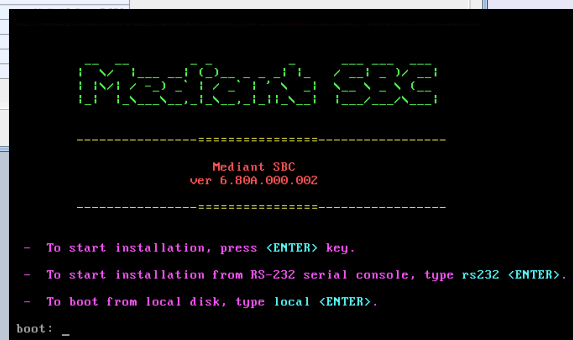
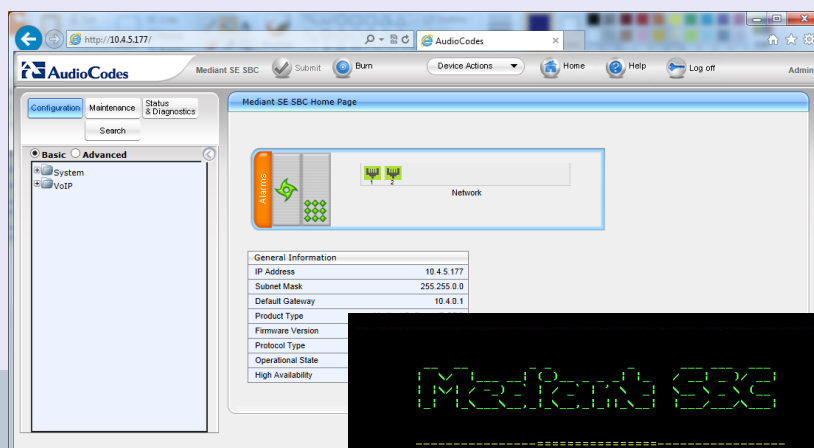


Mediant™ SE SBC

Session Border Controller

Server Edition

# Installation Manual



Version 6.8

August 2014

Document # LTRT-10310





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## Notice

This document describes installation of AudioCodes' Mediant Server Edition Session Border Controller.

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## Related Documentation

Manual Name
Mediant Server & Virtual Editions SBC User's Manual
SIP Release Notes



**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 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™).

## 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 or DVD disk and then installed on the designated server.

To burn the downloaded "disk image" (ISO file) to a CD or DVD 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](http://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 can be installed on the HP ProLiant DL120 G7 or DL320e G8 servers.

For the high capacity server, the software can be installed on the HP ProLiant DL360p G8 server.

The table below shows the servers' specifications:

**Table 1-1: Supported Servers**

Resource	Specification
<b>Server</b>	<ul style="list-style-type: none"> <li>■ HP ProLiant DL120 G7</li> <li>■ HP ProLiant DL320e G8</li> <li>■ HP ProLiant DL360p G8</li> </ul>
<b>CPU</b>	<ul style="list-style-type: none"> <li>■ DL120: Intel Xeon E3-1220 (4 cores, 3.1 GHz, 8M Cache)</li> <li>■ DL320e: Intel Xeon E3-1220v2 (4 cores, 3.1 GHz, 8M Cache)</li> <li>■ DL360p: Intel Xeon 2 x E5-2690, (2 x 8 cores, 2.9 GHz, 20M Cache)</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>■ DL120 / DL320e: 16GB</li> <li>■ DL360p: 64GB</li> </ul>
<b>Network Cards</b>	One or more of the following add-on network cards may be used, up to a total of 12 GE ports (including on-board ports): <ul style="list-style-type: none"> <li>■ NC112T</li> <li>■ NC360T</li> <li>■ NC361T</li> <li>■ NC364T</li> <li>■ NC365T</li> <li>■ NC382T</li> <li>■ NC331FLR</li> <li>■ NC366FLR</li> </ul>
<b>Disk</b>	Mechanical hard drive, 40 GB or more, no RAID
<b>Installation From</b>	CD/DVD drive
<b>Installation Interface</b>	VGA Monitor and Keyboard



**Note:** See under Appendix A on page 23 Purchase Order (PO) examples for the HP DL320 server and the HP DL360p server.

### 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 recommended **HP ProLiant DL120 G7** hardware platform, see the *HP ProLiant DL120 G7 Server User Guide* at [www.hp.com](http://www.hp.com).

