Installation Manual

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

# Mediant Server Edition (SE)

Session Border Controller

Version 7.2

HD VoIP
Sounds Better

AudioCodes

# Table of Contents

# List of Figures

# List of Tables

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## Notice

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Date Published: May-25-2017

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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

Customer technical support and services are provided by AudioCodes or by an authorized AudioCodes Service Partner. For more information on how to buy technical support for AudioCodes products and for contact information, please visit our Web site at www.audiocodes.com/support.

## Abbreviations and Terminology

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

## Related Documentation

| Manual Name |
| --- |
| Mediant Server & Virtual Editions 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. |
| 11021 | Hardware updated (HP ProLiant DL360 Gen8e/Gen8/Gen9); Fiber Network Card Support (new section); Installing the License Key (section updated); Product Key (section updated); Returning to an Arbitrary Snapshot (section updated). |

## Documentation Feedback

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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), to be burned by customers onto a CD disk and then installed on the designated server.

   To burn the downloaded "disk image" (ISO file) to a CD disk, read the instructions (applicable to Windows 7) in:

   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", e.g., 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 can be installed on two server options:

■ Low-capacity server

■ High-capacity server

For the low-capacity server, the software must be installed on HP ProLiant DL320e Gen8 servers.

For the high-capacity server, the software must be installed on one of the following servers:

■ HP ProLiant DL360p Gen8

■ HP ProLiant DL360 Gen9

The table below shows the servers' specifications:

**Table 1-1: Supported Servers**

| Resource | Specification |
| --- | --- |
| Server | ▪ HP ProLiant DL320e Gen8<br>▪ HP ProLiant DL360p Gen8<br>▪ HP ProLiant DL360 Gen9 |
| CPU | ▪ **DL320e:** Intel Xeon E3-1220v2 (4 cores, 3.1 GHz, 8MB Cache)<br>▪ **DL360p Gen8:** Intel Xeon 2 x E5-2680v2, (2 x 10 cores, 2.8 GHz, 25MB Cache)<br>▪ **DL360 Gen9:** Intel Xeon E5-2640v3 (8 cores, 2.6 GHz, 20MB Cache) |
| Memory | ▪ **DL320e Gen8:** 16GB<br>▪ **DL360p Gen8:** 64GB<br>▪ **DL360 Gen9:** 32GB |
| Network Cards | ▪ **Gen8:** Dual NC365T<br>▪ **DL360 Gen9:** 366FLR + 366T |
| Disk | Mechanical hard drive, 300 GB or more, no RAID<br>**DL360 Gen9:** SATA Only |
| Installation From | CD/DVD drive |
| Installation Interface | VGA Monitor and Keyboard |

> **Note:** See under Appendix B on page 33 for the exact Purchase Order (PO) for the HP DL320e server, HP DL360p Gen8 server and the HP DL360 Gen9 server. Other specifications have not been tested and are not supported!

### 1.2.2 Software

All software components required for installation are provided by AudioCodes.

# 2    Installing the Product

## 2.1    Hardware

For details on installing the hardware, see the server-specific documentation provided by your server's vendor.

- For details on installing the supported **HP ProLiant DL320e Gen8** hardware platform, refer to the *HP ProLiant DL320 Gen8 Server User Guide* at www.hp.com.

- For details on installing the supported **HP ProLiant DL360p Gen8** hardware platform, refer to the *HP ProLiant DL360 Gen8 Server User Guide* at www.hp.com.

- For details on installing the supported **HP ProLiant DL360 Gen9** hardware platform, see refer to *HP ProLiant DL360 Gen9 Server User Guide* at www.hp.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: HP ProLiant DL360 Gen8e – front Panel**
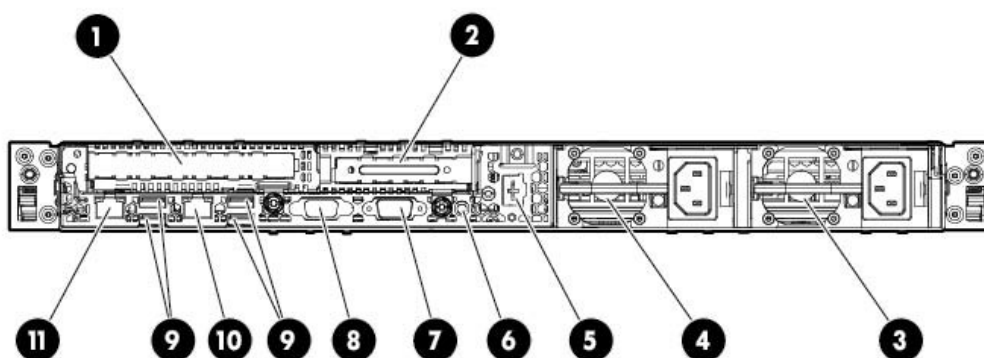


