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

TekVizion

Table of Contents

1 Audience

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.

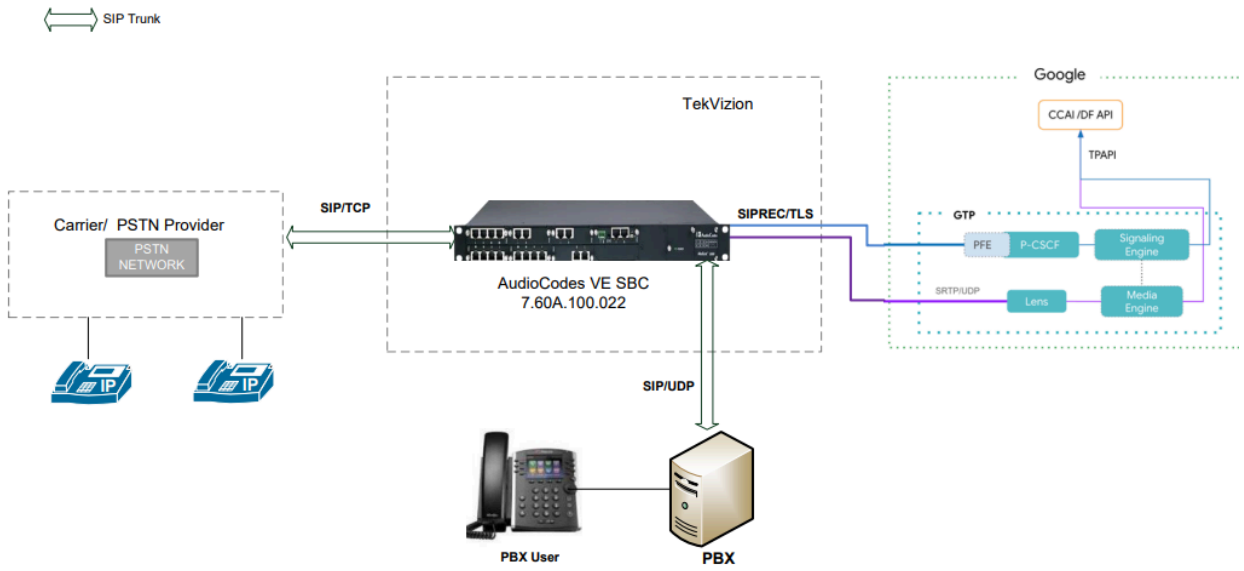

Figure 1: SIP TrunkLab Reference Network

The lab network consists of the following components:

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

3 Hardware Components

- AudioCodes VE SBC

4 Software Requirements

- AudioCodes VE version: 7.60A.100.022

5 Certified AudioCodes Version

Table 1 - AudioCodes VE SBC Configuration Steps

Google CCAI - Verified version	
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	Section 6.4.1
Step 2	Configure TLS Context for Google CCAI	Section 6.4.2
Step 3	Configure Media Realms	Section 6.4.3
Step 4	Configure SIP Signaling Interfaces	Section 6.4.4
Step 5	Configure Proxy Sets and Proxy Address	Section 6.4.5
Step 6	Configure Coders	Section 6.4.6
Step 7	Configure IP Profiles	Section 6.4.7
Step 8	Configure IP Groups	Section 6.4.8
Step 9	Configure SRTP	Section 6.4.9
Step 10	Configure IP to IP Call Routing	Section 6.4.10
Step 11	Configure Message Manipulation Rules	Section 6.4.11

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
Google CCAI	
Signaling	us.telephony.goog:5672
Media	74.125.X.X
OnPrem PBX	
LAN IP Address	10.80.X.X
AudioCodes VE SBC	
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.

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.

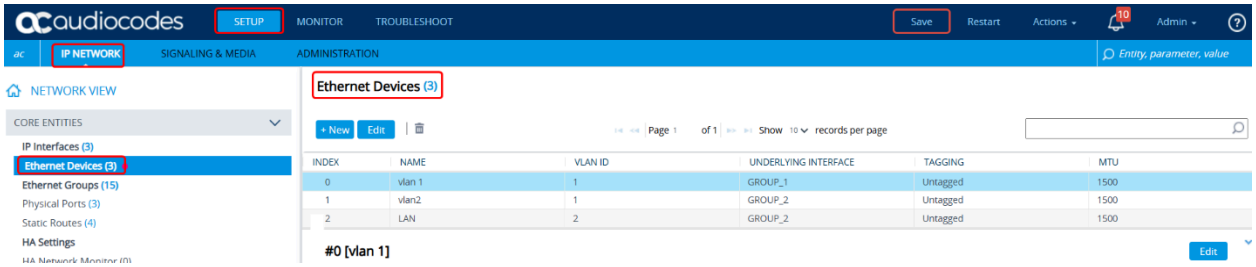

Figure 3: VLAN Configuration

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.

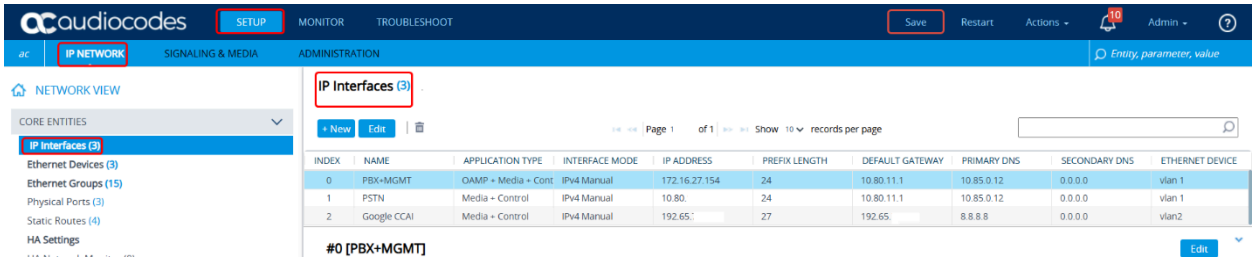

Figure 4: Network interface Configuration

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.

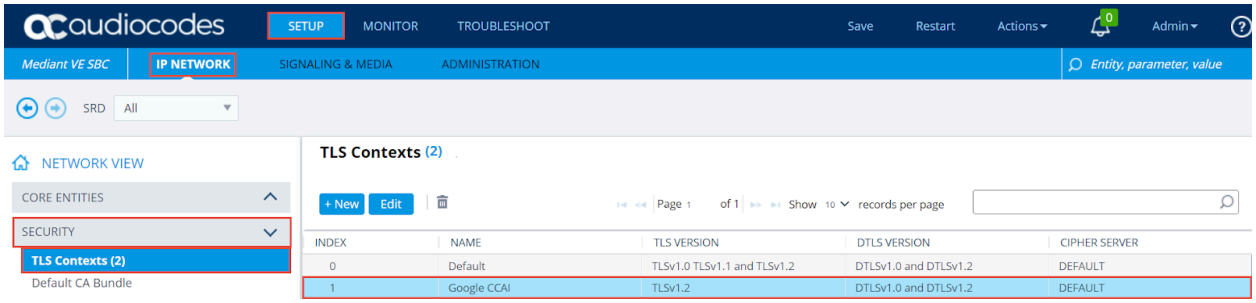

Figure 5: TLS Context for Google CCAI

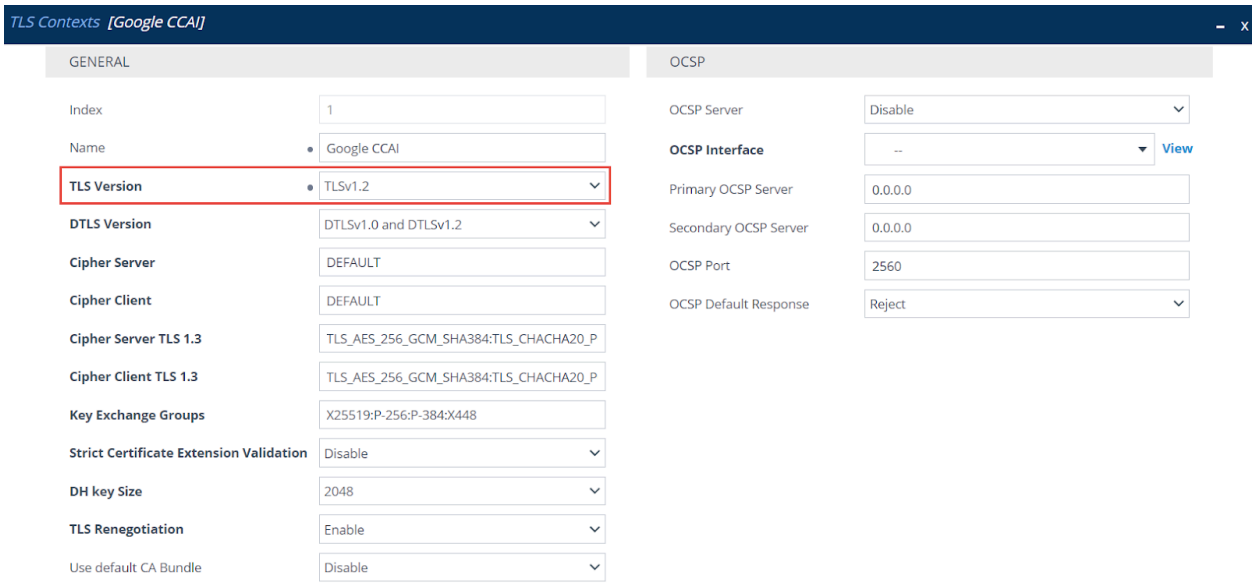

Figure 6: TLS Context for Google CCAI (Cont.)

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.

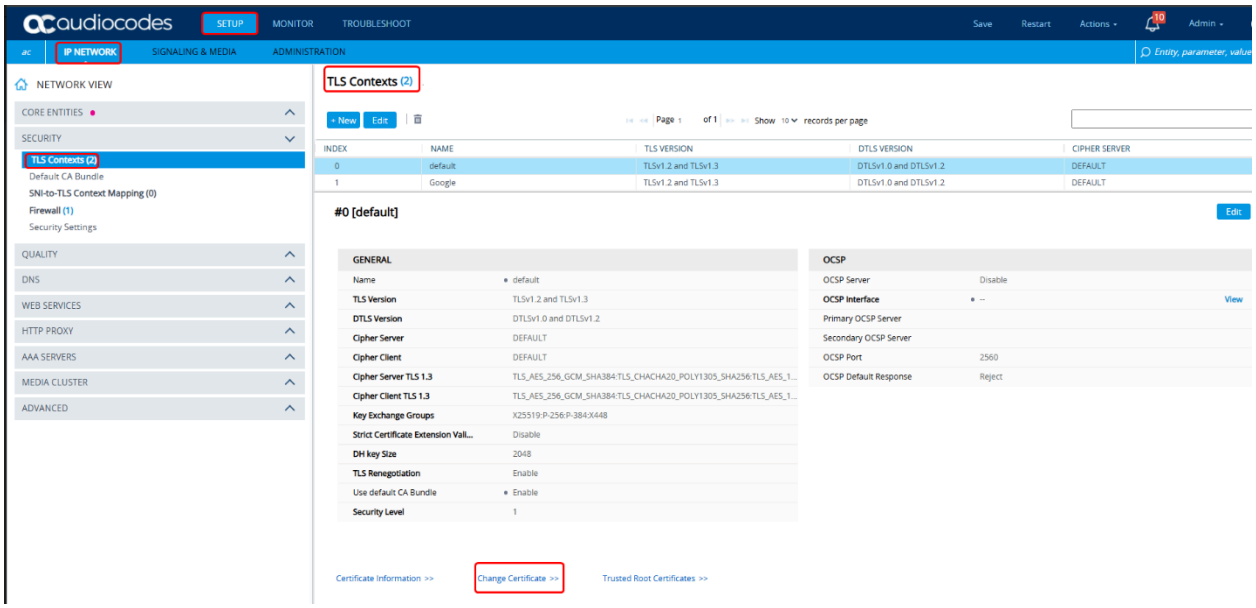

Figure 7: Change Certificate for CSR Generation

- 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.

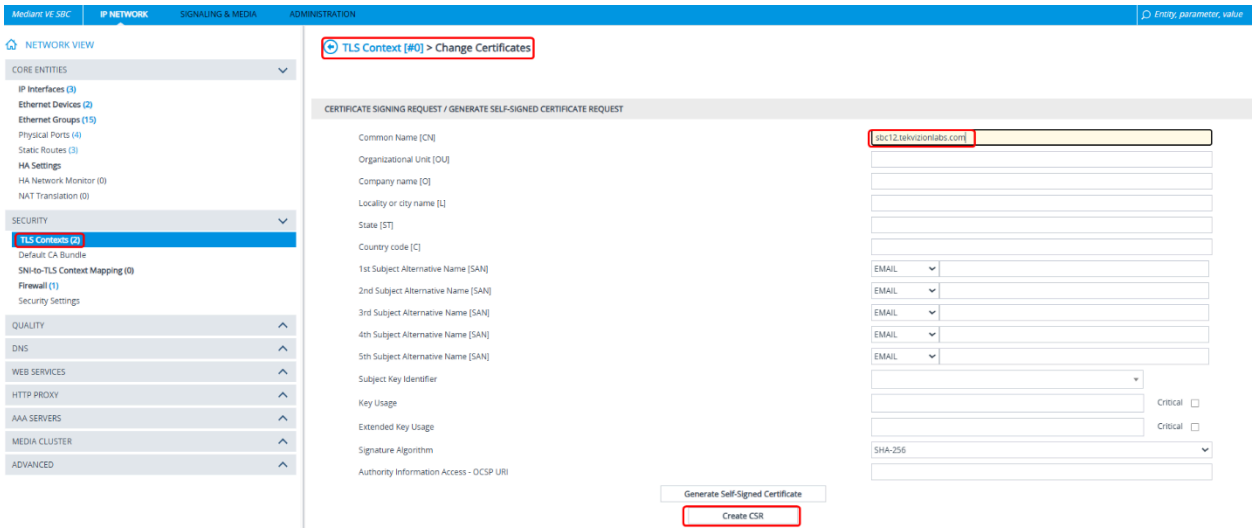

Figure 8: CSR Generation for Google CCAI TLS Context

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.

