



Alcatel-Lucent OpenTouch™ Session Border Controller – R7.4.4

Release Note

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Related Documentation

Document Title - Reference	
Alcatel-Lucent OpenTouch™ Session Border Controller – R7.4.4 Administrator / User manual	8AL90068USAF ed02
Alcatel-Lucent OpenTouch™ Session Border Controller – R7.4.4 Configuration Guide	8AL90065USAI ed03
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 SNMP Reference Guide	8AL90067USAFed02
Alcatel-Lucent OpenTouch™ Session Border Controller – R7.4.4 Release Note	8AL90062USAH ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 SIP Message Manipulation Reference Guide	8AL90543USAF ed02
Alcatel-Lucent OpenTouch™ Session Border Controller – R7.4.4 Performance monitoring parameters and alarms	8AL90557USAB ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 Recommended Security Guidelines Configuration Note	8AL90063USAF ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 Virtual Edition REST API for Devices	8AL90078USAA ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 Version 7.2 to 7.4 Upgrade Procedure Configuration note	8AL90079USAA ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 CLI Reference Guide	8AL90542USAF ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 Virtual Edition Installation Manual	8AL90061USAF ed02
Alcatel-Lucent OpenTouch™ Session Border Controller - R7.4.4 Upgrade Procedure to Versions using Signed CMP	8AL90170USAA ed01

1 Introduction

This document describes the Latest Release (LR) versions for Release 7.4 of AudioCodes' Session Border Controllers (SBC) and Media Gateways.



Note:

- For Long Term Support (LTS) releases of Version 7.4, refer to the [Release Notes for LTS versions](#).
- Some of the features mentioned in this document are available only if the relevant software License Key has been purchased from AudioCodes and is installed on the device. For a list of available License Keys that can be purchased, please contact your AudioCodes sales representative.
- Open-source software may have been added and/or amended. For further information, contact your AudioCodes sales representative.
- Updates to this document may be made due to significant information discovered after the release or too late in the release cycle to be otherwise included in this release documentation. Click [here](#) to check for an updated document version on AudioCodes website.

1.1 Software Revision Record

The following table lists the LR versions for Release 7.4.



Note: The latest software versions can be downloaded from [Alcatel-Lucent Enterprise Services Portal](#) (registered Customers only).

Table 1-1: Software Revision Record of LR Versions

LR Version	Released Date
7.40A.400.023 (7.4.400-01)	January 19, 2023
7.40A.260.152 (7.4.260-1)	November 3, 2022
7.40A.300.013 (7.4.300-02)	October 26, 2022
7.40A.300.012 (7.4.300-01)	September 5, 2022
7.40A.260.007	May 3, 2022

1.2 Supported Products

The following table lists the SBC and Media Gateway products supported in this release.



Note:

- Product support and hardware configurations may change without notice. Currently available hardware configurations are listed in AudioCodes Price Book. For further enquiries, please contact your AudioCodes sales representative.
- Figures shown in the tables in this section are maximum values per interface. For available hardware configurations including combinations of supported interfaces, contact your AudioCodes sales representative.

Table 1-2: SBC and Media Gateway Products Supported in Release 7.4

Product	Telephony Interfaces			Ethernet Interfaces	USB	OSN
	FXS/FXO	BRI	E1/T1			
Hybrid SBC and Gateway Series						
Mediant 500 Gateway & E-SBC	-	-	1/1	4 GE	2	-
Mediant 500L Gateway & E-SBC	4/4	4	-	4 GE	1	-
Mediant 800B Gateway & E-SBC	12/12	8	2	4 GE / 8 FE	2	√
Mediant 800C Gateway & E-SBC	12/12	8	4	4 GE / 8 FE	2	√
Mediant 1000B Gateway & E-SBC	24/24	20	6/8	7 GE	-	√
MP-1288 Gateway & E-SBC	288/0	-	-	2 GE	1	-
Mediant 3100 Gateway & E-SBC	-	-	64	8 GE	1	-
SBC Series						
Mediant 2600 E-SBC	-	-	-	8 GE	-	-
Mediant 4000 SBC	-	-	-	8 GE	-	-
Mediant 4000B SBC	-	-	-	8 GE	-	√
Mediant 9030 SBC	-	-	-	12 GE	-	-
Mediant 9080 SBC	-	-	-	12 GE	-	-
Mediant SE SBC	-	-	-	12 GE	-	-
Mediant VE SBC	-	-	-	12 GE	-	-
Mediant CE SBC	-	-	-	12 GE	-	-

1.3 Terms Representing Product Groups

Throughout this document, the following terms are used to refer to groups of AudioCodes products for feature applicability. Where applicability is specific to a product, the name of the product is used.

Table 1-3: Terms Representing Product Groups

Term	Product
<i>Analog</i>	Products with analog interfaces (FXS or FXO): <ul style="list-style-type: none"> ▪ MP-1288 ▪ Mediant 500L Gateway & E-SBC ▪ Mediant 800 Gateway & E-SBC (Rev. B and C) ▪ Mediant 1000B Gateway & E-SBC
<i>Device</i>	All products
<i>Digital</i>	Products with digital PSTN interfaces (ISDN BRI or PRI): <ul style="list-style-type: none"> ▪ Mediant 500 Gateway & E-SBC ▪ Mediant 500L Gateway & E-SBC ▪ Mediant 800 Gateway & E-SBC (Rev. ▪ Mediant 1000B Gateway & E-SBC B and C) ▪ Mediant 3100 Gateway & E-SBC
<i>Mediant 90xx</i>	<ul style="list-style-type: none"> ▪ Mediant 9000 ▪ Mediant 9000 Rev. B ▪ Mediant 9030 ▪ Mediant 9080
<i>Mediant Software</i>	Software-based products: <ul style="list-style-type: none"> ▪ Mediant SE SBC ▪ Mediant VE SBC ▪ Mediant CE SBC

2 Latest Release (LR) Versions

This chapter describes the LR versions of Release 7.4.

2.1 Version 7.40A.400.023

This version includes new features, known constraints, and resolved constraints.



IMPORTANT NOTICE for MEDIANT 90xx/VE/CE/SE SBCs

Starting with Version 7.40A.250.001, .cmp files are digitally signed. Prior to upgrading the device, please refer to the upgrade prerequisites and instructions in the document [Mediant SW-90xx SBC Signed-CMP Upgrade Procedure Configuration Note](#).



Note: Upgrading from Version 7.2 to a 7.4 version for all devices (hardware and software based):

- Upgrade to Version 7.4 can only be done from the following 7.2 versions:
 - ✓ 7.20A.260.*
 - ✓ 7.20A.258.* (when using Version 7.20A.258.919 or later, the upgrade is service affecting)
 - ✓ 7.20A.256.*
 - ✓ 7.20A.204.878
 - ✓ 7.20A.204.549

Therefore, prior to upgrading to Version 7.4, make sure that the device is running one of these 7.2 versions.

- **Mediant 90xx and Mediant VE/CE/SE SBCs:**

Upgrade from Version 7.2 requires the use of a software image or an ISO file. For upgrade instructions, refer to the document [Mediant SW and 90xx SBC Upgrade Procedure from 7.2 to 7.4 Configuration Note](#).

If you are upgrading from Version 7.20A.258.919 or later, hitless software upgrade is currently not supported.



Note:

- **Using this SBC version with AudioCodes One Voice Operations Center (OVOC):**

- ✓ This version is compatible only with OVOC Version 8.2.1223 or later.
- ✓ If you plan on using OVOC with this SBC version, first upgrade your OVOC to this compatible OVOC version prior to upgrading your device to this SBC version.

- **Using this SBC version with a centralized license pool:**

Customers using OVOC to manage their centralized license pool (Fixed, Floating, or Flex pool) must first upgrade their OVOC to a compatible version (see above) prior to upgrading the devices in the pool to this SBC version. Failure in doing so removes the 7.4 devices from the centralized license pool.

When using the Floating or Flex license pool for WebRTC and SIPRec sessions, OVOC version 8.0.3000 or later is required.



Note: This SBC version is compatible with Stack Manager Version 2.6.7 or later. It's recommended to use Version 2.8.0 or later.



Note: The Media Transcoding Cluster (MTC) feature is supported only on Mediant 9080 SBC.

2.1.1 New Features

This section describes the new features introduced in this version.

2.1.1.1 Message Session Relay Protocol (MSRP) Enhancements

This version introduces the following MSRP enhancements:

- Support for Message Session Relay Protocol (MSRP) is now also offered on the Mediant CE SBC.
- The method for configuring MSRP ports has changed. Instead of configuring an MSRP port range in the Media Realms table ('TCP Port Range Start' and 'TCP Port Range End'), a single TCP and/or TLS port is configured in the SIP Interfaces table. This is done using the new SIP Interface parameters -- 'MSRP TCP Port' (non-secured MSRP) and 'MSRP TLS Port' (MSRPS, i.e., secured MSRP). The IP Interface and TLS Context that are associated with the specific SIP Interface are used for the MSRP session.
Note:
 - This new port configuration is not backward compatible, and users need to reconfigure the MSRP ports accordingly after upgrading their device to this new software version.
 - MSRP is currently supported only for IPv4 networks.
 - Due to this feature, the 'TCP Port Range Start' and 'TCP Port Range End' parameters in the Media Realms table are now obsolete.
- A timeout for establishing an MSRP connection can now be configured. The timeout starts countdown from when the device opens an MSRP media socket (port) for the MSRP session. This is configured by a new parameter, 'Timeout to Establish MSRP Connection' (MSRPConnectionEstablishTimeout).

Applicable Applications: All

Applicable Products: All

2.1.1.2 Time Synchronization by PTP

When the device is deployed on Microsoft Azure or Hyper-V, the time of the SBC virtual machine can now be synchronized by the host's virtual PTP (Precision Time Protocol) device. PTP provides an alternative to external time synchronization services such as an NTP server or the Date header in SIP messages.

This feature is supported by a new configuration parameter called 'PTP Time Sync' (EnablePTP / `configure system > clock > ptp-time-sync`).

Note: The device places the highest preference for time synchronization on NTP, then SIP Date header, and lastly PTP. For example, if an NTP server is configured, the device ignores SIP Date header and PTP settings. If multiple synchronization methods are enabled, the

device sends the existing SNMP alarm acClockConfigurationAlarm to notify of this configuration scenario.

Applicable Applications: SBC

Applicable Products: Mediant VE/CE

2.1.1.3 Max. Value Increase for Fields in Message Policies Table

The maximum value that can be configured for the following fields in the Message Policies table has been increased:

- 'Max Message Length': 65000
- 'Max Header Length': 4096
- 'Max Body Length': 61440
- 'Max Num Headers': 64
- 'Max Num Bodies': 64

Applicable Applications: All

Applicable Products: All

2.1.1.4 SIP Recording Rules Table Capacity (Rows) Increase

The maximum number of SIP-based media recording (SIPREC) rules (rows) that can be configured in the SIP Recording Rules table has been increased from 30 to 50.

Applicable Applications: SBC

Applicable Products: Mediant 9000; Mediant Software

2.1.1.5 SIPREC Session Recording Server (SRS) Increased to Six

The maximum number of SRS's to where the device sends recorded SIP call sessions (SIPREC) has been increased from three to six. In other words, the device can now send SIPREC sessions to up to six standalone SRS's, up to six active-standby SRS pairs, or a combination of standalone and active-standby SRS's.

Applicable Products: All.

2.1.1.6 IP-to-Tel Routing Table Capacity (Rows) Increase

The maximum number of IP-to-Tel routing rules (rows) that can be configured in the IP-to-Tel Routing table has been increased from 120 to 288.

Applicable Applications: Gateway

Applicable Products: MP-1288

2.1.1.7 Accounts Table Capacity (Rows) Increase

The maximum number of SIP account rules (rows) that can be configured in the Accounts table has been increased from 102 to 288.

Applicable Applications: Gateway

Applicable Products: MP-1288

2.1.1.8 Configurable Analog and Digital Port Description through CLI

A short description can now be configured per analog (FXO and FXS) and digital (PRI and BRI) ports through CLI. This is supported by the new `port-info` command, which is located under the relevant interface (BRI, FXS, or E1-T1). For example, for BRI interfaces:

```
(config-voip)# interface bri 1/1  
(bri 1/1)# port-info MyDescription
```

In addition, this port description is now displayed in the output of the `display` command under the relevant interface, and also in the output of the `show run` and `show voip interface` commands.

Applicable Applications: Gateway

Applicable Products: Analog; Digital

2.1.1.9 Service Preservation in Case of Public Cloud Maintenance Events

The device can now be enabled to monitor and detect scheduled virtual machine maintenance events performed by the cloud platform (Microsoft Azure or Google Cloud Platform / GCP) on which the device is deployed and hosted. A maintenance event can be, for example, a security patch update or a reboot.

Up until now, the device was not aware of cloud-initiated maintenance events on virtual machines. During such events, the device could become non-functional or performed an HA switchover.

When enabled (default), the device periodically queries the cloud platform's metadata service through REST API for scheduled maintenance events. The device logs the events (syslog) and sends the new SNMP alarm `acVMMaintenanceAlarm`, which indicates event type and estimated scheduled time. The alarm is automatically cleared when the event completes. Maintenance events monitoring is enabled by the new parameter, 'Maintenance Events Monitoring Enable'.

In addition, a new parameter 'Maintenance Events Treatment Enable' (enabled by default) was added to perform certain operations before the maintenance event occurs:

- For High-Availability (HA) systems, if the maintenance event is scheduled for the virtual machine of the active device, a switchover to the redundant device is triggered just before the event. If the maintenance event is scheduled for the virtual machine of the redundant device, a restart of the redundant device is triggered just before the event.
- For Mediant CE (Elastic Media Cluster mode), if the maintenance event is scheduled for a Media Component's virtual machine, the Signaling Component attempts to move all current sessions on the Media Component to a different Media Component (running on a different virtual machine).

Therefore, this feature allows the device to prepare itself for maintenance events and minimize traffic disruption.

These new parameters are located on a new page, Cloud Settings in the Web interface (Setup menu > IP Network tab > Advanced folder > Cloud Settings) and CLI (`configure network > cloud-settings`).

Applicable Applications: SBC

Applicable Products: Mediant VE/CE on Azure/GCP

2.1.1.10 Display of Active Port in Ethernet Port Group

The Ethernet Groups table now displays the currently active Ethernet port in the new 'Active Port' field. This is applicable to Ethernet Groups that contain two ports for active-standby or active-active redundancy schemes (1Rx-1Tx, 2Rx-1Tx, or 2Rx-2Tx modes).

Applicable Applications: All

Applicable Products: All

2.1.1.11 Ethernet Port Redundancy based on Remote Host Connectivity

For Ethernet port redundancy, the device now also supports port switchover to the standby port in the Ethernet Group, based on the reachability (connectivity) to user-defined network entities (destinations). If this feature is disabled, port switchover occurs only upon physical port failure (as already supported).

The device monitors the reachability of the destinations (IP addresses or FQDNs), by pinging them through the active port in the Ethernet Group. If there is no reachability (and according to various configuration settings), a switchover from active to redundant port is triggered.

The destinations to monitor are configured in the new Ethernet Port Group Network Monitor table (Setup menu > IP Network tab > Core Entities folder). Multiple "monitored" rows can be configured per Ethernet Group, where each row can include multiple destinations. A port switchover occurs only if a user-defined number of monitored rows are not reachable (i.e., all destinations of all the rows are not reachable). The monitored row threshold is configured by the new parameter 'Monitor Threshold' in the Ethernet Groups table (if configured to 0, the monitoring feature is disabled for the specific Ethernet Group).

The Ethernet Port Group Network Monitor table provides a child table, Ethernet Port Group Network Monitor Peers Status table, which displays the reachability status of all the destinations that were configured for a specific monitored row.

Note: This feature is applicable only to Ethernet Groups whose 'Mode' parameter is configured to **REDUN_1RX_1TX** and whose 'Monitor Threshold' parameter is configured to a non-zero value.

Applicable Applications: All

Applicable Products: MP-1288; Mediant 3100

2.1.1.12 Shortened CLI Commands using Aliases

The device now allows management users to create command aliases for its CLI. An alias is a shortened version (shortcut) of a command. Aliases may be useful for commands that are frequently used.

Aliases are configured in the new table, CLI Aliases (Setup > Administration > Web & CLI > CLI Aliases) - `configure system > cli-settings > cli-alias`.

An alias can be configured for a specific command (e.g., `copy`) or for a command sequence (e.g., `copy cli-script`). For example, if the alias of the `copy cli-script` command is "copyC", then instead of running the following command:

```
# copy cli-script from ...
```

the following alias command can be used:

```
# copyC from
```

A list of all configured aliases can be viewed in the CLI, using the new command `show aliases`.

Applicable Applications: All

Applicable Products: All.

2.1.1.13 Support for Non-Interactive SSH Sessions

The device now supports non-interactive SSH sessions that may be used for running multiple SSH commands via automated connections. Multiple commands must be entered on the single command line using semicolons to separate each command. For example:

- `show running-config network; show system utilization`
- `configure troubleshoot; syslog; syslog-ip 10.4.2.11; exit; exit`
- `configure voip; sip-definition settings; 100-to-18x-timeout 100; exit; exit`

You may use standard SSH clients to execute commands via non-interactive sessions. The exact syntax differs depending on the specific SSH client. For example, for plink (PuTTY Link) the syntax is as follows:

```
plink.exe -no-antispoof -ssh 10.4.30.11 -l Admin -pwd Admin "show running-config network; show system utilization"
```

Non-interactive SSH sessions are logged in the device's Activity Log as follows: "Activity Log: Executing multiple CLI commands".

Note:

- This feature is not supported for async commands (e.g., ping).
- Up to 8,000 characters can be entered on the command line (input).
- During non-interactive SSH session execution, new SSH connections (sessions) cannot be established.

Applicable Applications: All

Applicable Products: All.

2.1.1.14 Syslog Indication of Wrong Login Password or Username

The device can now be configured to indicate (in syslog) if the login username or password entered by the management user is wrong. Up until now, syslog only indicated that wrong credentials were entered, without specifying whether it was the username or password that was incorrect. This feature is configured by the existing parameter 'Invalid Login Report'.

Applicable Applications: All

Applicable Products: All

2.1.1.15 Firewall Defaults Changed

The default values of the following parameters in the Firewall table have changed:

- 'Prefix Length': from 0 to 32.
- 'Use Specific Interface': from Disable to Enable.

Note: Customers using CLI scripts for configuring this table must modify the script to explicitly specify the value of the 'Use Specific Interface' parameter.

Applicable Products: All.

2.1.1.16 Disconnecting Calls by Dial Plan Tag

Calls matching a specified Dial Plan tag (name=value or name only) can now be forcibly disconnected.

This is done using the new optional CLI command `tag` for the existing command `clear voip calls`. For example, below disconnects all calls whose tag is "region=usa":

```
clear voip calls tag region=usa
```

Applicable Applications: All

Applicable Products: All

2.1.2 Known Constraints

This section lists known constraints.

Table 2-1: Known Constraints in Version 7.40A.400.023

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-37942	If syslog is associated with a dynamic IPv6 interface, syslog messages are not sent until interface receives IP address from DHCP (can be retrieved using debug file).	Some syslog messages are not sent to syslog server.	Low	All	All
SBC-42036	The default value of the 'Use Specific Interface' parameter in the Firewall table was changed from Disable to Enable . As a result, Customers using CLI scripts for configuring this table must modify the script to explicitly specify the value for this parameter: <pre>configure network access-list <index> use-specific- interface disable</pre>	Configuration is preserved for the device when upgraded from earlier to later versions. This change only impacts Customers using a CLI script created for an earlier version and used to configure the device for this version or later.	Low	All	All

2.1.3 Resolved Constraints

This section lists resolved constraints.

Table 2-2: Resolved Constraints in Version 7.40A.400.023

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-37724	The CLI script is missing trunk configuration (<code>configure voip > interface e1-t1 x</code>) in the output of <code>show running config</code> .	Downloaded CLI script missing important E1\T1 trunk configuration section.	Medium	Mediant 3100	n/a
SBC-40710	Configuring TLS expiry for a single TLS Context affects all other TLS Contexts.	All TLS Contexts are affected when one of the TLS Contexts is modified.	High	All	n/a
SBC-40761	The SIP Header Value Encryption feature occasionally produces a "0d" or "0a" as its last character. These characters may be interpreted as the CRLF or end of line, causing parser issues for network stack level devices.	Outgoing messages (e.g., INVITEs) can be rejected with 4xx from remote side with "Bad SIP message structure".	Medium	All	n/a
SBC-41226	The device's NTP offset is ignored following an upgrade to Version 7.4.300. (The offset doesn't affect the device's time and reapplying the offset after the upgrade resolves the issue.)	Report of wrong device time.	Medium	Mediant 9000; Mediant Software	n/a
SBC-41265 SBC-41307	Device upgrade to Version 7.4.300 disables an IP Interface if the DNS fields (primary and secondary) were empty (not even 0.0.0.0) before the upgrade.	Device may be inaccessible (if it was the OAMP IP Interface).	High	All	n/a
SBC-41569	The device sends a SIP re-INVITE repeatedly when the Play Tone Upon Connect feature is enabled.	Network may become congested if the device keeps sending re-INVITEs.	Medium	All	n/a

2.2 Version 7.40A.300.013

This version includes resolved constraints only.



IMPORTANT NOTICE for MEDIANT 90xx/VE/CE/SE SBCs

Starting with Version 7.40A.250.001, .cmp files are digitally signed. Prior to upgrading the device, please refer to the upgrade prerequisites and instructions in the document [Mediant SW-90xx SBC Signed-CMP Upgrade Procedure Configuration Note](#).



Note: Upgrading from Version 7.2 to a 7.4 version for all devices (hardware and software based):

- Upgrade to Version 7.4 can only be done from the following 7.2 versions:
 - ✓ 7.20A.260.*
 - ✓ 7.20A.258.* (when using Version 7.20A.258.919 or later, the upgrade is service affecting)
 - ✓ 7.20A.256.*
 - ✓ 7.20A.204.878
 - ✓ 7.20A.204.549

Therefore, prior to upgrading to Version 7.4, make sure that the device is running one of these 7.2 versions.