**Table 2-1: HP ProLiant DL360 Gen8e - Front Panel**

| Item # | Description |
|--------|-------------|
| 1 | Slot 2 PCIe x16 (16, 8, 4, 1)* |
| 2 | Slot 1 PCIe x8 (4, 1)* |
| 3 | Power supply 1 |
| 4 | Power supply 2 |
| 5 | Dedicated iLO management port (optional) |
| 6 | UID LED button |
| 7 | Serial connector |
| 8 | Video connector |
| 9 | USB connectors |
| 10 | NIC 1/shared iLO management connector |
| 11 | NIC connector 2 |

**Figure 2-2: HP ProLiant DL360 Gen8 – front Panel**
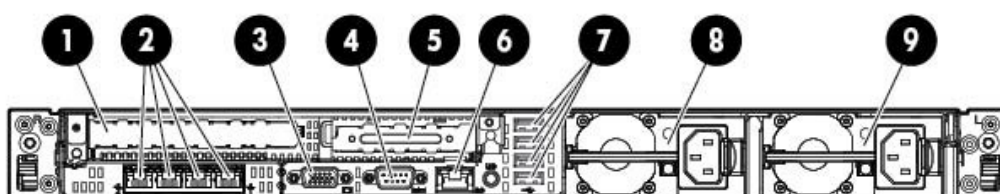


**Table 2-2: HP ProLiant DL360 Gen8 - Front Panel**

| Item # | Description |
|--------|-------------|
| 1 | Slot 2 PCIe 3.0 x16 (full height/half length) |
| 2 | FlexibleLOM ports (Shown: 4x1Gb / Optional: 2x10Gb) |
| 3 | Video connector |
| 4 | Serial connector |
| 5 | Slot 1 PCIe 3.0 x8 (low profile) |
| 6 | iLO management port |
| 7 | USB connectors (4) |
| 8 | Power supply bay 2 |
| 9 | Power supply bay 1 |

**Figure 2-3: HP ProLiant DL360 Gen9 – front Panel**
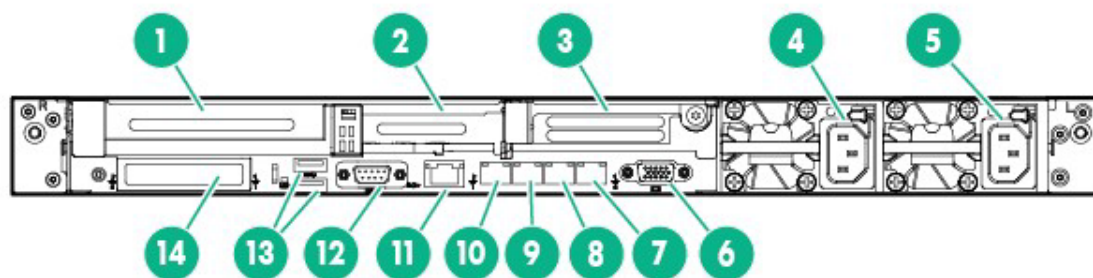


**Table 2-3: HP ProLiant DL360 Gen9 - Front Panel**

| Item # | Description |
|--------|-------------|
| 1 | Slot 1 PCIe3 x16 (16, 8, 4, 1) |
| 2 | Slot 2 PCIe 3 x8 ( 8, 4, 1) |
| 3 | Slot 3 PCIe 3 x16 ( 16, 8, 4, 1) - optional |
| 4 | Power supply 2 |
| 5 | Power supply 1 |
| 6 | Video connector |
| 7 | NIC connector 4 |
| 8 | NIC connector 3 |
| 9 | NIC connector 2 |

| Item # | Description |
|--------|-------------|
| 10 | NIC connector 1 |
| 11 | iLO 4 connector |
| 12 | Serial connector (optional) |
| 13 | USB 3.0 connectors |
| 14 | FlexibleLOM bay |

## 2.2    Setting Storage Controller in HP DL360 Gen9

The Smart Array RAID (such as P440AR) is not supported by Mediant SE SBC. If a Smart Array is assembled inside the server, it should be pulled out and the storage cables should be connected to the embedded SATA controller (B140i) located on the mother board.