For details on installing the recommended **HP ProLiant DL320e G8** hardware platform, see the *HP ProLiant DL120 G7 Server User Guide* at [www.hp.com](http://www.hp.com).

For details on installing the recommended **HP ProLiant DL360p G8** hardware platform, see the *HP ProLiant DL120 G7 Server User Guide* at [www.hp.com](http://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.

### 2.2 Software

Mediant SE SBC installation involves:

1. Installing the Mediant SE SBC – see Section [2.2.1](#).
2. Connecting the Mediant SE SBC to the IP Network – see Section [2.2.2](#).
3. Reconfiguring the Default IP Address to Match Customer Network Settings – see Section [2.2.3](#).

## 2.2.1 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 the Mediant SE SBC:**

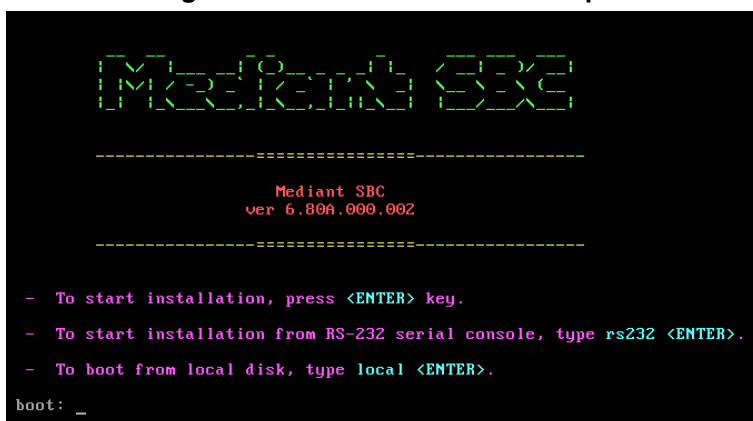
1. Insert the installation CD into the CD/DVD drive.
2. Boot the server from the CD by using (for example) the 'Power Off' button. Some servers may prompt users to 'Press any key' (see the server documentation for details).

The server boots from the CD (see [Figure 2-1](#)) and the Mediant SE SBC Installation Menu is displayed (see [Figure 2-2](#)).

