Mediant™ 3000

High Availability VoIP Gateway

MEGACO Protocol

Release Notes











Version 6.6

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Release Notes Notices

Notice

This document describes the new features of Release 6.6 for AudioCodes MEGACO products. Information contained in this document is believed to be accurate and reliable at the time of printing. However, due to ongoing product improvements and revisions, AudioCodes cannot guarantee accuracy of printed material after the Date Published nor can it accept responsibility for errors or omissions. Updates to this document and other documents as well as software files can be downloaded by registered customers at http://www.audiocodes.com/downloads.

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Abbreviations and Terminology

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



Note: Throughout this manual, unless otherwise specified, the term *device* refers to the AudioCodes products.



Related Documentation

Document Name
MGCP-MEGACO Product Reference Manual
Mediant 3000 with TP-6310 / TP-8410 MGCP-MEGACO User's Manual

Document Revision Record

LTRT	Description
81912	Initial document release.
81913	Updating PSTN constraints.

Documentation Feedback

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Release Notes 1. Introduction

1 Introduction

This document describes the release of Version 6.6. This includes new products, existing products and their hardware features (existing and new), products not supported in this release, and new software-related features.

It describes new and existing products and hardware platforms, as well as new, modified, and obsolete features and configuration parameters. It also provides the known constraints for this release and constraints from the previous release that have now been resolved.

Notes:



- 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 software license keys that can be purchased, consult 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 the this
 release documentation. You can check for an updated version on our Web site as a
 registered customer at http://www.audiocodes.com/downloads.



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2 New and Existing Products and Hardware Platforms

This section describes the supported products and hardware configurations in Release 6.6.

2.1 New Products

This section describes the new products introduced in Release 6.6.

2.1.1 Mediant 3000

Mediant 3000 continues to be supported.

2.1.1.1 New Hardware

No new hardware has been introduced in this release for Mediant 3000.

2.1.1.2 Existing Hardware

This release supports the following existing hardware:

- Configurations hosting TP-6310 blade:
 - Mediant 3000 hosting a single TP-6310 blade, providing 1+1 SONET/SDH or 3 x T3 PSTN interfaces.
 - Mediant 3000 hosting two TP-6310 blades for 1+1 High Availability (HA), providing 1+1 SONET / SDH or 3 x T3 PSTN interfaces.
 - Depopulated TP-6310 with single DS3 configuration including eight DSPs. This is offered on the following models:
 - M3K1/DC (AC)
 - M3K3/DC (AC)
 - M3K40/ESBC/AC (DC)
 - M3K42/ESBC/AC (DC)
- Configurations hosting TP-8410 blade:
 - Mediant 3000 hosting a single TP-8410 blade, providing 16 E1 / 21 T1 PSTN interfaces.
 - Mediant 3000 hosting a single TP-8410 blade, providing up to 63 E1 / 84 T1 PSTN interfaces.
 - Mediant 3000 hosting two TP-8410 blades for 1+1 HA, providing up to 16 E1 / 21 T1 PSTN interfaces.
 - Mediant 3000 hosting two TP-8410 blades for 1+1 HA, providing up to 63 E1 / 84 T1 PSTN interfaces.
 - Mediant 3000 hosting a single TP-8410 blade providing 16 E1 / 21 T1 PSTN interfaces with an integrated CPU (Intel Pentium) blade (M3K-ICPU-1) for hosting third-party applications (such as SS7 GWC).
 - Mediant 3000 hosting a single TP-8410 blade providing up to 63 E1 / 84 T1 PSTN interfaces with an integrated CPU (Intel Pentium) blade (M3K-ICPU-1) for hosting third-party applications (such as SS7 GWC).



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3 New Software Features

This section describes the new features introduced in Release 6.6.

3.1 MEGACO Features

The following describes new MEGACO features.

3.1.1 AMR Payload Format – Bandwidth-Efficient / Octet-Aligned

Both octet-aligned and bandwidth efficient AMR modes are now supported. The required mode can be set per call by using the SDP AMR coder parameter (octet-align) or the *AmrOctetAlignedEnable* configuration parameter.

If octet-align is absent both from the local and remote SDP, the response takes the value from the configuration.

The octet-align MUST be symmetric. Therefore, if the remote SDP exists, the local side is set according to it.

Applicable Products: Mediant 3000

Transrating Between Different Ptime Values When all call parameters are the same except for Packetization Time (ptime), they can now be configured without transcoding. Therefore, voice quality is improved.

Applicable Products: Mediant 3000

3.1.3 Support for NB-IP Interfaces on the IP Multimedia Subsystem (IMS) System

Support for Narrow Band (NB) IP interfaces has been added. The transport supported is only IP. Both Narrowband and Wideband versions of 3GPP AMR are supported. The supported configurations are:

- Gateway (IP to TDM)
- Transcoding (IP to IP): 3GPP AMR NB/WB to G.711/G.722/AMR RFC 3267 and vice versa

The following H.248 packages are now supported:

- Q.1950 Bearer Characteristics Package (BCP)
- Q.1950 Generic Bearer Connection
- Q.1950 Bearer Network Connection Cut Through
- Q.1950 Bearer Control Tunneling
- 3GUP Package (ThreeGUP)
- IPBCP tunneling for SDP delivery



3.2 Media Features

This subsection describes the new media features.

3.2.1 Flexible Combinations of DSP Templates

The current hardcoded division of 50% of the DSP working with one template and 50% of the DSP working with another template has been removed. As of this version, any combination of DSP templates can be configured.

Applicable Products: Mediant 3000 and TP-1610

3.2.2 Five-Level RTP Redundancy

This feature provides support for five levels of RTP redundancy (according to RFC 2198). This is required for wireless networks such as Wi-Fi where a high percentage (up to 50%) of packet loss can be observed.

This feature is configured by setting the existing parameter, *RTPRedundancyDepth* to the new option, 5. To use RTP redundancy level 5, you need to set the *DSPVersionTemplateNumber* parameter to 4 or 7. The coders that support 5-level RTP redundancy include:

- DSPVersionTemplateNumber = 4 (all coders)
- DSPVersionTemplateNumber = 7 (only G.729 and iLBC coders)

3.3 Networking Features

This subsection describes the new networking features.