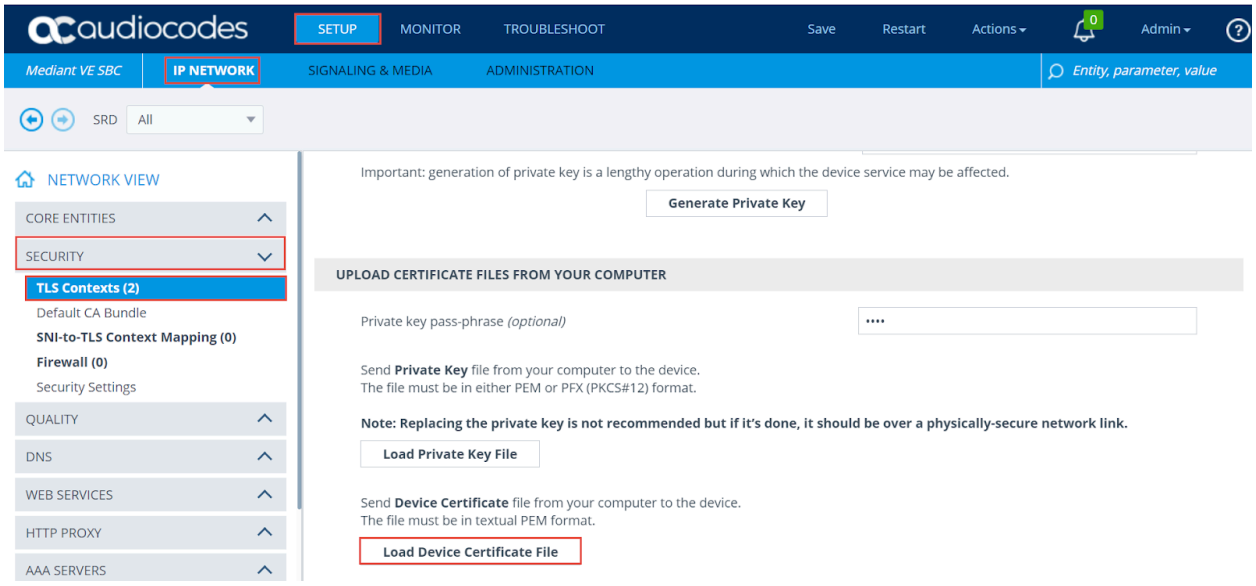

Figure 9: SBC Certificate Upload

- 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.

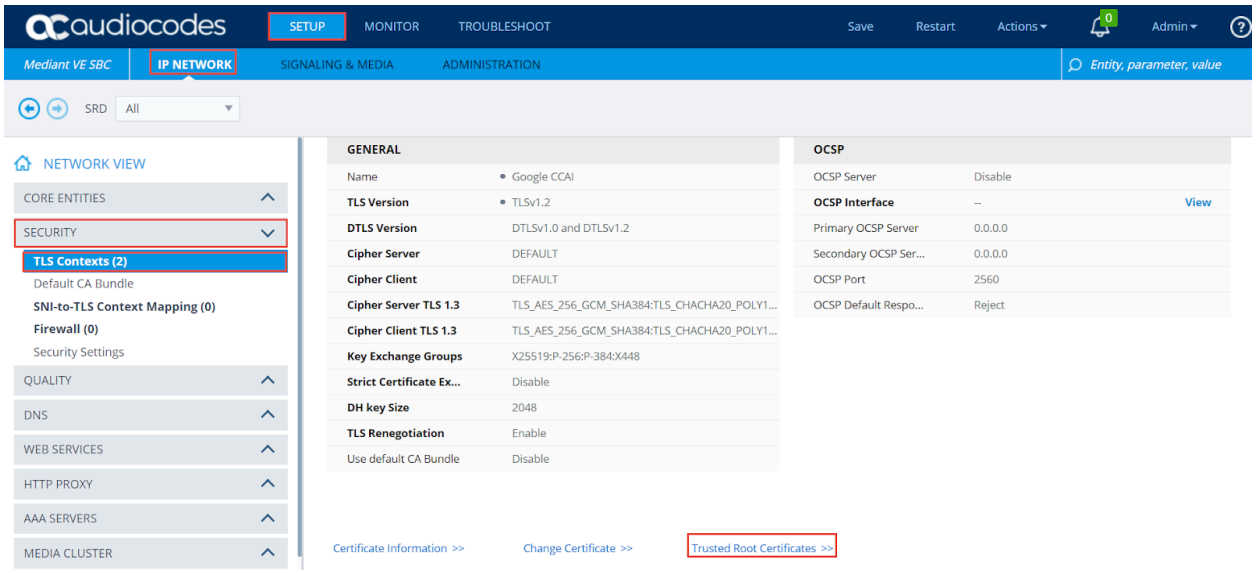

Figure 10: Trusted Root Certificates Upload

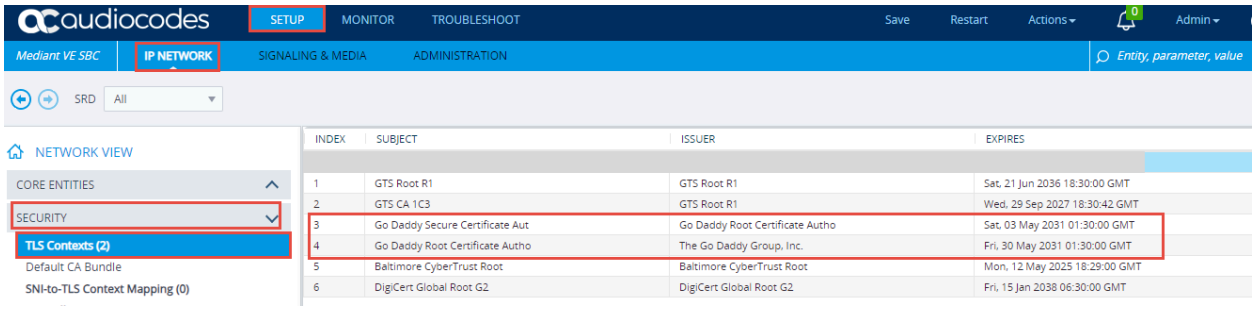

Figure 11: Trusted Root Certificates Upload (Cont.)

- 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.

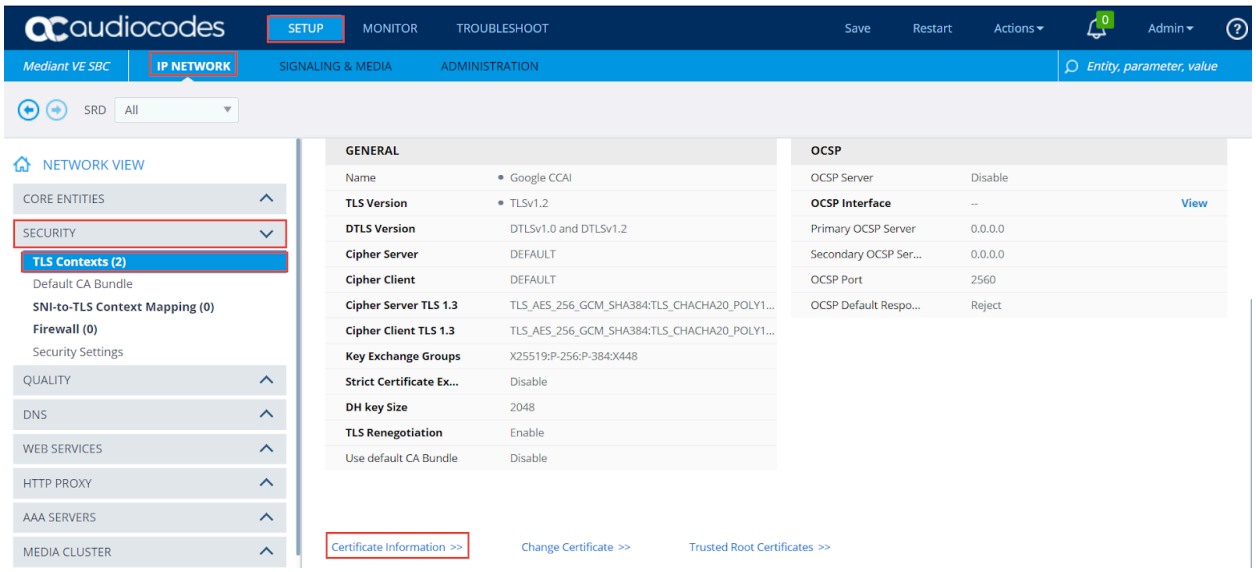

Figure 12: Certificate Information

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.

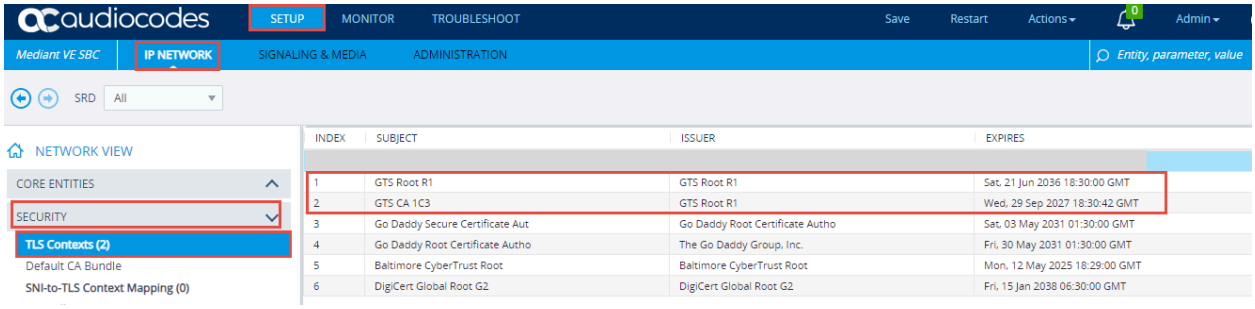

Figure 13: Google Root Certificates

6.4.3 Configure Media Realms

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

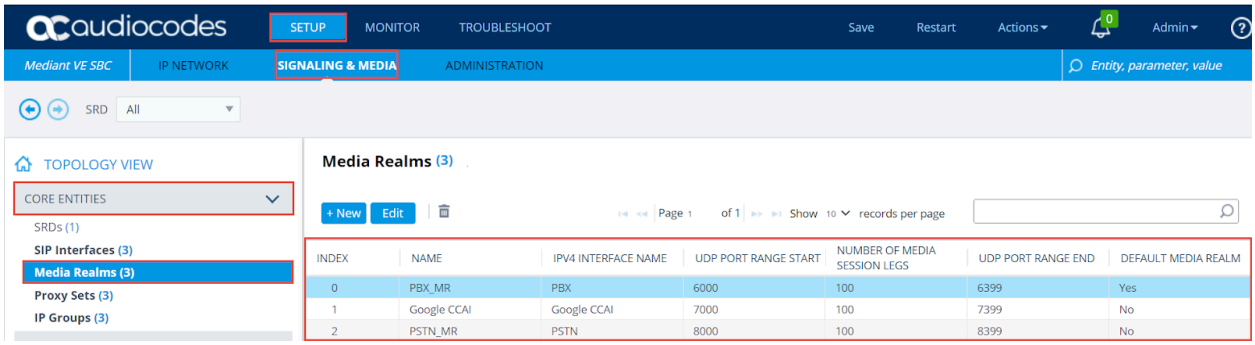

Figure 14: Configure Media Realms

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.

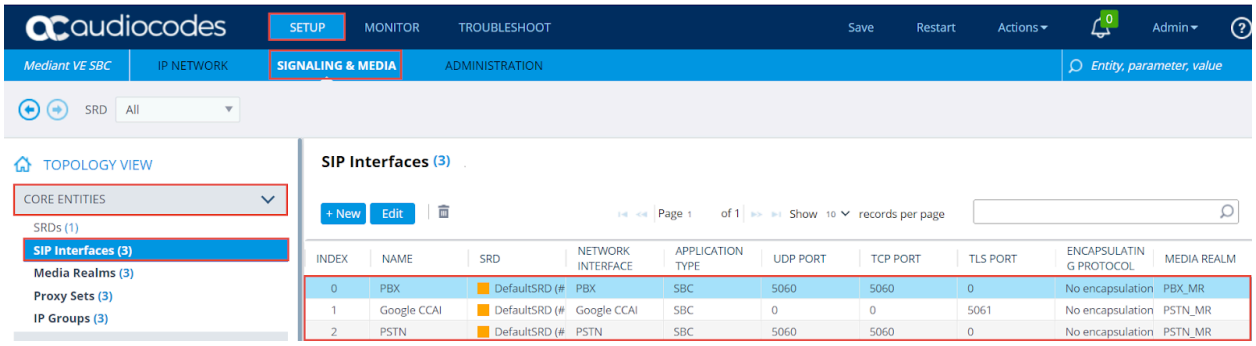

Figure 15: SIP Signaling Interfaces

PBX

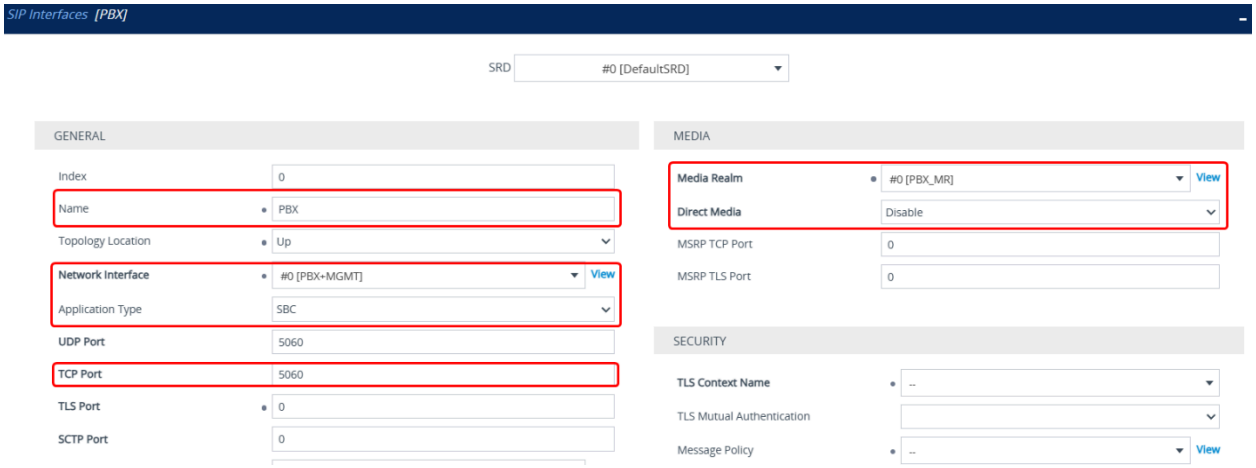

Figure 16: SIP Signaling Interfaces for PBX

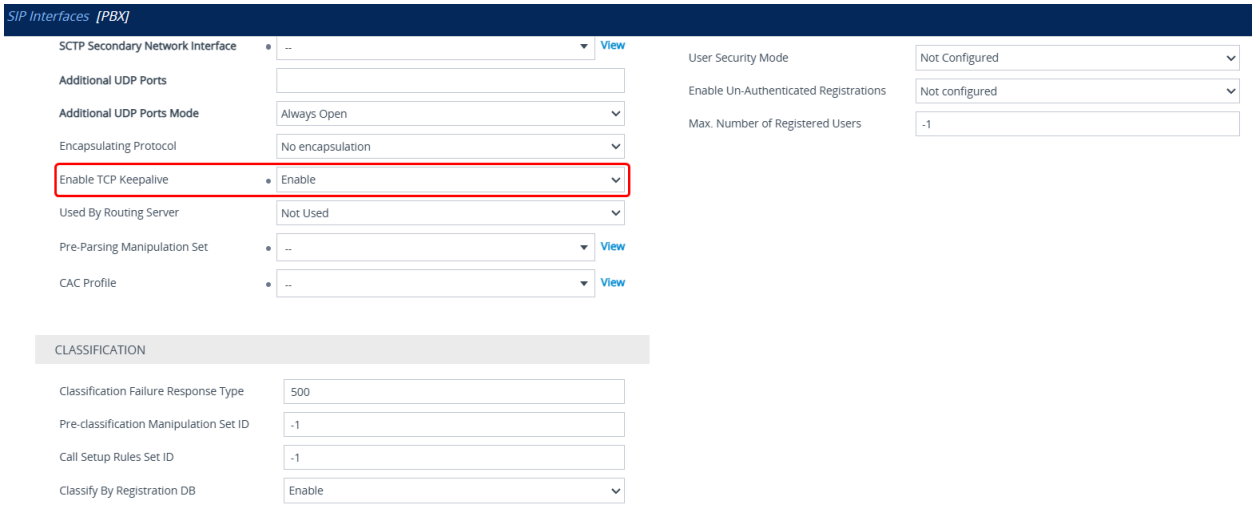

Figure 17: SIP Signaling Interfaces for PBX (Cont.)