**Figure 2-1: HP ProLiant Server Booting**

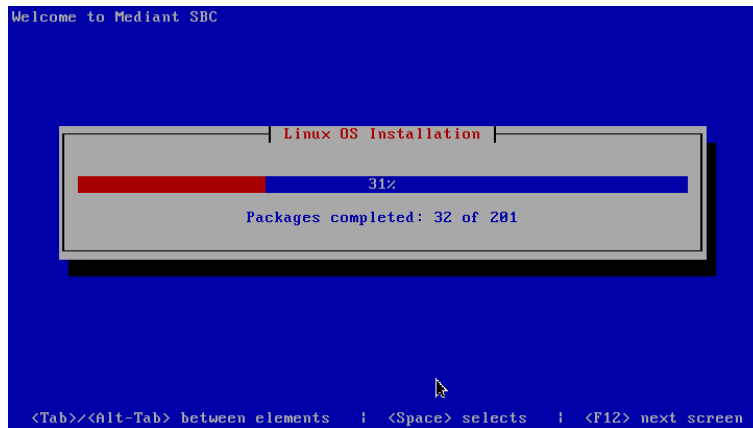


**Figure 2-2: Installation Start Prompt**



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

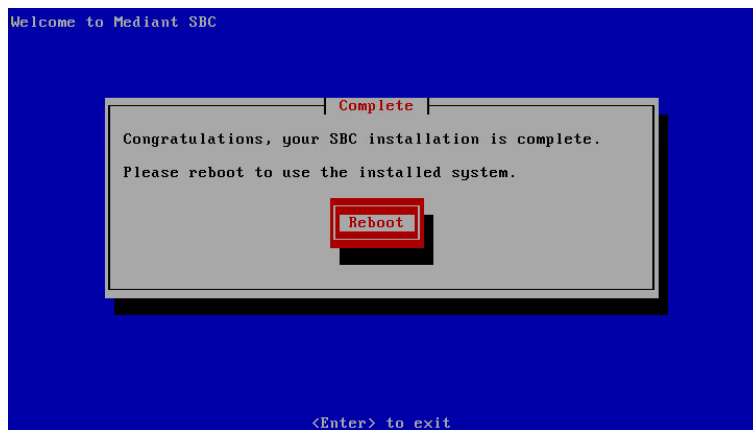
Figure 2-3: Installation in Progress



**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 2-4: 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.

## 2.2.2 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 2-5: 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.

### 2.2.2.1 Identifying Network Ports

Use the `show voip ports` 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 voip ports` 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

```
Mediant SW# show voip ports
```

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

### 2.2.2.2 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 (\*).



**Note:** Incompatible hardware should be avoided and replaced with compatible hardware as shown in the recommended specification under Section 1.2.1 on page 8.

The example below shows an incompatible NIC:

```
# show system hardware
cpu: Intel<R> Xeon<R> CPU E31220 @ 3.10GHz, total 4 cores
memory: 16376 MB
chassis: ProLiant DL120 G7
network:
Intel Corporation 82574L Gigabit Network Connection
Intel Corporation 82574L Gigabit Network Connection
*Realtek Semiconductor Co.,Ltd. RTL-8169 Gigabit Ethernet (rev 10)
*Realtek Semiconductor Co.,Ltd. RTL-8169 Gigabit Ethernet (rev 10)
```

### 2.2.3 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 2-1: 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:**

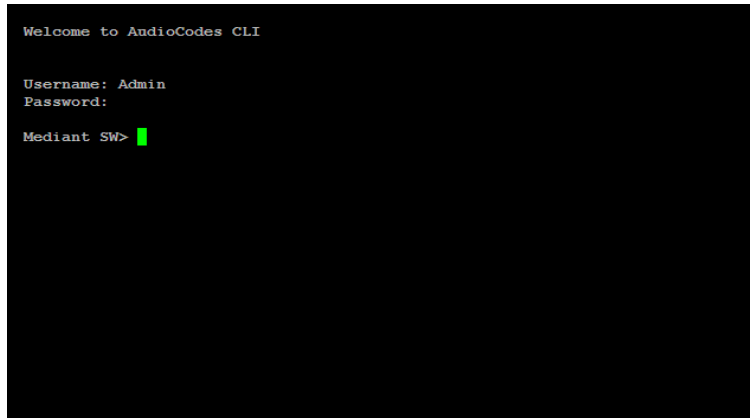
1. Use the VGA monitor and keyboard to connect to the CLI management interface.
2. At the prompt, type the username (default is **Admin** - case sensitive), and then press ENTER:

```
Username: Admin
```

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

```
Password: Admin
```

**Figure 2-7: CLI Management Interface**



```
Welcome to AudioCodes CLI

Username: Admin
Password:
Mediant SW> █
```

- At the prompt, type **enable** and press ENTER:
- At the prompt, type the password again and press ENTER:
- At the prompt, type the following commands to access the network interface configuration:

```
Mediant SW> enable
```

```
Password: Admin
```

```
Mediant SW# configure voip
Mediant SW(config-voip)# interface network-if 0
Mediant SW(network-if-0)#
```



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

- At the prompt, type the following commands to configure the IP address, prefix length and default gateway:
- At the prompt, type **exit** to complete the **network-if** configuration:
- 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):
- At the prompt, type **exit** to complete the configuration:
- At the prompt, make sure that port #1 is connected (Link is UP) using the **show voip ports** CLI command as described in Section 2.2.2.1 on page 12. Port #1 is mapped to network-if-0 by default.
- At the prompt, type **reload now** to reset the product and activate the new configuration:

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

```
Mediant SW(network-if-0)# exit
```