3.3.1 Network Time Protocol Server Address by DNS

This feature provides support for defining the Network Time Protocol (NTP) server address using a fully-qualified domain name (FQDN). In previous releases, the NTP server address could only be defined as an IP address in dotted-decimal notation. The advantage of an FQDN is that multiple IP addresses can be resolved from the DNS server, providing NTP server redundancy.

This feature is configured using the existing parameter:

NTP Server IP Address CLI: primary-server [NTPServerIP]	Defines the NTP server's address as an FQDN or an IP address in dotted-decimal notation. The default IP address is 0.0.0.0 (i.e., internal NTP client is disabled).
NTP Secondary Server IP [NTPSecondaryServerIP]	Defines the second NTP server's address as an FQDN or an IP address in dotted-decimal notation. This NTP is used for redundancy; if the primary NTP server fails, then this NTP server is used.
	The default IP address is 0.0.0.0 (i.e., internal NTP clies is disabled).

Applicable Products: All

3.3.2 Disabling ICMP Redirect Messages

This feature provides support for disabling the handling of ICMP Redirect messages.

A new parameter was added to support this feature:

[DisableICMPRedirects]	Determines whether the device accepts or ignores ICMP Redirect messages.
	 [0] = (Default) ICMP Redirect messages are handled by the device.
	 [1] = ICMP Redirect messages are ignored.



3.4 Quality of Experience Features

This subsection describes the new Quality of Experience (QoE) features.

3.4.1 Bandwidth Management per Media Realm

This feature enables the user to limit the bandwidth usage of a media realm. It also enables the user to define the preferred actions in case the bandwidth utilization of a media realm crosses a defined threshold.

This feature defines three states for the bandwidth utilization:

- Normal
- High
- Critical (the user may define only two states normal/high)

The customer may define the bandwidth threshold (and hysteresis) that causes it to move from state to state and to define the desired action when moving from state to state. Up to two thresholds can be defined - one for each state change.

If a threshold is crossed, an appropriate alarm is generated. The alarm is cleared when the bandwidth utilization returns to normal. The thresholds are defined in units of bytes per second.

The desired action in case of crossing a threshold can be one of the following:

- Report only Only an alarm will be generated.
- No more calls No more calls will be permitted on that media realm.
- Low bit rate calls This is supported in MEGACO only. When a call is offered, the preferred coders offered are the LBR coders.
- Multiply ptime by 2 This is supported in MEGACO only. When a call is offered (and the ptime is not restricted by the Media Gateway Controller), the offered ptime will be the default ptime multiplied by 2.
- Multiply ptime by 4 This is supported in MEGACO only. When a call is offered (and the ptime was not restricted by the Media Gateway Controller), the offered ptime will be the default ptime multiplied by 4.

To define bandwidth thresholds using the Web interface, open the Media Realm Table page (Configuration > VoIP > VoIP Network > Media Realm Configuration). Refer to the User Manual for more information.

Applicable Products: All except Mediant 4000.

3.4.2 New Voice Quality Parameters for Reporting to SEM

This feature provides support for monitoring status changes of additional voice quality parameters during a call. The device reports these changes to the SEM when user-defined thresholds are crossed.

The following additional voice quality parameters can now be monitored:

- Remote MOS
- Remote Delay
- Remote Jitter
- Remote Packet Loss
- Residual Echo Return Loss (RERL)
- Remote RERL

To support this feature, the following parameter has been added to configure the direction of the monitoring in the Quality of Experience table.

Direction	Defines the monitoring direction.
[QOERules_Direction]	[0] Device Side[1] Remote Side



3.5 PSTN Features

This subsection describes the new PSTN features.

3.5.1 Manual D-Channel Switchover

This feature provides support for manual switchover between active and standby D-channels belonging to the same NFAS group. To perform this switchover, the **Switch Activity** button on the new NFAS Group & D-channel Status page is used. This is done per selected NFAS group. If the switchover cannot be done due to, for example, alarms or unsuitable states, this button becomes unavailable (grayed out).

This feature is supported only for T1 ISDN protocols supporting NFAS, and only if the NFAS group is configured with two D-channels.

Applicable Products: Mediant 3000

3.5.2 DS1 Byte-synchronous Mapping to VT1.5 (SONET / OC3)

This feature provides support for mapping DS1 signals into a VT1.5, using byte-synchronous mapping.

To enable this feature, the existing parameter, SDHFbrGrp_Mapping_Type must be set to [2]:

Mapping Type
[SDHFbrGrp_Mapping_Type]

Determines the SDH/SONET mapping type (signal label and payload mapping type) for the PSTN interface. This is selected per Fiber Group.

- [0] VT1.5 Asynchronous = Asynchronous VT1.5 and DS1.
- [1] TU-12 Asynchronous = Asynchronous TU12 and E1.
- [2] TU-11 Byte Synchronous = TU-11 Byte Synchronous mapping.
- [3] Asynchronous DS3 = Asynchronous mapping of DS3 in STS1, DS3 channelized to DS1's asynchronous mapping of channelized DS3 to OC-3, so that the actual interface is OC-3 but mapped to three DS3 trunk interfaces (DS1 > DS3 > STS-1 > OC-3).
- [15] UNDEFINED = (Default) Not defined.

Notes:

- For this parameter to take effect, a device reset is required.
- The setting of this parameter must be in coordination with the parameters SDHFbrGrp_SDHSONETMode and ProtocolType.
- This parameter is applicable only when TDMBusType is set to acFRAMERS (2) and PSTNTransmissionType set to Optical SONET or SDH Transmission type(1).
- When option [3] is selected, the DS3 clock source is automatically set to 'Local Board' (i.e., synchronization supplied by device) and cannot be changed.

Applicable Products: Mediant 3000 with TP-6310

3.5.3 New Behavior Bit for ISDNIBehavior

This feature provides support for an additional behavior bit for the ISDNIBehavior parameter. The ISDN Q931 Layer Response Behavior field determines several behavior options which influence how the Q.931 protocol behaves. A new behavior bit has been added: NS_ACCEPT_ANY_CAUSE (67108864). The default value is 0. When this bit is set, the device accepts any Cause information element (IE) value.