> **Note:** Only SATA HDDs are supported (SAS HDDs are not supported on DL360 GEN9).

## 2.3 Fiber Network Card Support

This section describes the devices fiber network card support.

### 2.3.1 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 Section Hardware on page 9), you can replace them with SFP cards in any of the following supported configurations:

**Table 2-4: 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.

### 2.3.2 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 7.2.150 or later.

> ⚠️ **Note:** Version 7.2.150 is required for 10G SFP+ support and for Hyper-Threading support that is required for performance improvement.

**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.hpe.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.

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.

## 2.4    HP 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 HP Integrated Lights-Out (iLO) remote console to the
server on which you are intending to install Mediant SE SBC, you **must disconnect** (log
off) HP iLO **prior to installation**.

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

## 2.5    Server BIOS Settings

The server BIOS settings should be configured for optimal Mediant SE SBC performance:

➢   **To optimize server BIOS settings:**

1.   Enter the server BIOS (see your server's documentation for details).

2.   Restore the BIOS settings to factory defaults, and then reset the system.

3.   Enter the server BIOS again.

4.   Set 'Power Management' to **Maximum Performance** (usually under 'Power' options).

5.   Enable 'Intel Turbo Boost' (usually under the 'Processor' options).

6.   Disable 'Hyper-Threading' (usually under 'Processor' options).

7.   Enable 'Intel Virtualization Technology VT-d' and 'VT-x' (usually under 'Processor'
     options).

### 2.5.1    Additional BIOS Settings for HP DL360 Gen9

The default boot mode on DL360 Gen9 is UEFI, which is currently not supported by
Mediant SE SBC installation. Therefore, the BOOT mode must be changed to "Legacy".
This is done in the BIOS under **BIOS/Platform Configuration (RBSU)** -> **Boot Options** ->
**Boot Mode** -> **Legacy BIOS Mode**.

## 2.6      Software

Mediant SE SBC installation involves:

1. Installing the Mediant SE SBC – see Section 2.6.1.
2. Connecting the Mediant SE SBC to the IP Network – see Section 2.6.2.
3. Reconfiguring the Default IP Address to Match Customer Network Settings – see Section 2.6.3.

### 2.6.1     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 2-4) and the Mediant SE SBC Installation Menu is displayed (see Figure 2-5).

**Figure 2-4: HP ProLiant Server Booting**



**Figure 2-5: Installation Start Prompt**
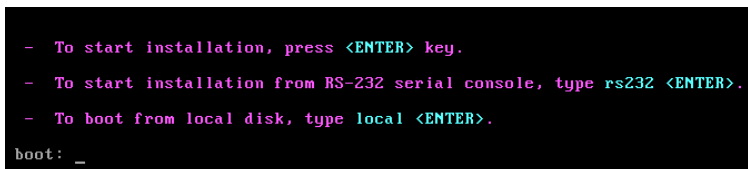


3. Press the ENTER key; installation commences; a bar shows installation progress.

**Figure 2-6: Installation in Progress**
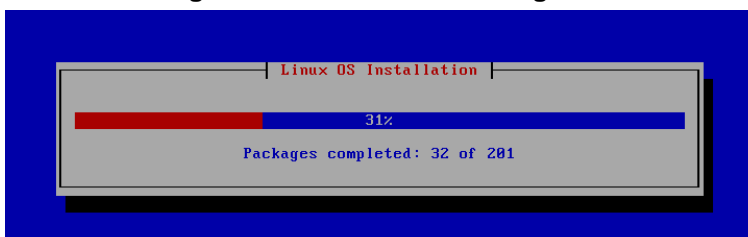
> **Note:** If installation fails and a "no hard disc found" error is indicated, disable the RAID controller and restart the installation. For example, on the HP DL320e server, press **F9** during the bootup to open the Setup Utility: Go to System Options > SATA Controller Options > Embedded SATA Configuration and choose the **Enable SATA Legacy Support** option.

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

**Figure 2-7: Installation Complete**
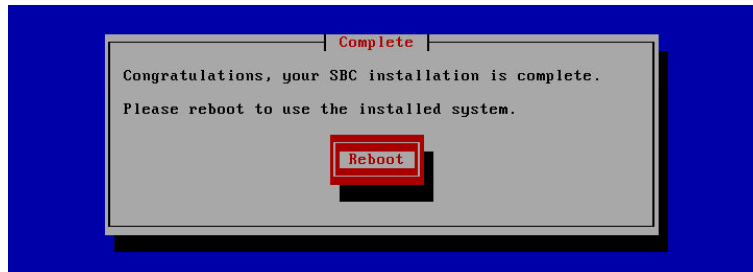


5.  Press ENTER to reboot the server; after rebooting, the CD is ejected and the server boots from the local disk to the newly installed Mediant SE SBC software.

