

Configuration Guide for Google  
CCAI Agent Handoff Using  
AudioCodes VE SBC  
7.60A.100.022



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# 1 Audience

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This document is intended for the SIP Trunk customer's technical staff and Value-Added Reseller (VAR) having installation and operational responsibilities.

## 1.1 Introduction

This configuration guide describes configuration steps for **Google CCAI Agent Handoff** using **AudioCodes Virtual Edition Session Border Controller 7.60A.100.022**.

### 1.1.1 TekVizionLabs

TekVizionLabs™ is an independent testing and verification facility offered by TekVizion, Inc. TekVizion Labs offers several types of testing services including:

- Remote Testing – provides secure, remote access to certain products in TekVizion Labs for pre-Verification and ad hoc testing.
- Verification Testing – Verification of interoperability performed on-site at TekVizion Labs between two products or in a multi-vendor configuration.
- Product Assessment – independent assessment and verification of product functionality, interface usability, assessment of differentiating features as well as suggestions for added functionality, stress, and performance testing, etc.

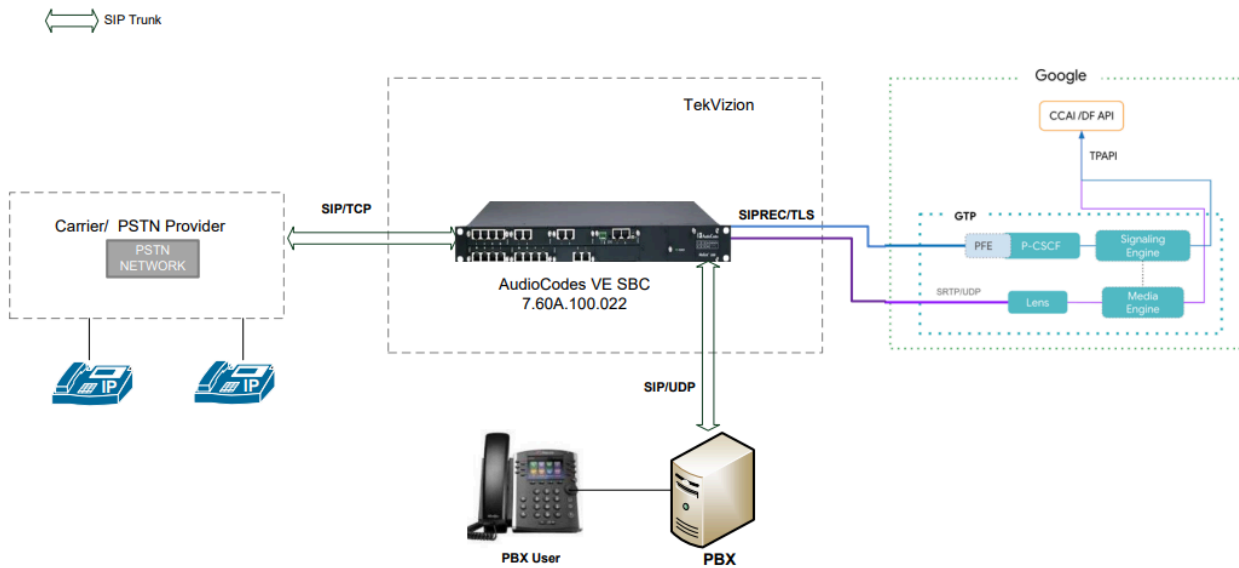
TekVizion is a systems integrator specifically dedicated to the telecommunications industry. Our core services include consulting/solution design, interoperability/Verification testing, integration, custom software development and solution support services. Our services help service providers achieve a smooth transition to packet-voice networks, speeding delivery of integrated services. While we have expertise covering a wide range of technologies, we have extensive experience surrounding our practice areas which include SIP Trunking, Packet Voice, Service Delivery, and Integrated Services.

The TekVizion team brings together experience from the leading service providers and vendors in telecom. Our unique expertise includes legacy switching services and platforms, and unparalleled product knowledge, interoperability, and integration experience on a vast array of VoIP and other next-generation products. We rely on this combined experience to do what we do best: help our clients advance the rollout of services that excite customers and result in new revenues for the bottom line. TekVizion leverages this real-world, multi-vendor integration and test experience and proven processes to offer services to vendors, network operators, enhanced service providers, large enterprises and other professional services firms. TekVizion's headquarters, along with a state-of-the-art test lab and Executive Briefing Centre, is located in Plano, Texas.

*For more information on TekVizion and its practice areas, please visit [TekVizion Labs website](#).*

## 2 SIP Trunking Network Components

The network for the SIP Trunk reference configuration is illustrated below and is representative of Google CCAI Agent Handoff with AudioCodes Virtual Edition Session Border Controller 7.60A.100.022.



**Figure 1: SIP TrunkLab Reference Network**

The lab network consists of the following components:

- Google CCAI cloud Environment
- AudioCodes VE SBC 7.60A.100.022
- OnPrem PBX.

### 3 Hardware Components

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- AudioCodes VE SBC

### 4 Software Requirements

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- AudioCodes VE version: 7.60A.100.022

### 5 Certified AudioCodes Version

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**Table 1 - AudioCodes VE SBC Configuration Steps**

<b>Google CCAI - Verified version</b>	
AudioCodes Virtual SBC	7.60A.100.022
AudioCodes Virtual SBC	7.40A.500.786

## 6 Configuration

### 6.1 Configuration Checklist

Below are the steps that are required to configure AudioCodes VE SBC.

**Table 2 - AudioCodes VE SBC Configuration Steps**

Step	Description	Reference
Step 1	Network Interface IP	<a href="#">Section 6.4.1</a>
Step 2	Configure TLS Context for Google CCAI	<a href="#">Section 6.4.2</a>
Step 3	Configure Media Realms	<a href="#">Section 6.4.3</a>
Step 4	Configure SIP Signaling Interfaces	<a href="#">Section 6.4.4</a>
Step 5	Configure Proxy Sets and Proxy Address	<a href="#">Section 6.4.5</a>
Step 6	Configure Coders	<a href="#">Section 6.4.6</a>
Step 7	Configure IP Profiles	<a href="#">Section 6.4.7</a>
Step 8	Configure IP Groups	<a href="#">Section 6.4.8</a>
Step 9	Configure SRTP	<a href="#">Section 6.4.9</a>
Step 10	Configure IP to IP Call Routing	<a href="#">Section 6.4.10</a>
Step 11	Configure Message Manipulation Rules	<a href="#">Section 6.4.11</a>

### 6.2 IP Address Worksheet

The specific values listed in the table below and in subsequent sections are used in the lab configuration described in this document are for **illustrative purposes only**.

**Table 3 - IP Address Worksheet**

Component	IP Address
<b>Google CCAI</b>	
Signaling	us.telephony.goog:5672
Media	74.125.X.X
<b>OnPrem PBX</b>	
LAN IP Address	10.80.X.X
<b>AudioCodes VE SBC</b>	
LAN IP Address	10.80.X.X
WAN IP Address	192.65.X.X

## 6.3 Google CCAI API Configuration

Below link can be referred to configure Google CCAI Agent Handoff.

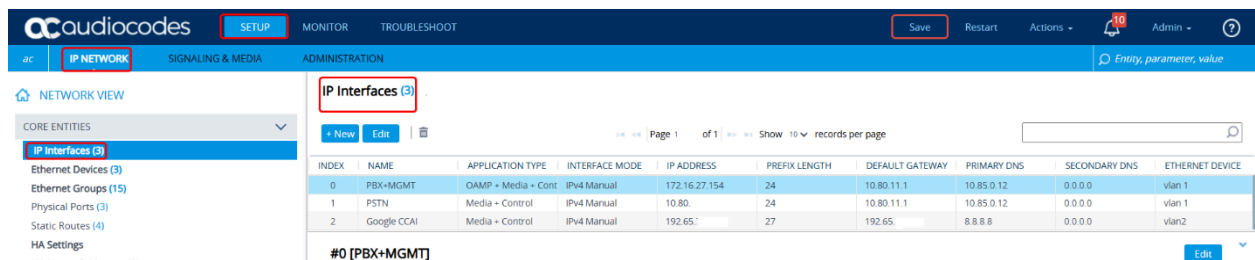
-----Link to be provided by Google team-----

## 6.4 AudioCodes VE-SBC Configuration

The following is the example configuration of AudioCodes VE SBC for Google CCAI Agent Handoff.

### 6.4.1 Network Interface IP

- Navigate to **SETUP** menu  **IP NETWORK** tab  **CORE ENTITIES** folder  **IP Interfaces**.
- Configure IP Interfaces for PBX, PSTN, and Google CCAI as shown below.



The screenshot shows the AudioCodes VE SBC configuration interface. The top navigation bar includes 'ac', 'IP NETWORK', 'SIGNALING & MEDIA', and 'ADMINISTRATION'. The 'IP NETWORK' tab is selected. On the left, the 'CORE ENTITIES' folder is expanded to show 'IP Interfaces (3)'. The main area displays a table of IP Interfaces with the following data:

INDEX	NAME	APPLICATION TYPE	INTERFACE MODE	IP ADDRESS	PREFIX LENGTH	DEFAULT GATEWAY	PRIMARY DNS	SECONDARY DNS	ETHERNET DEVICE
0	PBX+MGMT	OAMP + Media + Cont	IPv4 Manual	172.16.27.154	24	10.80.11.1	10.85.0.12	0.0.0.0	vlan1
1	PSTN	Media + Control	IPv4 Manual	10.80.	24	10.80.11.1	10.85.0.12	0.0.0.0	vlan1
2	Google CCAI	Media + Control	IPv4 Manual	192.65.	27	192.65.	8.8.8.8	0.0.0.0	vlan2

Below the table, there is a section for '#0 [PBX+MGMT]' with an 'Edit' button.

Figure 2: IP Interfaces

### 6.4.1.1 Configure LAN and WAN VLANs

- Navigate to **SETUP** menu  **IP NETWORK** tab  **CORE ENTITIES** folder  **Ethernet Devices**.
- Configure VLANs for LAN and WAN interfaces as shown below.



The screenshot shows the AudioCodes VE SBC configuration interface. The top navigation bar includes 'ac', 'IP NETWORK', 'SIGNALING & MEDIA', and 'ADMINISTRATION'. The 'IP NETWORK' tab is selected. On the left, the 'CORE ENTITIES' folder is expanded to show 'Ethernet Devices (3)'. The main area displays a table of Ethernet Devices with the following data:

INDEX	NAME	VLAN ID	UNDERLYING INTERFACE	TAGGING	MTU
0	vlan1	1	GROUP_1	Untagged	1500
1	vlan2	1	GROUP_2	Untagged	1500
2	LAN	2	GROUP_2	Untagged	1500

Below the table, there is a section for '#0 [vlan 1]' with an 'Edit' button.