This behavior bit is applicable only to the ETSI protocol.

Applicable Products: This feature is applicable to all devices.



3.6 Infrastructure Features

This subsection describes the new infrastructure features.

3.6.1 New Format for Configuring Daylight Saving Time Period

This feature provides support for a new format option to define the Daylight Saving Time (DST) period. This period can now be defined in the format, mm:day/week:hh:mm, where,

- mm denotes month (e.g., 4)
- day denotes day of week (e.g., Fri)
- week denotes week of month (e.g., 3)
- hh denotes hour (e.g., 23)
- mm denotes minutes (e.g., 0)

For example, "4:Fri/3:23:0" denotes Friday, the third week of April, at 11 P.M. The week field can be in the range of 1-5, where "5" denotes the last occurrence of the specified day in the specified month. For example, "4:Fri/5:23:0" denotes the last Friday of April, at 11 P.M.

Applicable Products: All

3.7 Web Management Features

This subsection describes the new Web interface features.

3.7.1 Mozilla Firefox Web Browser Support

This feature provides support for running the device's Web-based management interface on Mozilla Firefox Web browser, versions 5 through 7.

Applicable Products: All

3.7.2 New Web "Master" User Level

This feature provides support for an additional Web user privilege level – "Master User" (numerical representation in RADIUS is 220). The first Master user can only be created by the Security Administrator level user. Once created, only the Master user can add, modify, or delete other Master users. Master users have higher security privileges than the Security Administrator user; they can even delete the Security Administrator user.

Up until this release, three Web user levels were supported:

- Security Administrator full read / write privileges for all Web pages (including security and adding lower-level Web users)
- Administrator read / write privileges for all pages, except security-related pages
- User Monitor read-only privileges (and no access to security-related pages)

Applicable Products: All

3.7.3 Enhanced Management of Web Users

This feature provides support for enhanced management of Web users by introducing a new table to facilitate the creation, modification, and removal of Web users. This new table, Web Users Table, is accessed from the existing Web User Accounts page (**Configuration** tab > **System** menu > **Web User Accounts**).

Up to 10 different Web users can be added to the table, with the following user levels:

- Master User
- Security Administrator
- Admin
- Monitor

In addition to username and password, each user can be defined with the following attributes:

- Session limit number of users that can be logged in simultaneously
- Session timeout duration the user can be logged in
- Block duration if a user is blocked to Web access due to exceeding number of userdefined failed login attempts, the user is unblocked after this timeout (or by the security administrator)

The Web login password must be at least eight characters, containing at least two uppercase, two lowercase, two numbers, and two special characters. It must also be at least four characters different than the previous password.

Note: This feature is currently in testing phase and has not been enabled. For more information, please contact your AudioCodes sales representative.

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Applicable Products: All



3.7.4 New Table Design Format

The following Web configuration tables have been re-designed into a new table format to facilitate configuration:

- Power Over Ethernet Settings
- SNMPv3 Users
- Firewall Settings
- IP Security Proposals Table
- IP Security Associations Table
- Physical Ports Table
- Internal DNS Table
- Internal SRV Table
- DSP Templates
- Virtual gateway Configuration Table

Applicable Products: All (according to relevant page).

3.7.5 New Web Login Screen for Enhanced Security

This feature provides support for a new Web login screen. This login screen uses form-based authentication, thereby improving the security level of the device's Web-based management system.

Applicable Products: All

3.7.6 Status Display of D-Channels and NFAS Groups

This feature provides support for displaying the status of D-channels and NFAS groups:

- D-channels: A D-channel alarm (if raised) is now indicated using the color-coded D-Channel Alarm icon (orange). This is displayed in the Home page and in the NFAS Group & D-Channel Status page.
- NFAS: An NFAS alarm (if raised) is now indicated using a new color-coded NFAS Alarm icon (dark orange). This is displayed in the Home page and in the NFAS Group & D-Channel Status page. The NFAS Group & D-Channel Status page also displays NFAS groups and their status.

Applicable Products: Mediant 3000

3.7.7 Loopback Creation for DS1 Lines

This feature provides support for creating (and removing) loopback for DS1 lines. A new button – **Create Loopback** (and **Remove Loopback**) – was added to the Trunk Settings page to support this feature.

Applicable Products: Mediant 3000

3.7.8 Remote Loopback Creation for DS3 Lines

This feature provides support for creating (and removing) remote loopback for DS3 lines. A new button – **Create Loopback** (and **Remove Loopback**) – was added to the Trunk Settings page to support this feature.

Applicable Products: Mediant 3000 with TP-6310

3.7.9 Web Login Authentication using Smart Cards

This feature provides support for Web login authentication using a third-party, smart card with user identification. When enabled and the user attempts to access the device through the Web browser (HTTPS), the device retrieves the Web user's login username (and other information, if required) from the smart card and the user is then required to provide only the correct login password. Typically, a TLS connection is established between the smart card and the device's Web interface, and a RADIUS server is implemented to authenticate the password with the username. Thus, this feature implements a two-factor authentication - what the user has (i.e., the physical card) and what the user knows (i.e., the login user name).

This feature can be enabled using the new parameter, EnableMgmtTwoFactorAuthentication. Depending on customer requirements, specific device configuration and integration may also be required.

Applicable Products: All

3.7.10 Alarm History Display

This feature provides support for displaying a list of historical alarms. This support is in addition to the already supported display of current alarms. The historical alarms are displayed in the new Web page, 'Alarms History'.

Applicable Products: All

3.7.11 Logged Login Attempts to Management Interface

This feature provides support for enhanced logging (additional event notifications) of attempts made to log in to the device's management interfaces. Each authentication attempt at the device's management port is logged. This is configured using the existing parameter, *ActivityListToLog*.

Applicable Products: All

3.7.12 Performance Monitoring of Trunk Utilization

This feature provides support for real-time display of the number of calls per trunk. This is displayed in the new Web page, 'Trunk Utilization'.

Applicable Products: All

3.7.13 Selection Method of Default Media Realm Modification

This feature enables the user to determine whether or not a Media Realm is default when configuring a Media Realm. For this support, the Media Realm table now includes a new field, 'Is Default'. In the previous release, the global parameter, *cpDefaultMediaRealmName* was used to configure the default Media Realm. This parameter is now obsolete.