Google CCAI:

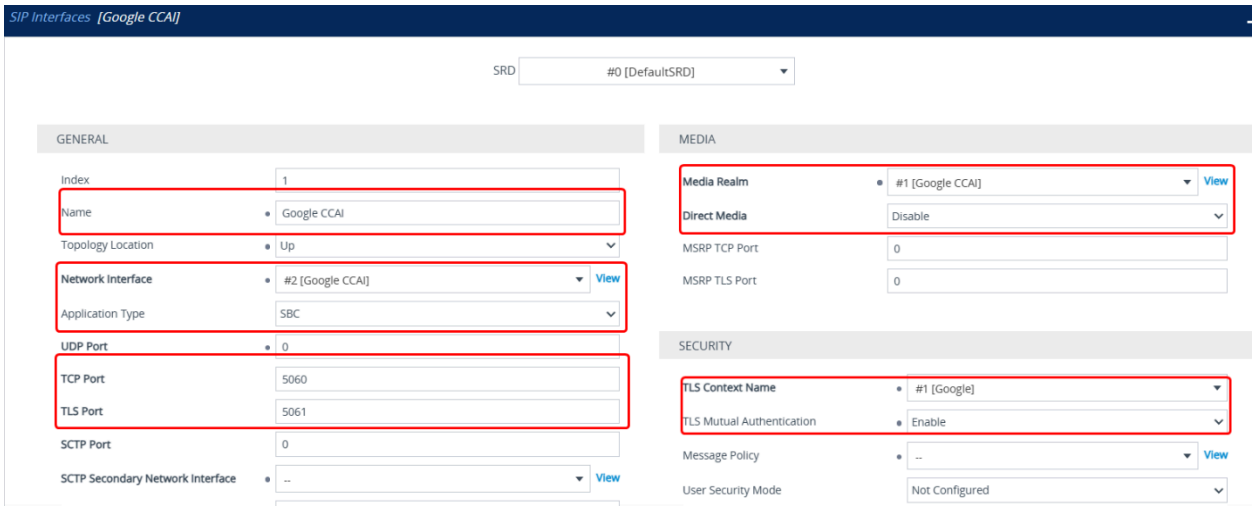

Figure 18: SIP Signaling Interfaces for Google CCAI

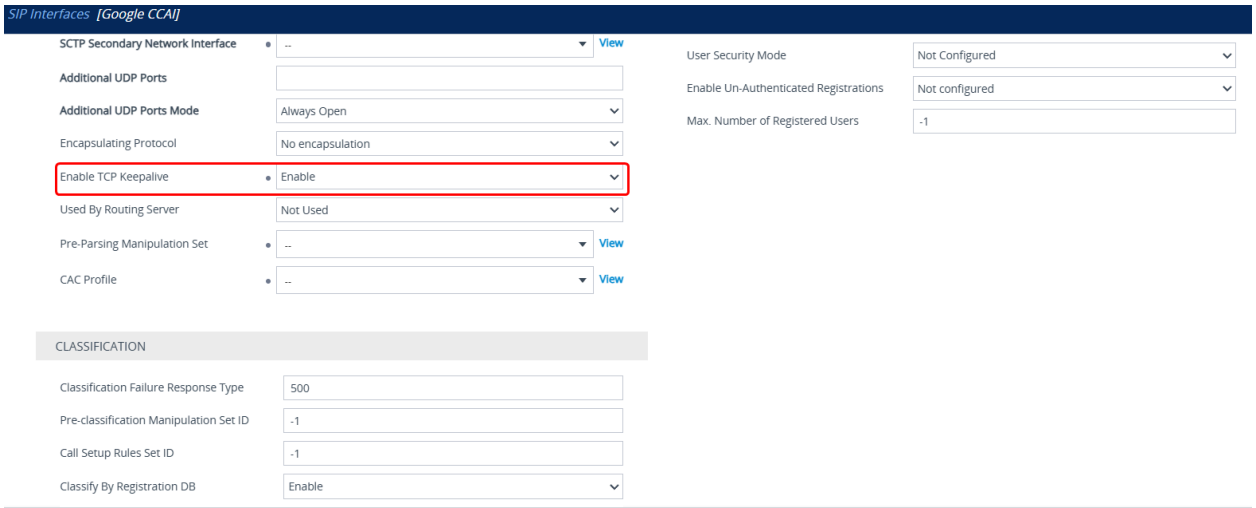

Figure 19: SIP Signaling Interfaces for Google CCAI (Cont.)

PSTN:

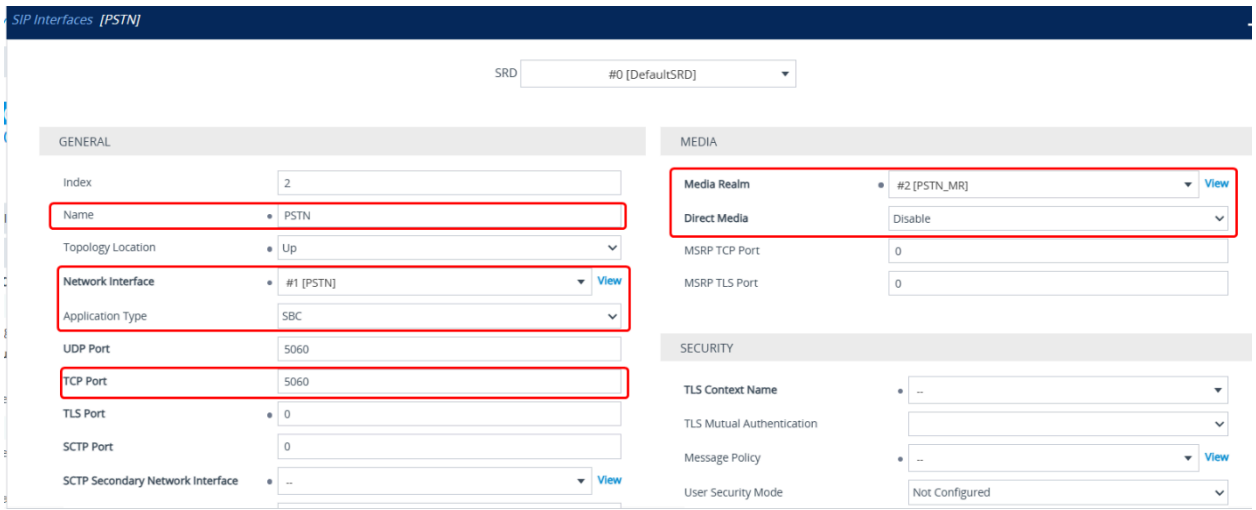

Figure 20: SIP Signaling Interfaces for PSTN

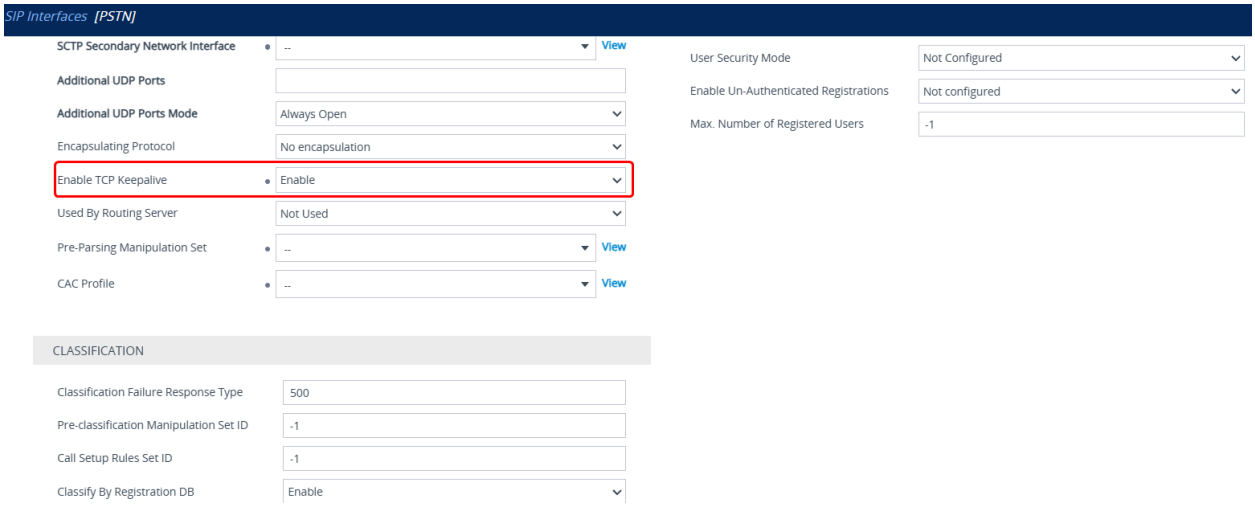

Figure 21: SIP Signaling Interfaces for PSTN (Cont.)

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.

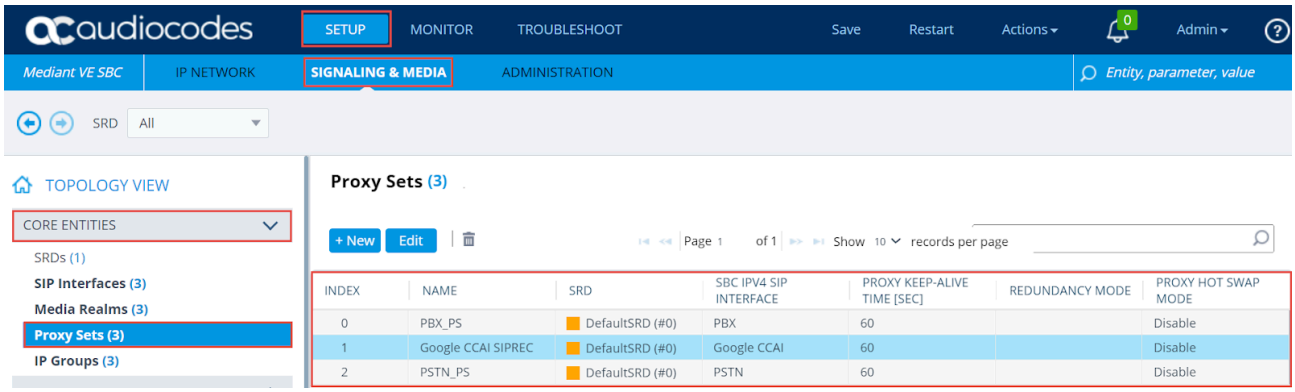

Figure 22: Configurations of Proxy Sets

PBX:

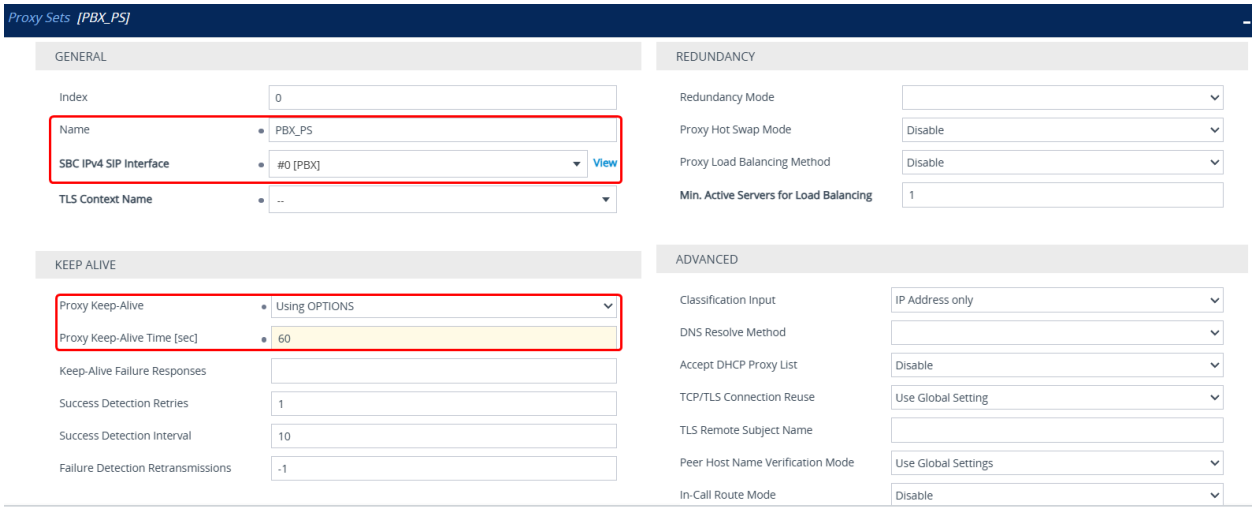

Figure 23: Proxy Set Configuration of PBX

Google CCAI:

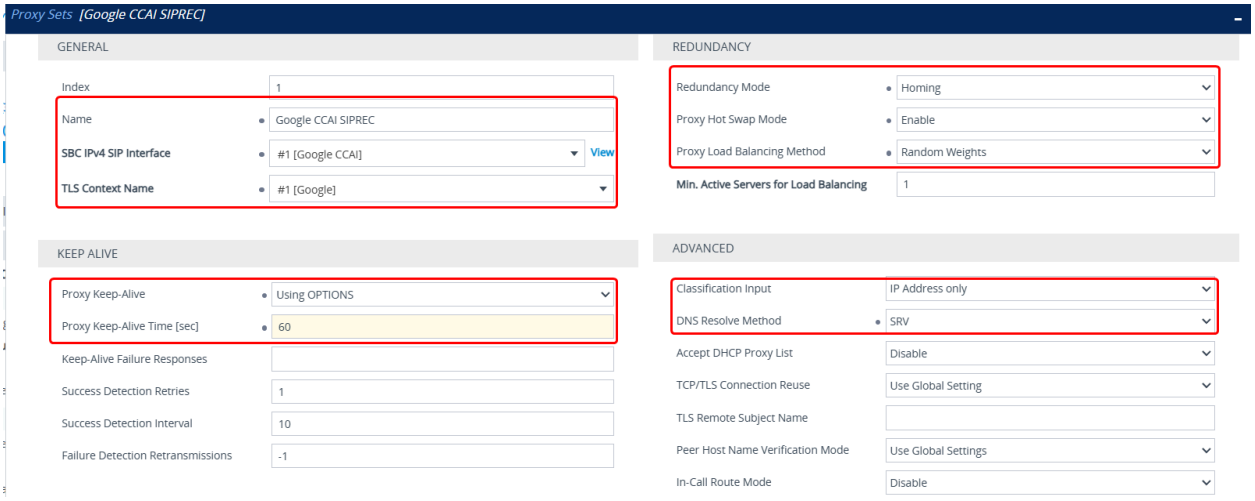

Figure 24: Proxy Set Configuration of Google CCAI

PSTN:

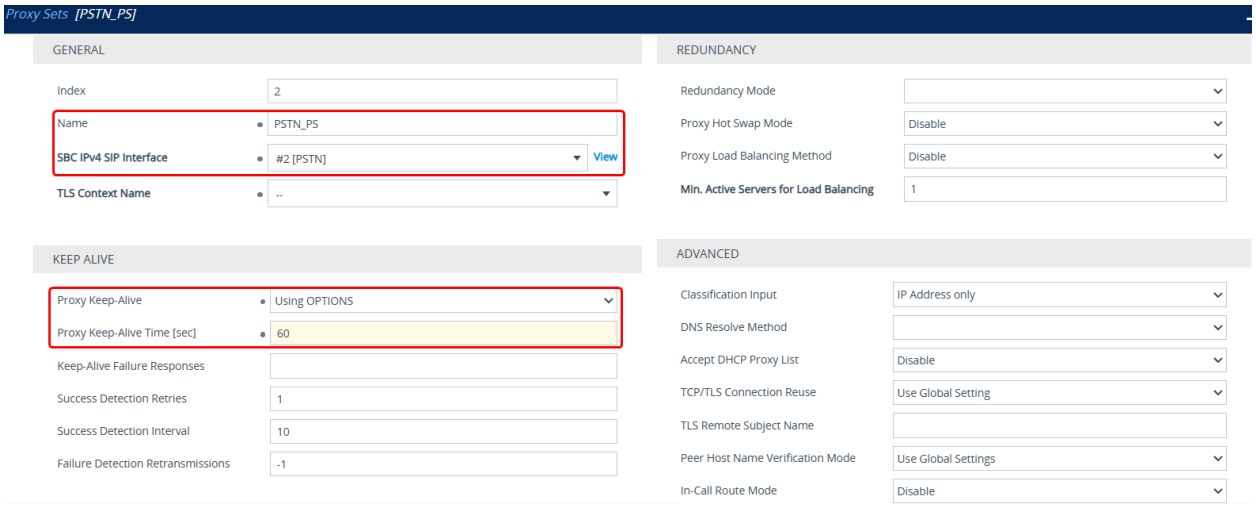

Figure 25: Proxy Set Configuration of PSTN

- 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**.

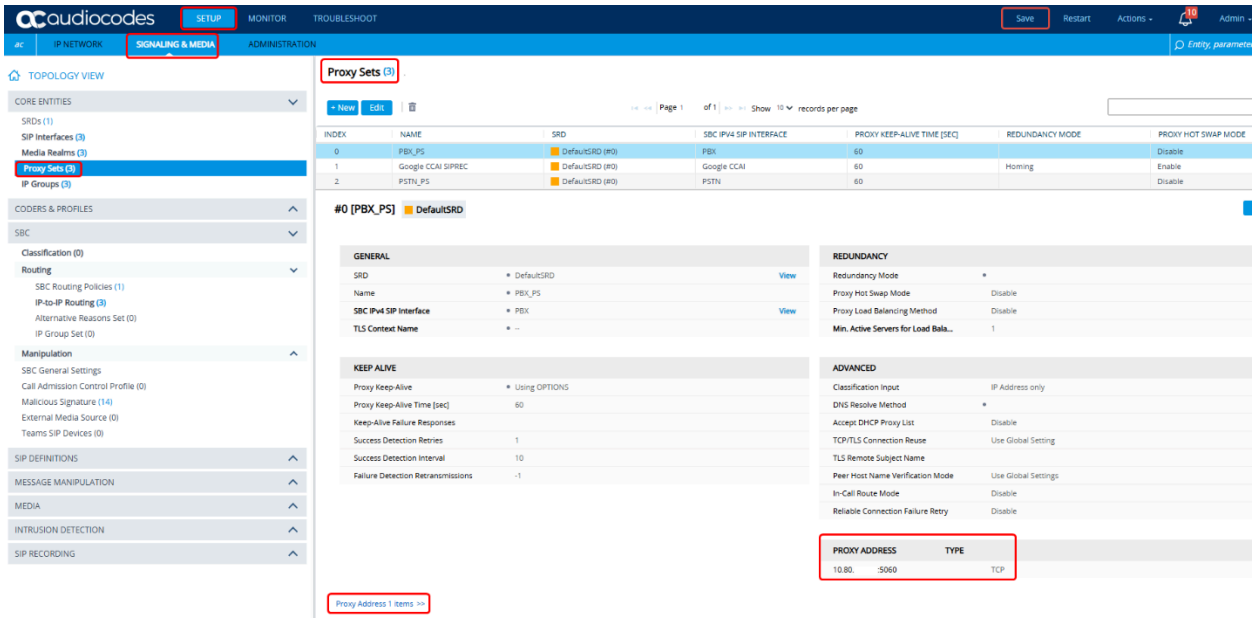

Figure 26: Proxy Address Configuration of PBX

- 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**.

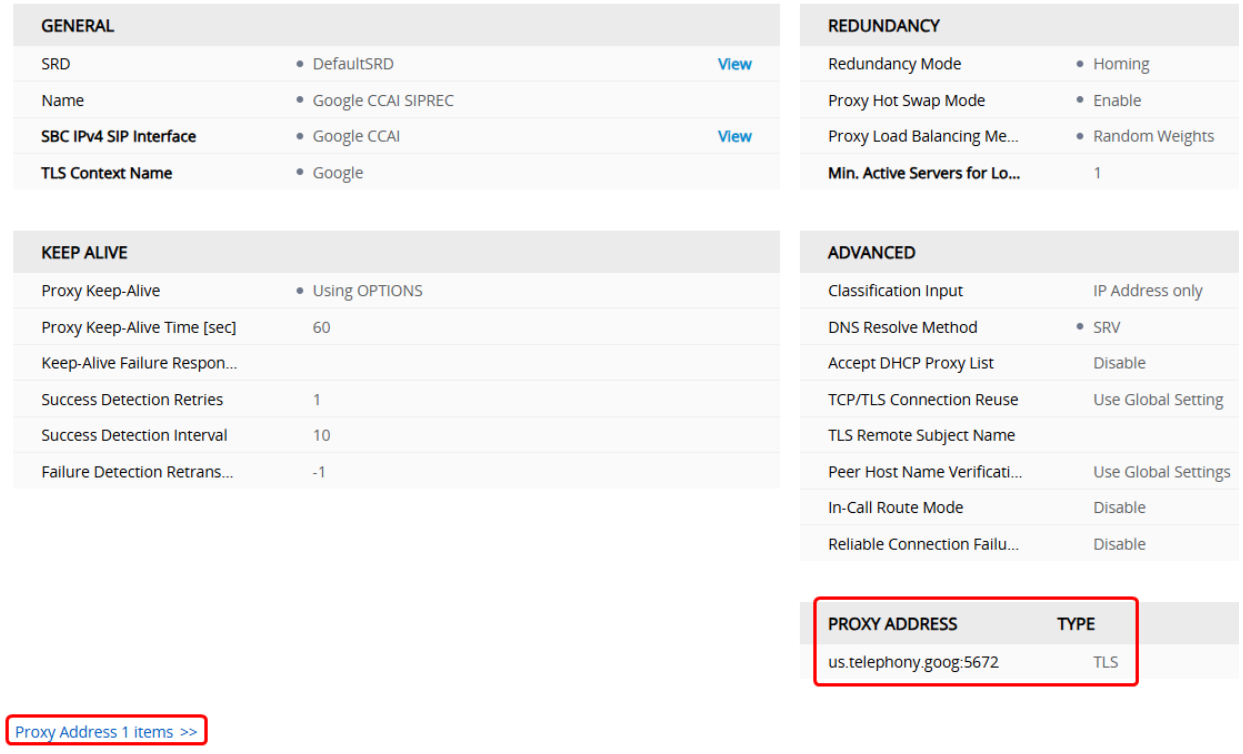

Figure 28: Proxy Address Configuration of Google CCAI

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

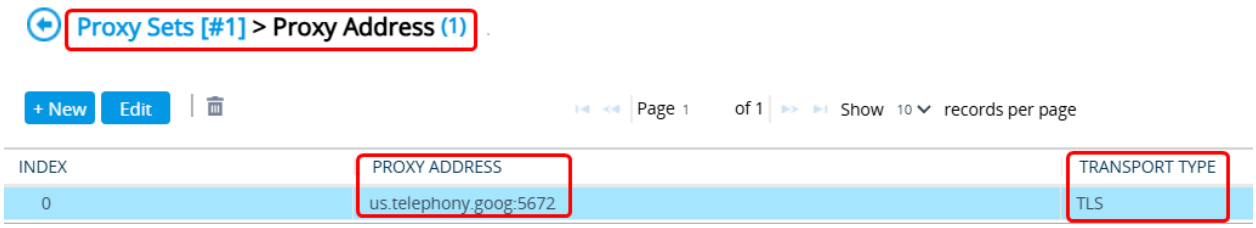

Figure 29: Proxy Address Configuration of Google CCAI (Cont.)