- **Mediant 90xx and Mediant VE/CE/SE SBCs:**

Upgrade from Version 7.2 requires the use of a software image or an ISO file. For upgrade instructions, refer to the document [Mediant SW and 90xx SBC Upgrade Procedure from 7.2 to 7.4 Configuration Note](#).

If you are upgrading from Version 7.20A.258.919 or later, hitless software upgrade is currently not supported.



Note:

- **Using this SBC version with AudioCodes One Voice Operations Center (OVOC):**
 - ✓ This version is compatible only with OVOC Version 8.2.280 or later.
 - ✓ If you plan on using OVOC with this SBC version, first upgrade your OVOC to a compatible version (see above) prior to upgrading your device to this SBC version.
- **Using this SBC version with a centralized license pool:**

Customers using OVOC to manage their centralized license pool (Fixed, Floating, or Flex pool) must first upgrade their OVOC to a compatible version (see above) prior to upgrading the devices in the pool to this SBC version. Failure in doing so removes the 7.4 devices from the centralized license pool.

When using the Floating or Flex license pool for WebRTC and SIPRec sessions, OVOC version 8.0.3000 or later is required.



Note: This SBC version is compatible with Stack Manager Version 2.6.7 or later. It's recommended to use Version 2.7.4 or later.

2.2.1 Resolved Constraints

This section lists resolved constraints.

Table 2-3: Resolved Constraints in Version 7.40A.300.013

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-40890	P-Access-Network-Info header decryption using the device's Message Manipulation <i>func.decrypt</i> feature sometimes fails.	Device doesn't properly encrypt the key at the terminating end, causing call failure	High	All	n/a

2.3 Version 7.40A.300.012

This version includes new features, resolved constraints and known constraints.



IMPORTANT NOTICE for MEDIANT 90xx/VE/CE/SE SBCs

Starting with Version 7.40A.250.001, .cmp files are digitally signed. Prior to upgrading the device, please refer to the upgrade prerequisites and instructions in the document [Mediant SW-90xx SBC Signed-CMP Upgrade Procedure Configuration Note](#).



Note: Upgrading from Version 7.2 to a 7.4 version for all devices (hardware and software based):

- Upgrade to Version 7.4 can only be done from the following 7.2 versions:
 - ✓ 7.20A.260.*
 - ✓ 7.20A.258.* (when using Version 7.20A.258.919 or later, the upgrade is service affecting)
 - ✓ 7.20A.256.*
 - ✓ 7.20A.204.878
 - ✓ 7.20A.204.549

Therefore, prior to upgrading to Version 7.4, make sure that the device is running one of these 7.2 versions.

- **Mediant 90xx and Mediant VE/CE/SE SBCs:**

Upgrade from Version 7.2 requires the use of a software image or an ISO file. For upgrade instructions, refer to the document [Mediant SW and 90xx SBC Upgrade Procedure from 7.2 to 7.4 Configuration Note](#).

If you are upgrading from Version 7.20A.258.919 or later, hitless software upgrade is currently not supported.



Note:

- **Using this SBC version with AudioCodes One Voice Operations Center (OVOC):**

- ✓ This version is compatible only with OVOC Version 8.2.265 or later.
- ✓ If you plan on using OVOC with this SBC version, first upgrade your OVOC to a compatible version (see above) prior to upgrading your device to this SBC version.

- **Using this SBC version with a centralized license pool:**

Customers using OVOC to manage their centralized license pool (Fixed, Floating, or Flex pool) must first upgrade their OVOC to a compatible version (see above) prior to upgrading the devices in the pool to this SBC version. Failure in doing so removes the 7.4 devices from the centralized license pool.

When using the Floating or Flex license pool for WebRTC and SIPRec sessions, OVOC version 8.0.3000 or later is required.



Note: This SBC version is compatible with Stack Manager Version 2.6.7 or later. It's recommended to use Version 2.7.1 or later.

2.3.1 New Features

This section describes the new features introduced in this version.

2.3.1.1 HA Support for Mediant VE SBC Deployed on Microsoft Azure

Mediant VE SBC now supports High-Availability (HA) mode when deployed on the Azure cloud platform.

To support this feature:

- A new parameter called 'Source IP Address' has been added to the NAT Translation table, which allows the device to perform NAT translations based on the local IP address (source) of the active and redundant devices. This is instead of using the IP Interface name, which is the same between devices.
- A new standalone parameter called [ReInviteAfterHA] has been added, which maintains active calls when an HA switchover occurs. The redundant (now active) device does this by sending a SIP re-INVITE message with its local IP address.
- For installation instructions, click [here](#).



Note: This feature requires that the remote endpoints support symmetric response routing according to RFC 3581.

Applicable Application: SBC.

Applicable Products: Mediant VE (Azure).

2.3.1.2 Preloaded Trusted Root Certificate Authorities

The device now provides a preloaded list of popular trusted root certificate authorities (CA). These CAs can be used only for TLS Context IDs 0 through 4. Up until now (and still for TLS Context IDs 5 and above), the CA(s) had to be uploaded to the device per TLS Context.

To support this feature:

- A new parameter called 'Use default CA Bundle' has been added to the TLS Contexts table, which enables (disabled by default) the use of the default CAs for a TLS Context.
- A new page called Default CA Bundle (Setup > IP Network > Security folder > Default CA Bundle) has been added, which displays a list of the default CAs.

Applicable Application: All

Applicable Products: MP-1288; Mediant 800C; Mediant 3100; Mediant 2600; Mediant 4000; Mediant 9000; Mediant Software.

2.3.1.3 IPv6 Networking Support

The device now supports IPv6 networking, as described in the following subsections.

2.3.1.3.1 Autoconfiguration of IPv6 Interfaces

The device now supports autoconfiguration of IPv6 interfaces, configured in the IP Interfaces table. Dynamic IPv6 addressing allows the device to automatically obtain an IPV6 address and prefix length (and optionally, the DNS and Default Gateway addresses) through DHCP for the specific IP Interface.

To support this feature, the following new optional values have been added to the existing 'Interface Mode' parameter in the IP Interfaces table:

- **IPv6 Stateless:** Known as IPv6 Stateless Address Autoconfiguration (SLAAC), this method allows the device to automatically acquire IPv6 addresses without managing a DHCP server. The device generates addresses using local and non-local information. The non-local information is the prefix advertised by routers, which forms the first 64-bit segment (*network part*) of the 128-bit address. The local information is generated by the device using an algorithm based on the device's MAC address, which forms the second 64-bit segment (*client ID*). The device generates a unique address per IP Interface. This method can also be used to obtain the DNS addresses through DHCP and the Default Gateway through Router Advertisement (RA) messages.
- **IPv6 DHCP:** Known as Stateful (DHCPv6) Autoconfiguration, this method allows the device to act as a DHCP client to acquire IPv6 addresses from an external DHCP server. The device sends a DHCP request once configured and upon every device restart. The DHCP server can provide not only the IP address and prefix, but also the DNS server address and Default Gateway address. Based on the DHCP lease time, the device renews its lease over the IP address with the DHCP server.

For dynamic IPv6 addressing, the existing SNMP alarm acIPv6ErrorAlarm is raised (major) when an IPv6 address for an IP Interface is not received within 10 seconds from the server.

IP Interfaces configured for dynamic IPv6 addressing are supported by all the device's applications. This includes, for example, SIP signaling, media (RTP), RADIUS, LDAP, CDRs, HTTP services, debug recording, and syslog.

Note:

- Dynamic IPv6 addressing is not supported when the device operates in High-Availability (HA) mode.
- The SBC Configuration Wizard is not supported (and not available in Web interface) if the IP Interfaces table contains an IPv6 address.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.2 Dynamic Assignment of IPv6 DNS Server Address

The DNS server addresses (primary and secondary) configured per IP Interface in the IP Interfaces table can now be overwritten by IPv6 addresses obtained from a DHCP server when implementing dynamic IPv6 addressing (see description of previous feature).

Applicable Application: All.

Applicable Products: All.

2.3.1.3.3 Two OAMP Interfaces (IPv4 and IPv6) in IP Interfaces Table

Up until now, the IP Interfaces table supported only one IP Interface configured with an "OAMP" Application Type, which had an IPv4 address. Now, an additional IP Interface with an "OAMP" Application Type can be configured that has an IPv6 address.

Therefore, this feature is about the support for configuring up to two OAMP IP Interfaces in the IP Interfaces table, where each has a different IP version (IPv4 or IPv6).

Note:

- The device is still shipped with a single default IP Interface, which has an “OAMP” Application Type and an IPv4 address.
- The IP Interfaces table must have at least one IP Interface (IPv4 or IPv6) that is configured with an “OAMP” Application Type. For example, if an IPv6 OAMP interface is configured, the default IPv4 OAMP interface can be deleted.
- The IPv4 OAMP interface is used by default by the device’s management interfaces (e.g., Web interface and CLI) and applications (e.g., syslog, RADIUS, and CDRs). Therefore, before deleting the IPv4 OAMP interface, a different IP Interface (which from this release no longer needs to be an OAMP interface) must be assigned to each of the management interfaces and required applications. If an IP Interface is not assigned, the IPv6 OAMP interface is used by default.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.4 SNMP over IPv6

The device now supports SNMP over IPv6.

To support this feature:

- A new parameter called 'IPv6 Interface Name' has been added, which assigns an IPv6 Interface for SNMP over IPv6.
- A new parameter called 'IPv4 Interface Name' has been added, which assigns an IPv4 Interface for SNMP over IPv4.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.5 IPv6 Hostname for SNMP Trap Manager

The address of the SNMP Trap Manager can now be configured with an FQDN (hostname) that resolves into an IPv6 address. Up until now, only a hostname that resolved into an IPv4 address was supported.

To support this feature, a new parameter called 'Trap Manager Host Name for IPv6' has been added.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.6 NTP over IPv6

The device can now automatically update its date and time through Simple Network Time Protocol (SNTP) from an NTP server over IPv6.

To support this feature:

- A new parameter called 'NTP Interface' has been added, which allows the user to select an IP Interface (IPv4 or IPv6).
- The existing 'Primary NTP Server Address' and 'Secondary NTP Server Address' parameters can now be configured with an IPv6 address.

In addition to this feature, a new parameter called 'Enable NTP' has been added, which enables or disables NTP.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.7 Auto-Provisioning over IPv6

Auto provisioning (Auto-Update mechanism) of the device can now be done over IPv6.

To support this feature:

- A new parameter called [AUPDInterface] has been added, which assigns an IP Interface from the IP Interfaces table to the Auto-Update mechanism. By default, the device uses the IPv4 OAMP interface.
- The URLs that define the location of the various files that can be uploaded by the Auto-Update mechanism (e.g., CmpFileURL) can now be configured with an IPv6 address.

Note: The IP version (IPv4 or IPv6) of the chosen IP Interface and the configured URLs must be the same.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.8 Remote HTTP Services over IPv6

The device now supports Remote Web Services (configured in the Remote Web Services > HTTP Remote Hosts table) over IPv6. Each Remote Web Service can be configured with multiple HTTP hosts with different IP address versions (IPv4 or IPv6).

Applicable Application: All.

Applicable Products: All.

2.3.1.3.9 HTTP Proxy over IPv6

The device now supports HTTP Proxy over IPv6.

To support this feature, IPv6 interfaces can be used in the HTTP Proxy Server and HTTP Locations tables.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.10 LDAP over IPv6

The device now supports LDAP over IPv6.

To support this feature:

- The existing 'LDAP Network Interface' parameter in the LDAP Servers table can be assigned an IPv6 interface.
- The existing 'LDAP Server IP' parameter in the LDAP Servers table can be configured with an IPv6 address.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.11 RADIUS over IPv6

The device now supports RADIUS over IPv6.

To support this feature:

- The existing 'IP Address' parameter in the RADIUS Servers table can now be configured with an IPv6 address.
- A new parameter called 'Interface Name' has been added to the RADIUS Servers

table, which assigns an IP Interface (IPv4 or IPv6) for RADIUS communication.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.12 SDRs over IPv6

The device now supports sending Session Detail Records (SDRs) to a remote server over IPv6.

To support this feature:

- A new parameter called 'Interface Name' has been added to the SBC SDR Remote Servers table, which assigns an IP Interface (IPv4 or IPv6) for communication with the server.
- The existing 'Address' parameter in the SBC SDR Remote Servers table, which configures the server's address can now be configured with an IPv6 address.

Applicable Application: SBC.

Applicable Products: Mediant 9000; Mediant Software.

2.3.1.3.13 SBC CDRs over IPv6

The device now supports sending CDRs of SBC calls to a remote server over IPv6.

To support this feature:

- A new parameter called 'Interface Name' has been added to the SBC CDR Remote Servers table, which assigns an IP Interface (IPv4 or IPv6) for communication with the server.
- The existing 'Address' parameter in the SBC CDR Remote Servers table, which configures the server's address can now be configured with an IPv6 address.

Applicable Application: SBC.

Applicable Products: Mediant 9000; Mediant Software.

2.3.1.3.14 CDRs and SDRs over IPv6 through REST API

The device now supports sending CDRs and SDRs through REST API to remote HTTP/S-based REST servers (Remote Web Service) over IPv6.

To support this feature, the existing 'Address' parameter in the HTTP Remote Hosts table can now be configured with an IPv6 address and the 'Interface' parameter can be associated with an IPv6 interface.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.15 Syslog over IPv6

The syslog server can now be configured with an IPv6 address.

To support this feature:

- The existing global 'Syslog Server IP' parameter and the 'Address' field in the Syslog Servers table can now be configured with IPv6 addresses.
- A new global parameter called 'Syslog Interface' has been added, which assigns an IP Interface (IPv4 or IPv6) to the primary syslog server.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.16 Packet Capturing using RPCAP over IPv6

Packet capturing using the device's embedded Remote Capture Protocol (rpcap) server now can be done over IPv6.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.17 Debug Recording over IPv6

The device now supports sending debug recording packets to a remote server over IPv6.

To support this feature:

- The existing 'Destination IP Address' (DebugRecordingDestIP) parameter can now be configured with an IPv6 address.
- The existing 'Interface Name' (DebugRecordingIpInterfaceName) parameter can now be assigned an IPv6 interface.
- The following debug recording operations through CLI now support IPv6:
 - `debug capture voip interface ... tftp-server <IPv4 / IPv6 Address>`
 - `debug capture voip physical stop <IPv4 / IPv6 Address>`
 - `debug capture voip physical get_last_capture <IPv4 / IPv6 Address>`

Applicable Application: All.

Applicable Products: All.

2.3.1.3.18 Online Certificate Status Protocol (OCSP) over IPv6

The OCSP server can now be configured with an IPv6 address. Up until now, it could only be configured with an IPv4 address.

To support this feature:

- The existing 'OCSP Server' parameter in the TLS Contexts table can be configured with an IPv6 address.
- The existing 'OCSP Interface' parameter in the TLS Contexts table can be assigned an IPv6 interface.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.19 QoE Reporting to OVOC over IPv6

The device now supports the sending of Quality of Experience (QoE) voice metric reports to OVOC over IPv6.

To support this feature:

- The existing 'Primary OVOC Address' and 'Secondary OVOC Address' parameters in the Quality of Experience Settings table can be configured with IPv6 addresses.
- The existing 'QoE Network Interface' parameter in the Quality of Experience Settings table can be assigned an IPv6 interface.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.20 File Transfer over IPv6 through CLI

The device's CLI can now be used to copy files to/from a remote server over IPv6.

To support this feature, the existing `copy` CLI command can now include URLs with IPv6 addresses and provides a new option called `network-source` to choose the IP Interface:

```
copy <File Type> from|to <URL> network-source <IP Interface Name>
```

By default, the device uses the IPv4 OAMP or IPv6 OAMP interface for the copy process for IPv4 or IPv6 servers, respectively. If there is no IP Interface with the same IP version (IPv4 or IPv6) as the remote server, the copy process fails.

Applicable Application: All.

Applicable Products: All.

2.3.1.3.21 Network Traces of Both Source and Destination IPv6 Packets

The device can now be configured to include IP network traces of all IPv6 packets (source and destination) in syslog and debug recording messages. Up until now, the trace could either be configured for source or destination IPv6 address.

To support this feature, a new value called "ipv6" can now be configured in the 'Value' parameter of the Logging Filters table (applicable when the 'Filter Type' parameter is **IP Trace**).

Applicable Application: All

Applicable Products: All.

2.3.1.4 Maintenance Script

The device can now be loaded with a digitally signed maintenance script provided by AudioCodes. The script may be used, for example, to:

- Provide immediate mitigation for urgent security vulnerabilities.
- Apply minor software patches.

To upload the script, the Web interface's Auxiliary Files page now provides an additional file load area called "Maintenance Script file" which includes the buttons for selecting the file and loading it.

Only users with Security Administrator or Master level privileges can upload the Maintenance script file.

Applicable Application: SBC.

Applicable Products: Mediant 9000; Mediant Software.

2.3.1.5 Multiple Management Interfaces

Up until now, the device's management interfaces (e.g., Web, Telnet and SSH) only used the single (default) OAMP IP Interface in the IP Interfaces table. Now, any type of IP Interface (OAMP, Media or Control) can be used for management interfaces, and multiple management interfaces can now also be configured.

2.3.1.5.1 Multiple Web and REST Interfaces

The device can now be configured with multiple management interfaces for accessing its Web and REST interfaces.

To support this feature, a new table called Web Interfaces (Setup menu > Administration tab > Web & CLI folder > Web Interfaces) has been added. Access to the Web and REST management interfaces can only be done through these configured Web Interfaces.

The Web Interfaces table provides a default Web Interface, which is associated with the default IPv4 OAMP interface.

Notes:

- The [EnableWebAccessFromAllInterfaces] parameter, which allowed access to the Web interface from all IP Interfaces in the IP Interfaces table is now obsolete. If this parameter was enabled in a previous version and the device is updated to 7.40A.300, the device automatically configures Web Interfaces for all the IP Interfaces, thereby maintaining required functionality.
- The Additional Management Interfaces table is now obsolete.

Applicable Application: All.

Applicable Products: All.

2.3.1.5.2 Multiple Telnet Interfaces

The device can now be configured with multiple IP interfaces for accessing its embedded CLI server using Telnet.

To support this feature, a new table called Telnet Interfaces (Setup > Administration > Web & CLI > Telnet Interfaces) has been added. Each Telnet interface can be assigned any IP Interface type from the IP Interfaces table (IPv4 or IPv6) and configured with a port number.

Note: As a result of this feature, the [TelnetServerPort] parameter is now obsolete.

Applicable Application: All.

Applicable Products: All.

2.3.1.5.3 Multiple SSH and SFTP Interfaces

The device can now be configured with multiple IP interfaces for accessing its embedded CLI server using SSH.

To support this feature, a new table called SSH Interfaces (Setup > Administration > Web & CLI > SSH Interfaces) has been added. Each SSH interface can be assigned any IP Interface type from the IP Interfaces table (IPv4 or IPv6) and configured with a port number.

Note: As a result of this feature, the [SSHServerPort] parameter is now obsolete.

Applicable Application: All.

Applicable Products: All.

2.3.1.6 SIPREC Triggered upon Early Media

The device can now start recording calls (SIPREC) as soon as media starts. SIPREC can start even before the call is answered in case of early media (i.e., 18x response prior to 200 OK, for example, playing ring tone) or media after call connect.

To support this feature, a new optional value called **Media Start** has been added to the existing 'Trigger' parameter in the SIP Recording Rules table.

Applicable Application: All.

Applicable Products: MP-1288; Mediant 500; Mediant 500L; Mediant 800; Mediant 3100; Mediant 2600; Mediant 4000; Mediant 9000; Mediant Software.

2.3.1.7 New VM Types for Mediant VE/CE Deployed on AWS

Mediant VE and Mediant CE SBCs now support the c5n and m5n instance types on AWS. These instance types provide improved networking performance and stability compared to the previously (and still) supported c5 and m5 instance types. Therefore, the c5n and m5n instance types are more recommended.

Applicable Application: SBC.

Applicable Products: Mediant VE; Mediant CE

2.3.1.8 Automatic Configuration of Network Interfaces on Public Clouds

The Mediant VE and Mediant CE SBCs now automatically detect network interfaces attached/detached to/from the underlying virtual machine through cloud management interfaces and updates the IP Interfaces and Ethernet Devices tables accordingly. Configuration update is done online and without service disruption.

The feature is currently limited to public cloud environments (AWS, Azure, and Google) and requires that Ethernet port redundancy be disabled through a new parameter called [EnablePortRedundancy]. (This parameter is also applicable to Mediant 90xx and Mediant SE.)

Applicable Application: SBC.

Applicable Products: Mediant Software.

2.3.1.9 Elliptic Curve Digital Signature Algorithm (ECDSA) Support for TLS

The device can now generate Elliptic Curve Digital Signature Algorithm (ECDSA) public-private keys. This means that the device can generate certificate signing requests (CSRs) and self-signed certificates that are digitally signed with ECDSA keys.


This feature also provides support for using ECDSA keys for accessing the device's CLI through an SSH connection. Instead of logging in with username and password, only username is required, and authentication is automatically done using the public key. (Up until now, only RSA was supported for SSH.)

To support this feature, a new parameter called 'Private Key Format' has been added to the Change Certificates page (TLS Context table > Change Certificates). The parameter defines the required key algorithm (ECDSA or RSA). When ECDSA is selected, the existing 'Private Key Size' parameter defines the required ECDSA key size (256-bit, 384-bit, or 521-bit).

Applicable Application: All.

Applicable Products: All.

2.3.1.10 Product Documentation Accessible from Web Interface

The device's documentation (e.g., User's Manual, Installation Manual, Security Guidelines, and Release Notes) can now be accessed from the Web interface. The Web interface's toolbar provides a new icon  that when clicked, displays a drop-down list of documents that can be referenced. The documents' names are hyperlinked to their respective location on AudioCodes website, allowing users quick-and-easy access to these resources.