Applicable Products: All

3.7.14 B-Channel Out-of-Service & Maintenance Alarm

This feature provides support for displaying the following B-channel status, using new color-coded icons in the Trunks & Channels Status page:

- Maintenance (orange) The B-channel indicated by this alarm has been intentionally taken out of service due to maintenance
- Out of Service (red) The B-channel indicated by this alarm has gone out of service



Note: This feature is not enabled by default. To enable it, please contact your AudioCodes sales representative.

Applicable Products: Mediant 3000

3.7.15 SS7-Related Web Pages Removed

The SS7-related Web pages have been removed from the Web interface. This was done due to discontinuing support for SS7.

Applicable Products: All

3.8 Security Features

3.8.1 VolP Firewall Rules Based on Source Port

This feature provides support for specifying source TCP / UDP port when configuring VoIP firewall rules.

This feature can be configured in the existing Web interface's Firewall Settings page, using the new field, "Source Port". It can also be configured in the CLI, using the new command, configure voip > access-list.

Applicable Products: Mediant 3000

3.8.2 ARIA Encryption Algorithm for SRTP

This feature provides support for the ARIA algorithm cipher encryption for Secure Real-time Transport Protocol (SRTP). This is an alternative option to the existing support for the AES algorithm. ARIA is a symmetric key-block cipher algorithm standard developed by the Korean National Security Research Institute. The ARIA offered suite supports 128-bit and 192-bit key encryption sizes with HMAC SHA-1 cryptographic hash function.

ARIA encryption is configured by the following parameters:

- AriaProtocolSupport enables ARIA encryption
- SRTPofferedSuites using the new options, AES_CM_128_HMAC_SHA1_32 and ARIA_128_BIT

For ARIA encryption of SRTP, the device must also be installed with the relevant Software Upgrade Feature Key.



3.9 SNMP Features

This subsection describes the new Simple Network Management Protocol (SNMP) features.

3.9.1 Encrypted Traps per SNMPv3 User

This feature provides support for associating a trap destination with a specific SNMPv3 user. This enables sending encrypted and authenticated traps to an SNMPv3 destination. By default, traps are sent unencrypted using SNMPv2.

A new field, 'Trap User' has been added to the SNMP Trap Destinations table to support this feature. This field lists the SNMP v3 users defined for traps (Trap Group) in the SNMPv3 Users table.

Applicable Products: All

3.9.2 Restarting B-Channels

This feature provides support for restarting a B-channel. A new SNMP parameter, acTrunkISDNCommonRestartBChannel has been added to support this feature.

Applicable Products: Mediant 3000

3.9.3 ISDN Alarms Consolidation

This feature provides support for consolidating Trunk alarms pertaining to an NFAS group. When a trunk alarm is raised, the D-channel and B-channel alarms are automatically cleared. When the trunk alarm is cleared, the D-channel and B-channel alarms are restored (raised again).

Applicable Products: Mediant 3000

3.9.4 SNMP Trap for TLS Server Certificate Expiry

This feature provides support for a new SNMP trap, acCertificateExpiryNotifiaction that is sent at a user-defined number of days before the installed TLS server certificate expires. The device checks the expiry state of the certificate periodically at a user-defined interval.

To support this feature, the following new configuration parameters have been added to the Web Certificates page:

TLS Expiry Check Start CLI: expiry-check-start [TLSExpiryCheckStart]	Defines the number of days before the installed TLS server certificate will expire that the device must first send a trap to notify of this. The valid value is 0 to 3650. The default is 60.
TLS Expiry Check Period CLI: expiry-check-period [TLSExpiryCheckPeriod]	Defines the interval (in days) between device checks of the TLS server certificate expiry. The valid value is 1 to 3650. The default is 7 (i.e., checks the certificate every 7 days).

3.9.5 Host Resources MIB (RFC 2790)

This feature provides support for the Host Resources MIB, which is used for managing host systems. The term *host* is any computer that communicates with other similar computers connected to the Internet and that is directly used by one or more human beings.

The following Host Resources MIB objects have been added:

- hrSystem group
- hrStorage group (basic only)
- hrDevice group (CPU, RAM, Flash basic only)
- hrSWRunPerf (basic only)
- hrSWInstalled (OS only)

Applicable Products: All

3.9.6 VolP Configuration File Download without Parsing

This feature provides support for a new SNMP object, acSysActionSetApplyINImethodthat that enables the EMS to perform VoIP *ini* file download without parsing (similar to the wizard mode). This object is located under the system MIB.

Applicable Products: All

3.9.7 SNMP Trap for Detection of Attacks on Media Interfaces

This feature provides support for a new SNMP trap, *acMediaProcessOverloadAlarm* OID:1.3.6.1.4.1.5003.9.10.1.21.2.0.81 that is sent upon overload of the device's media processing and interfaces.

Applicable Products: Mediant 3000

3.9.8 SONET Alarms Consolidation

This feature provides support for sending trunk alarms only on the DS3 level. This is in addition to the already supported alarms on the trunk level. The alarm level is configured by the parameter, *DS3AlarmConsolidation*. When enabled, only SDH alarms are raised and no alarms are raised for trunks (even if they exist). When the SDH alarm is cleared, trunk alarms are raised (if they exist).

Applicable Products: Mediant 3000 with TP-6310



3.10 Obsolete Parameters

The table below lists parameters from the previous release now obsolete in Release 6.6.

Table 3-1: Obsolete Parameters

Obsolete Parameter	Туре	Comment
EnableFaxRerouting	ini	This parameter has been replaced by the new parameter, <i>FaxReroutingMode</i> .
acCPQualityOfExperienceUseM osLQ	SNMP	This parameter has been replaced by the new parameter, acCPQualityOfExperienceMOSCalculationAl gorithm
codersTable	SNMP	-
CoderName	ini	This parameter has been replaced by the CodersGroup parameter.
search-dn	CLI	This command has been replaced by search-dns-in-parallel.

4 DSP Firmware Templates, Capabilities and Channel Capacity

This section lists the DSP firmware templates for Release 6.6. These DSP templates indicated the maximum number of channels supported for various supplementary capabilities and voice coders.