Figure 3: VLAN Configuration

### 6.4.1.2 Configure Network Interfaces

- Navigate to **SETUP** menu  **IP NETWORK** tab  **CORE ENTITIES** folder  **IP Interfaces**.
- Configure the IP Network interfaces for PBX, PSTN, and Google CCAI as shown below.



Figure 4: Network interface Configuration

### 6.4.2 Configure TLS Context for Google CCAI

SBC and Google CCAI connection need to establish with TLS, configure TLS context for Google CCAI.

#### 6.4.2.1 Create a TLS Context for Google CCAI

- Navigate to **SETUP** menu  **IP NETWORK** tab  **Security** folder  **TLS Contexts**.
- Configure TLS context for Google CCAI as shown below.

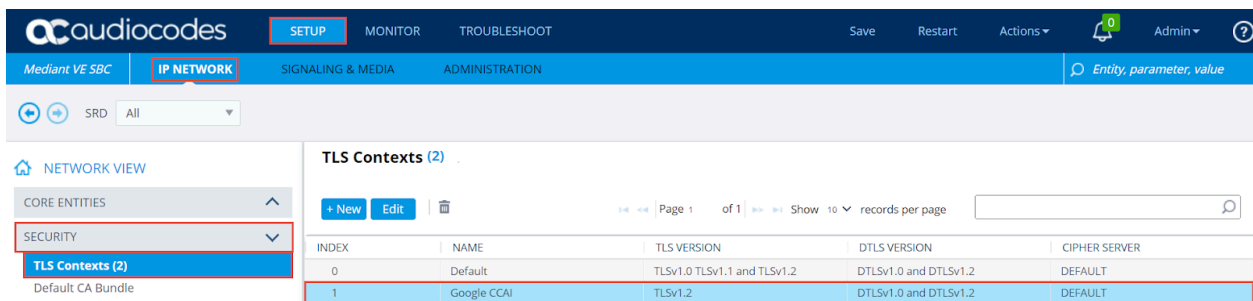


Figure 5: TLS Context for Google CCAI



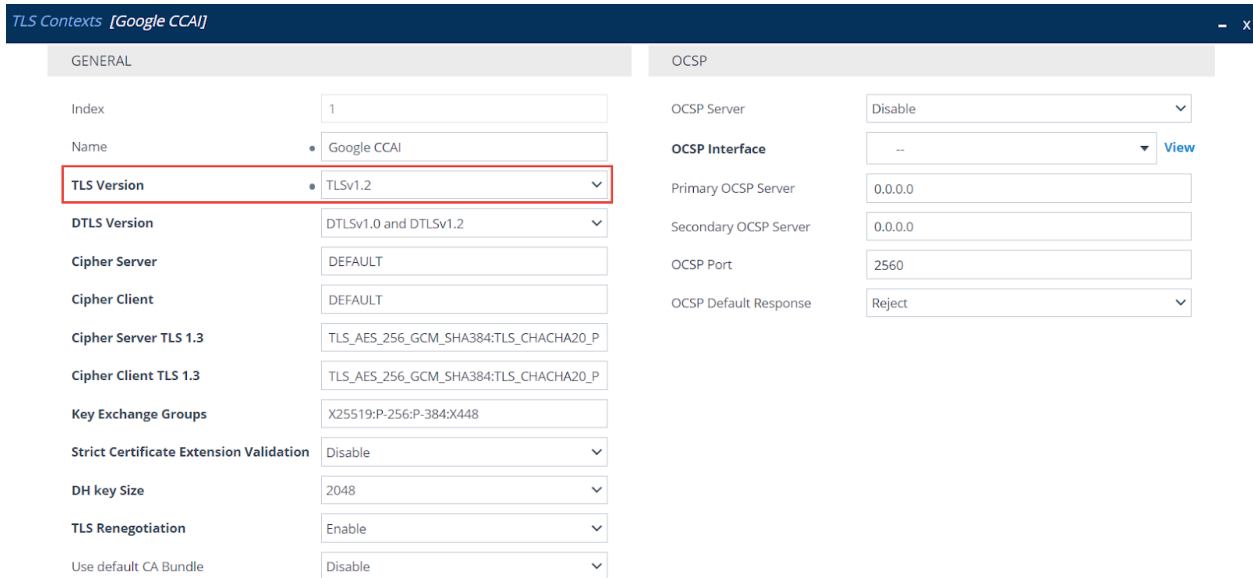


Figure 6: TLS Context for Google CCAI (Cont.)

#### 6.4.2.2 Generate a CSR and Obtain the Certificate from a Supported CA

- Navigate to **SETUP** menu  **IP NETWORK** tab  **SECURITY** folder  **TLS Contexts**.
- In the TLS context page, select the **Google CCAI** TLS context index row and click on **Change Certificate** option.

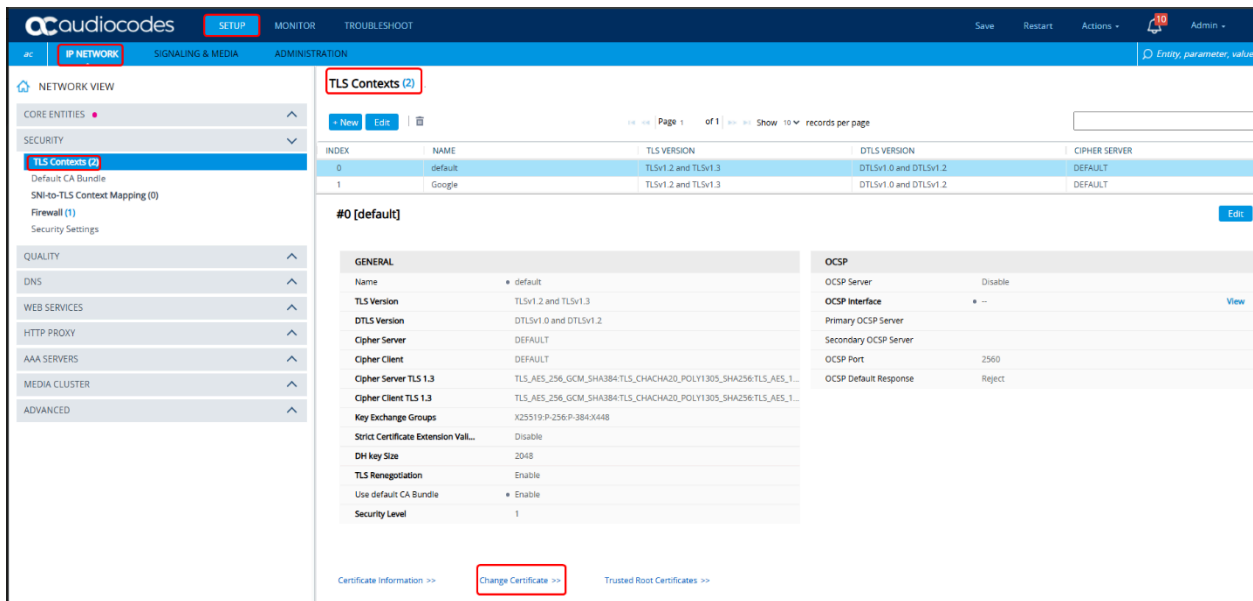


Figure 7: Change Certificate for CSR Generation

- Fill the required details in the Change certificate link such as '**Common Name (CN)**', '**Subject Alternative Name (SAN)**', Private key size and generate a private key and CSR and submit CSR to Certified Authority Administrator for signing.

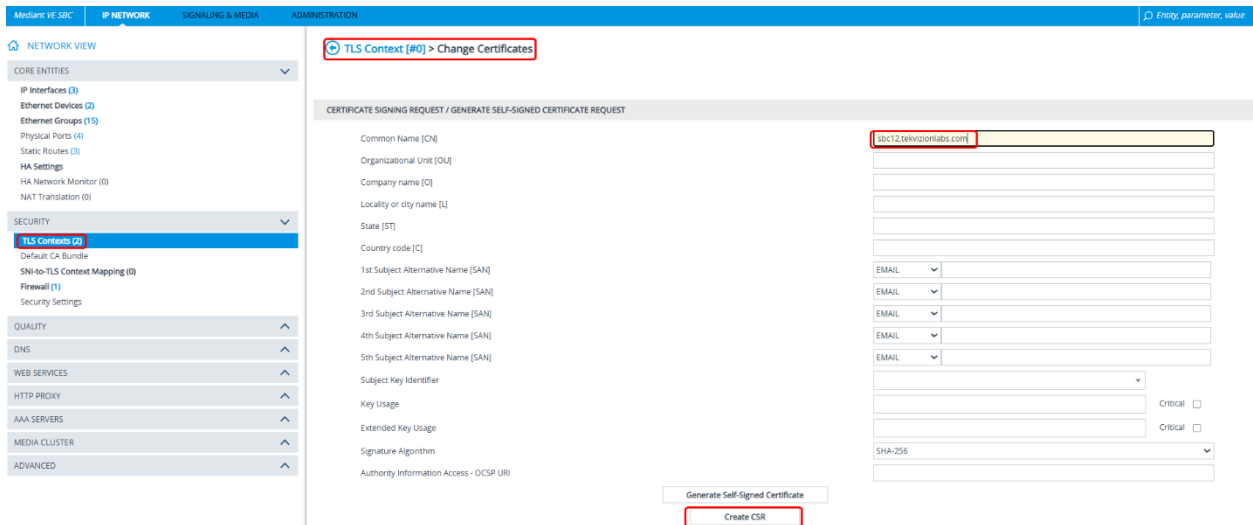


Figure 8: CSR Generation for Google CCAI TLS Context

#### 6.4.2.3 Deploy the SBC and Root/Intermediate Certificates on the SBC

- Navigate to **SETUP** menu  **IP NETWORK** tab  **SECURITY** folder  **TLS Contexts**
- In the TLS context page, select the Google CCAI TLS context index row and click on **Change Certificate** option.
- Scroll further down and opt for **Load Device Certificate File** to upload the SBC certificate to it.