Note: For private labeling when the Web interface's logo is non-default, this new icon is not displayed. A workaround is to add a forward "/" slash at the end of the URL of a new parameter called [ExternalDocumentsBaseURL]:

```
ExternalDocumentsBaseURL =  
'https://acredirect.azurewebsites.net/api/'
```

Applicable Application: All.

Applicable Products: All.

2.3.1.11 FQDN for Server Address

An FQDN can now be configured for certain servers, as described in the following subsections.

2.3.1.11.1 FQDN for CDR and SDR Syslog Servers

The address of the CDR and SDR syslog servers for collecting CDRs and SDRs respectively, can now be configured as an FQDN. The device sends a DNS resolution query to a DNS server for the server's IP address (IPv4 or IPv6).

To support this feature, the existing 'CDR Syslog Server IP Address' [CDRSyslogServerIP] and 'SDR Server Address' [SDRServerIPAddress] parameters can now be configured with FQDNs.

Applicable Application: All.

Applicable Products: All.

2.3.1.11.2 FQDN for OCSP Server Address

The OCSP server can now be configured with an FQDN. When configured with an FQDN, the device sends a DNS resolution query to a DNS server for the server's IP address (IPv4 or IPv6).

To support this feature, the existing 'OCSP Server' parameter in the TLS Contexts table can be configured with an FQDN.

Note: FQDN support for OCSP is applicable only to TLS Contexts that are dedicated for SIP traffic. If an FQDN is configured for a TLS Context that is used for non-SIP connections, the certificate is not checked by the OCSP server.

Applicable Application: All.

Applicable Products: All.

2.3.1.11.3 FQDN for Syslog Server Address

The syslog server can now be configured with an FQDN. When configured as an FQDN, the device sends a DNS resolution query to a DNS server for the server's IP address (IPv4 or IPv6).

To support this feature, the existing global 'Syslog Server IP' parameter and the 'Address' field in the Syslog Servers table can now be configured with an FQDN.

Applicable Application: All.

Applicable Products: All.

2.3.1.12 User-Friendly Coders Groups Table

The Coders Groups table, which configures groups of coders, now has a more user-friendly design. The new design provides two tables with parent-child relationship, where the parent table defines the name of the group while the child table defines the coders in the group.

Applicable Application: All.

Applicable Products: All.

2.3.1.13 Registration Stickiness and Change in Proxy Set's IP Addresses

If an Account (configured in the Accounts table) is registered with a registrar server that the device no longer "knows" (e.g., removed from the DNS-resolved IP addresses of the associated Proxy Set) and the Registrar Stickiness feature is enabled, the device immediately initiates a new registration for the Account (with a different server belonging to the Proxy Set).

Applicable Application: All.

Applicable Products: All.

2.3.1.14 CLI Display of IP Interfaces per IP Version

The `show network interface description` CLI command, which displays IP Interfaces that were configured in the IP Interfaces table, now provides two new options called `ipv4` and `ipv6` that can be used to filter the output by IPv4 or IPv6 interfaces, respectively.

Applicable Application: All.

Applicable Products: All.

2.3.1.15 "Reset" Button in Web Interface Renamed "Restart"

The "Reset" button in the device's Web interface has been renamed "Restart".

Applicable Application: All.

Applicable Products: All.

2.3.1.16 Change in Rx Payload Type Behavior

The device's behavior for Rx payload type has changed. Up until now, certain media features (e.g., RFC 2833 DTMF, RTP redundancy, and fax bypass) were supported even if not negotiated in SDP, using configured payload types (see related parameters below). From this version, the device only supports media features that are negotiated in SDP and ignores the default / configured payload types.

For example, up until now, if the [RFC2833RxPayloadType] parameter was configured to "100", every packet whose payload type was 100 was processed as RFC 2833 packets. Now, even if the packets' payload type is 100, the device doesn't process the packets as RFC 2833 (unless SDP negotiation results in payload type 100).

To maintain backward compatibility, a new parameter called [BackwardPTBehavior] has been added, which must be enabled (disabled by default).

Affected parameters:

- [FaxBypassPayloadType]
- [ModemBypassPayloadType]
- [RxT38OverRTPPayloadType]
- [RTPNoOpPayloadType]
- [RFC2833RxPayloadType]
- [RFC2198PayloadType]

Note:

- For the SBC application, the "T38 over RTP" coder doesn't support transcoding (only forwarding).
- This feature affects only Rx behavior (Tx behavior remains without change).

Applicable Application: All.

Applicable Products: All.

2.3.1.17 Core Dump Configuration through CLI

The Core Dump feature can now also be configured through CLI:

- To configure the server address to where the Core Dump file is sent [CoreDumpDestIP]:

```
configure troubleshoot > debug-file > core-dump-dest-ip
```

- To enable Core Dump file generation [EnableCoreDump]:

```
configure troubleshoot > debug-file > enable-core-dump
```

- To include the Core Dump file with the Debug file:

```
configure troubleshoot > debug-file > debug-file-mask
```

Applicable Application: All.

Applicable Products: All.

2.3.1.18 HTTP Host Header Validation for Web Access

The device can now be configured to validate the Host header of incoming HTTP requests for accessing the Web interface. When enabled, the device checks that the value of the Host header matches the device's OAMP IP address (or hostname, if configured). If there is no match, the device rejects the request with an HTTP 403 Forbidden response (redirected to a "403 Forbidden" page).

To support this feature, a new parameter called [HostHeaderProtection] has been added.

Enabling this feature (disabled by default) means that only direct access to the Web interface is allowed (i.e., access through a proxy or tunnel is blocked). This feature may also help to prevent malicious attacks on the device using Host header manipulation (injection).

Applicable Application: All.

Applicable Products: All.

2.3.1.19 Capacity for Mediant VE/CE Deployed on Google Cloud Platform

Capacity for Mediant VE and Mediant CE SBCs deployed on Google Cloud Platform (GCP) has been added to the capacity table (see Table 3-1).

Applicable Application: SBC.

Applicable Products: Mediant VE; Mediant CE.

2.3.1.20 Encryption of SIP Header Value

For enhanced security, the device can now encrypt the value of a SIP header. This feature is typically used between two deployed AudioCodes devices, where the device that sends the SIP message encrypts the header's value while the device receiving the SIP message decrypts it. Note that this feature is intended for SIP headers (e.g., proprietary headers) that are not used in the device's classification and routing logic.

To support this feature:

- A new parameter called 'AES-256 Encryption Key' has been added, which configures the AES-256 encryption key. Both devices must be configured with the same key.
- The specific SIP header to encrypt (and decrypt) is configured in the existing Message Manipulations table, using the new syntax option "Func.Encrypt" (and "Func.Decrypt") in the 'Action Value' parameter, for example:

```
Func.Encrypt(Header.P-Access-Network-Info)
```

Applicable Application: All.

Applicable Products: All.

2.3.1.21 Multiple Sockets per HTTP Host

The device can now be configured to open multiple sockets per remote HTTP host. This is configured in the existing Remote Web Services table, using a new parameter called 'Number of Connections'.

Multiple sockets allow the device to send HTTP messages (e.g., POST) in parallel without waiting for a response from the host per sent message. Up until now, only a single socket was opened with the host.

Applicable Application: All.

Applicable Products: All.

2.3.1.22 Support for Standard SNMP MIB ipNetToMediaTable

The device now supports the standard MIB (MIB-2) ipNetToMediaTable (OID 1.3.6.1.2.1.4.22), which maps IPv4 addresses to physical addresses (IP Address Translation table).

Applicable Application: All.

Applicable Products: All.

2.3.1.23 SIP Transactions Rate for Performance Monitoring

The device's Performance Monitoring feature now also provides SIP transaction rate statistics for Gateway calls. This includes current, average, and maximum SIP transactions per second.

Only SIP requests are considered in the SIP transaction count. For example, a single SIP transaction is from the initial SIP INVITE request to the final SIP 200 OK response.

This feature also adds SIP transaction statistics to the Web interface's Monitor page (GW tab > "Transactions per Sec.").

Applicable Application: Gateway.

Applicable Products: Gateway.

2.3.1.24 Loss of Frame (LOF) Renaming for Performance Monitoring

The following Loss of Frame (LOF) Performance Monitoring parameters have been renamed:

- lofSecondsCurrent has been renamed lofEventsCurrent
- lofSeconds has been renamed lofEvents

Applicable Application: Gateway.

Applicable Products: Gateway.

2.3.2 Resolved Constraints

This section lists resolved constraints.

Table 2-4: Resolved Constraints in Version 7.40A.300.012

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-35891	The device is impacted by CVE-2004-0230 (TCP Sequence Number Approximation Based Denial of Service).	Vulnerability	Low	Mediant 4000 Mediant 2600 Mediant 1000 Mediant 800 Mediant 500 MP-1288	n/a
SBC-37695	The device doesn't support certificate formats with multiple X509.3 Subject Alternative Name headers.	Certificate format	Medium	All	n/a
SBC-38603	The device has TLS connections de-allocation wrong calculation, causing a memory leak Task SPLB	TLS resources leak	Medium	All	n/a
SBC-39057	The device has DNS cache de-allocation wrong calculation, causing a memory leak Task SPMR	DNS resources leak	Medium	All	ha

2.3.3 Known Constraints

This section lists known constraints.

Table 2-5: Known Constraints in Version 7.40A.300.012

Incident	Description	Impact	Severity	Affected Products	Affected Environments
-	When the device is configured to use an IPv6 OAMP interface, the following functionality is not supported:	<ul style="list-style-type: none"> Connectivity with ARM isn't supported, as a result, the device can't use ARM. OVOC-managed session licenses aren't supported, as a result Fixed, Floating, and Flex licensing models are not supported. Connectivity to OVOC using WebSocket isn't supported, resulting with no connection with OVOC over WebSocket. SNMP Trusted Managers isn't supported, as a result Trusted SNMP Managers can't be configured. 	Medium	All	All
		Mediant CE doesn't support an IPv6 OAMP interface, and the device cannot be managed through an IPv6 OAMP.	Medium	Mediant CE Mediant VE	All
		Media Transcoding Cluster (MTC) is not supported.	Medium	Mediant VE Mediant 9000	MTC
		AWS PAYG (Pay-As-You-Go) deployments are not supported	Medium	Mediant VE	AWS
SBC-39368	When the 'Interface Mode' parameter of an IP Interface in the IP Interfaces table is configured to IPv6 Stateless (i.e., autoconfiguration of IPv6 interfaces), obtaining DNS server addresses via DHCP doesn't function.	DNS servers not obtained via Stateless IPv6 (device can use the overwrite DNS servers option which configures them manually; otherwise the default DNS at 8.8.8.8 is used).	Low	All	n/a

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-39368	<p>When the following are both configured, the device uses both for DNS servers:</p> <ul style="list-style-type: none"> The 'Interface Mode' parameter of an IP Interface in the IP Interfaces table is configured for autoconfiguration of IPv6 interfaces (i.e., IPv6 Stateless or IPv6 DHCP) and used to obtain DNS addresses through DHCP. The dedicated parameters for the HTTP Proxy feature ('Primary DNS Server IP' and Secondary DNS Server IP') are configured. 	A DNS server can't be specified for use. (The latest DNS-resolution response is used.)	Low	Mediant 500 Mediant 500L Mediant 800 Mediant 1000 Mediant 2600 Mediant 4000 Mediant 3100 MP-1288	n/a
SBC-38419	When using IPv6, the SNMP trap destination is not removed on the device after it's deleted on OVOC.	Need to delete the SNMP trap destination through the device's Web or CLI.	Low	All	n/a
SBC-39506	Performance degradation of the device is experienced.	Performance degradation with 1+x cores.	Medium	Mediant Software with 2 vCPU on KVM	KVM
SBC-38487	Downloading files from OVOC to the device through SNMP is not supported when OVOC is configured with a hostname.	Files can't be downloaded to the device.	Medium	All	n/a
SBC-39265	The device doesn't recognize the USB after removing it and then re-inserting it.	A device reset is required.	Low	Mediant 3100	n/a
SBC-39112	In some configuration tables (e.g., SIP Interfaces or IP Profiles), the name of the row entity can't be "Any".	Configuration entities can't be named "Any".	Low	All	n/a
SBC-40511	For WebRTC-to-WebRTC calls (using G.711 forwarding with RTP header extension), some noise is experienced at the beginning of the call.	WebRTC-to-WebRTC calls voice issues	Medium	Mediant Software	n/a
SBC-41214	For Hitless Upgrade from Version 7.4.300 or later to a version earlier than 7.4.300, the Web interface's Software Upgrade Wizard displays only the "stage 1/3" window and not the next "2/3 and "3/3" stage windows (even though the upgrade succeeds).	Web display issue.	Low	HA	n/a

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-41265	If the device is upgraded to Version 7.4.300 and the IP Interfaces table had a row whose DNS was not configured (empty; not even 0.0.0.0), the device deletes all the rows in the IP Interfaces table.	Connectivity to the device may be lost (if the OAMP network interface is deleted)	High	All	n/a

2.4 Version 7.40A.260.152

This version includes new features and resolved constraints only.



IMPORTANT NOTICE for MEDIANT 90xx/VE/CE/SE SBCs

Starting with Version 7.40A.250.001, .cmp files are digitally signed. Prior to upgrading the device, please refer to the upgrade prerequisites and instructions in the document [Mediant SW-90xx SBC Signed-CMP Upgrade Procedure Configuration Note](#).



Note: Upgrading from Version 7.2 to a 7.4 version for all devices (hardware and software based):

- Upgrade to Version 7.4 can only be done from the following 7.2 versions:
 - ✓ 7.20A.260.*
 - ✓ 7.20A.258.* (when using Version 7.20A.258.919 or later, the upgrade is service affecting)
 - ✓ 7.20A.256.*
 - ✓ 7.20A.204.878
 - ✓ 7.20A.204.549

Therefore, prior to upgrading to Version 7.4, make sure that the device is running one of these 7.2 versions.

- **Mediant 90xx and Mediant VE/CE/SE SBCs:**

Upgrade from Version 7.2 requires the use of a software image or an ISO file. For upgrade instructions, refer to the document [Mediant SW and 90xx SBC Upgrade Procedure from 7.2 to 7.4 Configuration Note](#).

If you are upgrading from Version 7.20A.258.919 or later, hitless software upgrade is currently not supported.



Note:

- **Using this SBC version with AudioCodes One Voice Operations Center (OVOC):**

- ✓ This version is compatible only with OVOC Version 8.0.3180 or later, and 8.2.280 or later.
- ✓ If you plan on using OVOC with this SBC version, first upgrade your OVOC to Version 8.0.3137 or later, prior to upgrading your device to this SBC version.

- **Using this SBC version with a centralized license pool:**

Customers using OVOC to manage their centralized license pool (Fixed, Floating, or Flex pool) must first upgrade their OVOC to Version 8.0.3137 or later, prior to upgrading the devices in the pool to this SBC version. Failure in doing so removes the 7.4 devices from the centralized license pool.

When using the Floating or Flex license pool for WebRTC and SIPRec sessions, OVOC version 8.0.3000 or later is required.



Note: This SBC version is compatible with Stack Manager Version 2.3.2 or later. It's recommended to use Version 2.5.8 or later.

2.4.1 New Features

This section describes the new features introduced in this version.

2.4.1.1 Increase in Maximum DNS-resolved IP Addresses for All Proxy Sets

The maximum number of supported DNS-resolved IP addresses for all Proxy Sets (combined) has been increased. For updated values, see the [Proxy Sets table](#) capacity in Section 'Configuration Table Capacity'.

Applicable Application: All.

Applicable Products: All.

2.4.1.2 Capacity Increase for IP Profiles and Accounts Tables

The maximum number of rows that can be configured in the IP Profiles table and the Accounts table has been increased to 5,000.

Note: This capacity is applicable only when the device's License Key includes the VoiceAI Connect feature key.

Applicable Application: All.

Applicable Products: Mediant 9000; Mediant Software (64 GB).

2.4.1.3 Destination IP Group in Call Setup Rules

Destination IP Groups can now be included in Call Setup Rules. This is only supported when the CSR is assigned to an IP-to-IP Routing rule (in the IP-to-IP Routing table).

Up until now, it was only possible to access information from the source IP Group. Now, it's also possible to access information from the determined destination IP Group. For example, a CSR can be used to set a specific SIP header to the value of a destination IP Group's tag value.

This can be configured using the syntax *param.ipg.dst* in the 'Action Value' or 'Condition' fields of the Call Setup Rules table.

Applicable Application: All.

Applicable Products: All.

2.4.1.4 SDR Generation upon Call Connect for REST

The device can now generate Session Detail Reports (SDRs) upon call connect when sending SDRs to a REST server (over REST API). These SDRs are referred to as *START* SDRs and are generated as the call is connected.

To support this feature, the following new optional values have been added to the existing parameter 'REST SDR Record Type':

- **ATTEMPT, START and STOP**
- **ATTEMPT, START INTERMEDIATE and STOP**

Applicable Application: SBC.

Applicable Products: Mediant 9000; Mediant Software.

2.4.1.5 New SDR Fields Indicating Device or Call Party Released Call

SDRs can now be customized to include two new optional fields—'Ingress Released From IP' and 'Egress Released From IP'. These fields indicate if the call was terminated by the device (i.e., internal reason, for example, "registered user not found") or by one of the call parties.

Applicable Application: SBC.

Applicable Products: Mediant 9000; Mediant Software.

2.4.2 Resolved Constraints

This section lists resolved constraints.

Table 2-6: Resolved Constraints in Version 7.40A.260.152

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-40121	After performing a specific network configuration change, Mediant CE may lose network connectivity.	After removing a secondary IP address from a network interface, Mediant CE deployed in AWS loses a network configuration entry and needs to be manually reconfigured.	Medium	Mediant CE	AWS

2.5 Version 7.40A.260.007

This version includes new features and known constraints only.



IMPORTANT NOTICE for MEDIANT 90xx/VE/CE/SE SBCs

Starting with Version 7.40A.250.001, .cmp files are digitally signed. Prior to upgrading the device, please refer to the upgrade prerequisites and instructions in the document [Mediant SW-90xx SBC Signed-CMP Upgrade Procedure Configuration Note](#).



Note: Upgrading from Version 7.2 to a 7.4 version for all devices (hardware and software based):

- Upgrade to Version 7.4 can only be done from the following 7.2 versions:
 - ✓ 7.20A.260.*
 - ✓ 7.20A.258.* (when using Version 7.20A.258.919 or later, the upgrade is service affecting)
 - ✓ 7.20A.256.*
 - ✓ 7.20A.204.878
 - ✓ 7.20A.204.549

Therefore, prior to upgrading to Version 7.4, make sure that the device is running one of these 7.2 versions.

- **Mediant 90xx and Mediant VE/CE/SE SBCs:**

Upgrade from Version 7.2 requires the use of a software image or an ISO file. For upgrade instructions, refer to the document [Mediant SW and 90xx SBC Upgrade Procedure from 7.2 to 7.4 Configuration Note](#).

If you are upgrading from Version 7.20A.258.919 or later, hitless software upgrade is currently not supported.



Note:

- **Using this SBC version with AudioCodes One Voice Operations Center (OVOC):**

- ✓ This version is compatible only with OVOC Version 8.0.3137 or later.
- ✓ If you plan on using OVOC with this SBC version, first upgrade your OVOC to the compatible OVOC version (above) prior to upgrading your device to this SBC version.

- **Using this SBC version with a centralized license pool:**

Customers using OVOC to manage their centralized license pool (Fixed, Floating, or Flex pool) must first upgrade their OVOC to the compatible OVOC version (above) prior to upgrading the devices in the pool to this SBC version. Failure in doing so removes the 7.4 devices from the centralized license pool.

When using the Floating or Flex license pool for WebRTC and SIPRec sessions, OVOC version 8.0.3000 or later is required.



Note: This SBC version is compatible with Stack Manager Version 2.3.2 or later. It's recommended to use Version 2.5.8 or later.

2.5.1 New Features

This section describes the new features introduced in this version.

2.5.1.1 Dedicated TCP Connection per User in SBC User Information Table

The device can now be configured to use a dedicated TCP/TLS connection per user listed in the SBC User Information table, with a SIP registrar server (Proxy Set). The dedicated connection is established when the device initially registers (SIP REGISTER) the user with the server. All SIP dialogs (e.g., INVITE) originating from the user are sent to the server over this dedicated connection.

Typically, this feature is not required. It should **only** be used if the registrar server (or firewall) blocks the connection upon SIP authentication failures / SIP transaction failures, wrongly assuming, for example, it's a DOS attack (i.e., receives many SIP messages from the same address).

This feature is enabled by the new IP Groups table parameter 'Dedicated Connection Mode'.

Note: When this feature is enabled, the maximum number of supported TLS connections is limited (see [Configuration Table Capacity](#)).

Applicable Application: SBC.

Applicable Products: All.

2.5.1.2 Local UDP Port Spacing of 2 for Media Channels

The device can now allocate its local UDP ports for RTP/T.38 (use same ports) and RTCP traffic per media channel (leg) in increments (spacing) of 2.

For example, if the UDP port range starts at 6000 and the port spacing is 2, the available ports are 6000 (port 6000 for RTP/T.38 and port 6001 for RTCP), 6002 (port 6002 for RTP/T.38 and port 6003 for RTCP), 6004 (port 6004 for RTP/T.38 and port 6005 for RTCP), and so on.

This feature is supported by configuring the existing [UdpPortSpacing] ini file parameter to the new optional value of "2".

Note: For UDP port spacing of 2, you must configure the device to use the same port for RTP and T.38, by configuring the ini file parameter [T38UseRTPPort] to 1.

Applicable Application: All.

Applicable Products: Mediant 500; Mediant 500L; Mediant 800; Mediant 3100; Mediant 2600; Mediant 4000; Mediant 90xx; Mediant Software.