Notes:



- Installation and use of voice coders is subject to obtaining the appropriate license and royalty payments.
- The number of channels refers to the maximum channel capacity of the device.
- For additional DSP templates, contact your AudioCodes representative.

4.1 Mediant 3000

This section lists the Mediant 3000 DSP templates for the following:

- Mediant 3000 full chassis see Section 4.1.1 on page 29
- Mediant 3000 with 16 E1 / 21 T1 see Section 4.1.2 on page 31
- Mediant 3000 with single T3 see Section 4.1.3 on page 33
- DSP template mix feature see Section 4.1.4 on page 34

4.1.1 Mediant 3000 Full Chassis

The DSP templates for Mediant 3000 are shown in the table below. For Release 6.6, the following updates were done:

- The following supplementary capabilities were added to the matrix IPM Detectors and Acoustic Echo Suppressor
- The Enhanced G.711 coder was removed.



Table 4-1: DSP Firmware Templates for Mediant 3000

0 1 2 4 5 7	9 10	11 12	13		
Supplementary Capabilities					
Number of Suppressor IPM Detectors RTCP XR ARIA	Number of Channels				
2016 2016 1764 1260 1260 163	8 1008 1512	630 756	378		
· · · · 1890 1890 1638 1134 1134 163	8 1008 1512	630 756	378		
- - - - √ 1134 1134 1134 630 1008 88	2 252 1134	252 378	378		
✓ - - 1764 1638 - 1008 - 163	88 1008 -	630 -	-		
✓ - ✓ - 1638 1638 - 1008 - 157	2 1008 -	630 -	-		
✓ ✓ - - 1638 1638 - 1008 - 138	6 1008 -	504 -	-		
✓ ✓ ✓ - 1638 1638 - 1008 - 138	6 1008 -	504 -	-		
✓ ✓ ✓ ✓ 1134 1134 - 1008 - 88	2 252 -	252 -	-		
Voice Coder					
AMR -			-		
AMR-WB			-		
EVRC			-		
EVRC-B ✓ -			-		
G.711 A/μ-law PCM ✓ ✓ ✓ ✓ ✓	✓ ✓	✓ ✓	✓		
G.722 ✓	- 🗸	✓ -	-		
G.723.1			-		
G.726 ADPCM ✓ ✓ ✓ ✓ ✓ ✓			-		
G.727			-		
G.729 A, B	✓ ✓	✓ -	-		
G.729.1 (up to 12 kbps)			-		
GSM EFR - ✓			-		
GSM FR			-		
iLBC ✓			-		
MS GSM			-		
MS-RTA (NB)	✓ -	✓ -	-		
MS-RTA (WB)		√ -	-		
SPEEX NB		- 🗸	✓		
SPEEX WB			✓		
T.38 Version 3	- ✓		-		

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4.1.2 Mediant 3000 16 E1 / 21 T1

The DSP templates for Mediant 3000 16 E1 / 21 T1 are shown in the table below.



Notes:

- For each IP-to-IP transcoding call, two DSP channels are required.
- For each IP-to-IP call, one DSP channel is required.



Table 4-2: DSP Firmware Templates for Mediant 3000 16 E1 / 21 T1

					DSP Template								
					0	1	2	4	5	7	9	10	11
Supplementary Capabilities													
SRTP	ARIA	RTCP XR	IPM Detectors	Acoustic Echo Suppressor	Number of Channels								
-	-	-	-	-	504	504	504	360	360	468	288	432	180
-	-	✓	✓	-	504	504	468	324	324	468	288	432	180
-	-	-	-	✓	324	324	324	180	288	252	72	324	72
✓	-	-	-	-	504	468	-	288	-	468	288	-	180
✓	-	✓	✓	-	468	468	-	288	-	432	288	-	180
✓	✓	-	-	-	468	468	-	288	-	396	288	-	144
✓	✓	✓	✓	-	468	468	-	288	-	396	288	-	144
✓	✓	✓	✓	✓	324	324	-	180	-	252	72	-	72
						Voic	e Code	r					
AMI	R				-	✓	-	✓	-	-	-	-	-
AMI	AMR-WB				-	-	-	✓	-	-	-	-	-
EVF	C				-	-	✓	-	✓	-	-	-	-
EVF	EVRC-B					-	-	-	✓	-	-	-	-
G.711 A/μ-law PCM					✓	✓	✓	✓	✓	✓	✓	✓	✓
G.7	G.722					-	-	✓	-	-	-	✓	✓
G.72	23.1				✓	-	-	-	-	-	-	-	-
G.72	26 AI	OPCM			✓	✓	✓	✓	✓	✓	-	-	-
G.72	27				✓	✓	✓	✓	✓	✓	-	-	-
G.72	G.729 A, B					✓	✓	✓	✓	✓	✓	✓	✓
G.729.1 (up to 12 kbps)				-	-	-	-	-	-	-	-	-	
GSI	GSM EFR				-	✓	-	✓	-	-	-	-	-
GSI	GSM FR				✓	✓	-	✓	-	-	-	-	-
iLB	iLBC				-	-	-	-	-	✓	-	-	-
MS	MS GSM				✓	✓	-	✓	-	-	-	-	-
MS-	MS-RTA (NB)				-	-	-	-	-	-	✓	-	✓
MS-RTA (WB)				-	-	-	-	-	-	-	-	✓	
T.38 Version 3					-	-	-	-	-	-	-	✓	-

4.1.3 Mediant 3000 with Single T3

The DSP templates for Mediant 3000 with a single T3 interface are shown in the table below. This is a new DSP template matrix for the Mediant 3000.