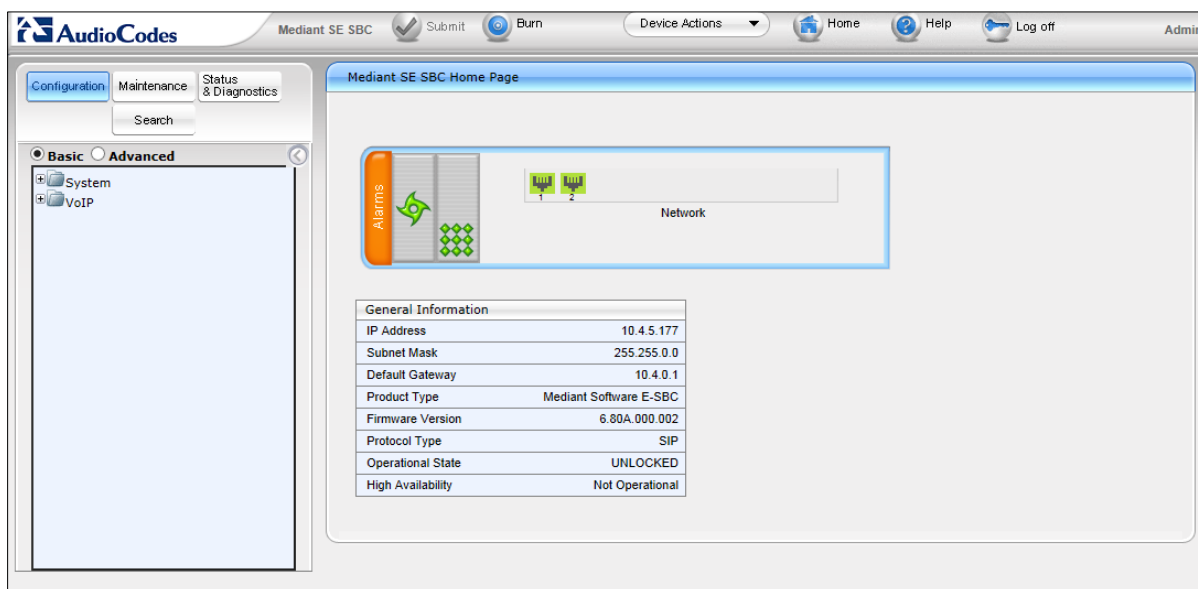
```
Mediant SW(config-voip)# interface network-dev 0
Mediant SW(network-dev-0)# vlan-id 10
Mediant SW(network-dev-0)# exit
```

```
Mediant SW(config-voip)# exit
```

```
Mediant SW# 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.

**Figure 2-8: Web Interface**



## 2.2.4 Licensing the Mediant SE SBC

After you have successfully completed the software installation, you need to obtain and install the Software License Key file to enable the call capacity and features that you ordered with the product, as described in the following subsections.

### 2.2.4.1 Obtaining the Software License Key

The procedure below describes how to obtain the Software License Key.

➤ **To obtain the Software License Key:**

1. Make a note of the product Serial Number. The Serial Number is displayed in the 'Serial Number' field on the Device Information page (**Status & Diagnostics** tab > **System Status** menu > **Device Information**).
2. Request the required Software License Key file from your sales representative, providing the product's Serial Number and your Sales Order (SO) number.
3. When you receive the new Software License Key file, open the file and verify that the "S/N" value reflects the Serial Number of your product.



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

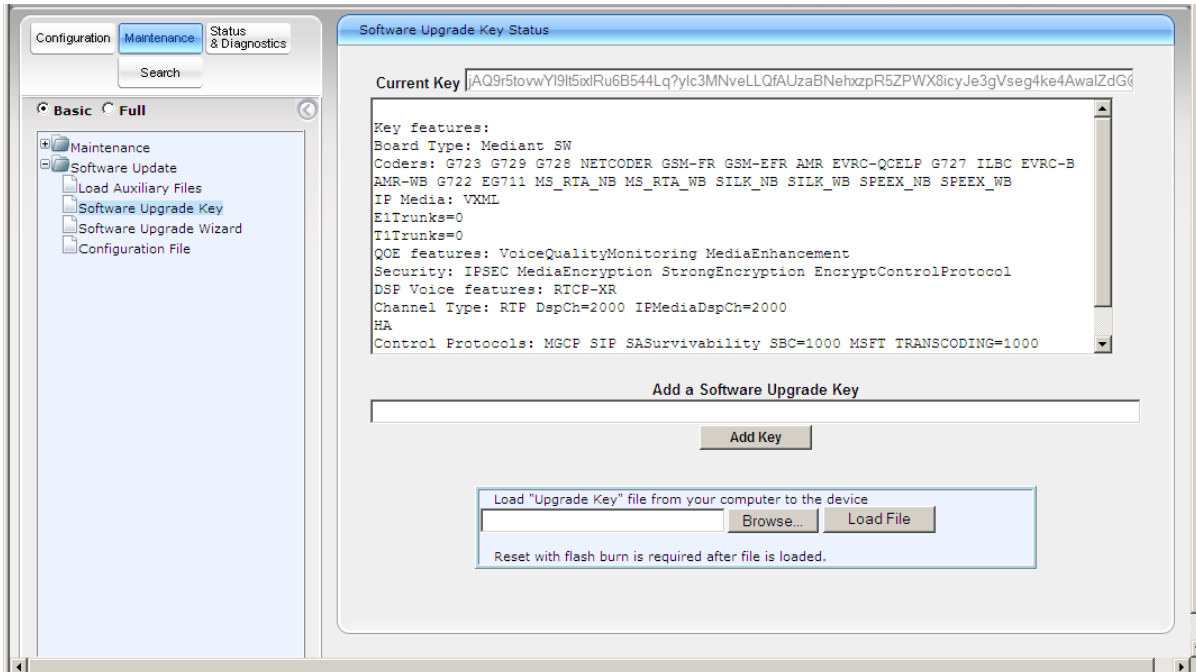
## 2.2.4.2 Installing the Software License Key

The procedure below describes how to install the received Software License Key.

➤ **To install the Software License Key:**

1. Open the Software Upgrade Key Status page (**Maintenance** tab > **Software Update** menu > **Software Upgrade Key**):

**Figure 2-9: Software Upgrade Key Status Page**



2. Back up the Software License Key currently installed on the product, as a precaution. You can reload this backup to restore the product's original capabilities if the key does not comply with your requirements.