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

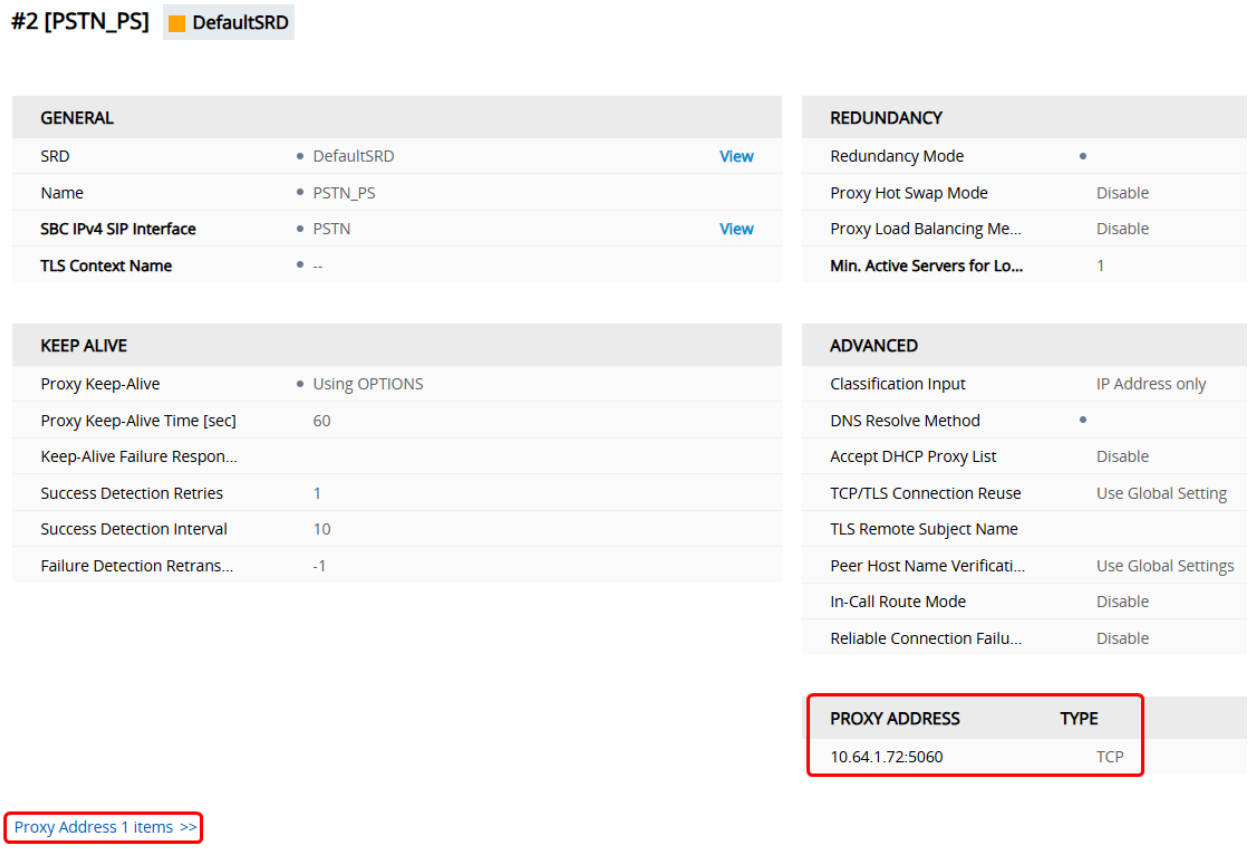

Figure 30: Proxy Address Configuration of PSTN

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

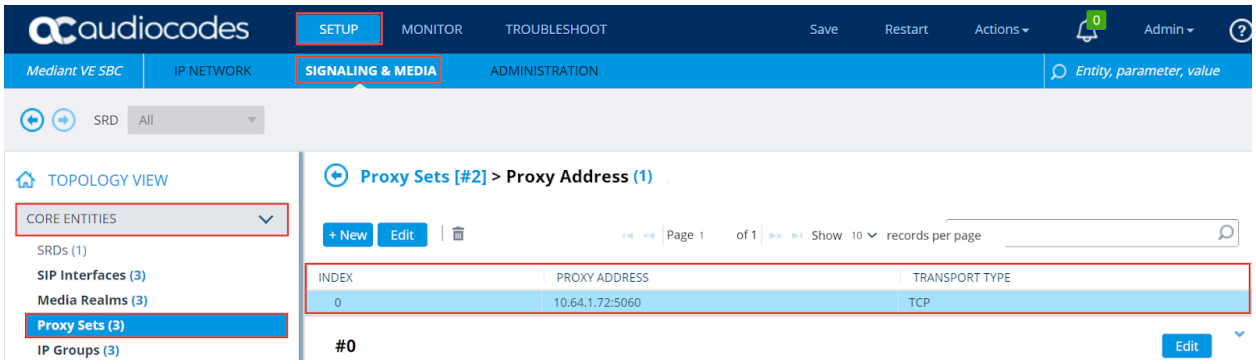

Figure 31: Proxy Address Configuration of PSTN

6.4.6 Configure Coders

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

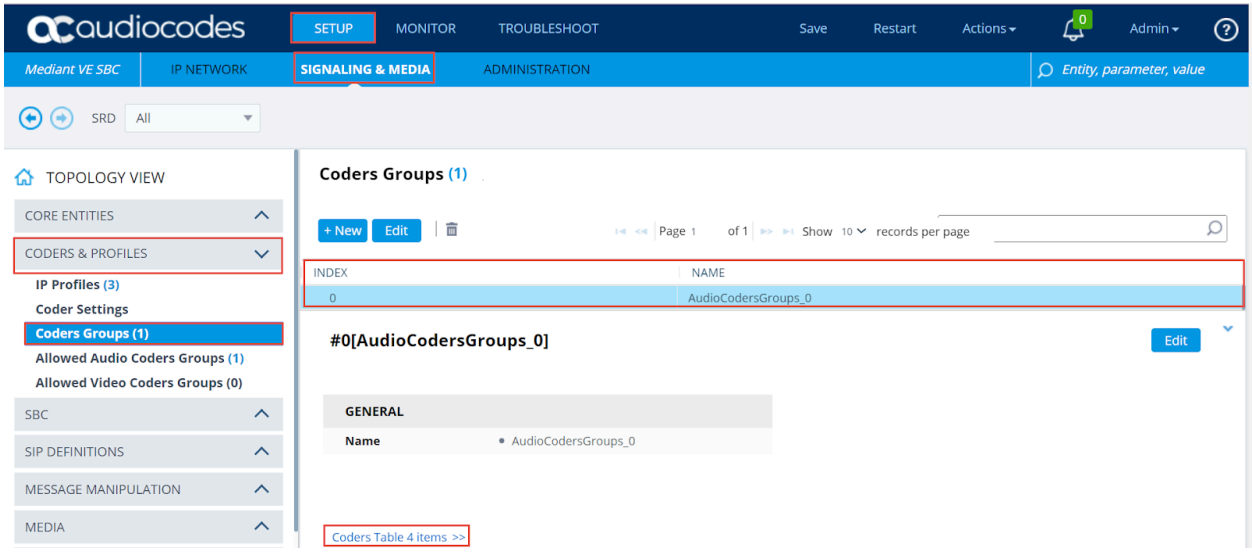

Figure 32: Coders Configurations

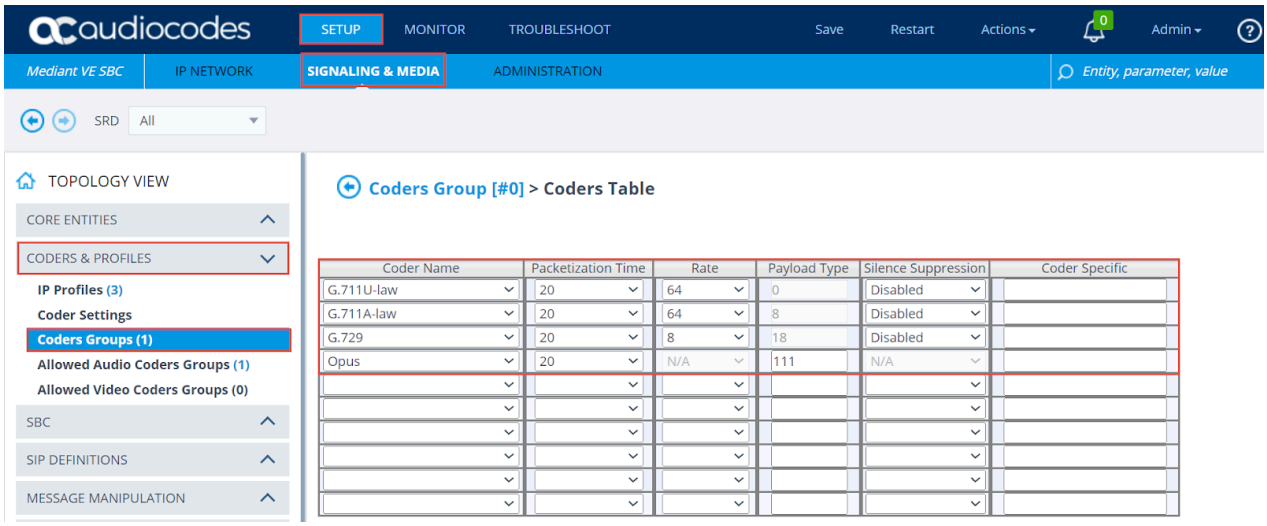

Figure 33: Coders Configurations (Cont.)

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.

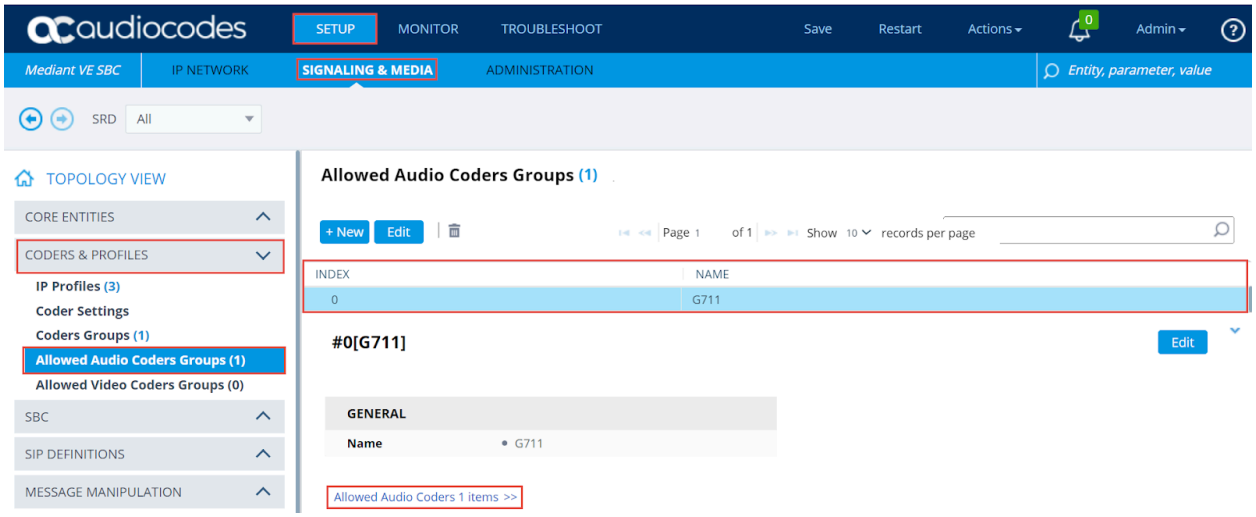

Figure 34: Coders Configurations (Cont.)

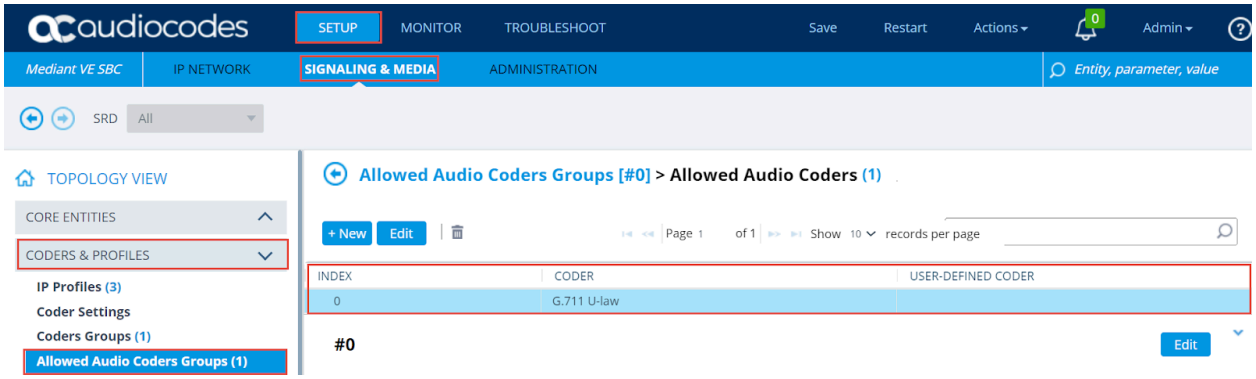

Figure 35: Coders Configurations (Cont.)

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.

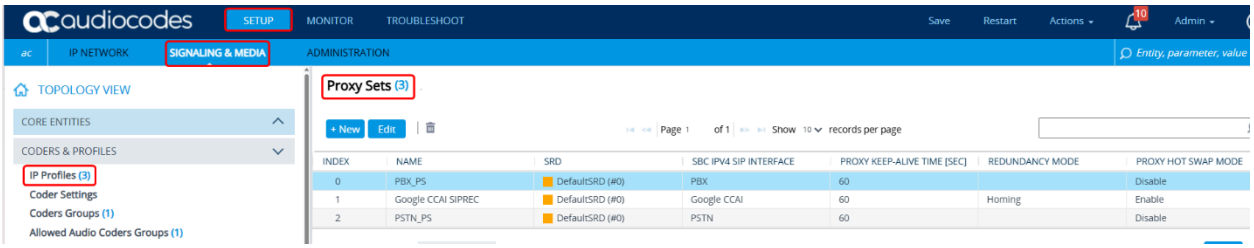

Figure 36: IP profile Configurations

PBX:

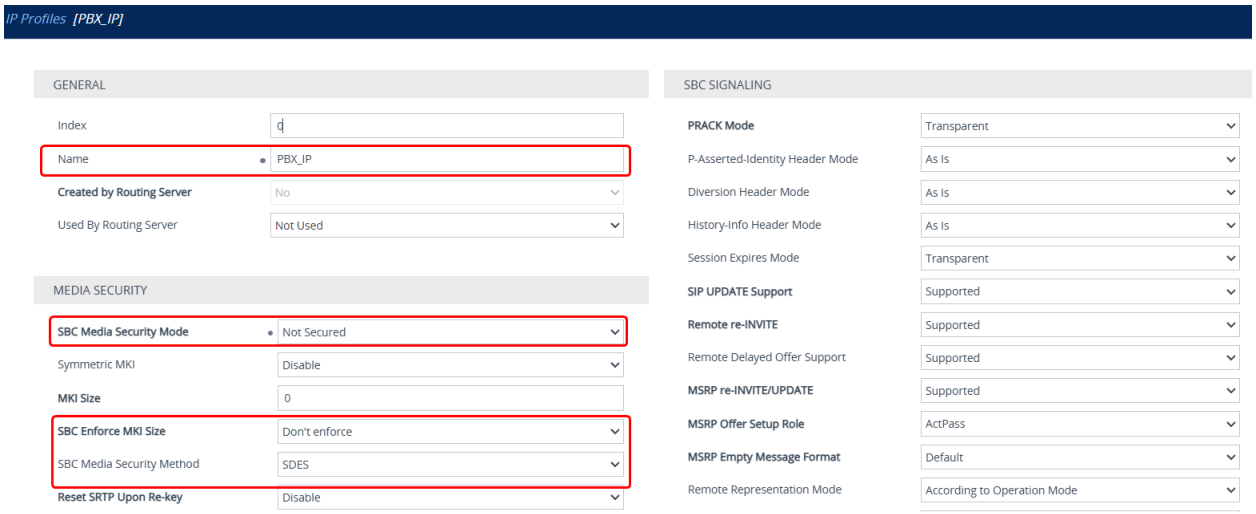

Figure 37: IP Profile Configurations of PBX

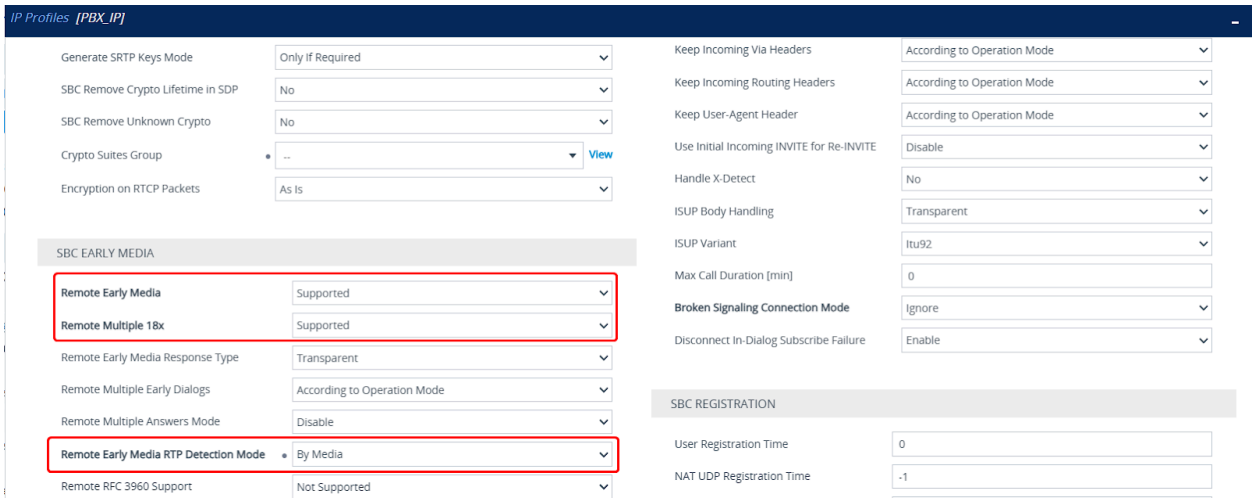

Figure 38: IP Profile Configurations of PBX (Cont.)

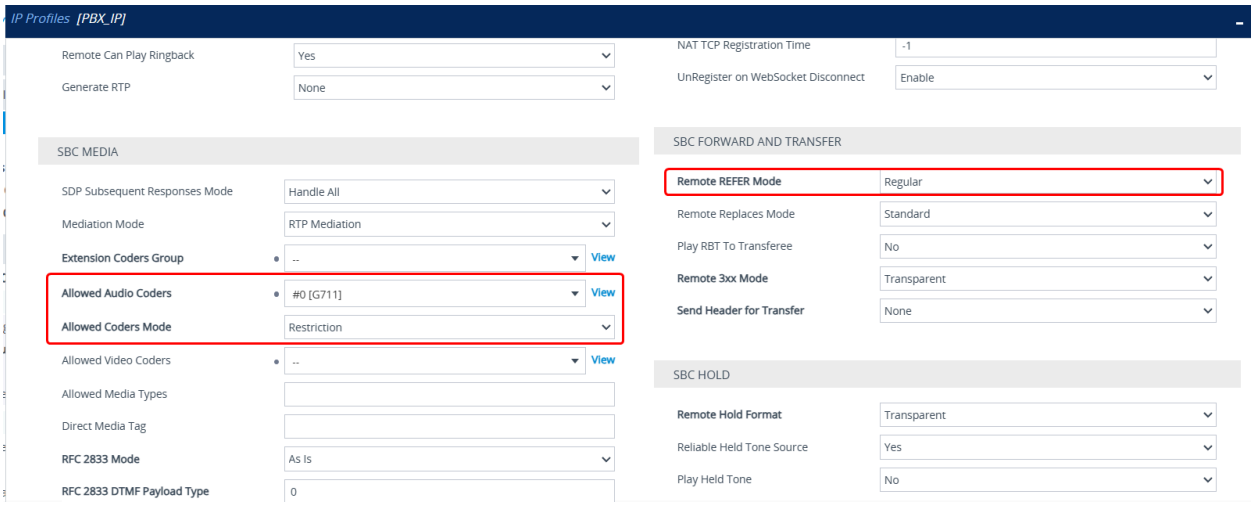

Figure 39: IP Profile Configurations of PBX (Cont.)