> **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.

## 2.6.2 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.

**Figure 2-8: First On-board Network Port on HP DL320e Gen 8 Server**



**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.

### 2.6.2.1 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 2-9: 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
```

### 2.6.2.2  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
  CPU: Intel(R) Xeon(R) CPU E5-2680 v2 @ 2.80GHz, total 20 cores
  Memory: total RAM: 65536 MB
  Chassis: ProLiant DL360p Gen8
  Network:
          Broadcom Corporation NetXtreme BCM5719 Gigabit Ethernet PCIe
          Broadcom Corporation NetXtreme BCM5719 Gigabit Ethernet PCIe
          Broadcom Corporation NetXtreme BCM5719 Gigabit Ethernet PCIe
          Broadcom Corporation NetXtreme BCM5719 Gigabit Ethernet PCIe
          Intel Corporation 82580 Gigabit Network Connection (rev 01)
          Intel Corporation 82580 Gigabit Network Connection (rev 01)
          Intel Corporation 82580 Gigabit Network Connection (rev 01)
          Intel Corporation 82580 Gigabit Network Connection (rev 01)
          *Realtek Semiconductor Co.,Ltd. RTL-8169 Gigabit Ethernet (rev 10)
          *Realtek Semiconductor Co.,Ltd. RTL-8169 Gigabit Ethernet (rev 10)
```

> **Notes:**
>
> * Incompatible hardware should be avoided and replaced with compatible hardware as listed in the recommended specification under Section 1.2.1 on page 8.
>
> * It is recommended that you use the Intel® chipset for ports allocated for media. To verify which ports are using the Intel chipset, you can run the **show network physical-port** command in the CLI. Ports using the Intel chipset are displayed with "igb" in the 'Driver Info' field, 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
> ```

### 2.6.3  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 2-5: Default IP Address**

| Parameter | Value |
| --- | --- |
| **IP Address** | 192.168.0.1 |
| **Subnet Mask** | 255.255.255.0 |

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 2-10: 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 2.6.2.1 on page 16.
    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 Server & Virtual Editions SBC User's Manual* for details.


## 2.6.4   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 2.6.2.

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 21 for licensing each device in the HA system.

3.  Follow the instructions described under the section 'High Availability System' in the *Mediant Server & Virtual Editions SBC User's Manual* document to set network topology correctly, and configure each accordingly using the Web interface.
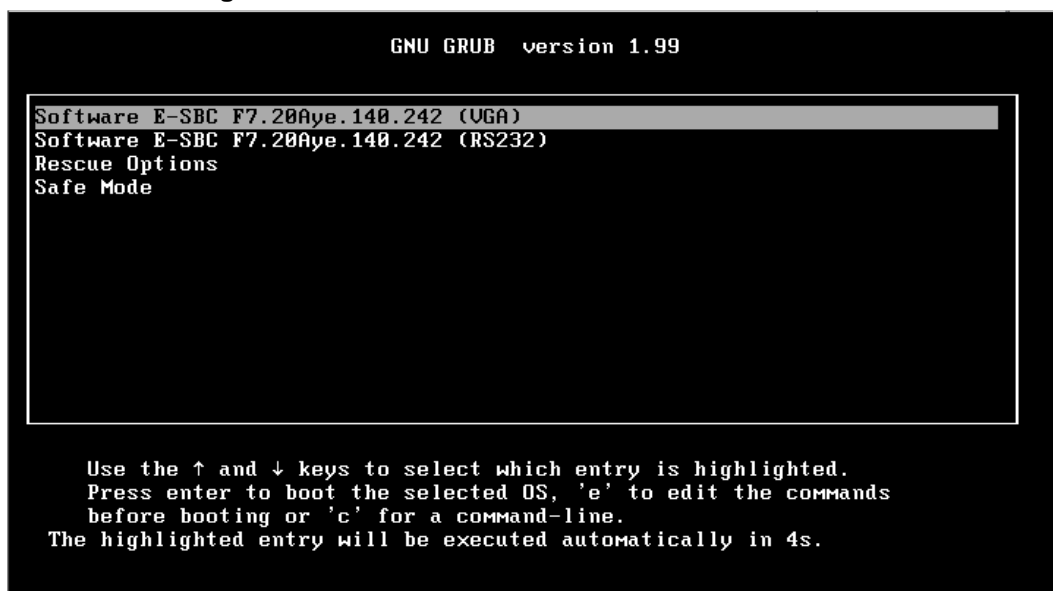
## 2.7 Configuring Console Access Method

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-11: 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, as described in the following subsections.