2.5.1.3 Improved Configuration for AWS and Azure Environments

This enhancement is applicable for Mediant VE and CE SBCs that are deployed in AWS and Azure public cloud environments.

Cloud Manager task for the AWS environment has been available since Version 7.2. However, it has been completely redesigned in this 7.40A.260 version. The new implementation is more robust, fully compatible with IMDSv2, provides improved handling for intermittent failures of AWS EC2 and metadata APIs, and generates clear alarms in case of any problem.

Cloud Manager task support for Azure environments has been added to Version 7.40A.260.

Cloud Manager task is responsible for updating SBC network configuration tables -- IP Interfaces table (InterfaceTable) and Ethernet Devices (DeviceTable) -- with network parameters of the specific virtual machine provisioned by the public cloud. For example, if you attach a new network interface to the virtual machine or add an additional secondary IP address to the existing network interface, Cloud Manager task discovers these changes and updates the InterfaceTable accordingly.

Cloud Manager task utilizes instance metadata service (available at <http://169.254.169.254>) to read current virtual machine configuration. It runs periodically and may take up to a minute to discover and apply the changes.

In an AWS environment, the SBC's network configuration tables are read-only and can only be provisioned by Cloud Manager task.

In an Azure environment, the SBC's network configuration tables are read-write and therefore, it's possible to configure and apply some changes manually, for example, DNS servers. However, most parameters in the InterfaceTable are configured by Cloud Manager task ('Name', 'Mode', 'IP Address', 'Prefix Length' and 'Gateway') and therefore, should NOT be configured manually.

Cloud Manager logs can be obtained using the following CLI commands:

- `tail cloud-manager-log <num of lines>`
- `show cloud-manager-log`

The logs are also included in the Debug file, which can be downloaded through the Web interface (Troubleshooting > Debug > Debug Files).

Applicable Application: SBC.

Applicable Products: Mediant CE/VE.

2.5.1.4 Improved Traffic Flow using Custom EC2 Endpoint for Mediant VE and CE AWS Environments

High-Availability (HA) deployments of Mediant VE and CE SBCs in AWS environments use AWS EC2 API to implement IP failover. Prior to Version 7.40A.260, the SBC software automatically generated the AWS EC2 API endpoint based on the region in which it was deployed (e.g., `ec2.eu-central-1.amazonaws.com`). However, if two SBC instances were deployed in separate availability zones within the same region, the same AWS EC2 API endpoint was used for both availability zones. This resulted in all traffic towards AWS EC2 API endpoint to flow through the first availability zone, even for virtual machines deployed in the second availability zone.

Version 7.40A.260 introduces a new configuration parameter that can be used to configure a custom EC2 API Endpoint FQDN and/or IP address:

- Ini file: `AwsEc2Endpoint`
- CLI: `configure network > network-settings > aws-ec2-endpoint`

The parameter may contain one of the following values:

- Empty (default): The SBC CE automatically generates AWS EC2 API endpoint based on the region in which it is deployed (e.g., `ec2.eu-central-1.amazonaws.com`)
- Custom EC2 API endpoint FQDN (e.g., `vpce-0123456789.ec2.eu-central-1.vpce.amazonaws.com`)
- Custom EC2 API endpoint FQDN followed by its IP address (e.g., `ec2.eu-central-1.amazonaws.com:10.1.2.3`)

Applicable Application: SBC.

Applicable Products: Mediant CE/VE.

2.5.1.5 Weak Password Detection

The device can now be configured to detect and alert if a user in the Local Users table has been configured with a weak password.

A password is considered weak if it is listed in the new Weak Passwords List table (Setup > Administration > Web & CLI > Weak Passwords List). This table can be configured with up to 150 weak passwords and provides 6 passwords by default.

This feature is enabled by the new 'Check Weak Passwords' parameter.

If the device detects a weak password, it raises the new SNMP alarm acWeakPasswordAlarm (OID 1.3.6.1.4.1.5003.9.10.1.21.2.0.156).

Applicable Application: All.

Applicable Products: All.

2.5.1.6 SBC User Information Capacity Increase

The maximum number of supported far-end users that can be registered with the device has been increased from 20,000 to 50,000. Users are configured in the existing SBC User Information table.

Applicable Application: SBC.

Applicable Products: Mediant Software (16-64 GB); Mediant 90xx.

2.5.1.7 Hitless License Upgrade for WebRTC and SIPREC

The Hitless License Key Upgrade feature for devices in High-Availability (HA) mode now also supports WebRTC and SIPREC licenses. Up until now, hitless license upgrade was only supported for far-end users (FEU), SBC sessions, transcoding sessions, and SBC signaling licenses.

Applicable Application: All.

Applicable Products: Mediant 500 HA; Mediant 800 HA; Mediant 2600 HA; Mediant 4000 HA; Mediant 90xx HA; Mediant Software HA.

2.5.1.8 Call Duration Limit when using Device Free Trial Evaluation

Starting from this version, the free trial of the device offered by AudioCodes for evaluation purposes (without installing a License Key), not only restricts the device to three concurrent calls, but now also limits each call to three minutes.

Note: Devices connected to licensing models (e.g., Floating License) are not affected by this feature.

Applicable Application: SBC.

Applicable Products: Mediant Software.

2.5.1.9 Removal of CSRC Identifiers from RTP Packets

The device can now remove CSRC identifiers from RTP packets without using transcoding capabilities. Removing CSRC may be useful in some scenarios where, for example, the call is sent to a third-party application such as voicemail and the presence of CSRC causes a reduction in voice quality.

This feature is supported by the new IP Profiles table parameter 'Remove CSRC' (removes CSRC from packets sent to the SIP User Agent associated with the IP Profile).

Applicable Application: SBC.

Applicable Products: All.

2.5.1.10 Alarm Customization Based on Alarm Source Entity

The existing Alarms Customization table (Setup menu > Administration tab > SNMP folder > Alarm Customization) can now customize alarms based on the specific entity (e.g., IP Group 3, Ethernet port 1, Trunk 5) for which the alarm was raised. The entity appears in the alarm source after the hash (#) sign -- for example, Board#1/IPGroup#2, indicating that the alarm was raised for IP Group index 2. This feature may be useful, for example, to suppress specific alarms raised by a specific IP Group.

To support this feature, the new field 'Entity ID' has been added to the Alarms Customization table.

Applicable Application: All.

Applicable Products: All.

2.5.1.11 New CDR Field Indicating if Call Terminated by Device

The device supports a new CDR field called 'Released From IP' (IsReleasedFromIP), which indicates if the call was terminated by the device (i.e., because of an internal reason, for example, register user not found), or by the callee / called parties. The field is not included by default in the CDR, but it can be included by customizing the CDR using the SBC CDR Format table.

Applicable Application: SBC.

Applicable Products: All.

2.5.1.12 New SDR Field for Call Type

A new SDR field has been added called 'Call Type', which indicates the type of call (e.g., SIP-WebRTC call or SIP-bot call).

Applicable Application: SBC.

Applicable Products: Mediant Software; Mediant 90xx.

2.5.1.13 Tail CLI Command for Displaying Last Lines in Show Output

The CLI output of various log commands can now be configured to show the last lines (tail end) of the log output, using the new `tail` command. In addition, the number of lines to show can optionally be specified (if not, the last 100 lines are shown). This is especially useful for long outputs where the user needs to scroll all the way down to view the last lines.

The `tail` command can be used with the following commands:

- `tail cloud-init-log [<lines>]`: Shows cloud-init logs (Mediant Software SBC only)
- `tail aws-manager-log [<lines>]`: Shows aws-manager logs (Mediant Software SBC on AWS only)
- `tail system log [<lines>]`: Shows system logs
- `tail system log no-sip [<lines>]`: Shows system logs without SIP messages
- `tail system log persistent [<lines>]`: Shows persistent system logs

The `tail` command is available in privilege mode only (i.e., `> enable`).

Applicable Application: All.

Applicable Products: All.

2.5.1.14 SBC Configuration Wizard Templates for Orange and Alcatel-Lucent

The SBC Wizard provides new interoperability templates for Orange (OBS Business Talk & BTIP) and Alcatel-Lucent.

Applicable Application: SBC.

Applicable Products: All.

2.5.1.15 Mediant 3100 Power Type Status on Web Monitor Page Update

On the Web interface's Monitor page, the 'Power Type' read-only field for the Power Supply module now displays "N/A" if no module is installed, or if a new module is installed but not yet connected to power (DC or AC).

Applicable Application: All.

Applicable Products: Mediant 3100.

2.5.1.16 Update to Proxy Hot Swap Mode

For the existing Proxy Sets table parameter 'Proxy Hot Swap Mode' (ProxySet_IsProxyHotSwap), the textual description of value "0" was changed from **Disable** to **Enable Only Before Alternative Routing**, which now more accurately describes the device's behavior. Customers who want the hot-swap mode fully disabled, should choose the new value **Disable** (2).

Applicable Application: All.

Applicable Products: All.

2.5.1.17 Gateway-Type IP Group Status Updated

The read-only fields 'GW Group Registered IP Address' and 'GW Group Registered Status' in the IP Groups table now display "NA" when the IP Group is a **User**-type or **Server**-type. These fields are applicable only to Gateway-type IP Groups.

Applicable Application: All.

Applicable Products: All.

2.5.2 Known Constraints

This section lists known constraints.

Table 2-7: Known Constraints in Version 7.40A.260.007

Incident	Description	Impact	Severity	Affected Products	Affected Environments
SBC-42301	Configuring a name ('Name' field) in the Ethernet Devices table and IP Interfaces table instead of using the default name causes a networking issue (and device freezes upon restarts).	Loss of device's network information on Azure	Major	Mediant VE / CE	Azure

3 Session Capacity

This section provides capacity for the Gateway and SBC products.

3.1 SIP Signaling and Media Capacity

The following table lists the maximum, concurrent SIP signaling sessions, concurrent media sessions, and registered users per product.

Table 3-1: SIP Signaling and Media Capacity per Product

Product		Signaling Capacity		Media Sessions		
		SIP Sessions	Registered Users	Session Type	RTP	SRTP
Mediant 500		250	1,500	Hybrid	250	200
				GW-Only	30	30
Mediant 500L		60	200	Hybrid	60	60
				GW-Only	8	8
Mediant 800B		250	1,500	Hybrid	250	250
				GW-Only	64	64
Mediant 800C		400	2,000	Hybrid	400	300
				GW-Only	124	124
Mediant 1000B		150	600	Hybrid	150	120
				GW-Only	192	140
Mediant 3100		5,000	20,000	Hybrid	5,000	5,000
		960	20,000	GW-Only	960	960
MP-1288		588	350	Hybrid	588	438
				SBC-Only	300	300
				GW-Only	288	288
Mediant 2600		600	8,000	SBC-Only	600	600
Mediant 4000		5,000	20,000	SBC-Only	5,000	3,000
Mediant 4000B		5,000	20,000	SBC-Only	5,000	5,000
Mediant 9000	SIP Performance Profile (HT Enabled)	30,000	300,000	SBC-Only	30,000	16,000
		55,000	0	SBC-Only	55,000	18,000
	DSP Performance Profile (HT Enabled)	50,000	0	SBC-Only	50,000	18,000
	SRTP Performance Profile (HT Enabled)	50,000	0	SBC-Only	50,000	40,000
Mediant 9000 Rev. B	SIP Performance Profile	50,000	500,000	SBC-Only	50,000	30,000
		70,000	0	SBC-Only	70,000	30,000
	DSP Performance Profile	50,000	0	SBC-Only	50,000	28,000
	SRTP Performance Profile	70,000	0	SBC-Only	70,000	40,000

Product			Signaling Capacity		Media Sessions			
			SIP Sessions	Registered Users	Session Type	RTP	SRTP	Detailed Media Capabilities
Mediant 9030	SIP Performance Profile		30,000	200,000	SBC-Only	30,000	30,000	Transcoding: n/a
	DSP Performance Profile		30,000	200,000	SBC-Only	30,000	15,000	Transcoding: Table 3-28
Mediant 9080	SIP Performance Profile		50,000	500,000	SBC-Only	50,000	30,000	Transcoding: n/a
			70,000	0	SBC-Only	70,000	30,000	Transcoding: n/a
	DSP Performance Profile		50,000	0	SBC-Only	50,000	28,000	Transcoding: Table 3-25
	SRTP Performance Profile		70,000	0	SBC-Only	70,000	40,000	Transcoding: n/a
Mediant 9000 with Media Transcoders (MT-type)			24,000	180,000	SBC-Only	24,000	16,000	Transcoding: Table 3-27
Mediant 9000 Rev. B with Media Transcoders (MT-type)			60,000	200,000	SBC-Only	60,000	40,000	Transcoding: Table 3-27
Mediant 9080 with Media Transcoders (MT-type)			60,000	200,000	SBC-Only	60,000	40,000	Transcoding: Table 3-27
Mediant CE	AWS / EC2		50,000	100,000	SBC-Only	50,000	50,000	Forwarding: Table 3-30 Transcoding: Table 3-31
	Azure	36,000	75,000	SBC-Only	36,000	32,000	Forwarding: Table 3-32	
		32,000	75,000	SBC-Only	32,000	32,000	Forwarding: Table 3-32 Transcoding: Table 3-33	
	VMware	12,000	100,000	SBC-Only	12,000	12,000	Forwarding: Table 3-34 Transcoding: Table 3-35	
	GCP	50,000	100,000	SBC-Only	50,000	40,000	Forwarding: Table 3-36 Transcoding: Table 3-38	
Mediant VE	VMware	1 vCPU 2-GB RAM (HT)	250	1,000	SBC-Only	250	250	Transcoding: n/a
		1 vCPU 8-GB RAM (HT)	4000	15,000	SBC-Only	4000	2600	Transcoding: n/a
		4 vCPU 16-GB RAM (HT)	10,000	75,000	SBC-Only	10,000	8,000	Transcoding: n/a
		2 vCPUs 8-GB RAM (HT)	4000	15000	SBC-Only	2200	1900	Transcoding: Table 3-39
		4 vCPU 8-GB RAM (HT)	4,000	15,000	SBC-Only	1,800	1600	Transcoding: Table 3-39
		8 vCPU 16-GB RAM (HT)	9,000	75,000	SBC-Only	6,000	5,000	Transcoding: Table 3-39
		16 vCPU 16-GB RAM (HT)	9,000	75,000	SBC-Only	6,500	5,000	Transcoding: Table 3-39
	KVM / OpenStack	1 vCPU 2-GB RAM (HT)	250	1,000	SBC-Only	250	250	Transcoding: n/a
		1 vCPU 8-GB RAM (HT)	2,500	15,000	SBC-Only	2,500	1,700	Transcoding: n/a
		4 vCPU 16-GB RAM (HT)	4,500	75,000	SBC-Only	4,500	3,500	Transcoding: n/a
		2 vCPUs 8-GB RAM (HT)	1,900	15,000	SBC-Only	1,900	1,400	Transcoding: Table 3-39
		8 vCPU 16-GB RAM (HT)	5,800	75,000	SBC-Only	5,800	4,800	Transcoding: Table 3-39
		16 vCPU 16-GB RAM (HT)	3,800	75,000	SBC-Only	3,800	2,800	Transcoding: Table 3-39

Product			Signaling Capacity		Media Sessions			
			SIP Sessions	Registered Users	Session Type	RTP	SRTP	Detailed Media Capabilities
	Hyper-V	8 vCPU 32-GB RAM SR-IOV Intel NICs (non-HT)	24,000	75,000	SBC-Only	24,000	10,000	Transcoding: n/a
		1 vCPU 2-GB RAM (HT)	250	1,000	SBC-Only	250	250	Transcoding: n/a
		1 vCPU 8-GB RAM (HT)	1,500	15,000	SBC-Only	1,500	1,200	Transcoding: n/a
		4 vCPU 8-GB RAM (HT)	2,500	75,000	SBC-Only	2,500	2,300	Transcoding: n/a
		2 vCPUs 8-GB RAM (HT)	1,900	15,000	SBC-Only	1,900	1,400	Transcoding: Table 3-39
		8 vCPU 16-GB RAM (HT)	2,500	75,000	SBC-Only	2,500	2,300	Transcoding: Table 3-39
	AWS / EC2	m5n.large	3,200	30,000	SBC-Only	3,200	3,200	Transcoding: n/a
			2,500	20,000	SBC-Only	2,500	1,500	Transcoding: Table 3-40
		c5n.2xlarge	5,500	75,000	SBC-Only	5,500	5,000	Transcoding: n/a
			4,500	75,000	SBC-Only	4,500	2,400	Transcoding: Table 3-41
		c5n.9xlarge	7,000	75,000	SBC-Only	7,000	6,000	Transcoding: n/a
			7,000	75,000	SBC-Only	7,000	4,500	Transcoding: Table 3-42
	Azure	DS1_v2	600	1,000	SBC-Only	600	500	Transcoding: n/a
			300	1,000	SBC-Only	300	300	Transcoding: Table 3-44
		DS2_v2	1,200	15,000	SBC-Only	1,200	800	Transcoding: n/a
			900	15,000	SBC-Only	900	600	Transcoding: Table 3-44
		DS3_v2	1,700	50,000	SBC-Only	1,700	1,600	Transcoding: n/a
			1,100	50,000	SBC-Only	1,100	800	Transcoding: Table 3-44
		DS4_v2	1,800	75,000	SBC-Only	1,800	1,600	Transcoding: n/a
			1,600	75,000	SBC-Only	1,600	1,600	Transcoding: Table 3-44
	GCP	n2-standard-2	2,500	75,000	SBC-Only	3,500	2,400	Transcoding: n/a
			1,500	75,000	SBC-Only	1,500	1,100	Transcoding: Table 3-45
		n2-standard-4	4,000	75,000	SBC-Only	4,000	2,000	Transcoding: n/a
			2,400	75,000	SBC-Only	2,400	1,800	Transcoding: Table 3-45
		n2-standard-8	2,400	75,000	SBC-Only	2,400	1,800	Transcoding: Table 3-45
			3,600	75,000	SBC-Only	3,600	3,400	Transcoding: Table 3-45
Mediant SE	DL360p Gen8 or DL360 Gen9		24,000	120,000	SBC-Only	16,000	14,000	Transcoding: n/a
			24,000	0	SBC-Only	24,000	14,000	Transcoding: n/a
	DL360 Gen10	SIP Performance Profile	50,000	500,000	SBC-Only	50,000	30,000	Transcoding: n/a
			70,000	0	SBC-Only	70,000	30,000	Transcoding: n/a
		DSP Performance Profile	50,000	0	SBC-Only	50,000	28,000	Transcoding: Table 3-46
		SRTP Performance Profile	70,000	0	SBC-Only	70,000	40,000	Transcoding: n/a

**Note:**

- The listed capacities are accurate at the time of publication of this document. However, they may change due to a later software update. For the latest capacities, please contact your AudioCodes sales representative.
- **GW** refers to Gateway functionality.
- **SIP Sessions** refers to the maximum concurrent signaling sessions for both SBC and Gateway (when applicable). Whenever signaling sessions is greater than the maximum media sessions, the remaining signaling sessions can be used for Direct Media.
- **Session Type** refers to Gateway-only sessions, SBC-only sessions, or Hybrid sessions which is any mixture of SBC and Gateway sessions under the limitations of Gateway-only or SBC-only maximum values.
- **RTP Sessions** refers to the maximum concurrent RTP sessions when all sessions are RTP-RTP (SBC sessions) or TDM-RTP (Gateway sessions).
- **SRTP Sessions** refers to the maximum concurrent SRTP sessions when all sessions are RTP-SRTP (for SBC sessions) or TDM-SRTP (for Gateway sessions).
- **Registered Users** refers to the maximum number of users that can be registered with the device. This applies to the supported application (SBC or CRP).
- Regarding signaling, media, and transcoding session resources:
 - ✓ A signaling session is a SIP dialog session between two SIP entities, traversing the device and using one signaling session resource.
 - ✓ A media session is an audio (RTP or SRTP), fax (T.38), or video session between two SIP entities, traversing the device and using one media session resource.
 - ✓ A gateway session (TDM-RTP or TDM-SRTP) is considered as a media session for the calculation of media sessions. In other words, the maximum media sessions shown in the table refer to the sum of Gateway and SBC sessions.
 - ✓ For direct media (i.e., anti-tromboning or non-media anchoring) where only SIP signaling traverses the device and media flows directly between the SIP entities, only a signaling session resource is used. Thus, for products with a greater signaling session capacity than media, even when media session resources have been exhausted, additional signaling sessions can still be handled for direct-media calls.
 - ✓ For call sessions requiring transcoding, one transcoding session resource is also used. For example, for a non-direct media call in which one leg uses G.711 and the other G.729, one signaling, one media, and one transcoding session resources are used.
- Cloud Resilience Package (CRP) application capacity appears under **Registered Users**.
- Lync Analog Device (LAD) application capacity appears under **Media Sessions**.

**Note for MP-1288:**

- The maximum number of media and signaling sessions is the sum of the maximum 300 RTP-to-RTP (SBC) sessions and the maximum 288 TDM-RTP (Gateway) sessions.
- The maximum number of SRTP sessions is the sum of the maximum 150 RTP-to-SRTP (SBC) sessions and the maximum 288 TDM-SRTP (Gateway) sessions.

**Note for Mediant 90xx SBC:**

- Mediant 90xx SBC with Media Transcoders limitations:
 - ✓ To allow DSP capabilities (such as transcoding), the 'Performance Profile' parameter must be configured to the DSP profile. Each transcoding session is weighted as two RTP-RTP sessions without transcoding. Therefore, the number of sessions without transcoding plus the doubled number of sessions with transcoding must be less than the maximum RTP-RTP figure specified in the table. As a result, if all sessions involve transcoding, the maximum number of sessions is half the maximum RTP-RTP sessions without transcoding specified in the table.
 - ✓ The maximum number of SRTP-RTP sessions is also affected by the above limitations. For example, if sessions involve transcoding, the maximum number of SRTP-RTP sessions is also limited by half of the maximum SRTP-RTP sessions without transcoding.
- The Media Transcoding Cluster (MTC) feature is supported only on Mediant 9080 SBC.