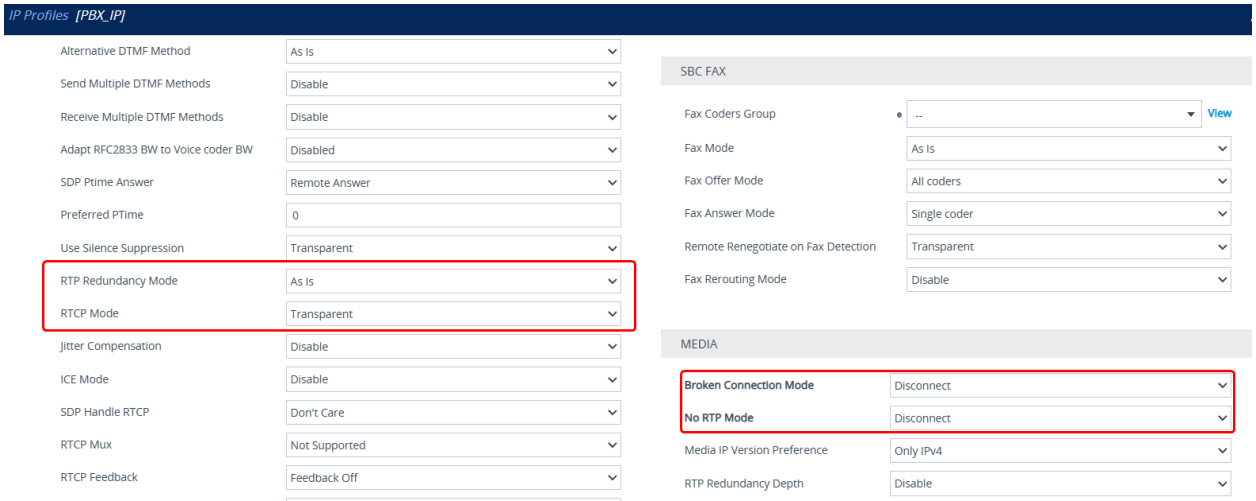

Figure 40: IP Profile Configurations of PBX (Cont.)

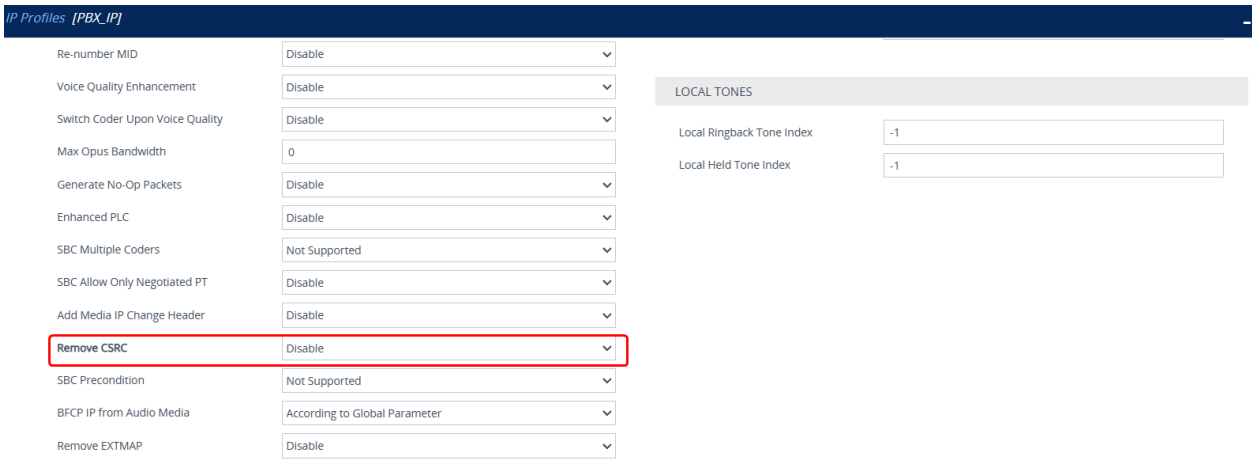

Figure 41: IP Profile Configurations of PBX (Cont.)

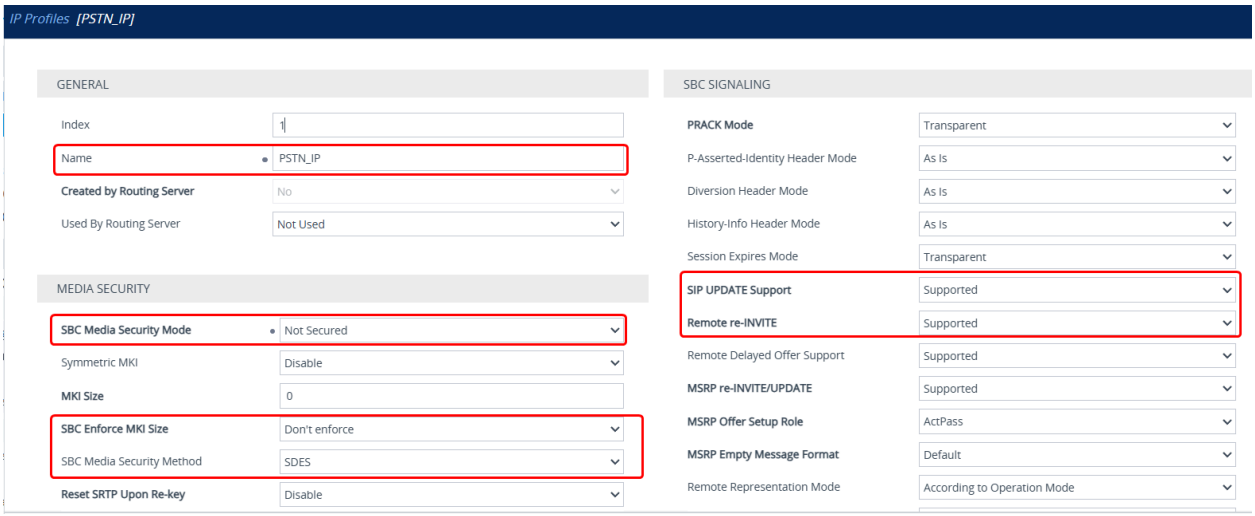

Figure 42: IP Profile Configurations of PSTN

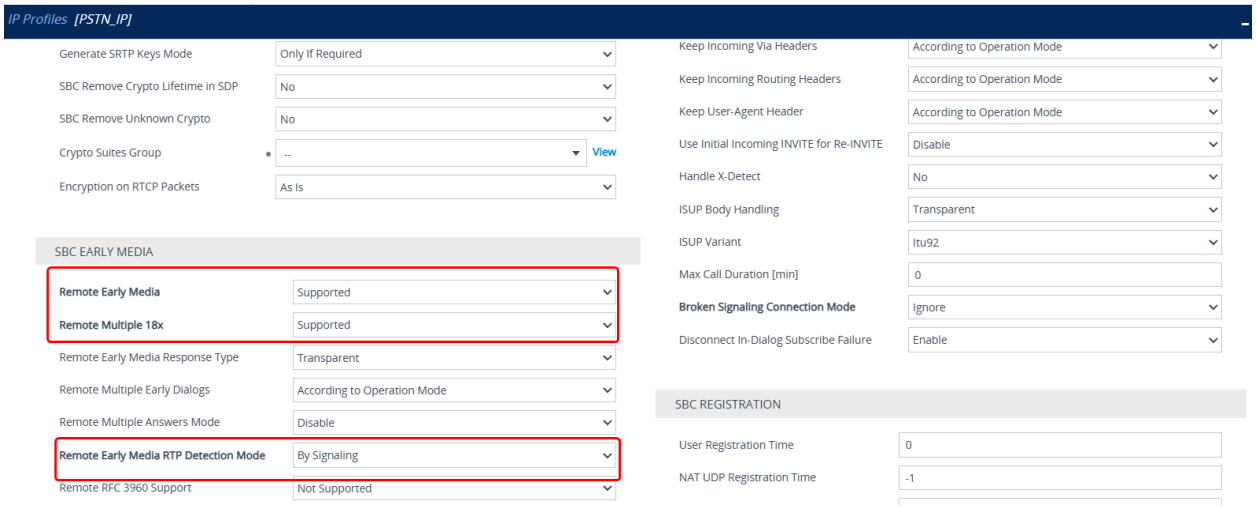

Figure 43: IP Profile Configurations of PSTN (Cont.)

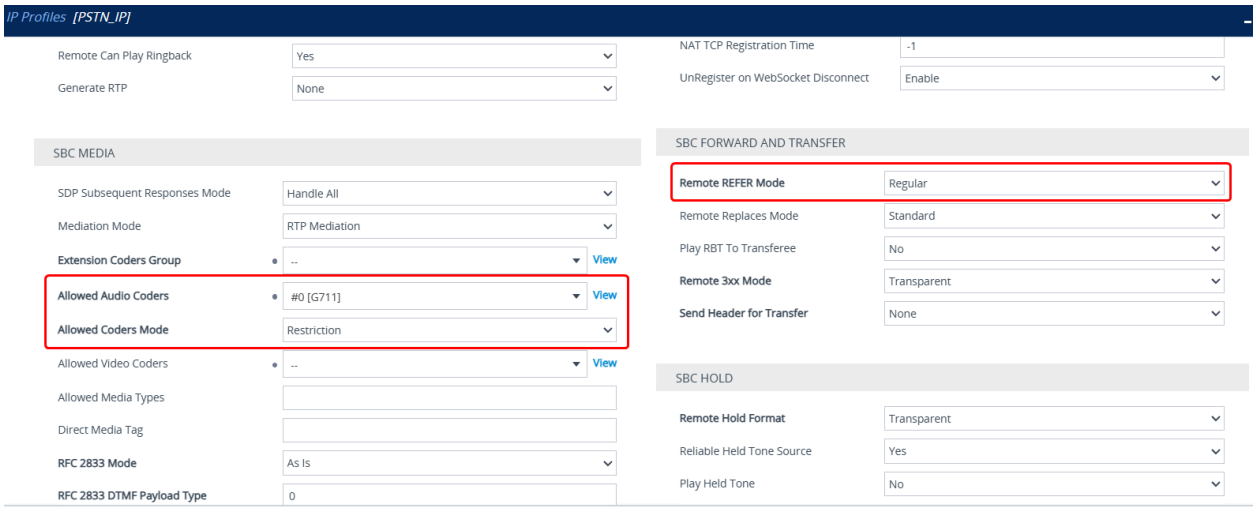

Figure 44: IP Profile Configurations of PSTN (Cont.)

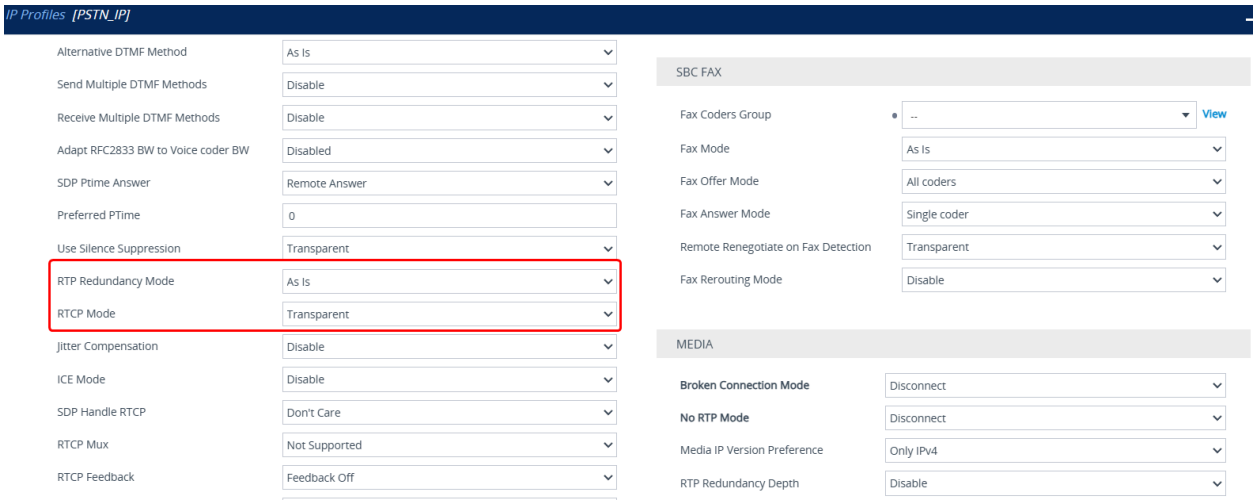

Figure 45: IP Profile Configurations of PSTN (Cont.)

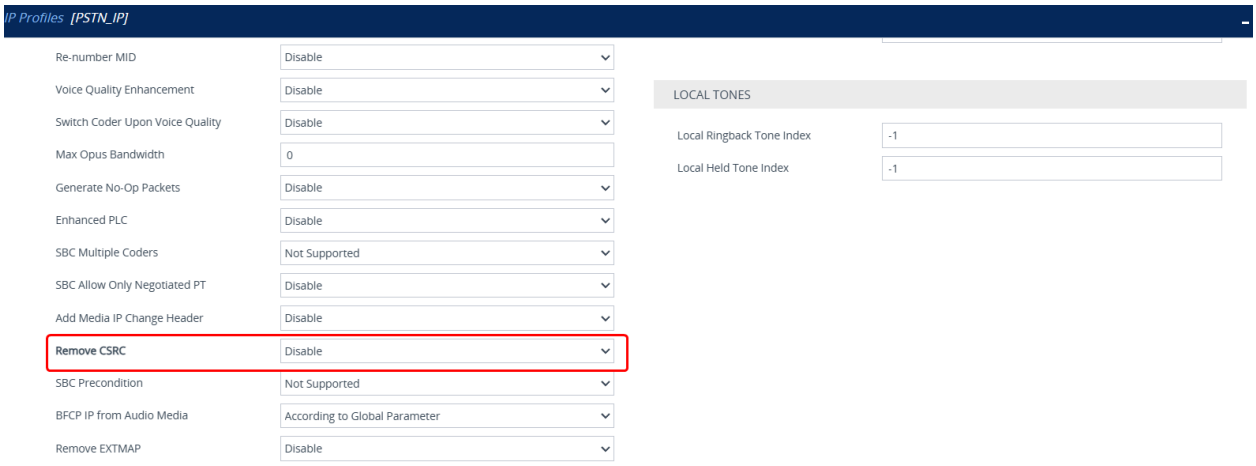

Figure 46: IP Profile Configurations of PSTN (Cont.)