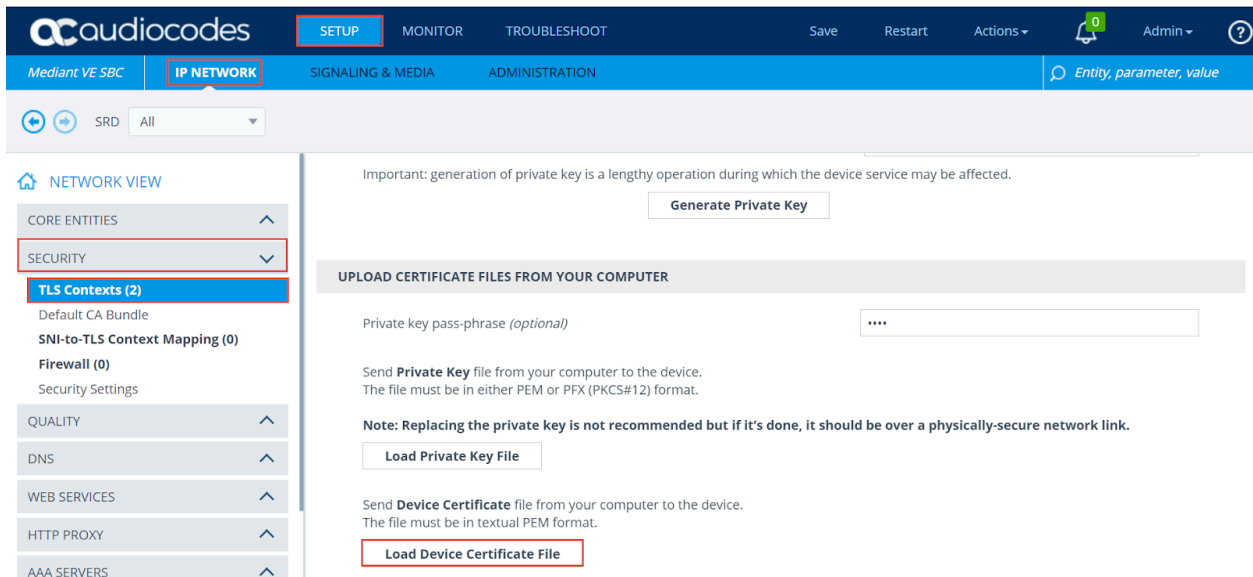


Figure 9: SBC Certificate Upload

- In the TLS context page, select the Google CCAI TLS context index row and click on **Trusted Root Certificates** option.
- Within the Trusted Root Certificates page, click the **Import** button and load all Root/Intermediate Certificates obtained from your Certification Authority.

The screenshot shows the Audiocodes IP Network configuration interface. The left sidebar has 'SECURITY' and 'TLS Contexts (2)' highlighted. The main content area shows the 'GENERAL' tab for a Google CCAI context. At the bottom, the 'Trusted Root Certificates >>' link is highlighted in red.

GENERAL	OCSP
Name: Google CCAI	OCSP Server: Disable
TLS Version: TLSv1.2	OCSP Interface: -- <a href="#">View</a>
DTLS Version: DTLSv1.0 and DTLSv1.2	Primary OCSP Server: 0.0.0.0
Cipher Server: DEFAULT	Secondary OCSP Ser...: 0.0.0.0
Cipher Client: DEFAULT	OCSP Port: 2560
Cipher Server TLS 1.3: TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1...	OCSP Default Respo...: Reject
Cipher Client TLS 1.3: TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1...	
Key Exchange Groups: X25519:P-256:P-384:X448	
Strict Certificate Ex...: Disable	
DH key Size: 2048	
TLS Renegotiation: Enable	
Use default CA Bundle: Disable	

Figure 10: Trusted Root Certificates Upload

The screenshot shows the Audiocodes IP Network configuration interface. The left sidebar has 'SECURITY' and 'TLS Contexts (2)' highlighted. The main content area shows a table of Trusted Root Certificates. The third row is highlighted in red.

INDEX	SUBJECT	ISSUER	EXPIRES
1	GTS Root R1	GTS Root R1	Sat, 21 Jun 2036 18:30:00 GMT
2	GTS CA 1 C3	GTS Root R1	Wed, 29 Sep 2027 18:30:42 GMT
3	Go Daddy Secure Certificate Aut	Go Daddy Root Certificate Autho	Sat, 03 May 2031 01:30:00 GMT
4	Go Daddy Root Certificate Autho	The Go Daddy Group, Inc.	Fri, 30 May 2031 01:30:00 GMT
5	Baltimore CyberTrust Root	Baltimore CyberTrust Root	Mon, 12 May 2025 18:29:00 GMT
6	DigiCert Global Root G2	DigiCert Global Root G2	Fri, 15 Jan 2038 06:30:00 GMT

Figure 11: Trusted Root Certificates Upload (Cont.)

- In the TLS context page, select the Google CCAI TLS context index row and click on **Certificate Information** link and validate the Key size, Certificate Status and Subject Name.

The screenshot shows the Audiocodes IP Network configuration interface. The left sidebar has 'SECURITY' and 'TLS Contexts (2)' highlighted. The main content area shows the 'GENERAL' tab for a Google CCAI context. At the bottom, the 'Certificate Information >>' link is highlighted in red.

GENERAL	OCSP
Name: Google CCAI	OCSP Server: Disable
TLS Version: TLSv1.2	OCSP Interface: -- <a href="#">View</a>
DTLS Version: DTLSv1.0 and DTLSv1.2	Primary OCSP Server: 0.0.0.0
Cipher Server: DEFAULT	Secondary OCSP Ser...: 0.0.0.0
Cipher Client: DEFAULT	OCSP Port: 2560
Cipher Server TLS 1.3: TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1...	OCSP Default Respo...: Reject
Cipher Client TLS 1.3: TLS_AES_256_GCM_SHA384:TLS_CHACHA20_POLY1...	
Key Exchange Groups: X25519:P-256:P-384:X448	
Strict Certificate Ex...: Disable	
DH key Size: 2048	
TLS Renegotiation: Enable	
Use default CA Bundle: Disable	

Figure 12: Certificate Information

#### 6.4.2.4 Deploy Google Trusted Root Certificates

- Download the Google Root Certificates from the following link <https://pki.goog/repository/>
- Navigate to **SETUP** menu  **IP NETWORK** tab  **SECURITY** folder  **TLS Contexts**
- In the TLS context page, select the Google CCAI TLS context index row and click on the **Trusted Root Certificates** option.
- Within the Trusted Root Certificates page, click the **Import** button and load Google Root Certificates as shown below.

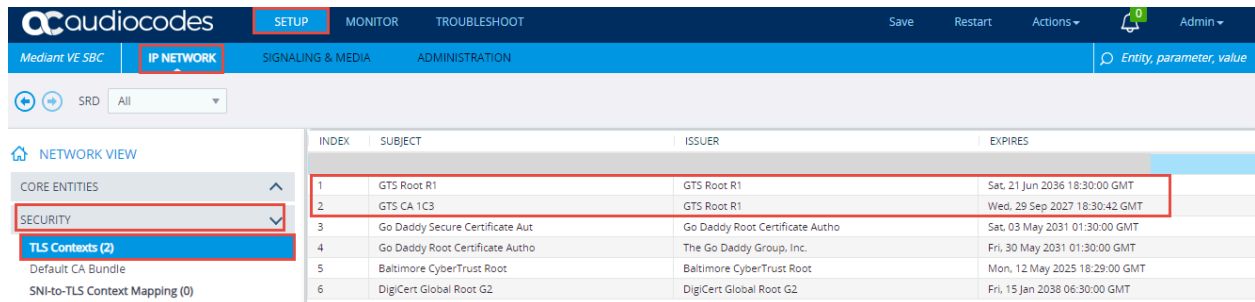


Figure 13: Google Root Certificates

#### 6.4.3 Configure Media Realms

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CORE ENTITIES** folder  **Media Realms**.
- Configure Media Realms for PBX, PSTN, and Google CCAI as shown below.

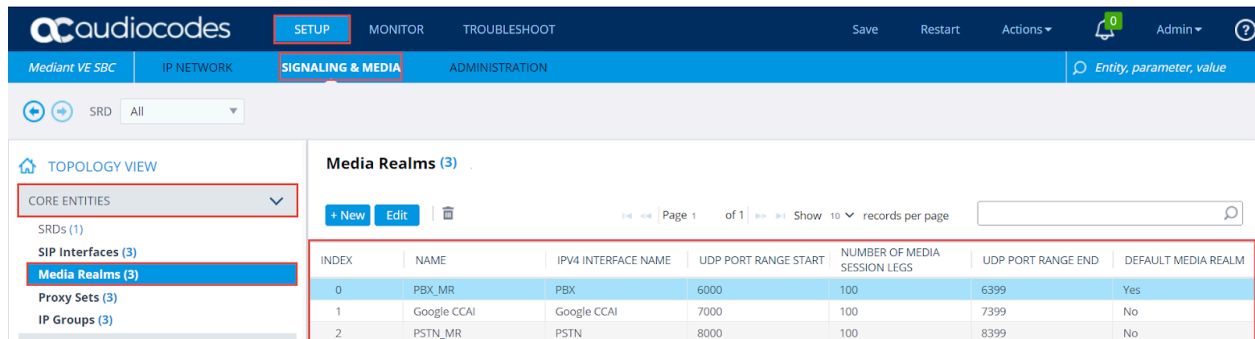


Figure 14: Configure Media Realms

#### 6.4.4 Configure SIP Signaling Interfaces

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CORE ENTITIES** folder  **SIP Interfaces**
- Configure SIP Signaling Interfaces for PBX, PSTN and Google CCAI.