> **Note:**  For HA systems, each unit has its own Serial Number, Product Key and License Key. Therefore, the instructions in this section must be done for each unit.

## 3.1    Obtaining and Activating the License Key

The procedure below describes how to obtain and activate your License Key from AudioCodes.

> **Note:** License activation is intended **only** for first-time software activation upon product purchase (or if your License Key is "lost", due to whatever reason). For subsequent software feature upgrades, the License Key file is e-mailed to you after your Purchase Order has been processed.

➢ **To obtain and activate the License Key:**

**1.** Open AudioCodes Web-based Software License Activation tool at http://www.audiocodes.com/swactivation:

**Figure 3-1: Software License Activation Tool**

**2.** Enter the following information:

- **Product Key:** The Product Key identifies your specific Mediant VE SBC purchase for the purpose of subsequent communication with AudioCodes (for example, for support and software upgrades). The Product Key is provided in the Order Confirmation e-mail sent to you by AudioCodes upon your purchase, as shown in the example below:

  **Figure 3-2: Product Key in Order Confirmation E-mail**
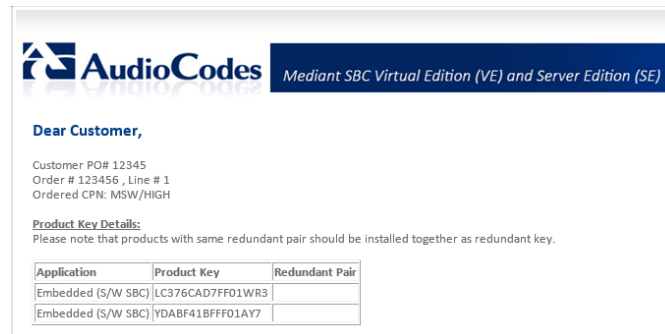


> ⚠️ **Note:** For 1+1 High-Availability orders, you are provided with two Product Keys, one for each unit. In such cases, you need to perform license activation twice in order to obtain License Keys for both units.

- **Fingerprint:** The fingerprint is the Mediant VE SBC's Serial Number. The Serial Number uniquely identifies the software installation. The Serial Number is displayed in the 'Serial Number' field on the Device Information page (**Monitor** menu > **Monitor** menu > **Summary** tab > **Device Information**).
- **Email:** Provide one or more e-mail addresses to where you want the License Key to be sent.

**3.** Click **Send** to submit your license activation request.

**4.** Once AudioCodes processes and completes your license activation, you will receive an e-mail notification with the License Key file attached. Open the file with any text-based program (such as Notepad) and make sure that the serial number ("**S/N**") in the License Key is correct and reflects the Serial Number of your Mediant VE SBC.

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

## 3.2    Installing the License Key

### 3.2.1    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 [icon] 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.
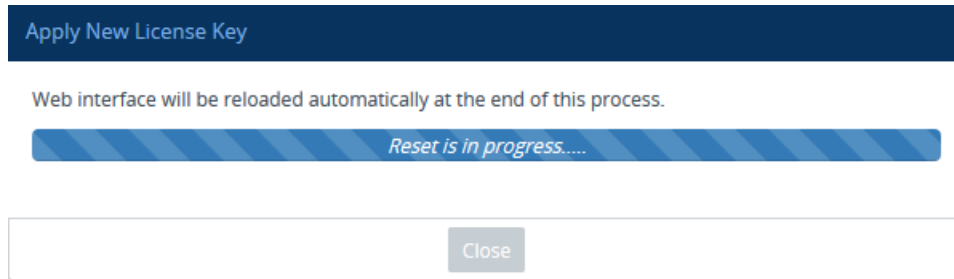
4.   Click **Apply New License Key**; the following message box appears:

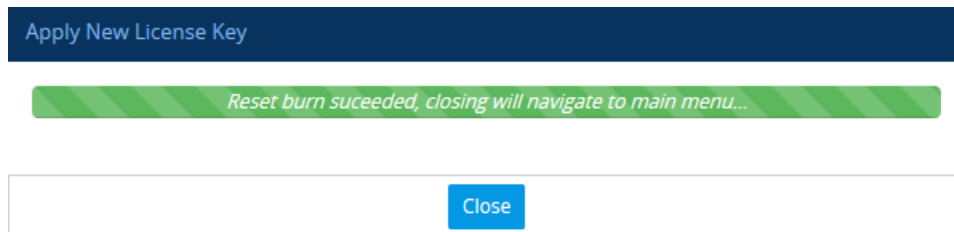**Figure 3-3: Apply New License Key Message**
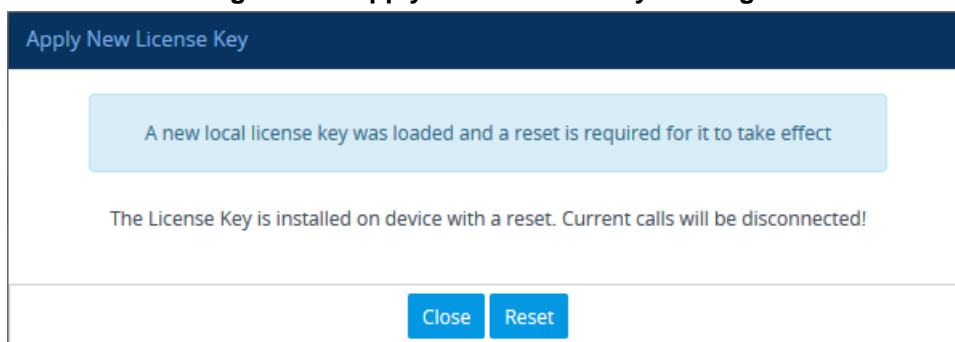
5. Click **Reset**; the device begins to save the file to flash memory with a reset and the following progress message box appears:

**Figure 3-4: Reset in Progress for License Key**



When installation completes, the following message box appears:

**Figure 3-5: Reset and Save-to-Flash Success Message**



6. Clock **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.

## 3.2.2    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:
1. The License Key file is loaded to the active device.
2. The active device sends the file to the redundant device.
3. The redundant device installs the file, by saving it to flash memory with a reset.
4. The active device saves the file to flash memory (without a reset).
5. 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).
6. 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:
1. The License Key file is loaded to the active device.
2. The active device sends the file to the redundant device.
3. 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 [icon] 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

The License Key is installed on both devices with a reset, using the active-redundant switchover method which doesn't affect current traffic.

The License Key is installed simultaneously on both devices with a reset. Current calls will be disconnected!

Hitless Upgrade                                Non-Hitless Upgrade

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 3-6: 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 3-7: Hitless License Upgrade Successfully Completed**
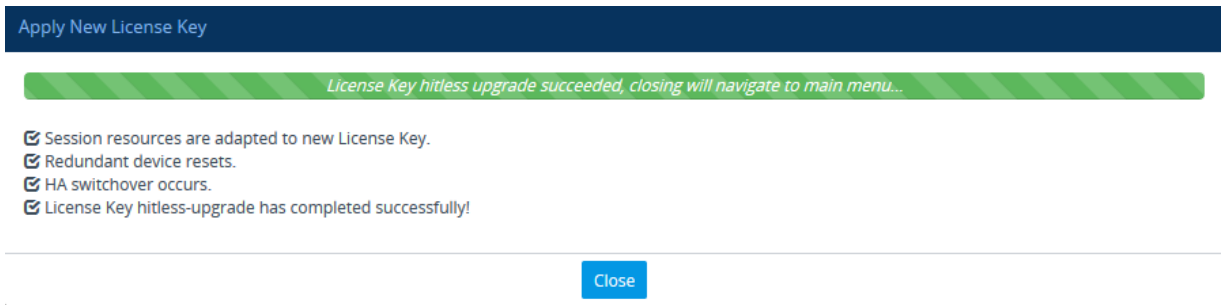


- **Non-Hitless Upgrade:** Installs the License Key simultaneously on both devices where both undergo a reset and therefore, current calls are terminated. When you click the button, the process starts and the following progress message box appears:

**Figure 3-8: Reset in Progress for License Key**
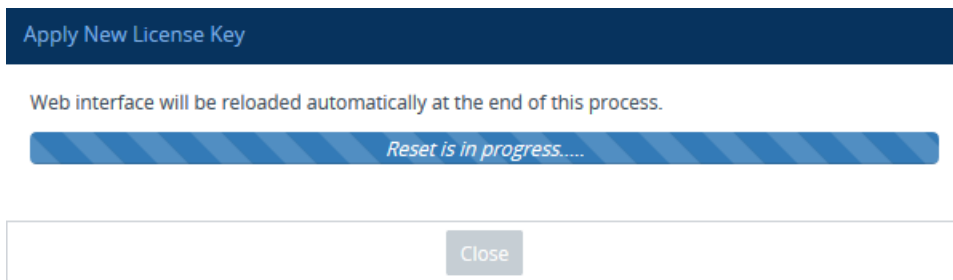


When installation completes, the following message box appears:

**Figure 3-9: Reset and Save-to-Flash Success Message**
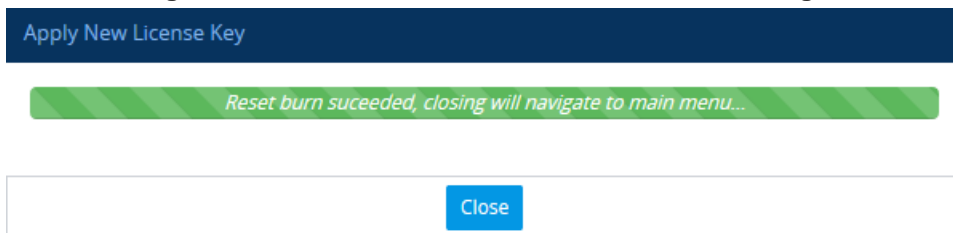


6. Clock **Close** to close the message box; you are logged out of the Web interface and prompted to log in again. The features and capabilities displayed on the License Key page now reflect the newly installed License Key.
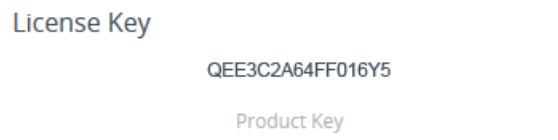
## 3.3    Product Key

The Product Key identifies a specific purchase of your device installation for the purpose of subsequent communication with AudioCodes (e.g., for support and software upgrades). The Product Key is provided in the  order-confirmation email sent to you upon your product purchase and is used for activating your license through AudioCodes Software License Activation tool.

The Product Key is included in the License Key. Once the License Key is installed, you can view the Product Key in the following Web pages:

■    License Key page (**Setup** menu > **Administration** tab > **Maintenance** folder > **License Key**). The Product Key is displayed in the read-only 'Product Key' field, as shown in the example below:

**Figure 3-10: Viewing Product Key**

License Key

QEE3C2A64FF016Y5

Product Key

■    Device Information page.

If your License Key was purchased in an earlier version (for example, 7.0), the 'Product Key' field may appear empty. In such a scenario, request the Product Key from your AudioCodes sales representative. Once received, do the following:
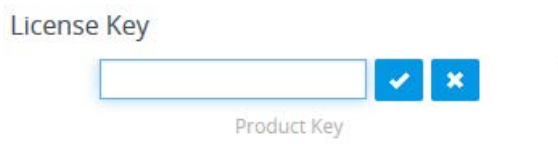
1.    Open the License Key page.

2.    Locate the Product Key group:

**Figure 3-11: Empty Product Key Field**

License Key
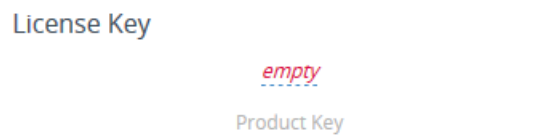
*empty*

Product Key

3.    Click "empty"; the following appears:

**Figure 3-12: Entering Product Key**

License Key

Product Key

4.    In the field, enter the Product Key, and then click **Submit**  (or **Cancel**  to discard your entry).

**This page is intentionally left blank.**

# 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.

## A.1        Taking a Snapshot

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

- installed Mediant SE 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 SE 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 2.6.2.

**Figure A-1: CLI Management Interface**



```
Username: Admin
Password:
```

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 SE 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, select **Rescue option**, and press **Enter**.
3. In the Rescue Options menu, select **Return to default snapshot** and press **Enter**.