Google CCAI:

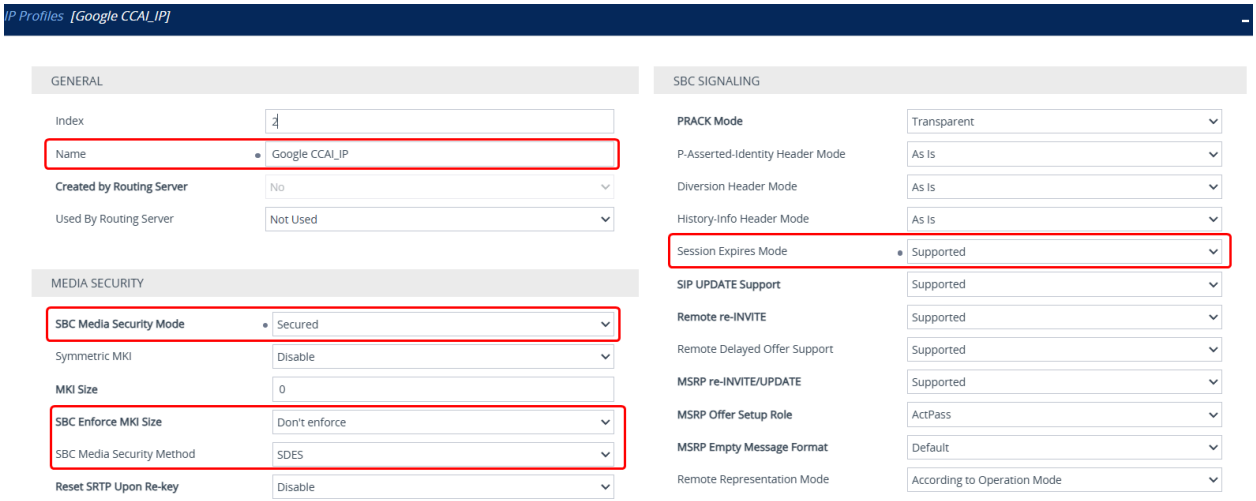

Figure 47: IP Profile Configurations of Google CCAI

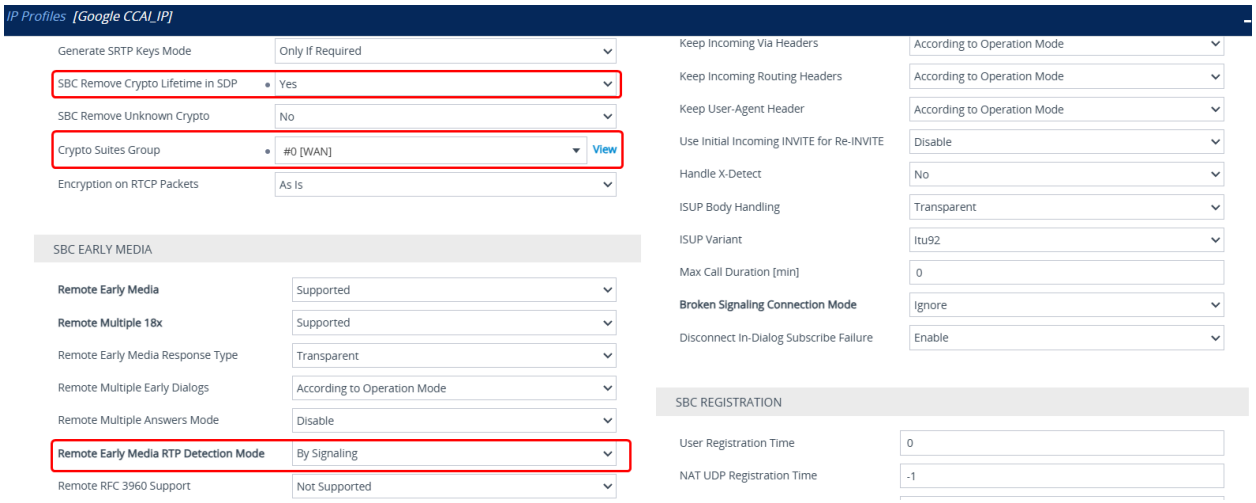

Figure 48: IP Profile Configurations of Google CCAI (Cont.)

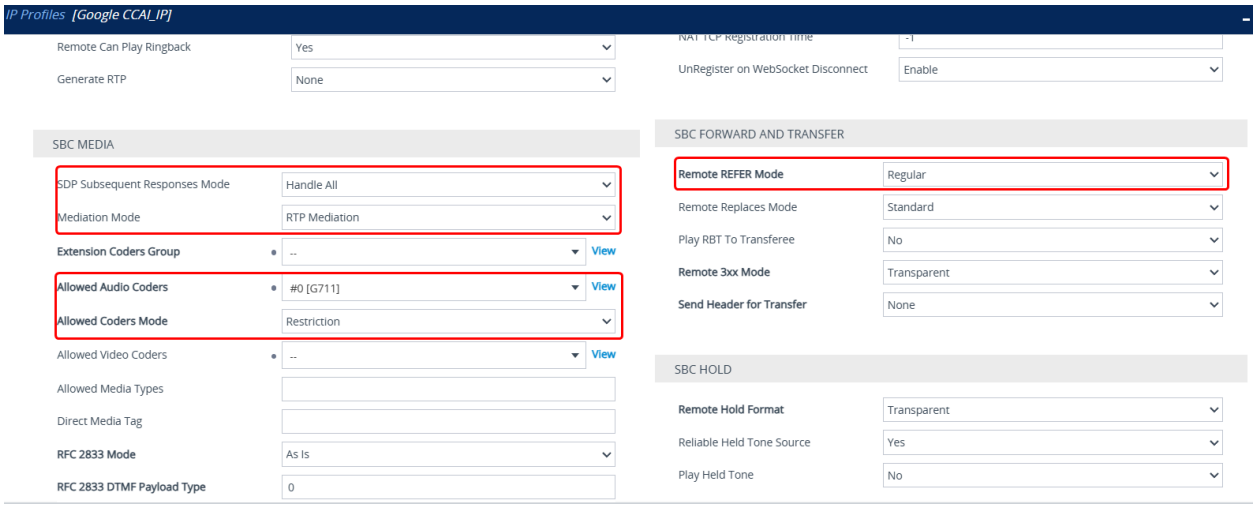

Figure 49: IP Profile Configurations of Google CCAI (Cont.)

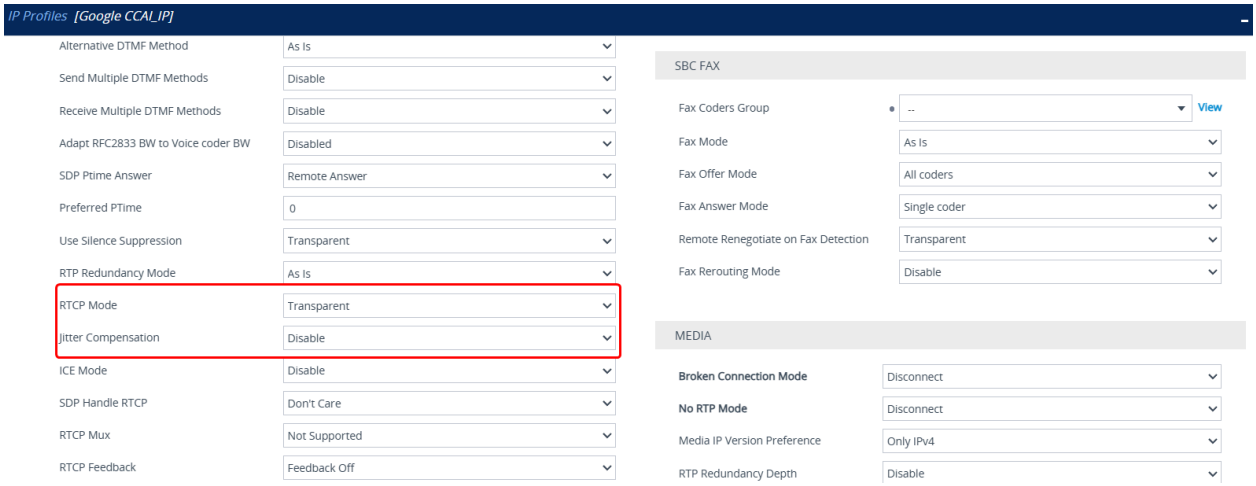

Figure 50: IP Profile Configurations of Google CCAI (Cont.)

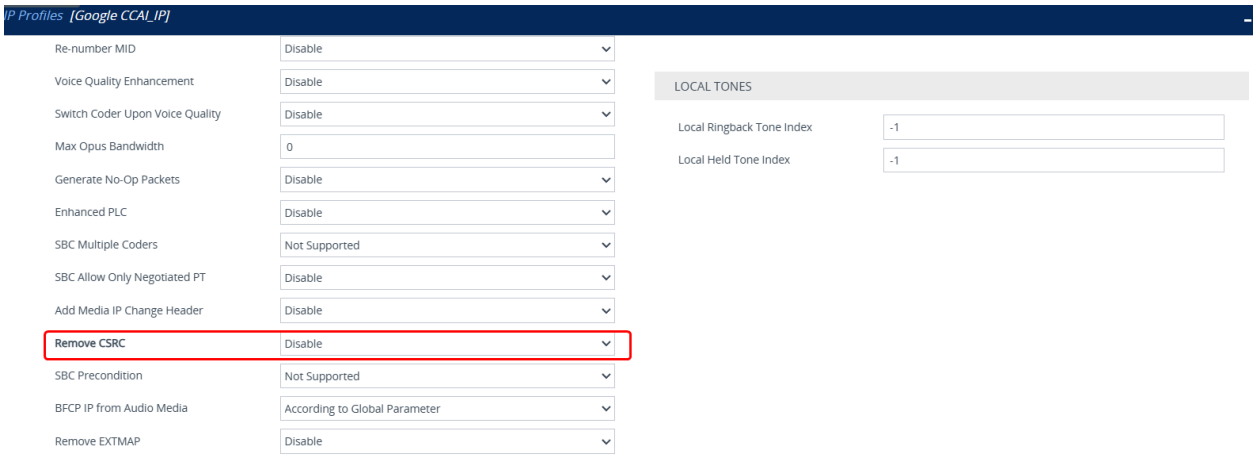

Figure 51: IP Profile Configurations of Google CCAI (Cont.)

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.

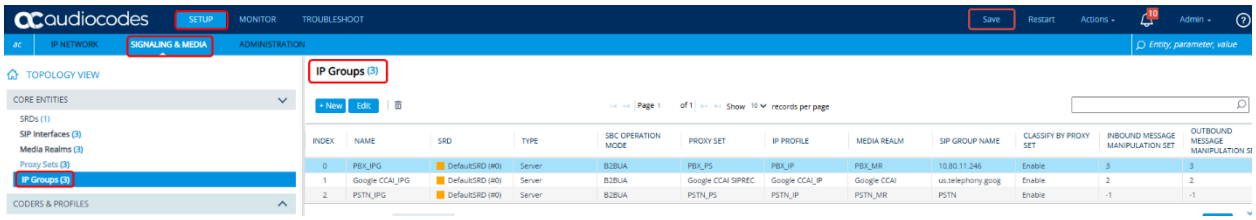

Figure 52: IP Group Configurations

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

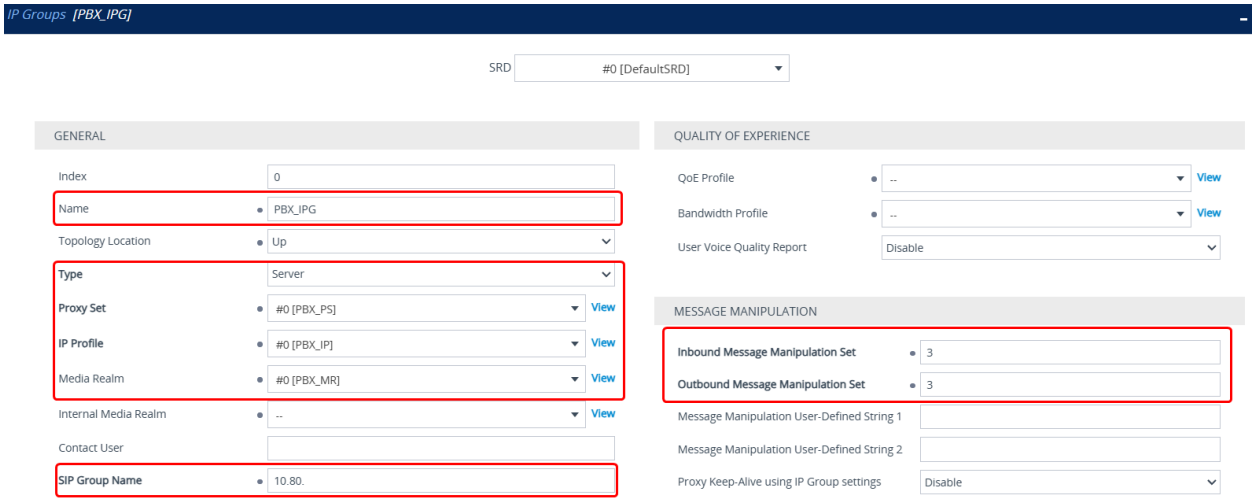

Figure 53: IP Group Configurations of PBX

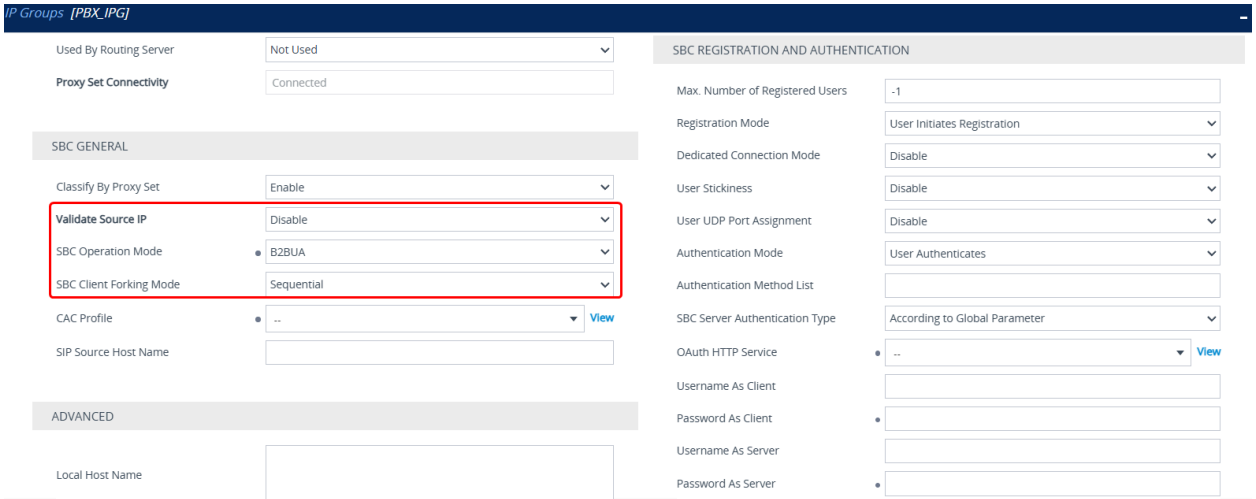

Figure 54: IP Group Configurations of PBX (Cont.)

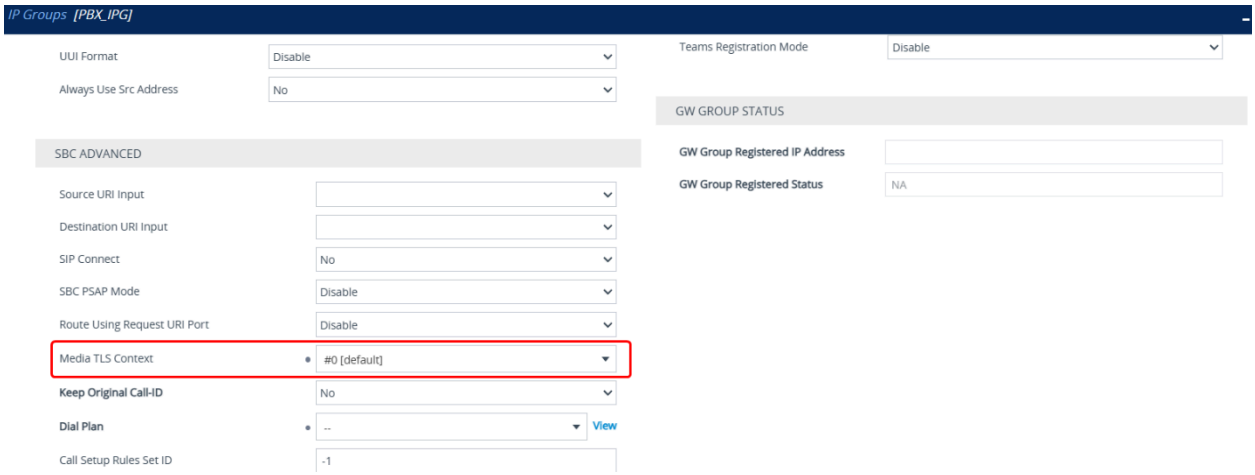

Figure 55: IP Group Configurations of PBX (Cont.)