**SIP Interfaces (3)**

INDEX	NAME	SRD	NETWORK INTERFACE	APPLICATION TYPE	UDP PORT	TCP PORT	TLS PORT	ENCAPSULATING PROTOCOL	MEDIA REALM
0	PBX	DefaultSRD (#	PBX	SBC	5060	5060	0	No encapsulation	PBX_MR
1	Google CCAI	DefaultSRD (#	Google CCAI	SBC	0	0	5061	No encapsulation	PSTN_MR
2	PSTN	DefaultSRD (#	PSTN	SBC	5060	5060	0	No encapsulation	PSTN_MR

Figure 15: SIP Signaling Interfaces

PBX

**GENERAL**

Index: 0

Name: PBX

Topology Location: Up

Network Interface: #0 [PBX-MGMT]

Application Type: SBC

UDP Port: 5060

TCP Port: 5060

TLS Port: 0

SCTP Port: 0

**MEDIA**

Media Realm: #0 [PBX\_MR]

Direct Media: Disable

MSRP TCP Port: 0

MSRP TLS Port: 0

**SECURITY**

TLS Context Name: --

TLS Mutual Authentication: --

Message Policy: --

Figure 16: SIP Signaling Interfaces for PBX

**SCTP**

SCTP Secondary Network Interface: --

Additional UDP Ports: [Empty]

Additional UDP Ports Mode: Always Open

Encapsulating Protocol: No encapsulation

Enable TCP Keepalive: Enable

Used By Routing Server: Not Used

Pre-Parsing Manipulation Set: --

CAC Profile: --

**CLASSIFICATION**

Classification Failure Response Type: 500

Pre-classification Manipulation Set ID: -1

Call Setup Rules Set ID: -1

Classify By Registration DB: Enable

**SECURITY**

User Security Mode: Not Configured

Enable Un-Authenticated Registrations: Not configured

Max. Number of Registered Users: -1

Figure 17: SIP Signaling Interfaces for PBX (Cont.)

Google CCAI:

SIP Interfaces [Google CCAI]

SRD #0 [DefaultSRD]

GENERAL		MEDIA	
Index	1	Media Realm	#1 [Google CCAI] <a href="#">View</a>
Name	Google CCAI	Direct Media	Disable
Topology Location	Up	MSRP TCP Port	0
Network Interface	#2 [Google CCAI] <a href="#">View</a>	MSRP TLS Port	0
Application Type	SBC	SECURITY	
UDP Port	0	TLS Context Name	#1 [Google] <a href="#">View</a>
TCP Port	5060	TLS Mutual Authentication	Enable
TLS Port	5061	Message Policy	-- <a href="#">View</a>
SCTP Port	0	User Security Mode	Not Configured
SCTP Secondary Network Interface	-- <a href="#">View</a>		

Figure 18: SIP Signaling Interfaces for Google CCAI

SIP Interfaces [Google CCAI]

SCTP Secondary Network Interface	-- <a href="#">View</a>	User Security Mode	Not Configured
Additional UDP Ports		Enable Un-Authenticated Registrations	Not configured
Additional UDP Ports Mode	Always Open	Max. Number of Registered Users	-1
Encapsulating Protocol	No encapsulation		
Enable TCP Keepalive	Enable		
Used By Routing Server	Not Used		
Pre-Parsing Manipulation Set	-- <a href="#">View</a>		
CAC Profile	-- <a href="#">View</a>		

CLASSIFICATION	
Classification Failure Response Type	500
Pre-classification Manipulation Set ID	-1
Call Setup Rules Set ID	-1
Classify By Registration DB	Enable

Figure 19: SIP Signaling Interfaces for Google CCAI (Cont.)

PSTN:

SIP Interfaces [PSTN]

SRD #0 [DefaultSRD]

GENERAL		MEDIA	
Index	2	Media Realm	#2 [PSTN_MR] <a href="#">View</a>
Name	PSTN	Direct Media	Disable
Topology Location	Up	MSRP TCP Port	0
Network Interface	#1 [PSTN] <a href="#">View</a>	MSRP TLS Port	0
Application Type	SBC	SECURITY	
UDP Port	5060	TLS Context Name	--
TCP Port	5060	TLS Mutual Authentication	
TLS Port	0	Message Policy	-- <a href="#">View</a>
SCTP Port	0	User Security Mode	Not Configured
SCTP Secondary Network Interface	-- <a href="#">View</a>		

Figure 20: SIP Signaling Interfaces for PSTN

*SIP Interfaces [PSTN]*

SCTP Secondary Network Interface	• --	<a href="#">View</a>	User Security Mode	Not Configured
Additional UDP Ports	<input type="text"/>		Enable Un-Authenticated Registrations	Not configured
Additional UDP Ports Mode	Always Open		Max. Number of Registered Users	-1
Encapsulating Protocol	No encapsulation			
Enable TCP Keepalive	• Enable			
Used By Routing Server	Not Used			
Pre-Parsing Manipulation Set	• --	<a href="#">View</a>		
CAC Profile	• --	<a href="#">View</a>		

CLASSIFICATION

Classification Failure Response Type	<input type="text" value="500"/>
Pre-classification Manipulation Set ID	<input type="text" value="-1"/>
Call Setup Rules Set ID	<input type="text" value="-1"/>
Classify By Registration DB	Enable

**Figure 21: SIP Signaling Interfaces for PSTN (Cont.)**

## 6.4.5 Configure Proxy Sets and Proxy Address

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CORE ENTITIES** folder  **Proxy Sets**
- Configure proxy sets for PBX, PSTN, and Google CCAI as shown below.

The screenshot shows the Audiocodes management console. The top navigation bar includes 'SETUP', 'MONITOR', and 'TROUBLESHOOT'. The 'SIGNALING & MEDIA' tab is active. The left sidebar shows 'CORE ENTITIES' selected, with 'Proxy Sets (3)' highlighted. The main content area displays a table of Proxy Sets:

INDEX	NAME	SRD	SBC IPV4 SIP INTERFACE	PROXY KEEP-ALIVE TIME [SEC]	REDUNDANCY MODE	PROXY HOT SWAP MODE
0	PBX_PS	DefaultSRD (#0)	PBX	60		Disable
1	Google CCAI SIPREC	DefaultSRD (#0)	Google CCAI	60		Disable
2	PSTN_PS	DefaultSRD (#0)	PSTN	60		Disable

Figure 22: Configurations of Proxy Sets

PBX:

The screenshot shows the configuration page for the 'PBX\_PS' proxy set. The configuration is organized into several sections:

- GENERAL:** Index (0), Name (PBX\_PS), SBC IP4 SIP Interface (#0 [PBX]), TLS Context Name (..).
- REDUNDANCY:** Redundancy Mode, Proxy Hot Swap Mode (Disable), Proxy Load Balancing Method (Disable), Min. Active Servers for Load Balancing (1).
- KEEP ALIVE:** Proxy Keep-Alive (Using OPTIONS), Proxy Keep-Alive Time [sec] (60), Keep-Alive Failure Responses, Success Detection Retries (1), Success Detection Interval (10), Failure Detection Retransmissions (-1).
- ADVANCED:** Classification Input (IP Address only), DNS Resolve Method, Accept DHCP Proxy List (Disable), TCP/TLS Connection Reuse (Use Global Setting), TLS Remote Subject Name, Peer Host Name Verification Mode (Use Global Settings), In-Call Route Mode (Disable).

Figure 23: Proxy Set Configuration of PBX



## Google CCAI:

Proxy Sets [Google CCAI SIPREC]

GENERAL		REDUNDANCY	
Index	1	Redundancy Mode	Homing
Name	Google CCAI SIPREC	Proxy Hot Swap Mode	Enable
SBC IPv4 SIP Interface	#1 [Google CCAI] View	Proxy Load Balancing Method	Random Weights
TLS Context Name	#1 [Google]	Min. Active Servers for Load Balancing	1

KEEP ALIVE		ADVANCED	
Proxy Keep-Alive	Using OPTIONS	Classification Input	IP Address only
Proxy Keep-Alive Time [sec]	60	DNS Resolve Method	SRV
Keep-Alive Failure Responses		Accept DHCP Proxy List	Disable
Success Detection Retries	1	TCP/TLS Connection Reuse	Use Global Setting
Success Detection Interval	10	TLS Remote Subject Name	
Failure Detection Retransmissions	-1	Peer Host Name Verification Mode	Use Global Settings
		In-Call Route Mode	Disable

Figure 24: Proxy Set Configuration of Google CCAI

## PSTN:

Proxy Sets [PSTN\_PS]

GENERAL		REDUNDANCY	
Index	2	Redundancy Mode	
Name	PSTN_PS	Proxy Hot Swap Mode	Disable
SBC IPv4 SIP Interface	#2 [PSTN] View	Proxy Load Balancing Method	Disable
TLS Context Name	..	Min. Active Servers for Load Balancing	1

KEEP ALIVE		ADVANCED	
Proxy Keep-Alive	Using OPTIONS	Classification Input	IP Address only
Proxy Keep-Alive Time [sec]	60	DNS Resolve Method	
Keep-Alive Failure Responses		Accept DHCP Proxy List	Disable
Success Detection Retries	1	TCP/TLS Connection Reuse	Use Global Setting
Success Detection Interval	10	TLS Remote Subject Name	
Failure Detection Retransmissions	-1	Peer Host Name Verification Mode	Use Global Settings
		In-Call Route Mode	Disable

Figure 25: Proxy Set Configuration of PSTN

- Navigate into **SETUP** menu  **SIGNALING & MEDIA** tab  **CORE ENTITIES** folder  **Proxy Sets**
- Select the PBX Proxy Set and add the Proxy Address by clicking **Proxy Address X items>>** and **+New**.

**Figure 26: Proxy Address Configuration of PBX**

- Enter the Onprem PBX IP as Proxy Address in the PBX Proxy set and select transport type as TCP.

**Figure 27: Proxy Address Configuration of PBX (Cont.)**

- Select the Google CCAI SIPREC Proxy Set and add the Proxy Address by clicking **Proxy Address X items>>** and **+New**.

GENERAL	
SRD	• DefaultSRD <a href="#">View</a>
Name	• Google CCAI SIPREC
SBC IPv4 SIP Interface	• Google CCAI <a href="#">View</a>
TLS Context Name	• Google

REDUNDANCY	
Redundancy Mode	• Homing
Proxy Hot Swap Mode	• Enable
Proxy Load Balancing Me...	• Random Weights
Min. Active Servers for Lo...	1

KEEP ALIVE	
Proxy Keep-Alive	• Using OPTIONS
Proxy Keep-Alive Time [sec]	60
Keep-Alive Failure Respon...	
Success Detection Retries	1
Success Detection Interval	10
Failure Detection Retrans...	-1

ADVANCED	
Classification Input	IP Address only
DNS Resolve Method	• SRV
Accept DHCP Proxy List	Disable
TCP/TLS Connection Reuse	Use Global Setting
TLS Remote Subject Name	
Peer Host Name Verificati...	Use Global Settings
In-Call Route Mode	Disable
Reliable Connection Failu...	Disable

PROXY ADDRESS	TYPE
us.telephony.goog:5672	TLS

[Proxy Address 1 items >>](#)

**Figure 28: Proxy Address Configuration of Google CCAI**

- Enter the Google FQDN as proxy Address in the Google Proxy set and select transport type as TLS.