Table 4-3: DSP Firmware Templates for Mediant 3000 with Single T3

					DSP Template									
					0	1	2	4	5	7	9	10	11	
Supplementary Capabilities														
SRTP	ARIA	RTCP XR	IPM Detectors	Acoustic Echo Suppressor	Number of Channels									
-	-	-	-	-	672	672	672	480	480	624	384	576	240	
-	-	✓	✓	-	672	672	624	432	432	624	384	576	240	
-	-	-	-	✓	432	432	432	240	384	336	96	432	96	
✓	-	-	-	-	672	624-	-	384	-	624	384	-	240	
✓	-	✓	✓	-	624	624	-	384	-	576	384	-	240	
✓	✓	-	-	-	624	624	-	384	-	528	384	-	192	
✓	✓	✓	✓	-	624	624	-	384	-	528	384	-	192	
✓	✓	✓	✓	✓	432	432	-	240	-	336	96	-	96	
	Voice Coder													
AMI	AMR				-	✓	-	✓	-	-	-	-	-	
AMI	AMR-WB				-	-	-	✓	-	-	-	-	-	
EVF	EVRC				-	-	✓	-	✓	-	-	-	-	
EVF	RC-B				-	-	-	-	✓	-	-	-	-	
G.7	G.711 A/μ-law PCM					✓	✓	✓	✓	✓	✓	✓	✓	
G.7	22				-	-	-	✓	-	-	-	✓	✓	
G.7	23.1				✓	-	-	-	-	-	-	-	-	
G.7	G.726 ADPCM				✓	✓	✓	✓	✓	✓	-	-	-	
G.7	G.727				✓	✓	✓	✓	✓	✓	-	-	-	
G.7	G.729 A, B				✓	✓	✓	✓	✓	✓	✓	✓	✓	
G.7	G.729.1 (up to 12 kbps)				-	-	-	-	-	-	-	-	-	
GSI	GSM EFR				-	✓	-	✓	-	-	-	-	-	
GSI	GSM FR				✓	✓	-	✓	-	-	-	-	-	
iLB	iLBC				-	-	-	-	-	✓	-	-	-	
MS GSM				✓	✓	-	✓	-	-	-	-	-		



MS-RTA (NB)	-	-	-	-	-	-	✓	-	✓
MS-RTA (WB)	-	-	-	-	-	-	-	-	✓
T.38 Version 3	-	-	-	-	-	-	-	✓	-

4.1.4 Mediant 3000 DSP Template Mix Feature

Mediant 3000 can operate (and be loaded) with up to two DSP templates. The channel capacity per DSP template is approximately 50%, with alignment to the number of DSP's present in the device.

Table 4-4: Template Mix Feature Channel Capacity for Mediant 3000

DSP Template Mix	Number of Channels					
1 (AMR) / 2 (EVRC)	960					
1 (AMR) / 5 (EVRCB)	768					
1 (AMR) / 7 (iLBC)	864					

Release Notes 5. Known Constraints

5 Known Constraints

This section lists known constraints in Version 6.6.

5.1 MEGACO Constraints

This release includes the following known MEGACO constraint:

After an NB-IP call is established, it cannot be modified. The rate control changes are done only through the User Plane (UP) protocol and not through MEGACO.

5.2 Media Constraints

This release includes the following known media (voice, RTP and RTCP) constraints:

SBC RTP call forwarding using the SRTP tunneling feature cannot provide RTCP XR
monitoring parameters (such as MOS) required for the QoE feature on the following
variable bit rate coders: G.723, GSM FR, GSM EFR, MS RTA, EVRC, AMR, QCELP,
SILK, and Speex. A workaround is to use SRTP full encryption / decryption on the
forwarding calls.

Applicable Products: Mediant 3000

2. Ethernet packets received on the RTP side of SRTP-RTP SBC sessions must not exceed 1500 bytes. Packets exceeding this size are dropped.

Applicable Products: Mediant 3000

3. Video sessions cannot be transported on SBC RTP forwarding calls.

Applicable Products: Mediant 3000

4. The Enhanced G.711 vocoder is no longer supported.

Applicable Products: : Mediant 3000

5. The device does not support the sending of RFC 2198 RTP redundancy packets as an operation if the configured packet loss threshold is exceeded; this is configured in the Quality of Experience Web page.

Applicable Products: All

6. Acoustic Echo Suppression cannot be used together with wideband transcoding. When Acoustic Echo Suppression is enabled, IP-to-IP calls using wideband coders such as G.722 or AMR-WB do not maintain the wideband quality and consequently, is degraded to narrowband quality.

Applicable Products: Mediant 3000

7. If the initial transcoding session has one side using a narrowband coder (e.g. G.711), modifying the transcoding connection to wideband coders still results in narrowband voice quality. A workaround for this constraint is to ensure that the entire session uses wideband coders.

Applicable Products: Mediant 3000

- 8. The Transparent coder (RFC 4040) poses the following limitations:
 - The coder can be used only when using physical terminations
 - No detection of IBS (e.g., DTMF)
 - Generation of IBS is only toward the network
 - No fax/modem detection or generation (i.e., no support for T.38 and Bypass)

A workaround for this constraint is to use the G.711 coder instead.



9. When performing an IP-to-IP call with a wideband (WB) coder on each leg, if the Fax/Modem Transport type for one of the legs is not Transparent, the interconnection is made using a narrowband coder; therefore, the wideband quality of the call is not maintained. The user should avoid setting any Fax/Modem enhanced capabilities on wideband IP-to-IP calls for which the user wants to maintain wideband quality.

Applicable Products: Mediant 3000

10. Announcements and streaming cannot be performed on IP-to-IP wideband calls.

Applicable Products: Mediant 3000

11. The RFC 2198 Redundancy mode with RFC 2833 is not supported (i.e., if a complete DTMF digit is lost, it is not reconstructed). The current RFC 2833 implementation supports redundancy for lost inter-digit information. Since the channel can construct the entire digit from a single RFC 2833 end packet, the probability of such inter-digit information loss is very low.

Applicable Products: Mediant 3000

12. The duration resolution of the On and Off time digits when dialing to the network using RFC 2833 relay is dependent on the basic frame size of the coder being used.

Applicable Products: Mediant 3000

13. The Calling Tone (CNG) detector must be set to Transparent mode to detect a fax CNG tone received from the PSTN, using the Call Progress Tone detector.

Applicable Products: Mediant 3000

14. EVRC Interleaving according to RFC 3558 is supported only on the receiving side. Supporting this mode on the transmitting side is not mandatory according to this RFC.