**Note for Mediant VE SBC:**

- **Mediant VE SBC on VMware:** Capacities were measured with ESXi Version 7.0.3 and a host of CPU Xeon 6226R with Hyper-Threading enabled. For example, a 4-vCPU virtual machine allocates only 2 physical cores. For minimum requirements, see Section 3.3.15.1 on page 89.
- **Mediant VE SBC on KVM:** The capacities for virtual machine instance with SR-IOV refer to using Intel 82599 NIC.
- **Mediant VE SBC on AWS:**
 - ✓ Network performance on AWS cloud is subject to network conditions, which may depend on time and region.
 - ✓ Capacities shown in the table are based on lowest capacities found during performance testing.
 - ✓ It's recommended to use the m5n and c5n instance types as they provide more stable network characteristics. However, the m5 and c5 instance types are still supported.

**Note for Mediant CE SBC:**

Mediant CE SBC is based on the following instances:

- **AWS:**
 - ✓ Signaling Components (SC): m5.2xlarge
 - ✓ Media Components (MC) - forwarding only: m5n.large
 - ✓ MC - forwarding and transcoding: c5.4xlarge
- **Azure:**
 - ✓ SC: DS3_v2 (up to 10,000 sessions and 50,000 users) or D8s_v3/v4 (up to 36,000 sessions and 75,000 users)
 - ✓ MC - forwarding only: DS2_v2, DS3_v2 or DS4_v2
 - ✓ MC - forwarding and transcoding: DS2_v2, DS3_v2, or DS4_v2
- **VMware:**
 - ✓ SC: 8 vCPU (Hyper-Threading), 16-GB RAM
 - ✓ MC - forwarding only: 2 vCPU (Hyper-Threading), 8-GB RAM
 - ✓ MC - forwarding and transcoding: 8 vCPU (Hyper-Threading), 8-GB RAM
- **GCP:**
 - ✓ SC: n2-standard-8 (8 vCPU, 32-GB RAM)
 - ✓ MC - forwarding only: n2-standard-2 (2 vCPU, 8-GB RAM)
 - ✓ MC - forwarding and transcoding: n2-standard-2 (2 vCPU, 8-GB RAM), n2_highcpu-8 (8 vCPU, 32-GB RAM)



Note for Mediant SE SBC: For new deployments, it's highly recommended to use the DL360 G10 server. For exact specifications and BIOS settings, please contact your AudioCodes sales representative.

3.2 Capacity per Feature

The table below lists maximum capacity per feature.

Table 3-2: Maximum Capacity per Feature

Product	Concurrent WebRTC Sessions (see note #3)		One-Voice Resiliency (OVR) Users	Concurrent SIPRec Sessions (see note #4)	Concurrent TLS Connections
	Click-to-Call	Registered Agents			
MP-1288	-	-	-	150	350
Mediant 500	-	-	-	125	300
Mediant 500L	-	-	-	30	100
Mediant 800B	100	100	100	200	300
Mediant 800C	100	100	150	200	450
Mediant 1000B	-	-	50	-	300
Mediant 3100	1,000	1,000	-	2,500	6,000
Mediant 2600	600	600	-	300	1,000
Mediant 4000/B	1,000	1,000	-	2,500	1,000
Mediant 9000	5,000	16,000	-	<ul style="list-style-type: none"> Hyper-Threading: 20,000 No Hyper-Threading: 12,000 	25,000
Mediant 9030	5,000	16,000	-	15,000	16,000
Mediant 9080	8,000	25,000	-	20,000	25,000
Mediant SE (see note #1)	5,000	25,000	-	12,000	25,000
Mediant VE (see note #2)	5,000	5,000	2,000	12,000	<ul style="list-style-type: none"> 2 GB: 100 3 GB: 500 4 GB: 5,000 8-16 GB: 6,000 32 GB: 16,000 64 GB: 25,000
Mediant CE (see note #2)	5,000	5,000	-	20,000	<ul style="list-style-type: none"> 2 GB: 100 3 GB: 500 4 GB: 5,000 8-16 GB: 6,000 32 GB: 16,000 64 GB: 25,000

**Note:**

1. Using the approved Mediant SE server specifications with an Intel Xeon Gold 6126 processor. For specifications, please contact AudioCodes.
2. For WebRTC sessions:
 - ✓ The maximum number of concurrent WebRTC sessions can't be greater than the maximum number of concurrent SRTP sessions (specified in Table 3-1). Therefore, the actual maximum number of concurrent WebRTC sessions per deployment environment will be the lower of these numbers.
 - ✓ The maximum number of concurrent WebRTC sessions can't be greater than the maximum number of concurrent TLS connections.
3. Capacity figures assume that a TLS key size of 2048-bit is used for the WebSocket and DTLS negotiation,
4. SIPRec capacity figures assume that there are no other concurrent, regular (non-SIPRec) voice sessions. SIPRec sessions are counted as part of the SBC session capacity. The maximum number of SIPRec sessions cannot be higher than the number of RTP sessions, as indicated in Table 3-1. Therefore, the actual maximum number of SIPRec sessions per deployment environment will be the lower of these numbers.

3.3 Detailed Capacity

This section provides detailed capacity figures.

3.3.1 Mediant 500 E-SBC

The SBC session capacity and DSP channel capacity for Mediant 500 E-SBC are shown in the tables below.

3.3.1.1 Non-Hybrid (SBC) Capacity

Table 3-3: Mediant 500 E-SBC (Non-Hybrid) - SBC Capacity

Hardware Configuration	TDM-RTP Sessions				Max. SBC Sessions (RTP-RTP)
	DSP Channels Allocated for PSTN	Wideband Coders			
		G.722	AMR-WB (G.722.2)	SILK-WB	
SBC	n/a	n/a	n/a	n/a	250

3.3.1.2 Hybrid (with Gateway) Capacity

Table 3-4: Mediant 500 Hybrid E-SBC (with Gateway) - Media & SBC Capacity

Hardware Configuration	TDM-RTP Sessions				Max. SBC Sessions (RTP-RTP)
	DSP Channels Allocated for PSTN	Wideband Coders			
		G.722	AMR-WB (G.722.2)	SILK-WB	
1 x E1/T1	30 (full E1)	√	-	-	220
	24 (full T1)				226
	26 (partial E1)	√	√	-	224
	24 (full T1)	√	√	-	226
	26 (partial E1)	√	√	√	224
	24 (full T1)	√	√	√	226

3.3.2 Mediant 500L Gateway and E-SBC

The SBC session capacity and DSP channel capacity for Mediant 500L Gateway and E-SBC is shown in the tables below.

3.3.2.1 Non-Hybrid (SBC) Capacity

Table 3-5: Mediant 500L E-SBC (Non-Hybrid) - SBC Capacity

Hardware Configuration	TDM-RTP Sessions			Max. SBC Sessions (RTP-RTP)
	DSP Channels Allocated for PSTN	Wideband Coders		
		G.722	AMR-WB (G.722.2)	
SBC	n/a	n/a	n/a	60

3.3.2.2 Hybrid (with Gateway) Capacity

Table 3-6: Mediant 500L Hybrid E-SBC (with Gateway) - Media & SBC Capacity

Hardware Configuration	DSP Channels Allocated for PSTN	Additional Coders				Max. SBC Sessions
		Narrowband	Wideband			
		Opus-NB	G.722	AMR-WB (G.722.2)	Opus-WB	
2 x BRI / 4 x BRI	4/8	-	-	-	-	56/52
	4/8	-	√	-	-	56/52
	4/6	√	-	√	-	56/54
	4	-	-	-	√	56

3.3.3 Mediant 800 Gateway & E-SBC

This section describes capacity for Mediant 800 Gateway & E-SBC.

3.3.3.1 Mediant 800B Gateway & E-SBC

The DSP channel capacity and SBC session capacity for Mediant 800B Gateway & E-SBC are shown in the tables below.

3.3.3.1.1 Non-Hybrid (SBC) Capacity

Table 3-7: Mediant 800B Gateway & E-SBC - SBC Session Capacity per Capabilities (SBC Only)

H/W Configuration	DSP Channels for PSTN	SBC Transcoding Sessions								Max. SBC Sessions
		From Profile 2 with Additional Advanced DSP Capabilities						To Profile 1	To Profile 2	
		Opus-NB	Opus-WB	AMR-NB / G.722	AMR-WB (G.722.2)	SILK-NB / iLBC	SILK-WB			
SBC	n/a	-	-	-	-	-	-	57	48	250
	n/a	-	-	√	-	-	-	51	42	250
	n/a	-	-	-	-	√	-	39	33	250
	n/a	-	-	-	√	-	-	36	30	250
	n/a	-	-	-	-	-	√	27	24	250
	n/a	√	-	-	-	-	-	27	24	250
	n/a	-	√	-	-	-	-	21	21	250



Note: "Max. SBC Sessions" applies to scenarios without registered users. When registered users are used, "Max. SBC Sessions" is reduced according to the main capacity table (see Section 3.1).

3.3.3.1.2 Hybrid (with Gateway) Capacity

Table 3-8: Mediant 800B Gateway & E-SBC - Channel Capacity per Capabilities (with Gateway)

Telephony Interface Assembly	DSP Channels Allocated for PSTN	SBC Transcoding Sessions									Conf. Participants	Max. SBC Sessions
		From Profile 2 with Additional Advanced DSP Capabilities							To Profile 1	To Profile 2		
		AMR-NB / G.722	AMR-WB (G.722.2)	SILK-NB	SILK-WB	Opus-NB	Opus-WB	V.150.1				
2 x E1/T1	60/48	-	-	-	-	-	-	-	3/15	2/13	-	190/202
2 x T1	48	-	-	-	-	-	-	√	11	9	-	202
1 x E1/T1 8 x FXS/FXO	38/32	-	-	-	-	-	-	-	22/28	18/22	-	212/218
	38/32	-	-	√	-	-	-	-	8/12	7/11	-	212/218
1 x E1/T1	30/24	-	-	√	-	-		√	14/18	12/16	-	220/226
1 x E1 4 x BRI	38	-	-	-	-	-	-	-	22	18	-	212
1 x E1 4 x FXS	34	-	-	-	-	-	-	-	26	21	-	216
2 x E1 4 x FXS	64	-	-	-	-	-	-	-	0	0	-	186
4 x BRI 4 x FXS 4 x FXO	16	-	-	-	-	-	-	-	5	4	-	234
8 x BRI 4 x FXS	20	-	-	-	-	-	-	-	1	1	-	230
8 x BRI	16	-	-	-	-	-	-	-	5	4	-	234
12 x FXS	12	-	-	√	-	-	-	√	3	3	-	238
4 x FXS 8 x FXO	12	-	-	√	-	-	-	-	3	3	-	238
8 x FXS 4 x FXO	12	-	-	√	-	-	-	-	3	3	-	238
4 x BRI 4 x FXS	12	-	-	√	-	-	-	-	3	3	-	238
4 x FXS 4 x FXO	8	-	-	-	-	-	-	-	7	5	6	242
	8	-	-	√	-	-	-	-	6	6	-	242
4 x BRI	8	-	-	-	-	-	-	-	7	5	6	242
	8	-	-	√	-	-	-	-	6	6	-	242
1/2/3 x BRI	2/4/6	-	-	-	-	-	-	-	17/15 /14	14/13 /11	-	248/246/ 244

Telephony Interface Assembly	DSP Channels Allocated for PSTN	SBC Transcoding Sessions									Conf. Participants	Max. SBC Sessions
		From Profile 2 with Additional Advanced DSP Capabilities							To Profile 1	To Profile 2		
		AMR-NB / G.722	AMR-WB (G.722.2)	SILK-NB	SILK-WB	Opus-NB	Opus-WB	V.150.1				
	2/4/6	-	-	√	-	-	-	-	11/10 /8	10/8/ 7	-	248/246/ 244
4 x FXS or 4 x FXO	4	-	-	√	-	-	-	√	10	8	-	246
	4	√	-	-	-	-	-	-	12	10	4	246
	4	-	-	√	-	-	-	-	6	6	4	246
	4	-	√	√	-	-	-	-	4	4	4	246
	4	-	√	√	√	-	-	-	3	3	4	246
	4	-	-	-	-	√	-	-	1	0	4	246
	4	-	-	-	-	-	√	-	0	0	3	246
FXS, FXO, and/or BRI, but not in use	0	-	-	-	-	-	-	-	19	16	-	250

Notes:

- "Max. SBC Sessions" for Mediant 800B applies to scenarios without registered users. When registered users are used, "Max. SBC Sessions" is reduced according to the main capacity table (see Section 3.1).
- *Profile 1*: G.711 at 20ms only, with In-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2*: G.711, G.726, G.729 (A / AB), and G.723.1, T.38 with fax detection, In-band signaling (in voice channel), and Silence Compression.
- All hardware assemblies also support the following DSP channel capabilities: echo cancellation (EC), CID (caller ID), RTCP XR reporting, and SRTP.
- SBC enhancements (e.g., Acoustic Echo Suppressor, Noise Reduction) are also available for these configurations. For more information, please contact your AudioCodes sales representative.
- Automatic Gain Control (AGC) and Answer Detector / Answer Machine Detector (AD/AMD) are also available for these configurations. For more information, please contact your AudioCodes sales representative.
- V.150.1 is supported only for the US Department of Defense (DoD).
- *Transcoding Sessions* represents part of the total SBC sessions.
- *Conference Participants* represents the number of concurrent analog ports in a three-way conference call.
- For availability of the telephony assemblies listed in the table above, please contact your AudioCodes sales representative.



3.3.3.2 Mediant 800C Gateway & E-SBC

The DSP channel capacity and SBC session capacity for Mediant 800C Gateway & E-SBC are shown in the tables below.

3.3.3.2.1 Non-Hybrid (SBC) Capacity

Table 3-9: Mediant 800C Gateway & E-SBC - SBC Session Capacity per Capabilities (SBC Only)

H/W Configuration	SBC Transcoding Sessions								Max. SBC Sessions
	From Profile 2 with Additional Advanced DSP Capabilities						To Profile 1	To Profile 2	
	Opus-NB	Opus-WB	AMR-NB / G.722	AMR-WB (G.722.2)	SILK-NB / iLBC	SILK-WB			
SBC	-	-	-	-	-	-	114	96	400
	-	-	√	-	-	-	102	84	400
	-	-	-	-	√	-	78	66	400
	-	-	-	√	-	-	72	60	400
	-	-	-	-	-	√	54	48	400
	√	-	-	-	-	-	54	48	400
	-	√	-	-	-	-	42	42	400



Note: "Max. SBC Sessions" applies to scenarios without registered users. When registered users are used, "Max. SBC Sessions" is reduced according to the main capacity table (see Section 3.1).

3.3.3.2.2 Hybrid (with Gateway) Capacity

Table 3-10: Mediant 800C Gateway & E-SBC - SBC Session Capacity per Capabilities with Gateway

Telephony Interface Assembly	DSP Channels Allocated for PSTN	SBC Transcoding Sessions							Max SBC Sessions
		From Profile 2	From Profile 2 with SILK-NB / iLBC	From Profile 2 with SILK-WB	From Profile 2 with OPUS-NB	From Profile 2 with OPUS-WB	To Profile 1	To Profile 2	
4 x E1/T1 4 x FXS	124/100	√	-	-	-	-	2/23	2/18	276/300
	102/100	-	√	-	-	-	0	0	298/300
	78	-	-	√	-	-	0	0	322
	72	-	-	-	√	-	0	0	328
	54	-	-	-	-	√	0	0	346
1 x E1/T1 4 x FXS	35/29	√	-	-	-	-	25/30	20/25	365/371
	35/29	-	√	-	-	-	10/15	9/13	365/371
	35/29	-	-	√	-	-	1/5	1/5	365/371
	35/29	-	-	-	√	-	0/4	0/3	365/371
	27	-	-	-	-	√	0	0	373
8 x BRI 4 x FXS	20	√	-	-	-	-	38	31	380
	20	-	√	-	-	-	22	19	380
	20	-	-	√	-	-	12	11	380
	20	-	-	-	√	-	11	9	380
	20	-	-	-	-	√	4	3	380
Not in use	-	√	-	-	-	-	114	96	400
	-	-	√	-	-	-	78	66	400
	-	-	-	√	-	-	54	48	400
	-	-	-	-	√	-	54	48	400
	-	-	-	-	-	√	42	42	400

**Notes:**

- "Max. SBC Sessions" applies to scenarios without registered users. When registered users are used, "Max. SBC Sessions" is reduced according to the main capacity table (see Section 3.1).
- *Profile 1*: G.711 at 20ms only, with In-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2*: G.711, G.726, G.729 (A / AB), and G.723.1, T.38 with fax detection, In-band signaling (in voice channel), and Silence Compression.
- All hardware assemblies also support the following DSP channel capabilities: echo cancellation (EC), CID (caller ID), RTCP XR reporting, and SRTP.
- SBC enhancements (e.g., Acoustic Echo Suppressor, Noise Reduction) are also available for these configurations. For more information, please contact your AudioCodes sales representative.
- Automatic Gain Control (AGC) and Answer Detector / Answer Machine Detector (AD/AMD) are also available for these configurations. For more information, please contact your AudioCodes sales representative.
- V.150.1 is supported only for the US Department of Defense (DoD).
- *Transcoding Sessions* represents part of the total SBC sessions.
- *Conference Participants* represents the number of concurrent analog ports in a three-way conference call.
- For availability of the telephony assemblies listed in the table above, please contact your AudioCodes sales representative.

3.3.4 Mediant 1000B Gateway & E-SBC

This section lists the channel capacity and DSP templates for Mediant 1000B Gateway & E-SBC DSP.



Notes:

- The maximum number of channels on any form of analog, digital, and MPM module assembly is 192. When the device handles both SBC and Gateway call sessions, the maximum number of total sessions is 150. When the device handles SRTP, the maximum capacity is reduced to 120.
- Installation and use of voice coders is subject to obtaining the appropriate license and royalty payments.
- For additional DSP templates, contact your AudioCodes sales representative.

3.3.4.1 Analog (FXS/FXO) Interfaces

The channel capacity per DSP firmware template for analog interfaces is shown in the table below.

Table 3-11: Mediant 1000B Analog Series - Channel Capacity per DSP Firmware Template

	DSP Template	
	0, 1, 2, 4, 5, 6	10, 11, 12, 14, 15, 16
	Number of Channels	
	4	3
Voice Coder		
G.711 A/Mu-law PCM	√	√
G.726 ADPCM	√	√
G.723.1	√	√
G.729 (A / AB)	√	√
G.722	-	√

3.3.4.2 BRI Interfaces

The channel capacity per DSP firmware template for BRI interfaces is shown in the table below.

Table 3-12: Mediant 1000B BRI Series - Channel Capacity per DSP Firmware Template

	DSP Template					
	0, 1, 2, 4, 5, 6			10, 11, 12, 14, 15, 16		
	Number of BRI Spans					
	4	8	20	4	8	20
	Number of Channels					
	8	16	40	6	12	30
Voice Coder						
G.711 A/Mu-law PCM	√			√		
G.726 ADPCM	√			√		
G.723.1	√			√		
G.729 (A / AB)	√			√		
G.722	-			√		

3.3.4.3 E1/T1 Interfaces

The channel capacity per DSP firmware template for E1/T1 interfaces is shown in the table below.

Table 3-13: Mediant 1000B E1/T1 Series - Channel Capacity per DSP Firmware Templates

	DSP Template																								
	0 or 10					1 or 11					2 or 12					5 or 15					6 or 16				
	Number of Spans																								
	1	2	4	6	8	1	2	4	6	8	1	2	4	6	8	1	2	4	6	8	1	2	4	6	8
	Number of Channels																								
Default Settings	31	62	120	182	192	31	48	80	128	160	24	36	60	96	120	24	36	60	96	120	31	60	100	160	192
With 128-ms Echo Cancellation	31	60	100	160	192	31	48	80	128	160	24	36	60	96	120	24	36	60	96	120	31	60	100	160	192
With IPM Features	31	60	100	160	192	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31	60	100	160	192
Voice Coder																									
G.711 A-Law/M-Law PCM	✓					✓					✓					✓					✓				
G.726 ADPCM	✓					✓					✓					✓					-				
G.723.1	✓					-					-					-					-				
G.729 (A / AB)	✓					✓					✓					✓					✓				
GSM FR	✓					✓					-					-					-				
MS GSM	✓					✓					-					-					-				
iLBC	-					-					-					✓					-				
EVRC	-					-					✓					-					-				
QCELP	-					-					✓					-					-				
AMR	-					✓					-					-					-				
GSM EFR	-					✓					-					-					-				
G.722	-					-					-					-					✓				
Transparent	✓					✓					✓					✓					✓				



Note: "IPM Features" refers to Automatic Gain Control (AGC), Answer Machine Detection (AMD) and Answer Detection (AD).

3.3.4.4 Media Processing Interfaces

The transcoding session capacity according to DSP firmware template (per MPM module) is shown in the table below.


Notes:

- The device can be housed with up to four MPM modules.
- The MPM modules can only be housed in slots 1 through 5.

Table 3-14: Transcoding Sessions Capacity per MPM According to DSP Firmware Template for Mediant 1000B

	DSP Template				
	0 or 10	1 or 11	2 or 12	5 or 15	6 or 16
IPM Detectors Automatic Gain Control (AGC), Answer Machine Detection (AMD) and Answer Detection (AD)	Number of Transcoding Sessions per MPM Module				
-	24	16	12	12	20
✓	20	-	-	-	20
Voice Codec					
G.711 A-law / M _μ -law PCM	✓	✓	✓	✓	✓
G.726 ADPCM	✓	✓	✓	✓	-
G.723.1	✓	-	-	-	-
G.729 (A / AB)	✓	✓	✓	✓	✓
GSM FR	✓	✓	-	-	-
MS GSM	✓	✓	-	-	-
iLBC	-	-	-	✓	-
EVRC	-	-	✓	-	-
QCELP	-	-	✓	-	-
AMR	-	✓	-	-	-
GSM EFR	-	✓	-	-	-
G.722	-	-	-	-	✓
Transparent	✓	✓	✓	✓	✓

3.3.5 Mediant 3100 Gateway & E-SBC

This section describes the capacity of Mediant 3100 Gateway & E-SBC.