[Proxy Sets \[#1\] > Proxy Address \(1\)](#)

+ New Edit | Page 1 of 1 Show 10 records per page

INDEX	PROXY ADDRESS	TRANSPORT TYPE
0	us.telephony.goog:5672	TLS

**Figure 29: Proxy Address Configuration of Google CCAI (Cont.)**

- Select the PSTN Proxy Set and add the Proxy Address by clicking **Proxy Address X items>>** and **+New**.

#2 [PSTN\_PS] DefaultSRD

GENERAL		REDUNDANCY	
SRD	• DefaultSRD <a href="#">View</a>	Redundancy Mode	•
Name	• PSTN_PS	Proxy Hot Swap Mode	Disable
SBC IPv4 SIP Interface	• PSTN <a href="#">View</a>	Proxy Load Balancing Me...	Disable
TLS Context Name	• --	<b>Min. Active Servers for Lo...</b>	1

KEEP ALIVE		ADVANCED	
Proxy Keep-Alive	• Using OPTIONS	Classification Input	IP Address only
Proxy Keep-Alive Time [sec]	60	DNS Resolve Method	•
Keep-Alive Failure Respon...		Accept DHCP Proxy List	Disable
Success Detection Retries	1	TCP/TLS Connection Reuse	Use Global Setting
Success Detection Interval	10	TLS Remote Subject Name	
Failure Detection Retrans...	-1	Peer Host Name Verificati...	Use Global Settings
		In-Call Route Mode	Disable
		Reliable Connection Failu...	Disable

PROXY ADDRESS	TYPE
10.64.1.72:5060	TCP

[Proxy Address 1 items >>](#)

**Figure 30: Proxy Address Configuration of PSTN**

- Enter the PSTN gateway IP as Proxy Address in the PSTN proxy set and select transport as TCP

INDEX	PROXY ADDRESS	TRANSPORT TYPE
0	10.64.1.72:5060	TCP

**Figure 31: Proxy Address Configuration of PSTN**

## 6.4.6 Configure Coders

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CODERS & PROFILE** folder  **Coder Groups**
- Configure the required Codecs as shown below.

The screenshot shows the Audiocodes management console. The top navigation bar includes 'SETUP', 'MONITOR', and 'TROUBLESHOOT'. The 'SIGNALING & MEDIA' tab is active. The left sidebar has 'CODERS & PROFILES' and 'Coders Groups (1)' highlighted. The main content area shows 'Coders Groups (1)' with a table containing one record:

INDEX	NAME
0	AudioCodersGroups_0

Below the table, the configuration details for '#0[AudioCodersGroups\_0]' are shown under the 'GENERAL' section, with the 'Name' field set to 'AudioCodersGroups\_0'. A link 'Coders Table 4 Items >>' is visible at the bottom.

Figure 32: Coders Configurations

The screenshot shows the Audiocodes management console. The top navigation bar includes 'SETUP', 'MONITOR', and 'TROUBLESHOOT'. The 'SIGNALING & MEDIA' tab is active. The left sidebar has 'CODERS & PROFILES' and 'Coders Groups (1)' highlighted. The main content area shows 'Coders Group [#0] > Coders Table' with a table containing four entries:

Coder Name	Packetization Time	Rate	Payload Type	Silence Suppression	Coder Specific
G.711U-law	20	64	0	Disabled	
G.711A-law	20	64	8	Disabled	
G.729	20	8	18	Disabled	
Opus	20	N/A	111	N/A	

Figure 33: Coders Configurations (Cont.)

To Set a preferred coder for the Google CCAI:

- Navigate to the **SETUP** menu  **SIGNALING & MEDIA** tab  **CODERS & PROFILE** folder  **Allowed Audio Coders Groups**.
- Click **+New** and configure a new Allowed Audio Coders Group for Google CCAI with your preferred Codec list.
- Assign the configured Allowed Audio Coders Group to the respective Google CCAI IP Profile.

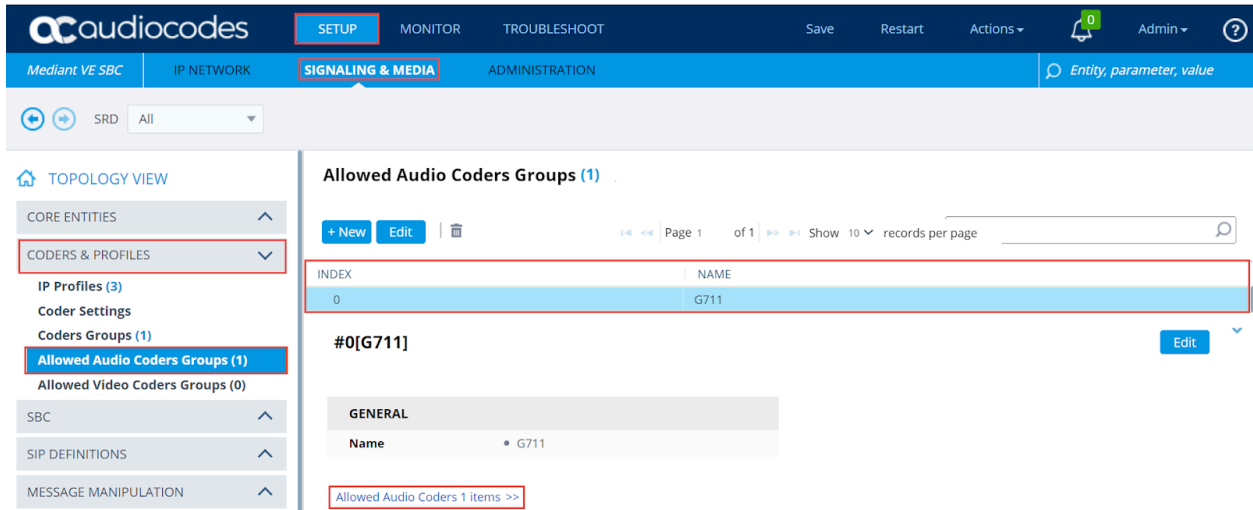


Figure 34: Coders Configurations (Cont.)

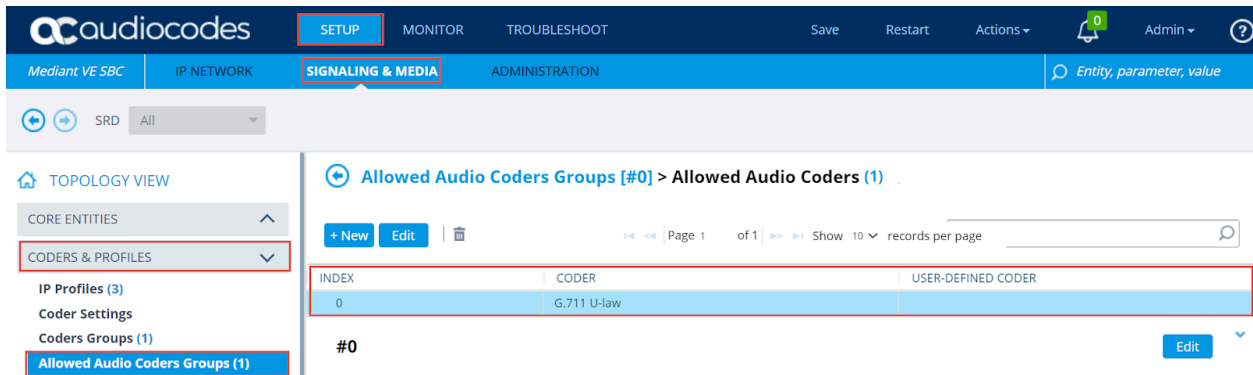


Figure 35: Coders Configurations (Cont.)

#### 6.4.7 Configure IP Profiles

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CODERS & PROFILE** folder  **IP Profiles**
- IP Profile configuration for Google CCAI, OnPrem PBX and PSTN Gateway are shown below.

INDEX	NAME	SRD	SBC IPV4 SIP INTERFACE	PROXY KEEP-ALIVE TIME [SEC]	REDUNDANCY MODE	PROXY HOT SWAP MODE
0	PBX_PS	DefaultSRD (#0)	PBX	60		Disable
1	Google CCAI SIPREC	DefaultSRD (#0)	Google CCAI	60	Homing	Enable
2	PSTN_PS	DefaultSRD (#0)	PSTN	60		Disable

Figure 36: IP profile Configurations

PBX:

**GENERAL**

Index: d

Name: PBX\_IP

Created by Routing Server: No

Used By Routing Server: Not Used

**MEDIA SECURITY**

SBC Media Security Mode: Not Secured

Symmetric MKI: Disable

MKI Size: 0

SBC Enforce MKI Size: Don't enforce

SBC Media Security Method: SDES

Reset SRTP Upon Re-key: Disable

**SBC SIGNALING**

PRACK Mode: Transparent

P-Asserted-Identity Header Mode: As Is

Diversion Header Mode: As Is

History-Info Header Mode: As Is

Session Expires Mode: Transparent

SIP UPDATE Support: Supported

Remote re-INVITE: Supported

Remote Delayed Offer Support: Supported

MSRP re-INVITE/UPDATE: Supported

MSRP Offer Setup Role: ActPass

MSRP Empty Message Format: Default

Remote Representation Mode: According to Operation Mode

Figure 37: IP Profile Configurations of PBX

**SBC EARLY MEDIA**

Generate SRTP Keys Mode: Only If Required

SBC Remove Crypto Lifetime in SDP: No

SBC Remove Unknown Crypto: No

Crypto Suites Group: --

Encryption on RTP Packets: As Is

Remote Early Media: Supported

Remote Multiple 18x: Supported

Remote Early Media Response Type: Transparent

Remote Multiple Early Dialogs: According to Operation Mode

Remote Multiple Answers Mode: Disable

Remote Early Media RTP Detection Mode: By Media

Remote RFC 3960 Support: Not Supported

Keep Incoming Via Headers: According to Operation Mode

Keep Incoming Routing Headers: According to Operation Mode

Keep User-Agent Header: According to Operation Mode

Use Initial Incoming INVITE for Re-INVITE: Disable

Handle X-Detect: No

ISUP Body Handling: Transparent

ISUP Variant: Itu92

Max Call Duration [min]: 0

Broken Signaling Connection Mode: Ignore

Disconnect In-Dialog Subscribe Failure: Enable

**SBC REGISTRATION**

User Registration Time: 0

NAT UDP Registration Time: -1

Figure 38: IP Profile Configurations of PBX (Cont.)