  - a. In the 'Current Key' field, select the entire text string and copy it to any standard text file (e.g., Notepad).
  - b. Save the text file with any file name and file extension (e.g., key.txt) to a folder on your computer.
3. Open the Software License Key file using a text-based program such as Notepad.
4. Copy-and-paste the string from the file to the 'Add a Software Upgrade Key' field.
5. Click the **Add Key** button; the key is installed on the product and displayed in the 'Current Key' field.
6. Verify that the key was successfully installed. On the Software Upgrade Key Status page, check that the listed features and capabilities activated by the installed key match those that were ordered.
7. Reset the product; the new capabilities and resources enabled by the key are activated.



## 2.2.5 Installing an HA System

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

➤ **To configure an HA system:**

- Reconfigure a temporary IP address for each, as described in Section 2.2.2.
- 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.

## 2.2.6 Upgrading

Users can update the Mediant SE SBC in order to (for example) implement software fixes. For detailed information, see the *Mediant Server & Virtual Editions SBC User's Manual*.

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## 3 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.

### 3.1 Taking a Snapshot

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

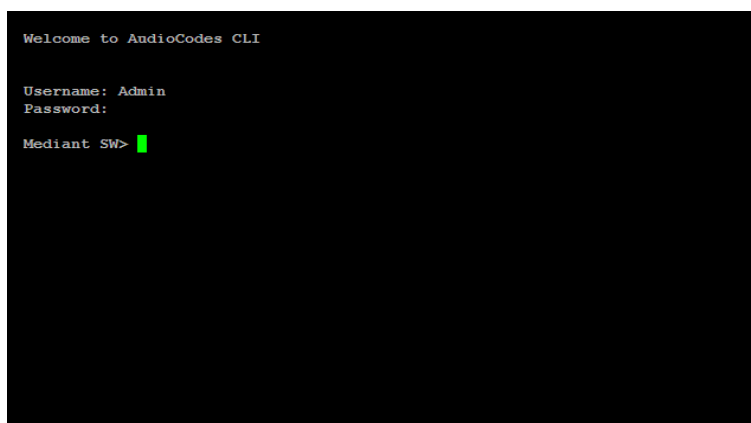
- installed Mediant SE SBC software
- the current configuration
- auxiliary files
- the Software License Key

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 2.2.2.

**Figure 3-1: CLI Management Interface**

A screenshot of a terminal window with a black background and white text. The text reads: "Welcome to AudioCodes CLI", "Username: Admin", "Password:", and "Mediant SW>". A green cursor is positioned after the prompt "Mediant SW>".