3.3.5.1 Gateway Capacity

The following table shows the maximum number of Gateway sessions when there are no SBC transcoding sessions.

Table 3-15: Mediant 3100 - Gateway Channel Capacity per Capability Profile

Profile	Hardware Assembly		
	8 x E1	16 x E1	32 x E1
Profile 1	240	480	960
Profile 2	240	480	960
Profile 2 + SILK-NB	240	480	960
Profile 2 + AMR-WB	240	480	960
Profile 2 + G.722 / AMR-NB	240	480	960
Profile 2 + SILK-WB	208	416	832
Profile 2 + Opus-NB	240	480	960
Profile 2 + Opus-WB	215	430	860

**Notes:**

- *Profile 1:* G.711 at 20ms only, with in-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38 with fax detection, in-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance. For more information, contact your AudioCodes sales representative.

3.3.5.2 Non-Hybrid (SBC) Transcoding Capacity

The following table shows the maximum number of SBC transcoding sessions when there are no Gateway sessions.

Table 3-16: Mediant 3100 - SBC Transcoding Capacity per Coder Capability Profile

Transcoding Session Coders		8xE1	16xE1	32xE1	64xE1
From Coder	To Coder				
Profile 1	Profile 1	460	925	1,855	3,700
Profile 1	Profile 2	400	800	1,600	3,200
Profile 2	Profile 2	350	700	1,405	2,800
Profile 1	Profile 2 + SILK-NB	260	525	1,055	2,100
Profile 2	Profile 2 + SILK-NB	245	495	990	1,975
Profile 1	Profile 2 + AMR-WB	255	510	1,020	2,025
Profile 2	Profile 2 + AMR-WB	240	480	960	1,900
Profile 1	Profile 2 + G.722 / AMR-NB	400	800	1,600	3,200
Profile 2	Profile 2 + G.722 / AMR-NB	350	700	1,405	2,800
Profile 1	Profile 2 + SILK-WB	180	365	735	1,450
Profile 2	Profile 2 + SILK-WB	175	350	700	1,400
Profile 1	Profile 2 + Opus-NB	220	445	895	1,775
Profile 2	Profile 2 + Opus-NB	205	415	830	1,650
Profile 1	Profile 2 + Opus-WB	205	415	830	1,650
Profile 2	Profile 2 + Opus-WB	190	380	765	1,525



Notes:

- *Profile 1:* G.711 at 20ms only, with in-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38 with fax detection, in-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance. For more information, contact your AudioCodes sales representative.

3.3.6 MP-1288 Analog Gateway & E-SBC

Session capacity includes Gateway sessions as well as SBC sessions without transcoding capabilities. The maximum capacity of Gateway sessions for MP-1288 Gateway & E-SBC is shown in the table below.

Table 3-17: MP-1288 Gateway - Session Capacity

Coder	Gateway Sessions Capacity	
	Single FXS Blade	Fully Populated (4 x FXS Blades)
Basic: G.711, G.729 (A / AB), G.723.1, G.726 / G.727 ADPCM	72	288
G.722	72	288
AMR-NB	72	288
Opus-NB	60	240



Note:

- Quality Monitoring and Noise Reduction are not supported.
- SRTP is supported on all configurations.

3.3.7 Mediant 2600 E-SBC

The maximum number of supported SBC sessions is shown in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below:

Table 3-18: Mediant 2600 E-SBC - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Without MPM4	With MPM4
Profile 1	Profile 1	400	600
Profile 2	Profile 1	300	600
Profile 2	Profile 2	250	600
Profile 1	Profile 2 + AMR-NB / G.722	275	600
Profile 2	Profile 2 + AMR-NB / G.722	225	600
Profile 1	Profile 2 + iLBC	175	575
Profile 2	Profile 2 + iLBC	150	500
Profile 1	Profile 2 + AMR-WB (G.722.2)	200	600
Profile 2	Profile 2 + AMR-WB (G.722.2)	175	525
Profile 1	Profile 2 + SILK-NB	200	600
Profile 2	Profile 2 + SILK-NB	175	525
Profile 1	Profile 2 + SILK-WB	100	350
Profile 2	Profile 2 + SILK-WB	100	350
Profile 1	Profile 2 + Opus-NB	125	425
Profile 2	Profile 2 + Opus-NB	125	375
Profile 1	Profile 2 + Opus-WB	100	300
Profile 2	Profile 2 + Opus-WB	75	275



Notes:

- *Profile 1:* G.711 at 20ms only, with in-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38 with fax detection, in-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance. For more information, contact your AudioCodes sales representative.
- MPM is the optional, Media Processing Module that provides additional DSPs, allowing greater capacity.

3.3.8 Mediant 4000 SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-19: Mediant 4000 SBC - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Without MPM8	With MPM8
Profile 1	Profile 1	800	2,400
Profile 2	Profile 1	600	1,850
Profile 2	Profile 2	500	1,550
Profile 1	Profile 2 + AMR-NB / G.722	550	1,650
Profile 2	Profile 2 + AMR-NB / G.722	450	1,350
Profile 1	Profile 2 + iLBC	350	1,150
Profile 2	Profile 2 + iLBC	300	1,000
Profile 1	Profile 2 + AMR-WB (G.722.2)	400	1,200
Profile 2	Profile 2 + AMR-WB (G.722.2)	350	1,050
Profile 1	Profile 2 + SILK-NB	400	1,200
Profile 2	Profile 2 + SILK-NB	350	1,050
Profile 1	Profile 2 + SILK-WB	200	700
Profile 2	Profile 2 + SILK-WB	200	700
Profile 1	Profile 2 + Opus-NB	250	850
Profile 2	Profile 2 + Opus-NB	250	750
Profile 1	Profile 2 + Opus-WB	200	600
Profile 2	Profile 2 + Opus-WB	150	550

Notes:

- *Profile 1:* G.711 at 20ms only, with in-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38 with fax detection, in-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance. For more information, contact your AudioCodes sales representative.
- MPM is the optional, Media Processing Module that provides additional DSPs, allowing greater capacity.



3.3.8.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-20: Mediant 4000 SBC - Forwarding Capacity per Feature

Feature	Max. Sessions
Fax Detection	5,000
AD/AMD/Beep Detection	5,000
CP Detection	5,000
Jitter Buffer	5,000

**Notes:**

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.9 Mediant 4000B SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-21: Mediant 4000B SBC - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions				
From Coder Profile	To Coder Profile	Without MPM	1 x MPM8B	1 x MPM12B	2 x MPM12B	3 x MPM12B
Profile 1	Profile 1	800	2,400	3,250	5,000	5,000
Profile 2	Profile 1	600	1,850	2,450	4,350	5,000
Profile 2	Profile 2	500	1,550	2,100	3,650	5,000
Profile 1	Profile 2 + AMR-NB / G.722	550	1,650	2,200	3,850	5,000
Profile 2	Profile 2 + AMR-NB / G.722	450	1,350	1,800	3,150	4,550
Profile 1	Profile 2 + iLBC	400	1,200	1,600	2,850	4,050
Profile 2	Profile 2 + iLBC	350	1,050	1,400	2,500	3,600
Profile 1	Profile 2 + AMR-WB (G.722.2)	400	1,200	1,600	2,850	4,050
Profile 2	Profile 2 + AMR-WB (G.722.2)	350	1,050	1,400	2,500	3,600
Profile 1	Profile 2 + SILK-NB	400	1,200	1,600	2,850	4,050
Profile 2	Profile 2 + SILK-NB	350	1,050	1,400	2,500	3,600
Profile 1	Profile 2 + SILK-WB	200	700	950	1,650	2,400
Profile 2	Profile 2 + SILK-WB	200	700	950	1,650	2,400
Profile 1	Profile 2 + Opus-NB	250	850	1,150	2,000	2,850
Profile 2	Profile 2 + Opus-NB	250	750	1,050	1,800	2,600

Session Coders		Max. Sessions				
From Coder Profile	To Coder Profile	Without MPM	1 x MPM8B	1 x MPM12B	2 x MPM12B	3 x MPM12B
Profile 1	Profile 2 + Opus-WB	200	600	850	1,500	2,150
Profile 2	Profile 2 + Opus-WB	150	550	750	1,300	1,900

**Notes:**

- *Profile 1:* G.711 at 20ms only, with In-band signaling (in voice channel), DTMF transcoding (RFC 2833 to in-band signaling), and Silence Suppression (no fax detection or T.38 support).
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, AMR-NB, T.38 with fax detection, In-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance by about 30%. For more information, contact your AudioCodes sales representative.
- MPMB is the optional, Media Processing Module that provides additional DSPs, allowing greater capacity.

3.3.9.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-22: Mediant 4000B SBC - Forwarding Capacity per Feature

Feature	Max. Sessions
Fax Detection	5,000
AD/AMD/Beep Detection	5,000
CP Detection	5,000
Jitter Buffer	5,000

**Notes:**

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.10 Mediant 9000 SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-23: Mediant 9000 SBC - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions			
From Coder Profile	To Coder Profile	Without Hyper-Threading		With Hyper-Threading	
		Basic	Extended	Basic	Extended
Profile 1	Profile 1	3,025	2,525	6,575	3,875
Profile 2	Profile 1	1,500	1,325	2,125	1,700
Profile 2	Profile 2	1,000	900	1,275	1,100
Profile 1	Profile 2 + AMR-NB / G.722	1,500	1,300	2,075	1,625
Profile 2	Profile 2 + AMR-NB / G.722	1,000	900	1,225	1,050
Profile 1	Profile 2 + AMR-WB (G.722.2)	500	475	600	575
Profile 2	Profile 2 + AMR-WB	425	400	500	475
Profile 1	Profile 2 + SILK-NB	1,300	1,175	1,700	1,450
Profile 2	Profile 2 + SILK-NB	900	825	1,100	975
Profile 1	Profile 2 + SILK-WB	775	750	1,000	950
Profile 2	Profile 2 + SILK-WB	625	600	750	725
Profile 1	Profile 2 + Opus-NB	825	750	1,050	900
Profile 2	Profile 2 + Opus-NB	650	600	775	700
Profile 1	Profile 2 + Opus-WB	625	575	800	700
Profile 2	Profile 2 + Opus-WB	525	475	625	575



Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.10.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-24: Mediant 9000 SBC - Forwarding Capacity per Feature

Feature	Max. Sessions	
	Without Hyper-Threading	With Hyper-Threading
Fax Detection	24,000	40,000
AD/AMD/Beep Detection	24,000	39,000
CP Detection	24,000	44,000
Jitter Buffer	2,225	5,000



Notes:

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.11 Mediant 9000 Rev. B / 9080 SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-25: Mediant 9000 Rev. B / 9080 - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile		
		Basic	Extended
Profile 1	Profile 1	9,600	6,625
Profile 2	Profile 1	4,400	3,625
Profile 2	Profile 2	2,875	2,500
Profile 1	Profile 2 + AMR-NB / G.722	2,925	2,600
Profile 2	Profile 2 + AMR-NB / G.722	2,150	1,950
Profile 1	Profile 2 + AMR-WB (G.722.2)	950	925
Profile 2	Profile 2 + AMR-WB	850	825
Profile 1	Profile 2 + SILK-NB	2,750	2,500
Profile 2	Profile 2 + SILK-NB	2,050	1,900
Profile 1	Profile 2 + SILK-WB	1,575	1,475
Profile 2	Profile 2 + SILK-WB	1,300	1,250
Profile 1	Profile 2 + Opus-NB	1,700	1,450
Profile 2	Profile 2 + Opus-NB	1,375	1,200
Profile 1	Profile 2 + Opus-WB	1,375	1,200
Profile 2	Profile 2 + Opus-WB	1,175	1,025

Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.



3.3.11.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-26: Mediant 9000 Rev. B / 9080 SBC - Forwarding Capacity per Feature

Feature	Max. Sessions
Fax Detection	45,000
AD, AMD, and Beep Detection	45,000
CP Detection	45,000
Jitter Buffer	6,000



Notes:

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.12 Mediant 9000 / 9000 Rev. B / 9080 SBC with Media Transcoders

Mediant 9000, Mediant 9000 Rev. B, or Mediant 9080 SBC with Media Transcoders allows increasing the number of transcoding sessions by using Media Transcoders. The maximum number of transcoding sessions depends on the following:

- Number of Media Transcoders in the media transcoding cluster. (The cluster can have up to eight Media Transcoders.)
- Cluster operation mode (Best-Effort or Full-HA mode).
- Maximum transcoding sessions. Each transcoding session is weighted as two RTP-RTP sessions without transcoding. Therefore, the number of sessions without transcoding plus the doubled number of sessions with transcoding must be less than the maximum RTP-RTP value specified in the table. As a result, if all sessions are with transcoding, the maximum number of sessions is half the maximum RTP-RTP sessions without transcoding as specified in Table 3-1.

The following table lists maximum transcoding sessions capacity of a single Media Transcoder.

Table 3-27: Single Media Transcoder (MT) - Transcoding Capacity per Profile

Session Coders		Max. Sessions		
From Coder Profile	To Coder Profile	1 x MPM12B	2 x MPM12B	3 x MPM12B
Profile 1	Profile 1	2,875	5,000	5,000
Profile 2	Profile 1	2,300	4,025	5,000
Profile 2	Profile 2	1,800	3,175	4,550
Profile 1	Profile 2 + AMR-NB / G.722	2,000	3,525	5,000

Session Coders		Max. Sessions		
From Coder Profile	To Coder Profile	1 x MPM12B	2 x MPM12B	3 x MPM12B
Profile 2	Profile 2 + AMR-NB / G.722	1,625	2,850	4,075
Profile 1	Profile 2 + AMR-WB (G.722.2)	1,425	2,500	3,600
Profile 2	Profile 2 + AMR-WB (G.722.2)	1,225	2,175	3,100
Profile 1	Profile 2 + SILK-NB	1,425	2,500	3,600
Profile 2	Profile 2 + SILK-NB	1,225	2,175	3,100
Profile 1	Profile 2 + SILK-WB	850	1,500	2,150
Profile 2	Profile 2 + SILK-WB	850	1,500	2,150
Profile 1	Profile 2 + Opus-NB	1,050	1,825	2,625
Profile 2	Profile 2 + Opus-NB	950	1,675	2,400
Profile 1	Profile 2 + Opus-WB	750	1,325	1,900
Profile 2	Profile 2 + Opus-WB	650	1,175	1,675

Notes:

- *Profile 1*: G.711 at 20ms only, with In-band signaling (in voice channel) and Silence Suppression (no fax detection or T.38 support).
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, AMR-NB, T.38 with fax detection, In-band signaling (in voice channel), and Silence Compression.
- Acoustic Echo Suppressor reduces performance by about 30%. For more information, contact your AudioCodes sales representative.
- MPM12B is a Media Processing Module in the Media Transcoder that provides additional DSPs, allowing higher capacity.
- For best cluster efficiency, all Media Transcoders in the Cluster should populate the same number of MPM12Bs.
- The SBC employs load balancing of transcoding sessions among all Media Transcoders in the Cluster. Each Media Transcoder can handle up to 200 calls (transcoded sessions) per second (CPS).



3.3.13 Mediant 9030 SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-28: Mediant 9030 SBC - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	4,025	2,775
Profile 2	Profile 1	1,825	1,525
Profile 2	Profile 2	1,200	1,050
Profile 1	Profile 2 + AMR-NB / G.722	1,200	1,075
Profile 2	Profile 2 + AMR-NB / G.722	875	825
Profile 1	Profile 2 + AMR-WB (G.722.2)	400	375
Profile 2	Profile 2 + AMR-WB	350	350
Profile 1	Profile 2 + SILK-NB	1,150	1,050
Profile 2	Profile 2 + SILK-NB	850	775
Profile 1	Profile 2 + SILK-WB	650	625
Profile 2	Profile 2 + SILK-WB	525	525
Profile 1	Profile 2 + Opus-NB	700	600
Profile 2	Profile 2 + Opus-NB	575	500
Profile 1	Profile 2 + Opus-WB	575	500
Profile 2	Profile 2 + Opus-WB	475	425



Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.13.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-29: Mediant 9030 SBC - Forwarding Capacity per Feature

Feature	Max. Sessions
Fax Detection	23,000
AD/AMD/Beep Detection	23,000
CP Detection	23,000
Jitter Buffer	3,000



Notes:

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.14 Mediant Cloud Edition (CE) SBC

The Media Components (MC) in the media cluster of the Mediant CE must all be of the same instance type: either forwarding-only, or forwarding and transcoding. A maximum of 21 MCs can be used.

3.3.14.1 Mediant CE SBC for AWS EC2

3.3.14.1.1 Forwarding Sessions

The number of concurrent forwarding sessions per MC is shown in the following table.

Table 3-30: Forwarding Capacity per MC Instance Type

MC Instance Type	Max. Forwarding Sessions
m5n.large	3,200
c5.4xlarge	4,000



Note: Forwarding performance was tested in AWS Ireland Region.

3.3.14.1.2 Transcoding Sessions

For transcoding capabilities, the Media Component (MC) must be of the AWS instance type c5.4xlarge. The number of supported transcoding sessions per MC is shown in the following table.

Table 3-31: Transcoding Capacity per c5.4xlarge MC

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	3,500	2,825
Profile 2	Profile 1	2,375	1,900
Profile 2	Profile 2	1,625	1,425
Profile 1	Profile 2 + AMR-NB / G.722	1,500	1,300
Profile 2	Profile 2 + AMR-NB / G.722	1,150	1,050
Profile 1	Profile 2 + AMR-WB (G.722.2)	475	475
Profile 2	Profile 2 + AMR-WB	425	425
Profile 1	Profile 2 + SILK-NB	1,400	1,250
Profile 2	Profile 2 + SILK-NB	1,100	1,025
Profile 1	Profile 2 + SILK-WB	775	750
Profile 2	Profile 2 + SILK-WB	675	675
Profile 1	Profile 2 + Opus-NB	850	725
Profile 2	Profile 2 + Opus-NB	725	650

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 2 + Opus-WB	700	600
Profile 2	Profile 2 + Opus-WB	625	550

**Notes:**

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.14.2 Mediant CE SBC for Azure

3.3.14.2.1 Forwarding Sessions

The number of concurrent forwarding sessions per Media Component (MC) is shown in the following table.

Table 3-32: Session Capacity per MC

MC VM Size	Max. Forwarding-Only Sessions	Max. Forwarding & Transcoding Sessions
DS2_v2	1,200	900
DS3_v2	1,700	1,100
DS4_v2	1,800	1,600

3.3.14.2.2 Transcoding Sessions

For transcoding capabilities, the Media Component (MC) must be of the Azure DS2_v2 / DS3_v2 / DS4_v2 virtual machine size. The number of supported transcoding sessions per MC is shown in the following table.

Table 3-33: Transcoding Capacity per MC

Session Coders		DS2_v2		DS3_v2		DS4_v2	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended	Basic	Extended
Profile 1	Profile 1	175	175	575	575	1,175	1,175
Profile 2	Profile 1	100	100	325	300	675	600
Profile 2	Profile 2	75	50	225	200	450	400
Profile 1	Profile 2 + AMR-NB / G.722	100	100	325	300	675	600
Profile 2	Profile 2 + AMR-NB / G.722	75	50	225	200	450	400
Profile 1	Profile 2 + AMR-WB (G.722.2)	25	25	100	100	225	200
Profile 2	Profile 2 + AMR-WB	25	25	75	75	175	175
Profile 1	Profile 2 + SILK-NB	100	75	300	250	600	525
Profile 2	Profile 2 + SILK-NB	50	50	200	175	400	375
Profile 1	Profile 2 + SILK-WB	50	50	175	150	350	325
Profile 2	Profile 2 + SILK-WB	25	25	125	125	275	275
Profile 1	Profile 2 + Opus-NB	50	50	175	175	375	350
Profile 2	Profile 2 + Opus-NB	25	25	125	125	275	275
Profile 1	Profile 2 + Opus-WB	25	25	125	125	275	250
Profile 2	Profile 2 + Opus-WB	25	25	100	100	225	225

**Notes:**

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.14.3 Mediant CE SBC for VMware

The following tables list maximum forwarding and transcoding capacities for Mediant CE SBC running on VMware hypervisor with Hyper-Threading.

Each vCPU refers to a single thread of a physical core. For example, a 4-vCPU virtual machine is allocated by only two physical cores.

**Note:**

- The profiles below require the following minimum requirements:
 - ✓ Intel Xeon Scalable Processors or later. The capacity listed in the following table refers to 3.3 GHz all-core Turbo speed. When using different all-core Turbo speed, capacity is increased or decreased accordingly.
 - ✓ Hyper-Threading is enabled on host.
 - ✓ VMware ESXi 6.7 or later.
 - ✓ CPUOverrideHT ini file parameter is configured to 1.
- CPU Affinity is recommended. For more information, refer to the *Installation Manual*.
- For Server Failure redundancy, the maximum active media sessions (before failure) on each server must not exceed 4,000 media sessions.

3.3.14.3.1 Forwarding Sessions

The number of concurrent forwarding sessions per Media Component (MC) is shown in the following table.

Table 3-34: Forwarding Capacity per MC Instance Type

MC Instance Type	Max. Sessions
2 vCPUs, 8GB	4,000 (Forwarding Only)
8 vCPUs, 8GB	4,000 (Forwarding and Transcoding)

3.3.14.3.2 Transcoding Sessions

For transcoding capabilities, the Media Component (MC) must be a virtual machine of 8 vCPUs and 8 GB. The number of supported transcoding sessions per MC is shown in the following table.



Note: For transcoding capabilities, the 'Media Component Profile' parameter on all Media Components must be configured to **Transcoding Enabled** (MCProfile = 1).