IP Profiles [PBX\_IP]

Remote Can Play Ringback	Yes	NAT TCP Registration Time	-1
Generate RTP	None	UnRegister on WebSocket Disconnect	Enable

SBC MEDIA		SBC FORWARD AND TRANSFER	
SDP Subsequent Responses Mode	Handle All	Remote REFER Mode	Regular
Mediation Mode	RTP Mediation	Remote Replaces Mode	Standard
Extension Coders Group	--	Play RBT To Transferee	No
Allowed Audio Coders	#0 [G711]	Remote 3xx Mode	Transparent
Allowed Coders Mode	Restriction	Send Header for Transfer	None
Allowed Video Coders	--	SBC HOLD	
Allowed Media Types		Remote Hold Format	Transparent
Direct Media Tag		Reliable Held Tone Source	Yes
RFC 2833 Mode	As Is	Play Held Tone	No
RFC 2833 DTMF Payload Type	0		

Figure 39: IP Profile Configurations of PBX (Cont.)

IP Profiles [PBX\_IP]

Alternative DTMF Method	As Is	SBC FAX	
Send Multiple DTMF Methods	Disable	Fax Coders Group	--
Receive Multiple DTMF Methods	Disable	Fax Mode	As Is
Adapt RFC2833 BW to Voice coder BW	Disabled	Fax Offer Mode	All coders
SDP Ptime Answer	Remote Answer	Fax Answer Mode	Single coder
Preferred PTime	0	Remote Renegotiate on Fax Detection	Transparent
Use Silence Suppression	Transparent	Fax Rerouting Mode	Disable
RTP Redundancy Mode	As Is	MEDIA	
RTCP Mode	Transparent	Broken Connection Mode	Disconnect
Jitter Compensation	Disable	No RTP Mode	Disconnect
ICE Mode	Disable	Media IP Version Preference	Only IPv4
SDP Handle RTCP	Don't Care	RTP Redundancy Depth	Disable
RTCP Mux	Not Supported		
RTCP Feedback	Feedback Off		

Figure 40: IP Profile Configurations of PBX (Cont.)

IP Profiles [PBX\_IP]

Re-number MID	Disable	LOCAL TONES	
Voice Quality Enhancement	Disable	Local Ringback Tone Index	-1
Switch Coder Upon Voice Quality	Disable	Local Held Tone Index	-1
Max Opus Bandwidth	0		
Generate No-Op Packets	Disable		
Enhanced PLC	Disable		
SBC Multiple Coders	Not Supported		
SBC Allow Only Negotiated PT	Disable		
Add Media IP Change Header	Disable		
Remove CSRC	Disable		
SBC Precondition	Not Supported		
BFCP IP from Audio Media	According to Global Parameter		
Remove EXTMAP	Disable		

Figure 41: IP Profile Configurations of PBX (Cont.)



IP Profiles [PSTN\_IP]

GENERAL		SBC SIGNALING	
Index	1	PRACK Mode	Transparent
Name	PSTN_IP	P-Asserted-Identity Header Mode	As Is
Created by Routing Server	No	Diversion Header Mode	As Is
Used By Routing Server	Not Used	History-Info Header Mode	As Is
MEDIA SECURITY		Session Expires Mode	Transparent
SBC Media Security Mode	Not Secured	SIP UPDATE Support	Supported
Symmetric MKI	Disable	Remote re-INVITE	Supported
MKI Size	0	Remote Delayed Offer Support	Supported
SBC Enforce MKI Size	Don't enforce	MSRP re-INVITE/UPDATE	Supported
SBC Media Security Method	SDES	MSRP Offer Setup Role	ActPass
Reset SRTP Upon Re-key	Disable	MSRP Empty Message Format	Default
		Remote Representation Mode	According to Operation Mode

Figure 42: IP Profile Configurations of PSTN

IP Profiles [PSTN\_IP]

Generate SRTP Keys Mode	Only if Required	Keep Incoming Via Headers	According to Operation Mode
SBC Remove Crypto Lifetime in SDP	No	Keep Incoming Routing Headers	According to Operation Mode
SBC Remove Unknown Crypto	No	Keep User-Agent Header	According to Operation Mode
Crypto Suites Group	--	Use Initial Incoming INVITE for Re-INVITE	Disable
Encryption on RTCP Packets	As Is	Handle X-Detect	No
SBC EARLY MEDIA		ISUP Body Handling	Transparent
Remote Early Media	Supported	ISUP Variant	Itu92
Remote Multiple 18x	Supported	Max Call Duration [min]	0
Remote Early Media Response Type	Transparent	Broken Signalling Connection Mode	Ignore
Remote Multiple Early Dialogs	According to Operation Mode	Disconnect In-Dialog Subscribe Failure	Enable
Remote Multiple Answers Mode	Disable	SBC REGISTRATION	
Remote Early Media RTP Detection Mode	By Signaling	User Registration Time	0
Remote RFC 3960 Support	Not Supported	NAT UDP Registration Time	-1

Figure 43: IP Profile Configurations of PSTN (Cont.)

IP Profiles [PSTN\_IP]

Remote Can Play Ringback	Yes	NAT TCP Registration Time	-1
Generate RTP	None	UnRegister on WebSocket Disconnect	Enable
SBC MEDIA		SBC FORWARD AND TRANSFER	
SDP Subsequent Responses Mode	Handle All	Remote REFER Mode	Regular
Mediation Mode	RTP Mediation	Remote Replaces Mode	Standard
Extension Coders Group	--	Play RBT To Transferee	No
Allowed Audio Coders	#0 [G711]	Remote 3xx Mode	Transparent
Allowed Coders Mode	Restriction	Send Header for Transfer	None
Allowed Video Coders	--	SBC HOLD	
Allowed Media Types		Remote Hold Format	Transparent
Direct Media Tag		Reliable Held Tone Source	Yes
RFC 2833 Mode	As Is	Play Held Tone	No
RFC 2833 DTMF Payload Type	0		

Figure 44: IP Profile Configurations of PSTN (Cont.)

IP Profiles [PSTN\_IP]

Alternative DTMF Method	As Is
Send Multiple DTMF Methods	Disable
Receive Multiple DTMF Methods	Disable
Adapt RFC2833 BW to Voice coder BW	Disabled
SDP Ptime Answer	Remote Answer
Preferred PTime	0
Use Silence Suppression	Transparent
RTP Redundancy Mode	As Is
RTCP Mode	Transparent
Jitter Compensation	Disable
ICE Mode	Disable
SDP Handle RTCP	Don't Care
RTCP Mux	Not Supported
RTCP Feedback	Feedback Off

**SBC FAX**

Fax Coders Group	--	<a href="#">View</a>
Fax Mode	As Is	
Fax Offer Mode	All coders	
Fax Answer Mode	Single coder	
Remote Renegotiate on Fax Detection	Transparent	
Fax Rerouting Mode	Disable	

**MEDIA**

Broken Connection Mode	Disconnect
No RTP Mode	Disconnect
Media IP Version Preference	Only IPv4
RTP Redundancy Depth	Disable

**Figure 45: IP Profile Configurations of PSTN (Cont.)**

IP Profiles [PSTN\_IP]

Re-number MID	Disable
Voice Quality Enhancement	Disable
Switch Coder Upon Voice Quality	Disable
Max Opus Bandwidth	0
Generate No-Op Packets	Disable
Enhanced PLC	Disable
SBC Multiple Coders	Not Supported
SBC Allow Only Negotiated PT	Disable
Add Media IP Change Header	Disable
Remove CSRC	Disable
SBC Precondition	Not Supported
BFCP IP from Audio Media	According to Global Parameter
Remove EXTMAP	Disable

**LOCAL TONES**

Local Ringback Tone Index	-1
Local Held Tone Index	-1

**Figure 46: IP Profile Configurations of PSTN (Cont.)**

**Google CCAI:**

IP Profiles [Google CCAI\_IP]

**GENERAL**

Index	4
Name	Google CCAI_IP
Created by Routing Server	No
Used By Routing Server	Not Used

**MEDIA SECURITY**

SBC Media Security Mode	Secured
Symmetric MKI	Disable
MKI Size	0
SBC Enforce MKI Size	Don't enforce
SBC Media Security Method	SDES
Reset SRTP Upon Re-key	Disable

**SBC SIGNALING**

PRACK Mode	Transparent
P-Asserted-Identity Header Mode	As Is
Diversion Header Mode	As Is
History-Info Header Mode	As Is
Session Expires Mode	Supported
SIP UPDATE Support	Supported
Remote re-INVITE	Supported
Remote Delayed Offer Support	Supported
MSRP re-INVITE/UPDATE	Supported
MSRP Offer Setup Role	ActPass
MSRP Empty Message Format	Default
Remote Representation Mode	According to Operation Mode

**Figure 47: IP Profile Configurations of Google CCAI**

IP Profiles: [Google CCAI\_IP]

Generate SRTP Keys Mode	Only If Required	▼
SBC Remove Crypto Lifetime in SDP	Yes	▼
SBC Remove Unknown Crypto	No	▼
Crypto Suites Group	#0 [WAN]	▼ View
Encryption on RTCP Packets	As Is	▼

SBC EARLY MEDIA

Remote Early Media	Supported	▼
Remote Multiple 18x	Supported	▼
Remote Early Media Response Type	Transparent	▼
Remote Multiple Early Dialogs	According to Operation Mode	▼
Remote Multiple Answers Mode	Disable	▼
Remote Early Media RTP Detection Mode	By Signaling	▼
Remote RFC 3960 Support	Not Supported	▼

Keep Incoming Via Headers	According to Operation Mode	▼
Keep Incoming Routing Headers	According to Operation Mode	▼
Keep User-Agent Header	According to Operation Mode	▼
Use Initial Incoming INVITE for Re-INVITE	Disable	▼
Handle X-Detect	No	▼
ISUP Body Handling	Transparent	▼
ISUP Variant	Itu92	▼
Max Call Duration [min]	0	▼
Broken Signaling Connection Mode	Ignore	▼
Disconnect In-Dialog Subscribe Failure	Enable	▼

SBC REGISTRATION

User Registration Time	0	▼
NAT UDP Registration Time	-1	▼

Figure 48: IP Profile Configurations of Google CCAI (Cont.)