Applicable Products: Mediant 3000

15. To change the DSP template, either the Mixed Template table or the DSP Template single values can be used.

Applicable Products: Mediant 3000

16. After an NB-IP call has been established it cannot be modified.

Applicable Products: Mediant 3000

17. The rate control changes are made only through the UP protocol and not through H.248.

Release Notes 5. Known Constraints

5.3 PSTN Constraints

This release includes the following known PSTN constraints:

1. All the device's trunks must belong to the same Protocol Type (i.e., either E1 or T1).

Applicable Products: Mediant 3000

2. After changing the trunk configurations from the initial factory default (i.e., trunks are of Protocol Type 'None'), a device reset is required (i.e., the change cannot be made onthe-fly).

Applicable Products: Mediant 3000

- 3. When configuring the framing method to 'Extended Super Frame' (0) or 'Super Frame' (1), the framing method is converted to another framing method. The correct value that is updated in the device is displayed in the Web interface:
 - For E1: 'Extended Super Frame' (0) and 'Super Frame' (1) are converted to 'E1 FRAMING MFF CRC4 EXT' (c).
 - For T1: 'Extended Super Frame' (0) is converted to 'T1 FRAMING ESF CRC6'
 (D). In addition, 'Super Frame' (1) is converted to 'T1 FRAMING F12' (B).

Applicable Products: Mediant 3000

4. When configuring the device with E1 trunks, negotiation of CRC4 (for either EXTENDED_SUPER_FRAME or E1_FRAMING_MFF_CRC4_EXT framing methods) should not be used. A framing method other than EXTENDED_SUPER_FRAME and E1_FRAMING_MFF_CRC4_EXT must be selected.

Applicable Products: Mediant 3000 with TP-6310

5. In this version, SIGTRAN/SS7 is not supported.

Applicable Products: All

5.3.1 DS3 Constraints

This release includes the following known DS3 constraints:

1. The BIT voice path can fail when using the DS3 interface.

Applicable Products: Mediant 3000 with TP-6310

When the DS3 interface is not connected, a trunk under this DS3 interface can appear in either LOF or AIS alarm state.

Applicable Products: Mediant 3000 with TP-6310

3. The DS3 External clock is not relevant for Asynchronous mapping of DS3 in OC3. Applicable Products: Mediant 3000 with TP-6310

5.3.2 SDH Constraints

This release includes the following known SDH constraints:

 For SDH/SONET and DS3 interfaces, if a trunk is in LOF alarm and the alarm is then cleared, the trunk tends to revert to the RAI alarm for a short period before moving to "no alarm" state.

Applicable Products: Mediant 3000 with TP-6310

2. In STM-1 and OC3 configurations, path alarms do not show the correct state if the higher level is not synchronized. For example, if there is no LOS on both PSTN Port A and Port B, the path level displays "No Alarm".

Applicable Products: Mediant 3000 with TP-6310



5.4 Networking Constraints

This release includes the following known networking constraints:

1. Enabling the UDP checksum calculation is not applied to CALEA and IP-to-IP calls with UDP connections. The UDP checksum field is set to zero in these cases.

Applicable Products: Mediant 3000

2. In certain cases, when the Spanning-Tree algorithm is enabled on the external Ethernet switch port that is connected to the device, the external switch blocks all traffic from entering and leaving the device for some time after the device is reset. This may result in the loss of important packets such as BootP and TFTP requests, which in turn, may cause a failure in device start-up. A possible workaround is to set the *ini* file parameter *BootPRetries* to 5, causing the device to issue 20 BootP requests for 60 seconds. Another workaround is to disable the spanning tree on the port of the external switch that is connected to the device.

Applicable Products: Mediant 3000

3. Configuring the device to auto-negotiate mode while the opposite port is set manually to full-duplex (either 10BaseT or 100BaseTX) is invalid. It is also invalid to set the device to one of the manual modes while the opposite port is configured differently. The user is encouraged to always prefer full-duplex connections over half-duplex and 100BaseTX over 10BaseT (due to the larger bandwidth).

Applicable Products: Mediant 3000

- 4. Debug Recording:
 - Only one IP target is allowed.
 - Maximum of 50 trace rules are allowed simultaneously.
 - Maximum of 5 media stream recordings are allowed simultaneously.

Release Notes 5. Known Constraints

5.5 High Availability Constraints

This release includes the following known High Availability (HA) constraints:

1. The Graceful Lock feature does not function when HA is enabled. Attempting to do so causes errors in the Syslog.

Applicable Products: Mediant 3000 HA with TP-6310 or TP-8410

2. When using IPSec for control protocol transport, the device may experience a large bulk of Syslog error messages during switchover. These messages can be ignored as the switchover should succeed and the connection with the softswitch is restored.

Applicable Products: Mediant 3000 HA with TP-6310 or TP-8410

3. During HA switchover, the APS active interface status (e.g., PSTN-B is currently "Active" and PSTN-A is "Inactive") is not transferred to the redundant blade. As a result, if the PSTN-B interface was active before switchover, PSTN-A can be active after switchover. The information regarding which interface is active is not maintained after switchover.

Applicable Products: Mediant 3000 HA with TP-6310

4. The Voice Prompt file needs be reloaded to the device after the Hitless software upgrade has completed.

Applicable Products: Mediant 3000 HA with TP-6310 or TP-8410



5.6 Infrastructure Constraints

This release includes the following known Infrastructure constraints:

1. When using BITS with line-synch mode, only APS protected mode is supported.

Applicable Products: Mediant 3000 with TP-6310

- 2. The following parameters do not return to their default values when attempting to restore them to defaults using the Web interface or SNMP, or when loading a new *ini* file using BootP/TFTP:
 - VLANMode
 - VLANNativeVLANID
 - RoutingTableDestinationsColumn
 - RoutingTableDestinationPrefixLensColumn
 - RoutingTableInterfacesColumn
 - RoutingTableGatewaysColumn
 - RoutingTableHopsCountColumn
 - RoutingTableDestinationMasksColumn
 - EnableDHCPLeaseRenewal
 - RoutingTableDestinationMasksColumn
 - IPSecMode
 - CASProtocolEnable
 - EnableSecureStartup
 - UseRProductName
 - LogoWidth
 - WebLogoText
 - UseWeblogo
 - UseProductName

Applicable Products: Mediant 3000

Files loaded to the device must not contain spaces in their file name. Including spaces in the file name prevents the file from being saved to the device's flash memory (or copied to the redundant blade for Mediant 3000 HA).