```
Welcome to AudioCodes CLI
Username: Admin
Password:
Mediant SW>
```

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

```
Mediant SW> 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:

```
Mediant SW# write
```

5. Type the following commands to take a snapshot:

```
Mediant SW# configure system
```

```
Mediant SW# startup-n-recovery
```

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

## 3.2 Viewing Available Snapshots

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

```
Mediant SW(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
```

## 3.3 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 3.6) and/or Manual Recovery (see Section 3.5). The last user-created snapshot is automatically set as 'default' though it can be changed using the `set-default-snapshot` command.

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

## 3.4 Deleting a Snapshot

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

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

## 3.5 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:

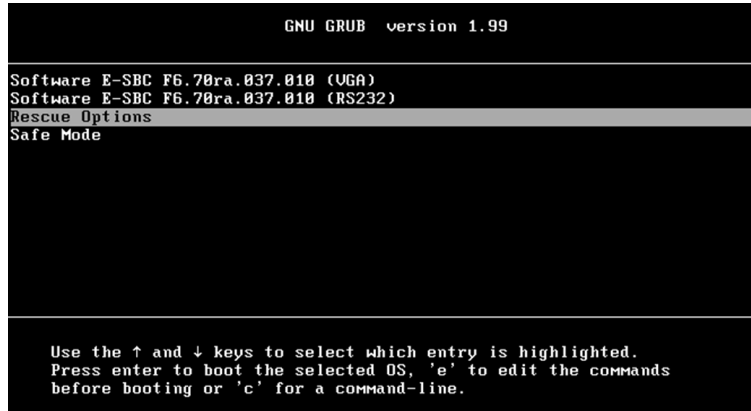
- Return to default snapshot
- Fix current installation
- Browse available system snapshots
- Return to factory snapshot (after install from CD)

### 3.5.1 Returning to the Default Snapshot

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

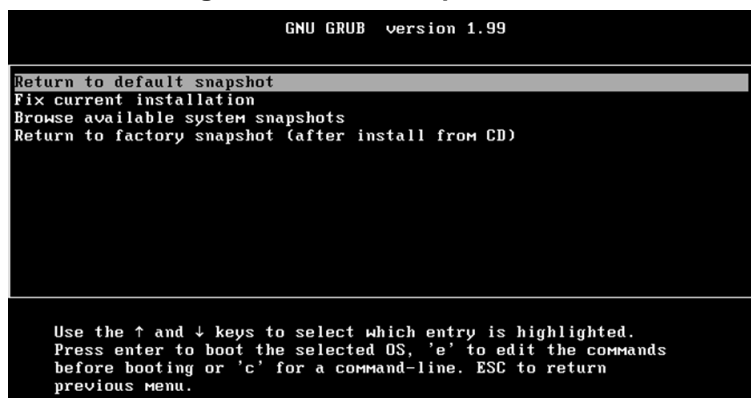
1. Reboot the server.
2. In the GRUB menu that's displayed for 5 seconds during the server start-up, press the Down ↓ key, select **Rescue option**, and press **Enter**.