IP Profiles: [Google CCAI\_IP]

Remote Can Play Ringback	Yes	▼
Generate RTP	None	▼

SBC MEDIA

SDP Subsequent Responses Mode	Handle All	▼
Mediation Mode	RTP Mediation	▼
Extension Coders Group	--	▼ View
Allowed Audio Coders	#0 [G711]	▼ View
Allowed Coders Mode	Restriction	▼
Allowed Video Coders	--	▼ View
Allowed Media Types		▼
Direct Media Tag		▼
RFC 2833 Mode	As Is	▼
RFC 2833 DTMF Payload Type	0	▼

SBC FORWARD AND TRANSFER

Remote REFER Mode	Regular	▼
Remote Replaces Mode	Standard	▼
Play RBT To Transferee	No	▼
Remote 3xx Mode	Transparent	▼
Send Header for Transfer	None	▼

SBC HOLD

Remote Hold Format	Transparent	▼
Reliable Held Tone Source	Yes	▼
Play Held Tone	No	▼

Figure 49: IP Profile Configurations of Google CCAI (Cont.)

IP Profiles: [Google CCAI\_IP]

Alternative DTMF Method	As Is	▼
Send Multiple DTMF Methods	Disable	▼
Receive Multiple DTMF Methods	Disable	▼
Adapt RFC2833 BW to Voice coder BW	Disabled	▼
SDP Ptime Answer	Remote Answer	▼
Preferred PTime	0	▼
Use Silence Suppression	Transparent	▼
RTP Redundancy Mode	As Is	▼
RTCP Mode	Transparent	▼
Jitter Compensation	Disable	▼
ICE Mode	Disable	▼
SDP Handle RTCP	Don't Care	▼
RTCP Mux	Not Supported	▼
RTCP Feedback	Feedback Off	▼

SBC FAX

Fax Coders Group	--	▼ View
Fax Mode	As Is	▼
Fax Offer Mode	All coders	▼
Fax Answer Mode	Single coder	▼
Remote Renegotiate on Fax Detection	Transparent	▼
Fax Rerouting Mode	Disable	▼

MEDIA

Broken Connection Mode	Disconnect	▼
No RTP Mode	Disconnect	▼
Media IP Version Preference	Only IPv4	▼
RTP Redundancy Depth	Disable	▼

Figure 50: IP Profile Configurations of Google CCAI (Cont.)

IP Profiles: [Google CCAI\_IP]

Re-number MID	Disable
Voice Quality Enhancement	Disable
Switch Coder Upon Voice Quality	Disable
Max Opus Bandwidth	0
Generate No-Op Packets	Disable
Enhanced PLC	Disable
SBC Multiple Coders	Not Supported
SBC Allow Only Negotiated PT	Disable
Add Media IP Change Header	Disable
<b>Remove CSRC</b>	Disable
SBC Precondition	Not Supported
BFCP IP from Audio Media	According to Global Parameter
Remove EXTMAP	Disable

LOCAL TONES	
Local Ringback Tone Index	-1
Local Held Tone Index	-1

**Figure 51: IP Profile Configurations of Google CCAI (Cont.)**

## 6.4.8 Configure IP Groups

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **CORE ENTITIES** folder  **IP Groups**
- IP Groups Config towards Google CCAI, OnPrem PBX and PSTN Gateway are shown below.

INDEX	NAME	SRD	TYPE	SBC OPERATION MODE	PROXY SET	IP PROFILE	MEDIA REALM	SIP GROUP NAME	CLASSIFY BY PROXY SET	INBOUND MESSAGE MANIPULATION SET	OUTBOUND MESSAGE MANIPULATION SET
0	PBX_IPG	DefaultSRD (#0)	Server	B2BUA	PBX_PS	PBX_IP	PBX_MR	10.80.11.246	Enable	3	3
1	Google CCAI_IPG	DefaultSRD (#0)	Server	B2BUA	Google CCAI SPREC	Google CCAI_IP	Google CCAI	us.telephony.google	Enable	2	2
2	PSTN_IPG	DefaultSRD (#0)	Server	B2BUA	PSTN_PS	PSTN_IP	PSTN_MR	PSTN	Enable	-1	-1

Figure 52: IP Group Configurations

- Select the respective Proxy Set, IP Profile and Media Realm for PBX IP Group and enter the PBX IP as SIP Group name.

SRD: #0 [DefaultSRD]

**GENERAL**

Index: 0

Name: PBX\_IPG

Topology Location: Up

Type: Server

Proxy Set: #0 [PBX\_PS]

IP Profile: #0 [PBX\_IP]

Media Realm: #0 [PBX\_MR]

Internal Media Realm: ..

Contact User: ..

SIP Group Name: 10.80

**QUALITY OF EXPERIENCE**

QoE Profile: ..

Bandwidth Profile: ..

User Voice Quality Report: Disable

**MESSAGE MANIPULATION**

Inbound Message Manipulation Set: 3

Outbound Message Manipulation Set: 3

Message Manipulation User-Defined String 1: ..

Message Manipulation User-Defined String 2: ..

Proxy Keep-Alive using IP Group settings: Disable

Figure 53: IP Group Configurations of PBX

Used By Routing Server: Not Used

Proxy Set Connectivity: Connected

**SBC GENERAL**

Classify By Proxy Set: Enable

Validate Source IP: Disable

SBC Operation Mode: B2BUA

SBC Client Forking Mode: Sequential

CAC Profile: ..

SIP Source Host Name: ..

**ADVANCED**

Local Host Name: ..

**SBC REGISTRATION AND AUTHENTICATION**

Max. Number of Registered Users: -1

Registration Mode: User Initiates Registration

Dedicated Connection Mode: Disable

User Stickiness: Disable

User UDP Port Assignment: Disable

Authentication Mode: User Authenticates

Authentication Method List: ..

SBC Server Authentication Type: According to Global Parameter

OAuth HTTP Service: ..

Username As Client: ..

Password As Client: ..

Username As Server: ..

Password As Server: ..

Figure 54: IP Group Configurations of PBX (Cont.)

IP Groups [PBX\_IPG]

UII Format: Disable  
 Always Use Src Address: No

Teams Registration Mode: Disable

**SBC ADVANCED**

Source URI Input: [ ]  
 Destination URI Input: [ ]  
 SIP Connect: No  
 SBC PSAP Mode: Disable  
 Route Using Request URI Port: Disable  
**Media TLS Context: #0 [default]**  
 Keep Original Call-ID: No  
 Dial Plan: .. [View]  
 Call Setup Rules Set ID: -1

**GW GROUP STATUS**

GW Group Registered IP Address: [ ]  
 GW Group Registered Status: NA

**Figure 55: IP Group Configurations of PBX (Cont.)**

IP Groups [PBX\_IPG]

SBC PSAP Mode: Disable  
 Route Using Request URI Port: Disable  
**Media TLS Context: #0 [default]**  
 Keep Original Call-ID: No  
 Dial Plan: .. [View]  
 Call Setup Rules Set ID: -1

**Tags**

SBC Alternative Routing Reasons Set: .. [View]

Teams Local Media Optimization Handling: None  
 Teams Local Media Optimization Initial Behavior: DirectMedia  
 Teams Local Media Optimization Site: [ ]  
 Teams Direct Routing Mode: Disable  
 Metering Remote Type: Regular  
 Report Metering: Enable

**Figure 56: IP Group configurations of PBX Cont.**

- Select the respective Proxy Set, IP Profile, Media Realm and Media TLS Context for Google IP Group and enter Google FQDN as SIP Group Name

IP Groups [Google CCAI\_IPG]

SRD: #0 [DefaultSRD]

**GENERAL**

Index: 1  
**Name: Google CCAI\_IPG**  
 Topology Location: Up  
**Type: Server**  
**Proxy Set: #1 [Google CCAI SIPREC]**  
**IP Profile: #2 [Google CCAI\_IP]**  
**Media Realm: #1 [Google CCAI]**  
 Internal Media Realm: .. [View]  
 Contact User: [ ]  
**SIP Group Name: us.telephony.goog**

**QUALITY OF EXPERIENCE**

QoE Profile: .. [View]  
 Bandwidth Profile: .. [View]  
 User Voice Quality Report: Disable

**MESSAGE MANIPULATION**

**Inbound Message Manipulation Set: 2**  
**Outbound Message Manipulation Set: 2**  
 Message Manipulation User-Defined String 1: [ ]  
 Message Manipulation User-Defined String 2: [ ]  
 Proxy Keep-Alive using IP Group settings: Disable

**Figure 57: IP Group configurations of Google CCAI**

IP Groups [Google CCAI\_IPG]

SBC GENERAL			
Classify By Proxy Set	Enable	Dedicated Connection Mode	Disable
<b>Validate Source IP</b>	Disable	User Stickiness	Disable
SBC Operation Mode	B2BUA	User UDP Port Assignment	Disable
SBC Client Forking Mode	Sequential	Authentication Mode	User Authenticates
CAC Profile	..	Authentication Method List	
SIP Source Host Name		SBC Server Authentication Type	According to Global Parameter
		OAuth HTTP Service	..
		Username As Client	
		Password As Client	
		Username As Server	
		Password As Server	
		Teams Registration Mode	Disable

ADVANCED	
Local Host Name	
UII Format	Disable
Always Use Src Address	No

**Figure 58: IP Group Configurations of Google CCAI (Cont.)**

IP Groups [Google CCAI\_IPG]

SBC PSAP Mode	Disable
Route Using Request URI Port	Disable
<b>Media TLS Context</b>	#1 [Google]
Keep Original Call-ID	No
Dial Plan	..
Call Setup Rules Set ID	-1
Tags	
SBC Alternative Routing Reasons Set	..
Teams Local Media Optimization Handling	None
Teams Local Media Optimization Initial Behavior	DirectMedia
Teams Local Media Optimization Site	
Teams Direct Routing Mode	Disable
Metering Remote Type	Regular
Report Metering	Enable

**Figure 59: IP Group Configurations of Google CCAI (Cont.)**

- Select the respective Proxy Set, IP Profile and Media Realm for PSTN IP Group and enter the PSTN Gateway IP as SIP Group name

IP Groups [PSTN\_IPG]

GENERAL		QUALITY OF EXPERIENCE	
Index	2	QoE Profile	..
<b>Name</b>	PSTN_IPG	Bandwidth Profile	..
Topology Location	Up	User Voice Quality Report	Disable
<b>Type</b>	Server	<b>MESSAGE MANIPULATION</b>	
Proxy Set	#2 [PSTN_PS]	<b>Inbound Message Manipulation Set</b>	-1
IP Profile	#1 [PSTN_IP]	<b>Outbound Message Manipulation Set</b>	-1
Media Realm	#2 [PSTN_MR]	Message Manipulation User-Defined String 1	
Internal Media Realm	..	Message Manipulation User-Defined String 2	
Contact User		Proxy Keep-Alive using IP Group settings	Disable
<b>SIP Group Name</b>	PSTN	<b>SBC REGISTRATION AND AUTHENTICATION</b>	
Created By Routing Server	No	Max. Number of Registered Users	4
Used By Routing Server	Not Used		
Proxy Set Connectivity	Not Connected		

**Figure 60: IP Group Configurations of PSTN**

IP Groups [PSTN\_IPG]

SBC GENERAL		Registration Mode		User Profiles Registration	
Classify By Proxy Set	Enable	Dedicated Connection Mode	Disable		
<b>Validate Source IP</b>	Disable	User Stickiness	Disable		
SBC Operation Mode	B2BUA	User UDP Port Assignment	Disable		
SBC Client Forking Mode	Sequential	Authentication Mode	User Authenticates		
CAC Profile	..	Authentication Method List			
SIP Source Host Name		SBC Server Authentication Type	According to Global Parameter		
		OAuth HTTP Service	..		
		Username As Client			
		Password As Client			
		Username As Server			
		Password As Server			
		Teams Registration Mode	Disable		

ADVANCED	
Local Host Name	
UII Format	Disable
Always Use Src Address	No

Figure 61: IP Group Configurations of PSTN (Cont.)