Table 3-35: Mediant CE SBC on VMware with Hyper-Threading - Transcoding Capacity

Session Coders		Max. Sessions 8 vCPU 8-GB RAM	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	1,800	1,175
Profile 1	Profile 2	975	775
Profile 2	Profile 2	675	575
Profile 1	Profile 2 + SILK-NB	575	525
Profile 2	Profile 2 + SILK-NB	450	425
Profile 1	Profile 2 + AMR-WB	200	175
Profile 2	Profile 2 + AMR-WB	175	175
Profile 1	Profile 2 + G.722 / AMR-NB	600	525
Profile 2	Profile 2 + G.722 / AMR-NB	475	425
Profile 1	Profile 2 + SILK-WB	325	300
Profile 2	Profile 2 + SILK-WB	275	275
Profile 1	Profile 2 + Opus-NB	350	300
Profile 2	Profile 2 + Opus-NB	300	275
Profile 1	Profile 2 + Opus-WB	300	250
Profile 2	Profile 2 + Opus-WB	250	225



Notes:

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.14.4 Mediant CE SBC for GCP

3.3.14.4.1 Forwarding Sessions

The number of concurrent forwarding sessions (RTP-RTP) per Media Component (MC) is shown in the following table.

Table 3-36: Session Capacity per MC

MC VM Size	Max. Forwarding-Only Sessions
n2-standard-2	3,500

3.3.14.4.2 Transcoding Sessions

For transcoding capabilities, the MC should be of the n2-standard-2 or n2_highcpu-8 instance types.

When the transcoding session is at maximum, the total sessions is reduced as shown in the following table.

Table 3-37: Transcoding Sessions per MC

MC VM Size	Max. Forwarding and Transcoding Sessions
n2-standard-2	1,500 (up to 300 transcoding sessions)
n2-highcpu-8	1,600 (up to 1,500 transcoding sessions)

The number of supported transcoding sessions per MC is shown in the following table.

Table 3-38: Transcoding Capacity per MC

Session Coders		n2-standard-2		n2-highcpu-8	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended
Profile 1	Profile 1	300	175	1,500	1,175
Profile 2	Profile 1	150	125	975	775
Profile 2	Profile 2	100	75	675	575
Profile 1	Profile 2 + AMR-NB / G.722	100	75	625	525
Profile 2	Profile 2 + AMR-NB / G.722	75	50	475	425
Profile 1	Profile 2 + AMR-WB (G.722.2)	25	25	200	175
Profile 2	Profile 2 + AMR-WB	25	25	175	175
Profile 1	Profile 2 + SILK-NB	75	75	575	525
Profile 2	Profile 2 + SILK-NB	75	50	450	425
Profile 1	Profile 2 + SILK-WB	50	50	325	300
Profile 2	Profile 2 + SILK-WB	25	25	275	275
Profile 1	Profile 2 + Opus-NB	50	50	350	300

Session Coders		n2-standard-2		n2-highcpu-8	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended
Profile 2	Profile 2 + Opus-NB	50	25	300	275
Profile 1	Profile 2 + Opus-WB	50	25	300	250
Profile 2	Profile 2 + Opus-WB	25	25	250	225

Notes:

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.15 Mediant Virtual Edition (VE) SBC

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required (DSP Performance Profile), the number of sessions that can use DSP capabilities is reduced, as shown in the tables in this section.

3.3.15.1 Mediant VE SBC for Hypervisors with Hyper-Threading

The following tables list maximum transcoding capacity for Mediant VE SBC running on the following hypervisors with Hyper-Threading: VMware, KVM/OpenStack, and Hyper-V.

Each vCPU refers to a Hyper-Threaded core (logical). For example, a 4-vCPU virtual machine allocates only 2 physical cores.



Note:

- The transcoding profiles below require the following minimum requirements:
 - ✓ Intel Xeon Scalable Processors or later. The capacity listed in the table below refer to 3.3 GHz all-core Turbo speed. When using different all-core Turbo speed, the capacity is increased or decreased accordingly.
 - ✓ Hyper-Threading enabled on host.
 - ✓ VMware Hypervisor:
 - VMware ESXi 6.7 or later. Capacities in table Table 3-1 were achieved using ESXi Version 7.0.3.
 - CPUOverrideHT ini file parameter is configured to 1.
 - ✓ KVM Hypervisor/OpenStack: Host-Passthrough mode must be used. For more information, refer to the [Installation Manual](#).
- CPU Affinity is recommended. For more information, refer to the *Installation Manual*.
- For transcoding capabilities, the 'SBC Performance Profile' (SBCPerformanceProfile) parameter must be configured to Optimized for Transcoding (2).

Table 3-39: Mediant VE SBC on Hypervisors with Hyper-Threading - Transcoding Capacity

Session Coders		Max. Sessions							
		2 vCPU 8-GB RAM		4 vCPU 8-GB RAM (VMware Only)		8 vCPU 16-GB RAM		16 vCPU 16-GB RAM (Not Hyper-V)	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended	Basic	Extended	Basic	Extended
Profile 1	Profile 1	300	200	800	600	1200	825	2,400	2,400
Profile 1	Profile 2	150	125	500	400	675	550	2,075	1,650
Profile 2	Profile 2	100	100	350	300	475	400	1,425	1,250
Profile 1	Profile 2 + SILK-NB	100	75	300	275	400	350	1,225	1,100
Profile 2	Profile 2 + SILK-NB	75	75	225	225	325	300	975	900
Profile 1	Profile 2 + AMR-WB	25	25	100	100	125	125	425	400
Profile 2	Profile 2 + AMR-WB	25	25	75	75	125	125	375	375

Session Coders		Max. Sessions							
		2 vCPU 8-GB RAM		4 vCPU 8-GB RAM (VMware Only)		8 vCPU 16-GB RAM		16 vCPU 16-GB RAM (Not Hyper-V)	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended	Basic	Extended	Basic	Extended
Profile 1	Profile 2 + G.722 / AMR-NB	100	75	325	275	425	375	1,300	1,150
Profile 2	Profile 2 + G.722 / AMR-NB	75	75	250	225	325	300	1,000	925
Profile 1	Profile 2 + SILK-WB	50	50	175	150	225	200	700	650
Profile 2	Profile 2 + SILK-WB	50	50	150	150	200	200	600	600
Profile 1	Profile 2 + Opus-NB	50	50	175	150	250	200	750	650
Profile 2	Profile 2 + Opus-NB	50	25	150	125	200	175	650	575
Profile 1	Profile 2 + Opus-WB	50	25	150	125	200	175	625	525
Profile 2	Profile 2 + Opus-WB	25	25	125	100	175	150	550	475

**Notes:**

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.15.2 Mediant VE SBC for Amazon AWS EC2

The following tables list maximum channel capacity for Mediant VE SBC on the Amazon EC2 platform.

3.3.15.2.1 Transcoding Sessions

3.3.15.2.1.1 m5n.large

Table 3-40: Mediant VE SBC on m5n.large - Transcoding Capacity

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	250	150
Profile 2	Profile 1	125	100
Profile 2	Profile 2	75	75
Profile 1	Profile 2 + AMR-NB / G.722	75	75
Profile 2	Profile 2 + AMR-NB / G.722	50	50
Profile 1	Profile 2 + AMR-WB	25	25
Profile 2	Profile 2 + AMR-WB	25	25
Profile 1	Profile 2 + SILK-NB	75	50
Profile 2	Profile 2 + SILK-NB	50	50
Profile 1	Profile 2 + SILK-WB	25	25
Profile 2	Profile 2 + SILK-WB	25	25
Profile 1	Profile 2 + Opus-NB	50	25
Profile 2	Profile 2 + Opus-NB	25	25
Profile 1	Profile 2 + Opus-WB	25	25
Profile 2	Profile 2 + Opus-WB	25	25

Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.



3.3.15.2.1.2 c5n.2xlarge

Table 3-41: Mediant VE SBC on c5n.2xlarge - Transcoding Capacity

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	1950	1275
Profile 2	Profile 1	1050	850
Profile 2	Profile 2	725	625
Profile 1	Profile 2 + AMR-NB / G.722	675	575
Profile 2	Profile 2 + AMR-NB / G.722	500	475
Profile 1	Profile 2 + AMR-WB	200	200
Profile 2	Profile 2 + AMR-WB	175	175
Profile 1	Profile 2 + SILK-NB	625	550
Profile 2	Profile 2 + SILK-NB	500	450
Profile 1	Profile 2 + SILK-WB	350	325
Profile 2	Profile 2 + SILK-WB	300	300
Profile 1	Profile 2 + Opus-NB	375	325
Profile 2	Profile 2 + Opus-NB	325	300
Profile 1	Profile 2 + Opus-WB	300	275
Profile 2	Profile 2 + Opus-WB	275	250

**Notes:**

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.15.2.1.3 c5n.9xlarge

Table 3-42: Mediant VE SBC on c5n.9xlarge - Transcoding Capacity

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	7,000	6,800



Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 2	Profile 1	5,725	4,575
Profile 2	Profile 2	3,925	3,450
Profile 1	Profile 2 + AMR-NB / G.722	3,600	3,125
Profile 2	Profile 2 + AMR-NB / G.722	2,775	2,550
Profile 1	Profile 2 + AMR-WB	1,175	1,150
Profile 2	Profile 2 + AMR-WB	1,050	1,000
Profile 1	Profile 2 + SILK-NB	3,400	3,025
Profile 2	Profile 2 + SILK-NB	2,675	2,475
Profile 1	Profile 2 + SILK-WB	1,900	1,800
Profile 2	Profile 2 + SILK-WB	1,650	1,625
Profile 1	Profile 2 + Opus-NB	2,075	1,775
Profile 2	Profile 2 + Opus-NB	1,775	1,600
Profile 1	Profile 2 + Opus-WB	1,725	1,450
Profile 2	Profile 2 + Opus-WB	1,500	1,325

Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.



3.3.15.2 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-43: Mediant VE SBC on Amazon EC2 - Forwarding Capacity per Feature

Feature	Max. Sessions	
	c5.2xlarge	c5.9xlarge
Fax Detection	5,500	7,000
AD/AMD/Beep Detection	5,500	7,000
CP Detection	5,500	7,000
Jitter Buffer	1,800	7,000



Notes:

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

3.3.15.3 Mediant VE SBC for Azure

The following tables list maximum channel capacity for Mediant VE SBC on the Azure platform.

Table 3-44: Mediant VE SBC on DS1_v2, DS2_v2, DS3_v2 & DS4_v2 - Transcoding Capacity

Session Coders		Max. Sessions					
		DS1_v2 and DS2_v2		DS3_v2		DS4_v2	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended	Basic	Extended
Profile 1	Profile 1	200	200	625	600	1,025	1,025
Profile 2	Profile 1	100	100	350	325	600	525
Profile 2	Profile 2	75	50	225	200	400	350
Profile 1	Profile 2 + AMR-NB / G.722	100	100	350	300	600	525
Profile 2	Profile 2 + AMR-NB / G.722	75	50	225	200	400	350
Profile 1	Profile 2 + AMR-WB (G.722.2)	25	25	100	100	200	175
Profile 2	Profile 2 + AMR-WB	25	25	100	75	175	150
Profile 1	Profile 2 + SILK-NB	100	75	300	275	525	475
Profile 2	Profile 2 + SILK-NB	50	50	200	200	350	325
Profile 1	Profile 2 + SILK-WB	50	50	175	175	300	300
Profile 2	Profile 2 + SILK-WB	50	25	150	125	250	225
Profile 1	Profile 2 + Opus-NB	50	50	200	175	325	300
Profile 2	Profile 2 + Opus-NB	50	50	150	150	250	250
Profile 1	Profile 2 + Opus-WB	50	25	150	125	250	225
Profile 2	Profile 2 + Opus-WB	25	25	125	100	200	200



Notes:

- *Profile 1*: G.711 at 20ms only, without T.38 support.
- *Profile 2*: G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic*: Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended*: Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.15.4 Mediant VE SBC for GCP

The following tables list maximum channel capacity for Mediant VE SBC on the GCP platform.

Table 3-45: Mediant VE SBC on GCP - Transcoding Capacity

Session Coders		Max. Sessions							
		n2-standard-2		n2-standard-4		n2-standard-8		n2-highcpu-32	
From Coder Profile	To Coder Profile	Basic	Extended	Basic	Extended	Basic	Extended	Basic	Extended
Profile 1	Profile 1	300	175	600	400	1,800	1,375	3,600	3,600
Profile 2	Profile 1	150	125	325	250	1,150	925	3,600	3,600
Profile 2	Profile 2	100	100	225	200	800	700	3,200	2,800
Profile 1	Profile 2 + AMR-NB / G.722	100	75	200	175	725	625	2,925	2,575
Profile 2	Profile 2 + AMR-NB / G.722	75	50	150	150	550	500	2,250	2,050
Profile 1	Profile 2 + AMR-WB (G.722.2)	25	25	50	50	225	225	950	900
Profile 2	Profile 2 + AMR-WB	25	25	50	50	200	200	850	825
Profile 1	Profile 2 + SILK-NB	75	75	200	175	675	600	2,750	2,475
Profile 2	Profile 2 + SILK-NB	75	50	150	125	525	500	2,175	2,000
Profile 1	Profile 2 + SILK-WB	50	50	100	100	375	350	1,550	1,475
Profile 2	Profile 2 + SILK-WB	25	25	75	75	325	325	1,325	1,325
Profile 1	Profile 2 + Opus-NB	50	50	100	100	425	350	1,700	1,450
Profile 2	Profile 2 + Opus-NB	50	50	100	75	350	325	1,450	1,300
Profile 1	Profile 2 + Opus-WB	50	25	100	75	350	300	1,400	1,200
Profile 2	Profile 2 + Opus-WB	25	25	75	75	300	250	1,225	1,075

**Notes:**

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.16 Mediant Server Edition (SE) SBC



Note: Digital signal processing (DSP) is supported only on Mediant SE SBC based on DL360 G10.

The maximum number of supported SBC sessions is listed in Section 3.1 on page 48. These SBC sessions also support SRTP and RTCP XR. When DSP capabilities are required, the number of sessions that can use DSP capabilities is reduced, as shown in the table below.

Table 3-46: Mediant SE SBC (DL360 G10) - Transcoding Capacity per Coder Capability Profile

Session Coders		Max. Sessions	
From Coder Profile	To Coder Profile	Basic	Extended
Profile 1	Profile 1	9,600	6,625
Profile 2	Profile 1	4,400	3,625
Profile 2	Profile 2	2,875	2,500
Profile 1	Profile 2 + AMR-NB / G.722	2,925	2,600
Profile 2	Profile 2 + AMR-NB / G.722	2,150	1,950
Profile 1	Profile 2 + AMR-WB (G.722.2)	950	925
Profile 2	Profile 2 + AMR-WB	850	825
Profile 1	Profile 2 + SILK-NB	2,750	2,500
Profile 2	Profile 2 + SILK-NB	2,050	1,900
Profile 1	Profile 2 + SILK-WB	1,575	1,475
Profile 2	Profile 2 + SILK-WB	1,300	1,250
Profile 1	Profile 2 + Opus-NB	1,700	1,450
Profile 2	Profile 2 + Opus-NB	1,375	1,200
Profile 1	Profile 2 + Opus-WB	1,375	1,200
Profile 2	Profile 2 + Opus-WB	1,175	1,025



Notes:

- *Profile 1:* G.711 at 20ms only, without T.38 support.
- *Profile 2:* G.711, G.726, G.729 (A / AB), G.723.1, T.38.
- *Basic:* Excludes in-band signaling (in voice channel), VAD, Silence Suppression and fax detection.
- *Extended:* Includes DTMF transcoding (RFC 2833 to in-band signaling), VAD, Silence Suppression and fax detection
- Acoustic Echo Suppressor may reduce capacity. For more information, contact your AudioCodes sales representative.

3.3.16.1 Forwarding Session Capacity per Feature without Transcoding

The table below lists the maximum number of concurrent forwarding sessions per feature without using transcoding.

Table 3-47: Mediant SE SBC (DL360 G10) - Forwarding Capacity per Feature

Feature	Max. Sessions
Fax Detection	45,000
AD/AMD/Beep Detection	45,000
CP Detection	45,000
Jitter Buffer	6,000



Notes:

- All figures were calculated for call duration of 100 seconds.
- For fax detection, figures are based on the following assumptions:
 - ✓ Timeout for fax detection is 10 seconds (default)
 - ✓ Fax detection is required on both legs of the call
- Figures for Call Progress (CP), AD, AMD, and Beep detection assume that detection is only on one leg of the call (if not, figures will be reduced).

4 Configuration Table Capacity

The maximum rows (indices) that can be configured per configuration table is listed in the table below.

Table 4-1: Capacity per Configuration Table

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
Access List	50	50	50	50
Accounts	<ul style="list-style-type: none"> MP-1288: 288 Mediant 500 / 500L / 800 / 1000: 102 Mediant 3100: 1,500 	625	1,500 (5,000 if License Key includes VoiceAI Connect feature)	1,500 (5,000 for 64-GB if License Key includes VoiceAI Connect feature)
Additional Management Interfaces	16 (64 for Mediant 3100)	64	64	64
Allowed Audio Coders Groups	10 (20 for Mediant 3100)	20	20	20
Allowed Video Coders Groups	5	5	5	5
Alternative Routing Reasons	20	20	20	20
Bandwidth Profile	486 (1,724 for Mediant 3100)	1,009	1,884	1,884
Call Admission Control Profile	102	1,500	1,500	1,500
Call Admission Control Rule (per Profile)	8	8	8	8
Call Setup Rules	<ul style="list-style-type: none"> MP-1288 / Mediant 1000/3100: 64 Mediant 500/500L/800: 100 	400	1,000	<ul style="list-style-type: none"> 2-8 GB: 500 16-64 GB: 1,000
Calling Name Manipulation for IP-to-Tel Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Calling Name Manipulation for Tel-to-IP Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Char Conversion	40	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Charge Codes	25	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Classification	102 (1,500 for Mediant 3100)	1,500	1,500	<ul style="list-style-type: none"> 2 GB: 750 3.5-64 GB: 1,500
Coders Groups	11 (21 for Mediant 3100)	21	21	21

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
Coders Groups > Coders	10 (per Coders Group)	10 (per Coders Group)	10 (per Coders Group)	10 (per Coders Group)
Cost Groups	10	10	10	10
Destination Phone Number Manipulation for IP-to-Tel Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Destination Phone Number Manipulation for Tel-to-IP Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
DHCP Servers	1	1	1	1
Dial Plan	10 (25 for Mediant 3100)	25	50	50
Dial Plan Rule	2,000 (10,000 for Mediant 3100)	10,000	100,000	<ul style="list-style-type: none"> < 16 GB: 2,000 > 16 GB: 100,000
Ethernet Devices	16 (1,024 for Mediant 3100)	1,024	1,024	1,024
External Media Source	1	1	1	1
Firewall	50 (500 for Mediant 3100)	500	500	500
Forward On Busy Trunk Destination	<ul style="list-style-type: none"> MP-1288: 288 Mediant 500/500L/800: 100 Mediant 1000: 240 Mediant 3100: 512 	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Gateway CDR Format	128 Syslog; 40 RADIUS (128 for Mediant 3100); 64 Locally Stored & JSON	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
HA Network Monitor	10	10	10	10
HTTP Directive Sets	30	30	30	30
HTTP Directives	500	500	500	500
HTTP Locations	40	40	120	<ul style="list-style-type: none"> < 8 GB: 40 ≥ 8 GB: 120
HTTP Proxy Servers	10	10	40	<ul style="list-style-type: none"> < 8 GB: 10 ≥ 8 GB: 40
HTTP Remote Hosts	10 (per Remote Web Service)	10 (per Remote Web Service)	10 (per Remote Web Service)	10 (per Remote Web Service)
IDS Matches	20	20	20	20
IDS Policies	20	20	20	20
IDS Rule	100 (20 per Policy)	100 (20 per Policy)	100 (20 per Policy)	100 (20 per Policy)
Inbound Manipulations	205 (3,000 for Mediant 3100)	3,000	3,000	3,000

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
Internal DNS	20	20	20	20
Internal SRV	10	10	10	10
IP Group Set	51 (350 for Mediant 3100)	350	2,500	<ul style="list-style-type: none"> 2 GB: 40 3.5 GB: 500 4-16 GB: 750 32-64 GB: 2,500
IP Groups	80 (700 for Mediant 3100)	700	5,000	<ul style="list-style-type: none"> 2 GB: 80 3.5 GB: 1,000 4-16 GB: 1,500 32-64 GB: 5,000
IP Interfaces	16 1,024 (Mediant 3100)	1,024	1,024	1,024
IP Profiles	<ul style="list-style-type: none"> MP-1288/Mediant 500/500L/800: 20 Mediant 1000: 40 Mediant 3100: 300 	300	<ul style="list-style-type: none"> Mediant 9030: 300 Mediant 9000/9080 /SE: 1,500 (5,000 if License Key includes VoiceAI Connect) 	<ul style="list-style-type: none"> 2 GB: 150 5-32 GB: 300 64 GB: 1,500 (5,000 if License Key includes VoiceAI Connect)
IP-to-IP Routing	615 (9,000 for Mediant 3100)	9,000	9,000	<ul style="list-style-type: none"> 2 GB: 4500 3.5-64 GB: 9,000
IP-to-Tel Routing	120 (288 for MP-1288)	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
LDAP Server Groups	41 (600 for Mediant 3100)	600	600	600
LDAP Servers	82 (1,200 for Mediant 3100)	1,200	1,200	1,200
Local Users	20	20	20	20
Logging Filters	60	60	60	60
Login OAuth Servers	1	1	1	1
Malicious Signature	20	20	20	20
Media Realm Extension	<ul style="list-style-type: none"> MP-1288 / Mediant 500/500L/800: 2 x Max. Media Realms Mediant 3100: 5 x Max. Media Realms 	<ul style="list-style-type: none"> Mediant 2600: 2 x max. Media Realms Mediant 4000B: 5 x max. Media Realms 	5 x Max. Media Realms	5 x Max. Media Realms
Media Realms	12 (1,024 for Mediant 3100)	1,024	1,024	1,024