Figure 3-2: Main GRUB Menu



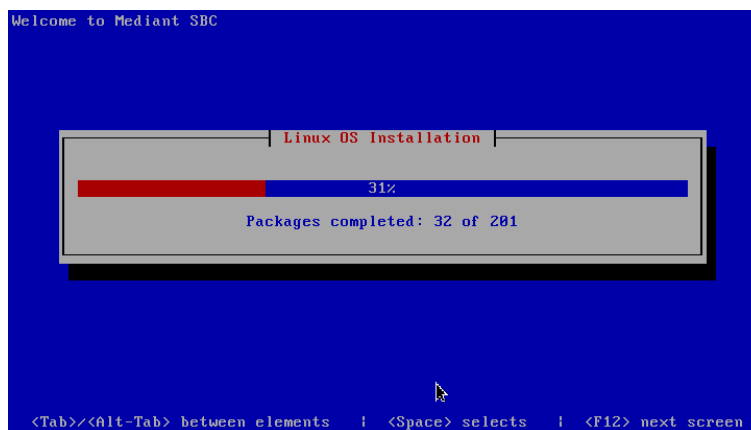
3. In the Rescue Options menu, select **Return to default snapshot** and press **Enter**.

Figure 3-3: Rescue Options Menu



The system returns to the default snapshot, restoring the software version and the full configuration (see Section 3.3). The process can take up to 10 minutes to complete.

Figure 3-4: System Returning to Snapshot State



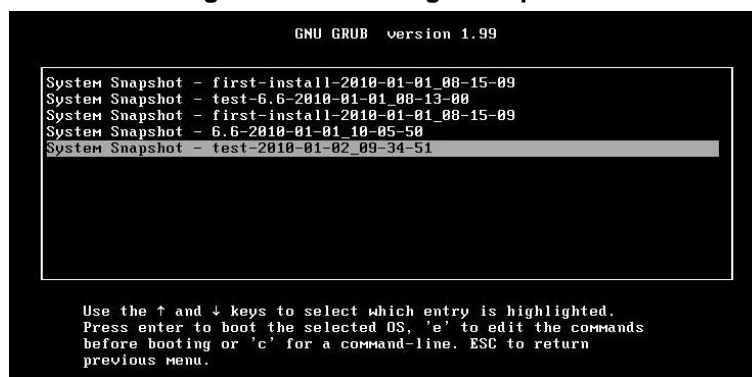
## 3.5.2 Fixing the Current Installation

- **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.

## 3.5.3 Returning to an Arbitrary Snapshot

- **To return to an arbitrary (non-default) system snapshot:**
  1. In the GRUB menu, select **Browse available system snapshots** and press **Enter**; you're prompted to select a snapshot.

**Figure 3-5: Selecting a Snapshot**



2. Select a snapshot and 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.

## 3.5.4 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.

## 3.6 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.

## A PO Samples

### A.1 HP ProLiant DL320 Server

The table below provides a sample of a Purchase Order (PO) for the HP ProLiant DL320 server.

**Table A-1: Sample PO for HP ProLiant DL320e Gen8 Server**

Resource	Description
675597-B21	HP DL320e Gen8 Hot Plug 4LFF CTO Server
682787-L21	HP DL320eGen8 E3-1220v2 FIO Kit
647907-B21	HP 4GB 2Rx8 PC3L-10600E-9 Kit
658071-B21	HP 500GB 6G SATA 7.2k 3.5in SC MDL HDD
652241-B21	HP 9.5mm SATA DVD RW Jb Kit
652497-B21	HP Ethernet 1Gb 2P 361T Adptr
674845-B21	HP Dedicated iLO Management Port Kit
663202-B21	HP 1U LFF BB Gen8 Rail Kit
675450-B21	HP 350W 1U FIO Pwr Supply Kit

### A.2 HP ProLiant DL360p Server

The table below provides a sample of a Purchase Order (PO) for the HP ProLiant DL360p server.

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

Resource	Qty	Description
654081-B21	1	HP DL360p Gen8 8-SFF CTO Server
664011-L21	1	HP DL360p Gen8 E5-2690 FIO Kit
664011-B21	1	HP DL360p Gen8 E5-2690 Kit
647899-B21	8	HP 8GB 1Rx4 PC3-12800R-11 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
503296-B21	2	HP 460W CS Gold Ht Plg Pwr Supply Kit



# Installation Manual



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