SBC ADVANCED		GW Group Registered IP Address	
Source URI Input			
Destination URI Input		GW Group Registered Status	NA
SIP Connect	No		
SBC PSAP Mode	Disable		
Route Using Request URI Port	Disable		
<b>Media TLS Context</b>	#0 [default]		
Keep Original Call-ID	No		
Dial Plan	..		
Call Setup Rules Set ID	-1		
Tags			
SBC Alternative Routing Reasons Set	..		
Teams Local Media Optimization Handling	None		
Teams Local Media Optimization Initial Behavior	DirectMedia		

Figure 62: IP Group Configurations of PSTN (Cont.)

SBC PSAP Mode	Disable
Route Using Request URI Port	Disable
<b>Media TLS Context</b>	#0 [default]
Keep Original Call-ID	No
Dial Plan	..
Call Setup Rules Set ID	-1
Tags	
SBC Alternative Routing Reasons Set	..
Teams Local Media Optimization Handling	None
Teams Local Media Optimization Initial Behavior	DirectMedia
Teams Local Media Optimization Site	
Teams Direct Routing Mode	Disable
Metering Remote Type	Regular
Report Metering	Enable

Figure 63: IP Group Configurations of PSTN (Cont.)



### 6.4.9 Configure Media Security

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **MEDIA** folder  **Media Security**
- Enable Media Security as shown below.

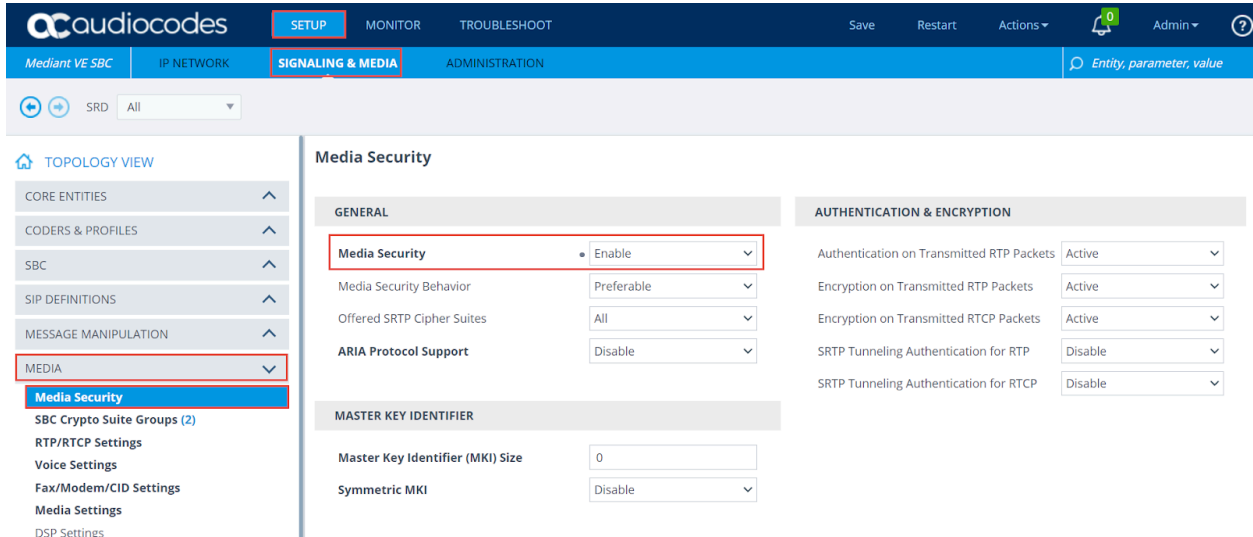


Figure 64: Media Security Configuration.

### 6.4.10 Configure IP to IP Call Routing.

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **SBC** folder  **Routing**  **IP-to-IP Routing**
- Configure required routing rules as shown below.

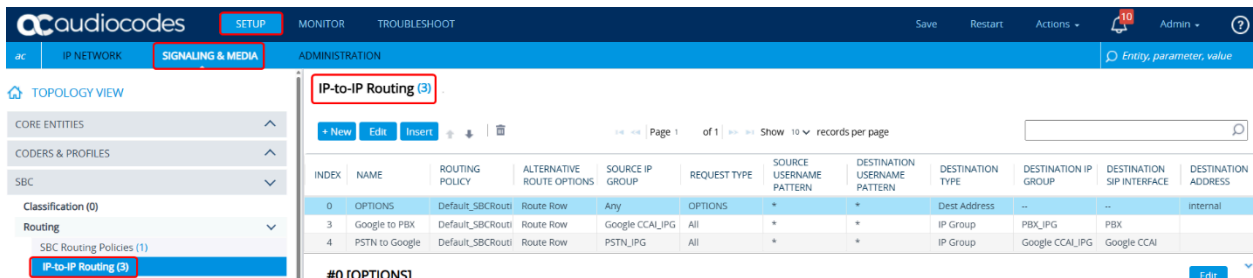


Figure 65: IP to IP Routing

### 6.4.11 Configure Message Manipulation Rules

- Navigate to **SETUP** menu  **SIGNALING & MEDIA** tab  **MESSAGE MANIPULATION** folder  **Message Manipulations**
- Configure message manipulation towards Google CCAI as shown below.

The screenshot shows the Audoicodes web interface with the 'MESSAGE MANIPULATION' tab selected. A table lists 11 message manipulations. The 'Message Manipulations (11)' title is highlighted in red. The table columns are INDEX, NAME, MANIPULATION SET ID, MESSAGE TYPE, CONDITION, ACTION SUBJECT, ACTION TYPE, ACTION VALUE, and ROW ROLE.

INDEX	NAME	MANIPULATION SET ID	MESSAGE TYPE	CONDITION	ACTION SUBJECT	ACTION TYPE	ACTION VALUE	ROW ROLE
0	call-info Google	2	Invite.Request		Header.call-info	Add	~http://dialogflow.goog-	Use Current Condition
1	removecallinfo	2	Any.Request		Header.Call-Info	Modify	\$1-#3	Use Current Condition
2	Request URI	2	Invite.Request		Header.Request-URI.URL	Modify	~13149445469'	Use Current Condition
3	from	2	Invite.Request	Header.Call-Info regex (<	Header.From.URL.Host	Modify	'192.65.79.185'	Use Current Condition
4	PAI modify	2	Invite.Request		Header.P-Asserted-Ident	Modify	'192.65.79.185'	Use Current Condition
5	Contact	0	Invite.Request		Header.Contact.URL.Hos	Modify	'192.65.79.185'	Use Current Condition
6	To	2	Invite.Request		Header.To.URL.User	Modify	~13149445469'	Use Current Condition
7	To_Host	2	Invite.Request		Header.To.URL.Host	Modify	'us.telephony.goog'	Use Current Condition
8	Request_URI_PSTN	3	Any.Request		Header.Request-URI.URL	Modify	'2142425989'	Use Current Condition
9	To_PSTN	3	Any.Request		Header.To.URL.User	Modify	'2142425989'	Use Current Condition
10	User-to-User	0	Invite.Request		Header.User-To-User	Add	'686579313D76616C756323D76616C756322;enco ding=hex,purpose=Goog-Session-Param	Use Current Condition

Figure 66: Message Manipulation towards Google CCAI

- User-to-User manipulation is added to establish a call with Google CCAI

The screenshot shows the configuration form for a 'User-to-User' manipulation. The 'GENERAL' tab is active. Fields include Index (10), Name (User-to-User), Manipulation Set ID (0), and Row Role (Use Current Condition). The 'MATCH' section has Message Type set to Invite.Request. The 'ACTION' section is highlighted with a red box and shows Action Subject (Header.User-To-User), Action Type (Add), and Action Value ('686579313D76616C756323D76616C756322;encoding=hex,purpose=Goog-Session-Param').

Figure 67: UI Header Manipulation towards Google CCAI

- When the call gets escalated to agent, Manipulation is done to route the call to Agent user
  - Request URI header:

The screenshot shows the configuration form for a 'Request\_URI\_PBX' manipulation. The 'GENERAL' tab is active. Fields include Index (8), Name (Request\_URI\_PBX), Manipulation Set ID (3), and Row Role (Use Current Condition). The 'MATCH' section has Message Type set to Any.Request. The 'ACTION' section is highlighted with a red box and shows Action Subject (Header.Request-URI.URL.User), Action Type (Modify), and Action Value (~19728522624').

Figure 68: Message Manipulation: Request URI header to PBX

- To Header

Message Manipulations: [To\_PBX]

GENERAL	ACTION
Index: <input type="text" value="4"/> Name: <input type="text" value="To_PBX"/> Manipulation Set ID: <input type="text" value="3"/> Row Role: <input type="text" value="Use Current Condition"/>	Action Subject: <input type="text" value="Header.To.URL.User"/> Editor Action Type: <input type="text" value="Modify"/> <input type="button" value="v"/> Action Value: <input type="text" value="'*19728522624'"/> Editor
MATCH	
Message Type: <input type="text" value="Any.Request"/> Editor Condition: <input type="text"/> Editor	

**Figure 69: Message Manipulation: To header to PBX**

## 7 AudioCodes VE SBC Running configuration

Attached is the AudioCodes VE SBC running configuration.



BOARD\_SN63402107  
173605.ini