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
Message Conditions	82 (1,200 for Mediant 3100)	1,200	1,200	1,200
Message Manipulations	<ul style="list-style-type: none"> MP-1288 / Mediant 500/500L/800: 100 Mediant 1000: 200 Mediant 3100: 500 	500	500	500
Message Policies	20	20	20	20
NAT Translation	32	32	32	32
OAuth Servers	1	1	1	1
Outbound Manipulations	205 (3,000 for Mediant 3100)	3,000	3,000	3,000
OVOC Services	1	1	1	1
Phone Contexts	20	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Pre-Parsing Manipulation Rules	30	30	30	30
Pre-Parsing Manipulation Sets	10	10	10	10
Proxy Sets	80 (700 for Mediant 3100)	700	5,000	<ul style="list-style-type: none"> 2 GB: 80 3.5 GB: 1,000 4-16 GB: 1,500 32-64 GB: 5,000
Proxy Sets > Proxy Address (per Proxy Set)	10	10	50	<ul style="list-style-type: none"> 2 GB: 10 3.5 GB: 10 8-16 GB: 10 32-64 GB: 50
Proxy Sets > Proxy Address (DNS-resolved IP addresses per Proxy Set)	15	15	50	<ul style="list-style-type: none"> 2 GB: 15 3.5 GB: 15 8-16 GB: 50 32-64 GB: 50
Proxy Sets > Proxy Address (DNS-resolved IP addresses for all Proxy Sets combined)	500	2,100	20,000	<ul style="list-style-type: none"> 2 GB: 500 3.5 GB: 3,000 4 GB: 4,500 8-16 GB: 6,000 (20,000 for VAIC feature) 32-64 GB: 20,000
QoS Mapping	64	64	64	64
Quality of Experience Color Rules	256	256	256	256
Quality of Experience Profile	256	256	256	256
Quality Of Service Rules	510 (3,500 for Mediant 3100)	3,500	7,500	7,500

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
RADIUS Servers	3	3	3	3
Reasons for IP-to-Tel Alternative Routing	10	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Reasons for Tel-to-IP Alternative Routing	10	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Redirect Number IP-to-Tel	20	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Redirect Number Tel-to-IP	20	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Release Cause ISDN->ISDN	10	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Release Cause Mapping from ISDN to SIP	12	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Release Cause Mapping from SIP to ISDN	12	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Remote Media Subnet	5	5	5	5
Remote Web Services	7	7	7	7
Routing Policies (SBC)	20 (600 for Mediant 3100)	600	600	<ul style="list-style-type: none"> 2 GB: 20 3.5 GB: 70 4 GB: 100 8 GB: 200 16 GB: 400 32-64 GB: 600
Routing Policies (Gateway)	1	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
SBC CDR Format	128 Syslog; 40 RADIUS (128 for Mediant 3100); 64 Locally Stored & JSON	128 (Syslog); 128 (RADIUS); 64 (Locally Stored & JSON)	128 (Syslog); 128 (RADIUS); 64 (Locally Stored & JSON)	128 (Syslog); 128 (RADIUS); 64 (Locally Stored & JSON)
SBC User Information	<ul style="list-style-type: none"> Mediant 500: 1,600 Mediant 500L/800: 2,000 Mediant 1000: 800 Mediant 3100: 20,000 MP-1288: 350 	20,000	50,000	<ul style="list-style-type: none"> 2 GB: 1,000 3-4 GB: 3,000 8 GB: 20,000 16-64 GB: 50,000
	Note: The device limits the maximum number of users that can use a TLS connection:			
	<ul style="list-style-type: none"> Mediant 500: 300 Mediant 500L: 100 Mediant 800: 300 Mediant 1000: 300 Mediant 3100: 6,000 MP-1288: 350 	1,000	25,000	<ul style="list-style-type: none"> 2 GB: 100 3 GB: 500 4 GB: 5,000 8-16 GB: 6,000 32 GB: 16,000 64 GB: 25,000

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
SIP Interfaces	80 (1,200 for Mediant 3100)	700	1,200	<ul style="list-style-type: none"> 2 GB: 40 3 GB: 200 4 GB: 400 8 GB: 800 16 GB: 1,200 32-64 GB: 1,200
SIP Recording Rules	30	30	50	50
SNI-to-TLS Mapping	12 (15 for Mediant 1000; 100 for Mediant 3100)	100	100	100
SNMP Trap Destinations	5	5	5	5
SNMP Trusted Managers	5	5	5	5
SNMPv3 Users	10	10	10	10
Source Phone Number Manipulation for IP-to-Tel Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Source Phone Number Manipulation for Tel-to-IP Calls	120	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
SRDs	20 (600 for Mediant 3100)	600	600	<ul style="list-style-type: none"> 2 GB: 20 3.5 GB: 70 4 GB: 100 8 GB: 200 16 GB: 400 32-64 GB: 600
Static Routes	30	30	30	30
Supplementary Services	100	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Syslog Servers	4	4	4	4
TCP/UDP Proxy Servers	10	10	10	10
Tel Profiles	9 (40 for Mediant 3100)	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Tel-to-IP Routing	180	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Test Call Rules	5 (default)	5 (default)	5 (default)	5 (default)
Time Band	70 (21 per Cost Group)	70 (21 per Cost Group)	70 (21 per Cost Group)	70 (21 per Cost Group)
TLS Contexts	<ul style="list-style-type: none"> MP-1288 / Mediant 500/500L/800: 12 Mediant 1000: 15 Mediant 3100: 100 	100	100	100
Tone Index	50	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)

Configuration Table	Mediant 500 / 500L / 800 / 1000B / 3100 MP-1288	Mediant 2600 / 4000B	Mediant 90xx / SE	Mediant VE / CE
Trunk Group	<ul style="list-style-type: none"> MP-1288: 288 Mediant 500/500L/800: 24 Mediant 1000: 240 Mediant 3100: 512 	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Trunk Group Settings	<ul style="list-style-type: none"> MP-1288: 289 Mediant 500/500L/800: 101 Mediant 1000: 241 Mediant 3100: 512 	n/a (Gateway only)	n/a (Gateway only)	n/a (Gateway only)
Upstream Groups	10	10	10	10
Upstream Hosts	50 (5 per Upstream Group)	50 (5 per Upstream Group)	50 (5 per Upstream Group)	50 (5 per Upstream Group)
Weak Passwords List	150	150	150	150

5 Supported SIP Standards

This section lists SIP RFCs and standards supported by the device.

5.1 Supported SIP RFCs

The table below lists the supported RFCs.

Table 5-1: Supported RFCs

RFC	Description	Gateway	SBC
draft-choudhuri-sip-info-digit-00	SIP INFO method for DTMF digit transport and collection	√	√
draft-ietf-bfcpbis-rfc4583bis-12	Session Description Protocol (SDP) Format for Binary Floor Control Protocol (BFCP) Streams	×	√ (forwarded transparently)
draft-ietf-sip-connect-reuse-06	Connection Reuse in SIP	√	√
draft-ietf-sipping-cc-transfer-05	Call Transfer	√	√
draft-ietf-sipping-realtimefax-01	SIP Support for Real-time Fax: Call Flow Examples	√	√ (forwarded transparently)
draft-ietf-sip-privacy-04.txt	SIP Extensions for Network-Asserted Caller Identity using Remote-Party-ID header	√	√
draft-johnston-sipping-cc-uui-04	Transporting User to User Information for Call Centers using SIP	√	√ (forwarded transparently)
draft-levy-sip-diversion-08	Diversion Indication in SIP	√	√
draft-mahy-iptel-cpc-06	The Calling Party's Category tel URI Parameter	√	√ (forwarded transparently)
draft-mahy-sipping-signaled-digits-01	Signaled Telephony Events in the Session Initiation Protocol	√	√
draft-sandbakken-dispatch-bfcp-udp-03	Revision of the Binary Floor Control Protocol (BFCP) for use over an unreliable transport	×	√ (forwarded transparently)
ECMA-355, ISO/IEC 22535	QSIG tunneling	√	√ (forwarded transparently)
RFC 2327	SDP	√	√
RFC 2617	HTTP Authentication: Basic and Digest Access Authentication	√	√
RFC 2782	A DNS RR for specifying the location of services	√	√
RFC 2833	Telephone event	√	√
RFC 2976	SIP INFO Method	√	√
RFC 3261	SIP	√	√
RFC 3262	Reliability of Provisional Responses	√	√

RFC	Description	Gateway	SBC
RFC 3263	Locating SIP Servers	√	√
RFC 3264	Offer/Answer Model	√	√
RFC 3265	(SIP)-Specific Event Notification	√	√
RFC 3310	Hypertext Transfer Protocol (HTTP) Digest Authentication Using Authentication and Key Agreement (AKA)	√	×
RFC 3311	UPDATE Method	√	√
RFC 3323	Privacy Mechanism	√	√
RFC 3325	Private Extensions to the SIP for Asserted Identity within Trusted Networks	√	√
RFC 3326	Reason header	√	√ (forwarded transparently)
RFC 3327	Extension Header Field for Registering Non-Adjacent Contacts	√	×
RFC 3361	DHCP Option for SIP Servers	√	×
RFC 3362	Real-time Facsimile (T.38) - image/t38 MIME Sub-type Registration	√	√
RFC 3372	SIP-T	√	√ (forwarded transparently)
RFC 3389	RTP Payload for Comfort Noise	√	√ (forwarded transparently)
RFC 3420	Internet Media Type message/sipfrag	√	√
RFC 3455	P-Associated-URI	√	√ (using user info \ account)
RFC 3489	STUN - Simple Traversal of UDP	√	√
RFC 3515	Refer Method	√	√
RFC 3550	RTP: A Transport Protocol for Real-Time Applications	√	√
RFC 3578	Interworking of ISDN overlap signalling to SIP	√	×
RFC 3581	Symmetric Response Routing - rport	√	√
RFC 3605	RTCP attribute in SDP	√	√ (forwarded transparently)
RFC 3608	SIP Extension Header Field for Service Route Discovery During Registration	√	×
RFC 3611	RTCP-XR	√	√
RFC 3665	SIP Basic Call Flow Examples	√	√
RFC 3666	SIP to PSTN Call Flows	√	√ (forwarded transparently)
RFC 3680	A SIP Event Package for Registration (IMS)	√	×
RFC 3711	The Secure Real-time Transport Protocol (SRTP)	√	√
RFC 3725	Third Party Call Control	√	√

RFC	Description	Gateway	SBC
RFC 3824	Using E.164 numbers with SIP (ENUM)	√	√
RFC 3842	MWI	√	√
RFC 3891	"Replaces" Header	√	√
RFC 3892	The SIP Referred-By Mechanism	√	√
RFC 3903	SIP Extension for Event State Publication	√	√
RFC 3911	The SIP Join Header	Partial	×
RFC 3960	Early Media and Ringing Tone Generation in SIP	Partial	√
RFC 3966	The tel URI for Telephone Numbers	√	√
RFC 4028	Session Timers in the Session Initiation Protocol	√	√
RFC 4040	RTP payload format for a 64 kbit/s transparent call - Clearmode	√	√ (forwarded transparently)
RFC 4117	Transcoding Services Invocation	√	×
RFC 4168	The Stream Control Transfer Protocol (SCTP) as a Transport for SIP	×	√
RFC 4235	Dialog Event Package	Partial	Partial
RFC 4240	Basic Network Media Services with SIP - NetAnn	√	√ (forwarded transparently)
RFC 4244	An Extension to SIP for Request History Information	√	√
RFC 4320	Actions Addressing Identified Issues with SIP Non-INVITE Transaction	√	√
RFC 4321	Problems Identified Associated with SIP Non-INVITE Transaction	√	√
RFC 4411	Extending SIP Reason Header for Preemption Events	√	√ (forwarded transparently)
RFC 4412	Communications Resource Priority for SIP	√	√ (forwarded transparently)
RFC 4458	SIP URIs for Applications such as Voicemail and Interactive Voice Response	√	√ (forwarded transparently)
RFC 4475	SIP Torture Test Messages	√	√
RFC 4497 or ISO/IEC 17343	Interworking between SIP and QSIG	√	√ (forwarded transparently)
RFC 4566	Session Description Protocol	√	√
RFC 4568	SDP Security Descriptions for Media Streams for SRTP	√	√
RFC 4582	The Binary Floor Control Protocol (BFCP)	×	√ (forwarded transparently)
RFC 4715	Interworking of ISDN Sub Address to sip isub parameter	√	√ (forwarded transparently)
RFC 4730	A SIP Event Package for Key Press Stimulus (KPML)	Partial	×
RFC 4733	RTP Payload for DTMF Digits	√	√

RFC	Description	Gateway	SBC
RFC 4904	Representing trunk groups in tel/sip URIs	√	√ (forwarded transparently)
RFC 4960	Stream Control Transmission Protocol	×	√
RFC 4961	Symmetric RTP and RTCP for NAT	√	√
RFC 4975	The Message Session Relay Protocol (MSRP)	×	√
RFC 5022	Media Server Control Markup Language (MSCML)	√	×
RFC 5079	Rejecting Anonymous Requests in SIP	√	√
RFC 5627	Obtaining and Using Globally Routable User Agent (UA) URIs (GRUU) in SIP	√	√ (forwarded transparently)
RFC 5628	Registration Event Package Extension for GRUU	√	×
RFC 5806	Diversion Header, same as draft-levy-sip-diversion-08	√	√
RFC 5853	Requirements from SIP / SBC Deployments	-	√
RFC 6035	SIP Package for Voice Quality Reporting Event, using sip PUBLISH	√	√
RFC 6135	An Alternative Connection Model for the Message Session Relay Protocol (MSRP)	×	√
RFC 6140	Registration for Multiple Phone Numbers in the Session Initiation Protocol (SIP)	√	√
RFC 6337	Session Initiation Protocol (SIP) Usage of the Offer/Answer Model	-	√
RFC 6341	Use Cases and Requirements for SIP-Based Media Recording (Session Recording Protocol - draft-ietf-siprec-protocol-02, and Architecture - draft-ietf-siprec-architecture-03)	√	√
RFC 6442	Location Conveyance for the Session Initiation Protocol	-	√
RFC 7245	An Architecture for Media Recording Using the Session Initiation Protocol	√	√
RFC 7261	Offer/Answer Considerations for G723 Annex A and G729 Annex B	√	√
RFC 7865	Session Initiation Protocol (SIP) Recording Metadata	√	√
RFC 7866	Session Recording Protocol	√	√
RFC 8068	Session Initiation Protocol (SIP) Recording Call Flows	√	√

5.2 SIP Message Compliancy

The SIP device complies with RFC 3261, as shown in the following subsections.

5.2.1 SIP Functions

The device supports the following SIP Functions:

Table 5-2: Supported SIP Functions

Function	Comments
User Agent Client (UAC)	-
User Agent Server (UAS)	-
Proxy Server	The device supports working with third-party Proxy Servers such as Nortel CS1K/CS2K, Avaya, Microsoft OCS, Alcatel, 3Com, BroadSoft, Snom, Cisco and many others
Redirect Server	The device supports working with third-party Redirection servers
Registrar Server	The device supports working with third-party Registration servers

5.2.2 SIP Methods

The device supports the following SIP Methods:

Table 5-3: Supported SIP Methods

Method	Comments
ACK	-
BYE	-
CANCEL	-
INFO	-
INVITE	-
MESSAGE	Supported only by the SBC application and send only
NOTIFY	-
OPTIONS	-
PRACK	-
PUBLISH	Send only
REFER	Inside and outside of a dialog
REGISTER	Send only for Gateway application; send and receive for SBC application
SUBSCRIBE	-
UPDATE	-

5.2.3 SIP Headers

The device supports the following SIP headers:

Table 5-4: Supported SIP Headers

SIP Header	SIP Header
Accept	Proxy- Authenticate
Accept-Encoding	Proxy- Authorization
Alert-Info	Proxy- Require
Allow	Prack
Also	Reason
Asserted-Identity	Record- Route
Authorization	Refer-To
Call-ID	Referred-By
Call-Info	Replaces
Contact	Require
Content-Disposition	Remote-Party-ID
Content-Encoding	Response- Key
Content-Length	Retry-After
Content-Type	Route
Cseq	Rseq
Date	Session-Expires
Diversion	Server
Expires	Service-Route
Fax	SIP-If-Match
From	Subject
History-Info	Supported
Join	Target-Dialog
Max-Forwards	Timestamp
Messages-Waiting	To
MIN-SE	Unsupported
P-Associated-URI	User- Agent
P-Asserted-Identity	Via
P-Charging-Vector	Voicemail
P-Preferred-Identity	Warning
Priority	WWW- Authenticate
Privacy	-



Note: The following SIP headers are not supported:

- Encryption
- Organization

5.2.4 SDP Fields

The device supports the following SDP fields:

Table 5-5: Supported SDP Fields

SDP Field	Name
v=	Protocol version number
o=	Owner/creator and session identifier
a=	Attribute information
c=	Connection information
d=	Digit
m=	Media name and transport address
s=	Session information
t=	Time alive header
b=	Bandwidth header
u=	URI description header
e=	Email address header
i=	Session info header
p=	Phone number header
y=	Year

5.2.5 SIP Responses

The device supports the following SIP responses:

Table 5-6: Supported SIP Responses

Response Type		Comments
1xx Response (Information Responses)		
100	Trying	The device generates this response upon receiving a Proceeding message from ISDN or immediately after placing a call for CAS signaling.
180	Ringing	The device generates this response for an incoming INVITE message. Upon receiving this response, the device waits for a 200 OK response.
181	Call is Being Forwarded	The device doesn't generate these responses. However, the device does receive them. The device processes these responses the same way that it processes the 100 Trying response.
182	Queued	The device generates this response in Call Waiting service. When the SIP device receives a 182 response, it plays a special waiting Ringback tone to the telephone side.
183	Session Progress	The device generates this response if the Early Media feature is enabled and if the device plays a Ringback tone to IP
2xx Response (Successful Responses)		
200		OK

Response Type		Comments
202		Accepted
204		No Notification
3xx Response (Redirection Responses)		
300	Multiple Choice	The device responds with an ACK, and then resends the request to the first new address in the contact list.
301	Moved Permanently	The device responds with an ACK, and then resends the request to the new address.
302	Moved Temporarily	The device generates this response when call forward is used to redirect the call to another destination. If such a response is received, the calling device initiates an INVITE message to the new destination.
305	Use Proxy	The device responds with an ACK, and then resends the request to a new address.
380	Alternate Service	The device responds with an ACK, and then resends the request to a new address.
4xx Response (Client Failure Responses)		
400	Bad Request	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
401	Unauthorized	Authentication support for Basic and Digest. Upon receipt of this message, the device issues a new request according to the scheme received on this response.
402	Payment Required	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
403	Forbidden	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
404	Not Found	The device generates this response if it is unable to locate the callee. Upon receiving this response, the device notifies the User with a Reorder Tone.
405	Method Not Allowed	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
406	Not Acceptable	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
407	Proxy Authentication Required	Authentication support for Basic and Digest. Upon receipt of this message, the device issues a new request according to the scheme received on this response.
408	Request Timeout	The device generates this response if the no-answer timer expires. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
409	Conflict	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.

Response Type		Comments
410	Gone	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
411	Length Required	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
413	Request Entity Too Large	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
415	Unsupported Media	If the device receives a 415 Unsupported Media response, it notifies the User with a Reorder Tone. The device generates this response in case of SDP mismatch.
420	Bad Extension	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
423	Interval Too Brief	The device does not generate this response. Upon receipt of this message the device uses the value received in the Min-Expires header as the registration time.
424	Bad Location Information	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
428	Use Identity Header	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
429	Provide Referrer Identity	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
433	Anonymity Disallowed	If the device receives a 433 Anonymity Disallowed, it sends a DISCONNECT message to the PSTN with a cause value of 21 (Call Rejected). In addition, the device can be configured, using the Release Reason Mapping, to generate a 433 response when any cause is received from the PSTN side.
436	Bad Identity Info	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
437	Unsupported Credential	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
438	Invalid Identity Header	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
439	First Hop Lacks Outbound Support	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
440	Max-Breadth Exceeded	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.

Response Type		Comments
470	Consent Needed	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
480	Temporarily Unavailable	If the device receives this response, it notifies the User with a Reorder Tone. This response is issued if there is no response from remote.
481	Call Leg/Transaction Does Not Exist	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
482	Loop Detected	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
483	Too Many Hops	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
484	Address Incomplete	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
485	Ambiguous	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
486	Busy Here	The SIP device generates this response if the called party is off-hook and the call cannot be presented as a call waiting call. Upon receipt of this response, the device notifies the User and generates a busy tone.
487	Request Canceled	This response indicates that the initial request is terminated with a BYE or CANCEL request.
488	Not Acceptable	The device doesn't generate this response. Upon receipt of this message and before a 200 OK has been received, the device responds with an ACK and disconnects the call.
491	Request Pending	When acting as a UAS: the device sent a re-INVITE on an established session and is still in progress. If it receives a re-INVITE on the same dialog, it returns this response to the received INVITE. When acting as a UAC: If the device receives this response to a re-INVITE, it starts a timer. After the timer expires, the UAC tries to send the re-INVITE again.
5xx Response (Server Failure Responses)		
500	Internal Server Error	Upon receipt of any of these responses, the device releases the call, sending an appropriate release cause to the PSTN side. The device generates a 5xx response according to the PSTN release cause coming from the PSTN.
501	Not Implemented	
502	Bad gateway	
503	Service Unavailable	
504	Gateway Timeout	

Response Type		Comments
505	Version Not Supported	
6xx Response (Global Responses)		
600	Busy Everywhere	Upon receipt of any of these responses, the device releases the call, sending an appropriate release cause to the PSTN side.
603	Decline	
604	Does Not Exist Anywhere	
606	Not Acceptable	