boots to the installation prompt again, eject the disk manually and reboot the server.

2.5.2 Connecting Mediant SE SBC to the IP Network

To connect Mediant SE SBC to the IP Network, connect an Ethernet cable to the first on-board Network Port on the server's rear panel.

Note: The Mediant SE SBC orders available network ports in two groups: the first group containing on-board ports (included in basic server assembly) and the second group containing ports on the add-on PCIe cards. Ports within each group are sorted alphabetically by their MAC addresses; which typically matches corresponding labels imprinted on the server rear's panel – NIC1, NIC2. If labels are missing or duplicated, see the section below for identifying network ports.

2.5.2.1 Identifying Network Ports

Use the `show network physical-port` CLI command to identify network ports (1, 2, 3, etc.) by their MAC address and port status (up/down).

➢ **To identify network ports:**

■ Disconnect Ethernet cables from all network ports.

■ Connect the first port via the Ethernet cable to a switch or router. Verify that port status is "up", typically indicated by green LEDs on the port itself and/or by the port status on the connected switch/router. Run the `show network physical-port` command and identify the corresponding port number, by noting the port with Link Status 'UP'.

■ Repeat the sequence for the rest of the ports.

Figure 2-6: Identifying Network Ports

```
# show network physical-port


Port Num    Port Name   MAC Address         …      Link Status
--------    ---------   -----------                -----------
1           GE_1        00:1e:67:11:7c:29   …      UP
2           GE_2        68:05:ca:03:6b:4e   …      DOWN
3           GE_3        68:05:ca:03:6b:98   …      DOWN
4           GE_4        00:1e:67:11:7c:28   …      DOWN
```

2.5.2.2 Identifying Incompatible Hardware Components

During installation of the Mediant SE SBC from a CD, if an incompatible hardware component is detected (e.g., a network card), a warning message is displayed. You can abort installation or continue.

After the installation is complete, you can view details of the hardware platform by using the **show system hardware** CLI command. Incompatible components are indicated with an asterisk (*), as shown in the example below of an incompatible NIC:

```
# show system hardware

Board Assembly Info:

  CPU: Intel(R) Xeon(R) Gold 6126 CPU @ 2.60GHz, total 48 cores, avx supported
  Memory: 98304 MB
  Chassis: ProLiant DL360 Gen10
  Network:
          Intel Corporation 82599EB 10-Gigabit Network Connection (rev 01)
          Intel Corporation 82599EB 10-Gigabit Network Connection (rev 01)
          Intel Corporation 82599EB 10-Gigabit Network Connection (rev 01)
          Intel Corporation 82599EB 10-Gigabit Network Connection (rev 01)
          Intel Corporation Device 1521 (rev 01)
          Intel Corporation Device 1521 (rev 01)
          Intel Corporation Device 1521 (rev 01)
          Intel Corporation Device 1521 (rev 01)
  Virtual Env.: None
```

> **Notes:**
>
> - Incompatible hardware should be avoided and replaced with compatible hardware.
> - It is recommended to use the Intel® chipset for ports allocated for media. To verify which ports use the Intel chipset, run the CLI command **show network physical-port**. Ports using the Intel chipset are displayed with "igb" or "ixgbe" in the 'Driver Info' column, as shown in the example below:
>
> ```
> # show network physical-port
>
> Port Num    Port Name    MAC Address        Speed   Duplexity  Link Status  Native VLAN  Driver Info.
> ----------  -----------  -----------------  ------- ---------  -----------  -----------  ------------
> 1           GE_1         2c:76:8a:52:9c:1c  100Mbps    FULL       UP           1            tg3
> 2           GE_2         2c:76:8a:52:9c:1d                        DOWN         2            tg3
> 3           GE_3         2c:76:8a:52:9c:1e                        DOWN         3            tg3
> 4           GE_4         2c:76:8a:52:9c:1f                        DOWN         4            tg3
> 5           GE_5         f4:ce:46:a5:24:68                        DOWN         5            igb rx&tx-zc
> 6           GE_6         f4:ce:46:a5:24:69                        DOWN         1            igb rx&tx-zc
> 7           GE_7         f4:ce:46:a5:24:6a                        DOWN         7            igb rx&tx-zc
> 8           GE_8         f4:ce:46:a5:24:6b                        DOWN         8            igb rx&tx-zc
> ```