Release Notes 5. Known Constraints

5.7 Management Constraints

5.7.1 Web Constraints

This release includes the following known Web constraints:

1. The Web interface is not displayed correctly when using the Firefox 4 Web browser. A workaround is to refresh the page using the Ctrl-and-F5 key combination.

Applicable Products: Mediant 3000

2. In the Multiple Interface table, the 'Primary DNS Server IP Address' and 'Secondary DNS Server IP Address' fields are not applicable.

Applicable Products: Mediant 3000

3. When configuring a Media Realm in the SIP Media Realm table, if the user enters a value in the 'Port Range End' field (which should be read-only, but is erroneously read-write), this value is ignored and the Web interface assigns a value to this field based on the 'Number Of Media Session Legs' field and the 'Port Range First' field.

Applicable Products: Mediant 3000

4. When using the Software Upgrade Wizard, if the Voice Prompt (VP) file is loaded and the **Next** button is clicked while the progress bar is displayed, the file is not loaded to the device. Despite this failure, the user receives a message that the file has been successfully downloaded.

Applicable Products: Mediant 3000

5. On the Software Upgrade Wizard page, the software upgrade process must be completed prior to clicking the **Back** button. Clicking the **Back** button before the wizard completes causes a display distortion.

Applicable Products: Mediant 3000

6. On the IP Interface Status page (under the **Status & Diagnostics** menu), the IP addresses may not be fully displayed if the address is greater than 25 characters.

Applicable Products: Mediant 3000

7. When using the Trunk Scroll Bar on the Trunk Settings page, some trunks may not be displayed on the Trunks panel when scrolling fast.

Applicable Products: Mediant 3000

8. Some Web pages cannot be added to a Scenario.

Applicable Products: Mediant 3000

9. The Web Search feature may produce incorrect search results. For example, a search result for the TLS version parameter directs the user to the incorrect page instead of the Security Settings page under the System menu.

Applicable Products: Mediant 3000

10. The fax counters, 'Attempted Fax Calls Counter' and 'Successful Fax Calls Counter' in the Status & Diagnostics page do not function correctly.



5.7.2 SNMP Constraints

This release includes the following known Simple Network Management Protocol (SNMP) constraints:

1. When configuring acSysInterfaceTable using SNMP or the Web interface, validation is done only after a device reset.

Applicable Products: Mediant 3000

2. The DS3 ifAdmin-State field cannot be changed in the IF-Table, using SNMP.

Applicable Products: Mediant 3000 with TP-6310

3. In the DS3/E3 Current Table, the objects dsx3CurrentSEFSs and dsx3CurrentUASs are not supported.

Applicable Products: Mediant 3000 with TP-6310

4. In the DS3/E3 Interval Table the objects, dsx3IntervalPSESs and dsx3IntervalSEFSs are not supported.

Applicable Products: Mediant 3000 with TP-6310

The dsx3Total Table is not supported.

Applicable Products: Mediant 3000 with TP-6310

The Admin State does not change to "Redundant".

Applicable Products: Mediant 3000 HA with TP-6310 or TP-8410

7. When defining or deleting SNMPv3 users, the v3 trap user must not be the first to be defined or the last to be deleted. If there are no non-default v2c users, this results in a loss of SNMP contact with the device.

Applicable Products: Mediant 3000

5.7.3 CLI Constraints

This release includes the following known command-line interface (CLI) constraints:

When connecting to the device using Telnet (CLI), Syslog messages do not appear by default. The **show log** command can be used to enable this feature.

6 Resolved Constraints

This section lists constraints from previous releases that have been resolved.

6.1 PSTN Resolved Constraints

The following PSTN constraints from the previous release have been resolved:

TU-11 Byte Synchronous mapping is not supported.

Applicable Products: Mediant 3000 with TP-6310

6.2 Infrastructure Resolved Constraints

The following infrastructure constraints from the previous release have been resolved:

The Multiple Interface table does not return to default values when attempting to restore it to defaults using the Web or SNMP interfaces, or when loading a new ini file using BootP/TFTP.

Applicable Products: Mediant 3000

6.3 Web Resolved Constraints

The following Web constraints from the previous release have been resolved:

1. When entering negative values in the 'NTP Update Interval' field, the Web interface does not display an error message to indicate that this is not a valid value.

Applicable Products: Mediant 3000

2. The Quality of Experience (QoE) feature is not supported through the Web interface.

Applicable Products: Mediant 3000

3. If an existing Web configuration table row is being edited and the user navigates to another configuration table page without clicking Apply and the user returns to the page, the edited row is removed entirely from the table and the Web no longer displays it. The user must ensure to click the Apply button after editing a row before navigating away from the page.

Applicable Products: Mediant 3000

4. In some Web pages, the **Submit** button is displayed for users with read-only permissions. For these users, it should not be displayed.

Applicable Products: Mediant 3000

5. The SNMPUsers_AuthKey and SNMPUsers_PrivKey parameter values are displayed in the Syslog when enabling "Activity Types to Report via 'Activity Log' Messages". This should be hidden.

Applicable Products: Mediant 3000

The number of entries in the NFS table must not exceed four; otherwise, the device "crashes" after the next reset.



7. Changing the RADIUS state from Online to Offline and vice versa does not function correctly. The RADIUS enable/disable is an offline feature. As such, when changing it through the Web interface, the message should indicate that the effect will take place after a reset. However, trying to do so causes a prompt for user/password to appear, and it must be the administrator.

Applicable Products: Mediant 3000

8. Caller ID types that are not supported appear in the list. The DTMF Caller ID types appear in the list of possible caller IDs even though they are not supported for these products. A workaround for this constraint is to ensure that the selected caller ID is indeed supported.

Applicable Products: Mediant 3000

6.4 SNMP Resolved Constraints

The following SNMP constraints from the previous release have now been resolved:

Incorrect indications of the DS3 interfaces in the ifTable – ifOperStatus.

Applicable Products: Mediant 3000 with TP-6310

Release Notes 6. Resolved Constraints

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