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**
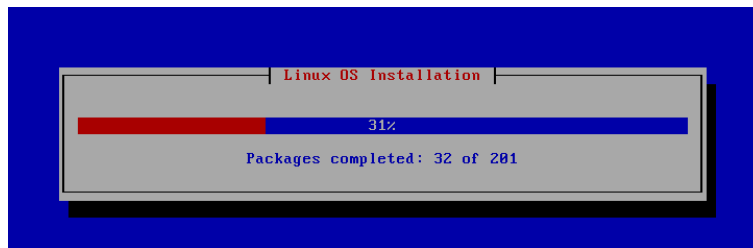


### A.5.2   Fixing the Current Installation

➢ **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 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 SE 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.

# B     PO of Supported Servers

## B.1     Low-Capacity Server

### B.1.1     HP ProLiant DL320 Server

The table below provides the supported Purchase Order (PO) for the HP ProLiant DL320 server, which has been qualified for the Mediant SE SBC Low-capacity server.

**Table B-1: Supported PO for HP ProLiant DL320e Gen8 Server**

| Resource | Qty | Description |
| --- | --- | --- |
| 675597-B21 | 1 | HP DL320e Gen8 Hot Plug 4LFF CTO Server |
| 682787-L21 | 1 | HP DL320eGen8 E3-1220v2 FIO Kit |
| 669324-B21 | 2 | HP 8GB 2Rx8 PC3-12800E-11 Kit |
| 658071-B21 | 1 | HP 500GB 6G SATA 7.2k 3.5in SC MDL HDD |
| 652241-B21 | 1 | HP 9.5mm SATA DVD RW Jb Kit |
| 593722-B21 | 2 | HP NC365T 4-port Ethernet Server Adapter |
| 674845-B21 | 1 | HP Dedicated iLO Management Port Kit |
| 663202-B21 | 1 | HP 1U LFF BB Gen8 Rail Kit |
| 675450-B21 | 1 | HP 350W 1U FIO Pwr Supply Kit |

## B.2     High-Capacity Servers

### B.2.1     HP ProLiant DL360p Server Gen8

The table below provides the supported Purchase Order (PO) for the HP ProLiant DL360p Gen8 server, which has been qualified for the Mediant SE SBC High-capacity server.

**Table B-2: Sample PO for HP ProLiant DL360p Gen8 Server**

| Resource | Qty | Description |
| --- | --- | --- |
| 654081-B21 | 1 | HP DL360p Gen8 8-SFF CTO Server |
| 712506-L21 | 1 | HP DL360p Gen8 E5-2680v2SDHS FIO Kit |
| 712506-B21 | 1 | HP DL360p Gen8 E5-2680v2SDHS Kit |
| 731761-B21 | 8 | HP 8GB 1Rx4 PC3-14900R-13 Kit |
| 652564-B21 | 1 | HP 300GB 6G SAS 10K 2.5in SC ENT HDD |
| 652241-B21 | 1 | HP 9.5mm SATA DVD RW Jb Kit |
| 684217-B21 | 1 | HP 1GbE 4-port 366FLR Adapter FIO Kit |
| 734807-B21 | 1 | HP 1U SFF Easy Install Rail Kit |
| 593722-B21 | 2 | HP NC365T 4-port Ethernet Server Adapter |
| 656363-B21 | 2 | HP 750W CS Plat PL Ht Plg Pwr Supply Kit |

## B.2.2 HP ProLiant DL360 Server Gen9

The table below provides the supported Purchase Order (PO) for the HP ProLiant DL360 Gen9 server, which has been qualified for the Mediant SE SBC High-capacity server.

**Table B-3: Sample PO for HP ProLiant DL360 Gen9 Server**

| Resource | Qty | Description |
| --- | --- | --- |
| 755258-B21 | 1 | HP DL360 Gen9 8SFF CTO Server |
| 755386-L21 | 1 | HP DL360 Gen9 E5-2640v3 FIO Kit |
| 726718-B21 | 4 | HP 8GB 1Rx4 PC4-2133P-R Kit |
| 655708-B21 | 1 | HP 500GB 6G SATA 7.2k 2.5in SC MDL HDD |
| 764632-B21 | 1 | HP DL360 Gen9 SFF DVD-RW/USB Kit |
| 766207-B21 | 1 | HP DL360 Gen9 SFF Embed SATA Cable |
| 665240-B21 | 1 | HP Ethernet 1Gb 4-port 366FLR Adapter |
| 811546-B21 | 1 | HP Ethernet 1Gb 4-port 366T Adapter |
| 734807-B21 | 1 | HP 1U SFF Easy Install Rail Kit |
| 720478-B21 | 1 | HP 500W FS Plat Ht Plg Pwr Supply Kit |

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