2.5.3 Reconfiguring Default IP Address to Match Customer Network Settings

After the installation, the Mediant SE SBC is assigned with a default IP address that will most likely be inaccessible from the customer's network.

Table 2-3: Default IP Address

Parameter	Value
IP Address	192.168.0.2
Subnet Mask	255.255.255.0

Parameter	Value
Default Gateway	0.0.0.0

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

The procedure below describes how to change the default IP address using the CLI. The procedure uses the regular CLI commands. Alternatively, you can use the CLI Wizard utility to set up the Mediant SE SBC with the initial OAMP settings. The utility provides a fast-and-easy method for initial configuration of Mediant SE SBC through CLI. For more information, refer to the *CLI Wizard User's Guide*.

➢ **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**

Figure 2-7: CLI Management Interface


```
Username: Admin
Password:
```

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
   (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
   ```

8. At the prompt, type the following command to apply the network interface configuration and exit the table:

   ```
   (network-if-0)# activate
   (network-if-0)# exit
   ```

9. If Mediant SE SBC is connected to the IP network that uses VLAN ID, type the following commands to configure it (otherwise skip to step 10):

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

10. At the prompt, type **exit** to complete the configuration:

```
(config-network)# exit
```

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 2.5.2.1 on page 14.
    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 SE SBC restarts, connect to its Web interface to continue the provisioning. See the *Mediant Software SBC User's Manual* for details.

2.5.4   Installing an HA System

Users can configure two products to work in a High Availability (HA) configuration.

➢   **To configure an HA system:**

1. Reconfigure a temporary IP address for each, as described in Section 2.5.2.

2. To support HA functionality, the devices must be installed with the an HA-enabled license. Follow the instructions described in Section 3 on page 19 for licensing each device in the HA system.

3. Follow the instructions described under the section 'High Availability System' in the *Mediant Software SBC User's Manual* document to set network topology correctly, and configure each accordingly using the Web interface.

2.6 Configuring Console Access Method

The console lets you use the device's Command-Line Interface (CLI) to configure and manage the device. You can access the console through either VGA or serial RS-232 interface. By default, when the device boots up (for example after a reset), it accesses the console through VGA, which means that it can be captured by the console tools provided by the chosen Hypervisor.

To change the access method, use one of the following options:

■ **GRUB Boot Loader Menu:**

1. Reboot the device.
2. In the GRUB menu that's displayed during the boot-up, press the down key to select **VGA** or **RS232**.
3. Press **Enter**.

Figure A-8: Console Access Method via GRUB Menu

> ⚠ **Note:** When you select the console access method through GRUB, if the device resets at a later stage, the access method reverts to VGA.

■ **CLI:**

```
# configure troubleshoot
(config-troubleshoot)# startup-n-recovery
(startup-n-recovery)# system-console-mode {vga|rs232}
```

■ **Ini File:** SystemConsoleMode (0 = VGA; 1 = RS232)

If you want to access the device console through the serial Port (RS-232) of the host, do the following:

1. Add a virtual serial port device on the virtual machine and map it to the required serial port of the host.
2. Change the access method of the device console to **RS232**, as described above.

3   Licensing the Product

After you have successfully completed the software installation, you need to obtain and install the License Key file to enable the call capacity and features that you ordered with the product. For more information, refer to the *Mediant Software SBC User's Manual Ver. 7.2*.

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A   Rescue Options

The Mediant SE 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. For more information, refer to the *Mediant Software SBC User's Manual*.

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