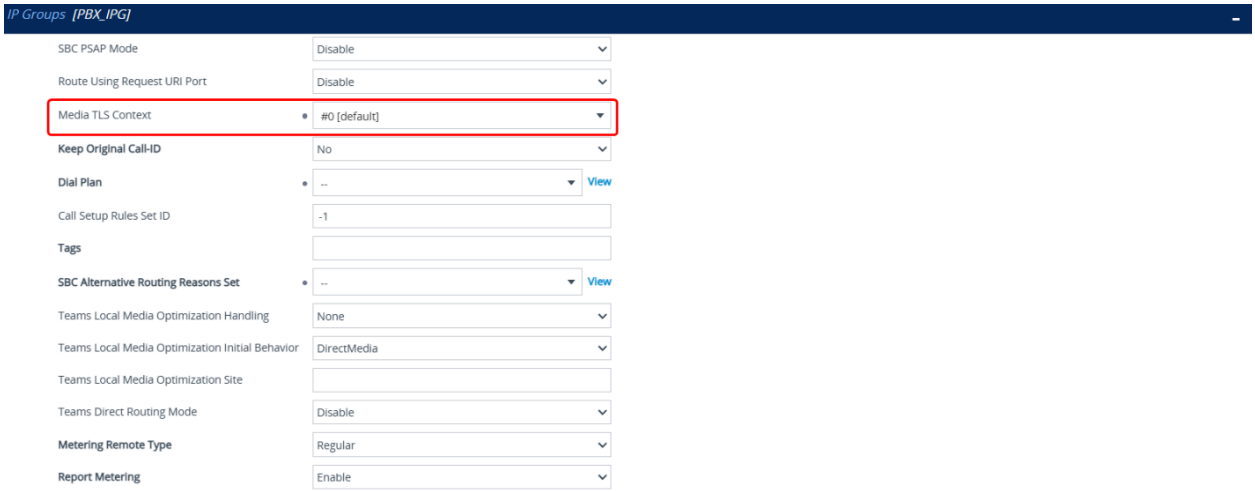

Figure 56: IP Group configurations of PBX Cont.

- 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

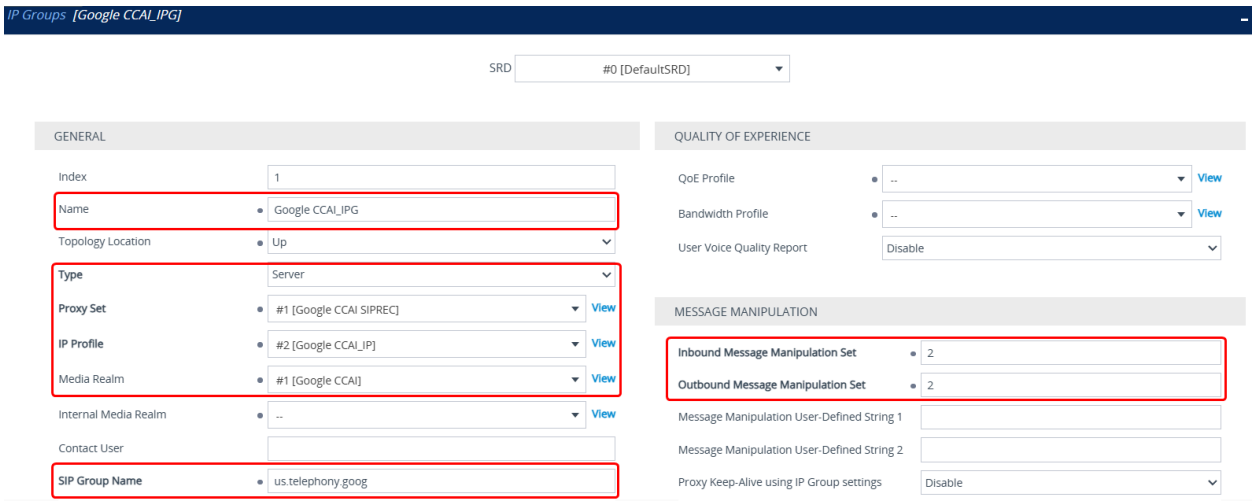

Figure 57: IP Group configurations of Google CCAI

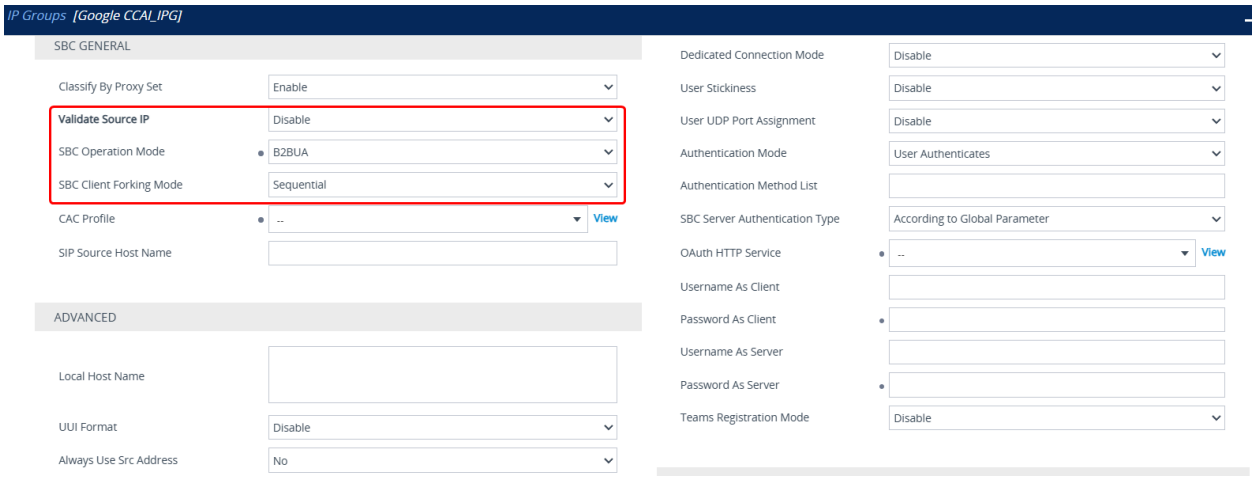

Figure 58: IP Group Configurations of Google CCAI (Cont.)

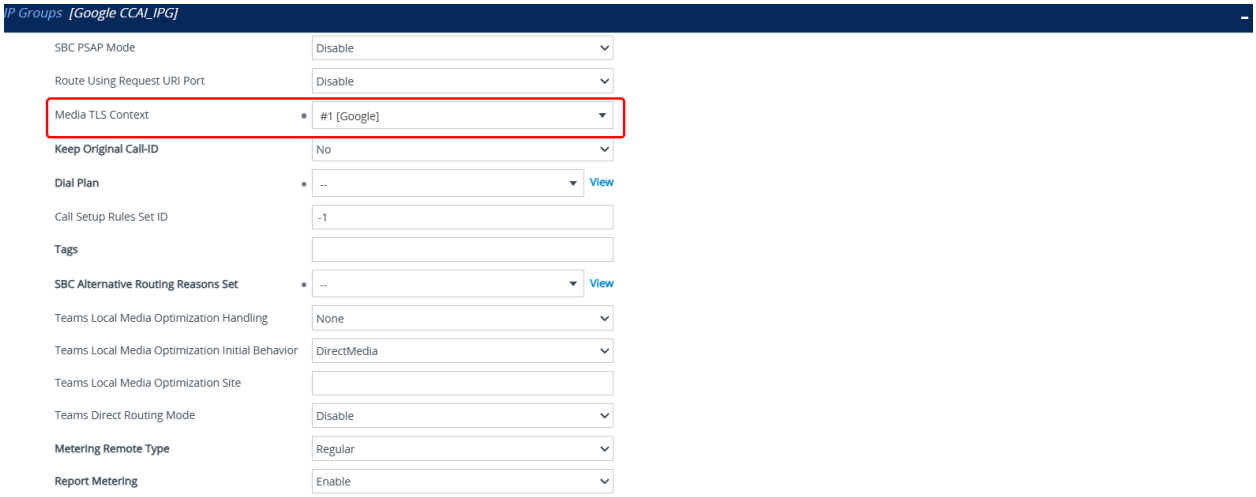

Figure 59: IP Group Configurations of Google CCAI (Cont.)

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

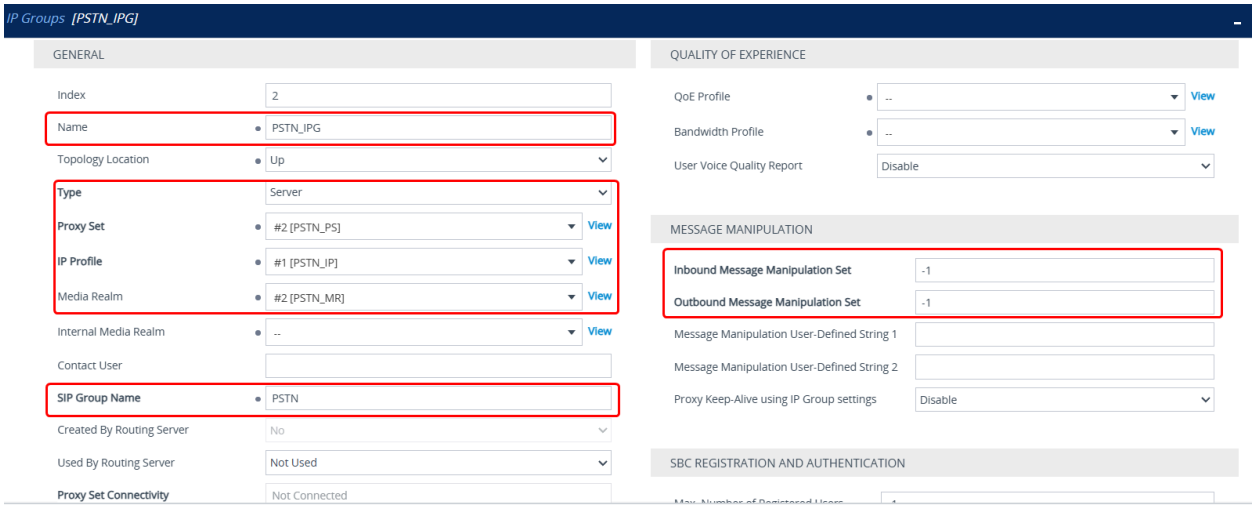

Figure 60: IP Group Configurations of PSTN

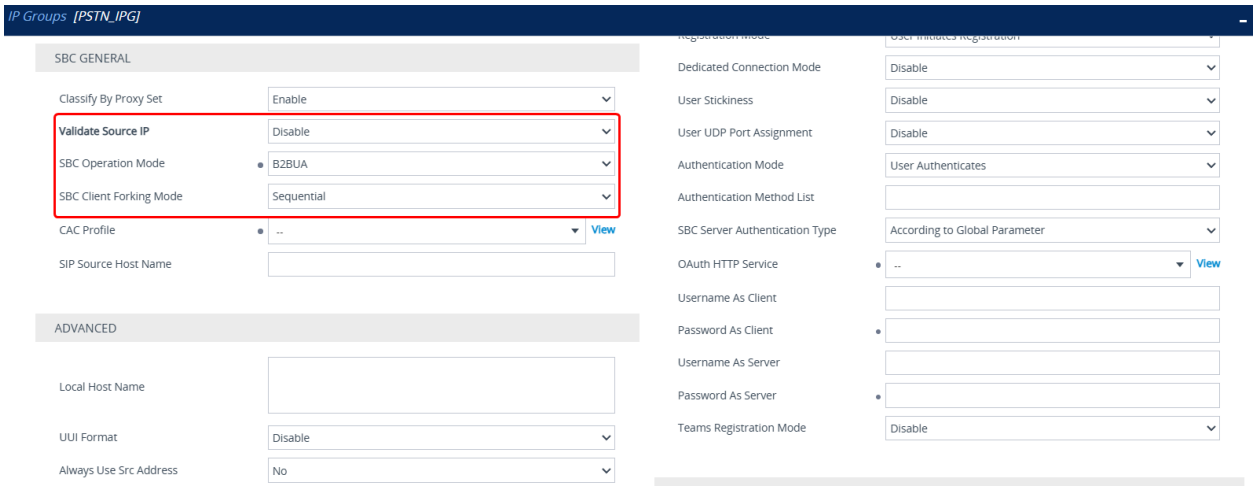

Figure 61: IP Group Configurations of PSTN (Cont.)

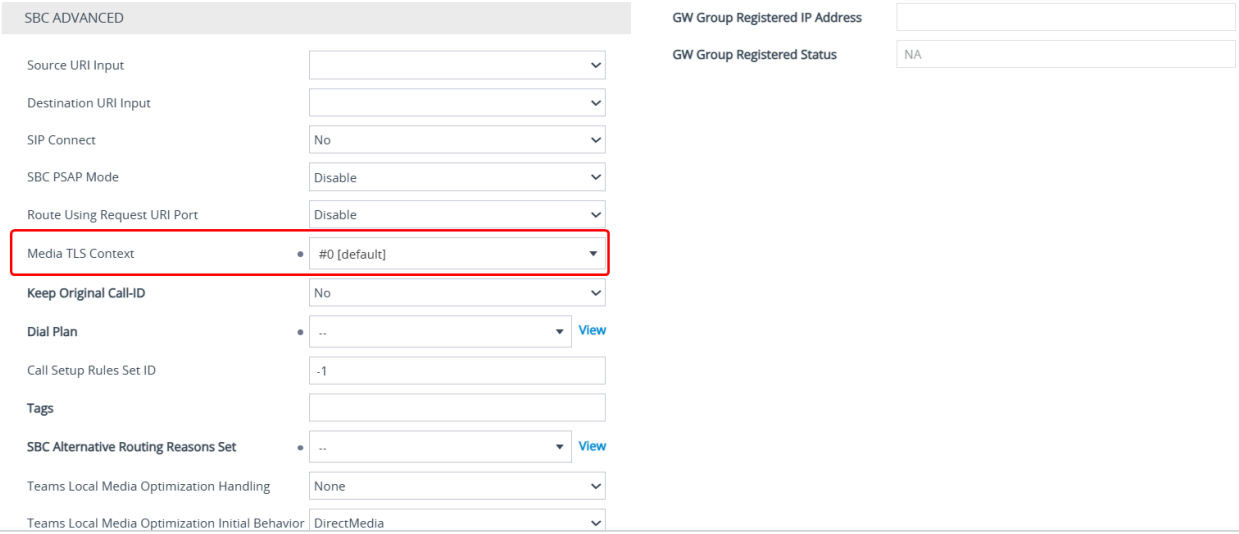

Figure 62: IP Group Configurations of PSTN (Cont.)

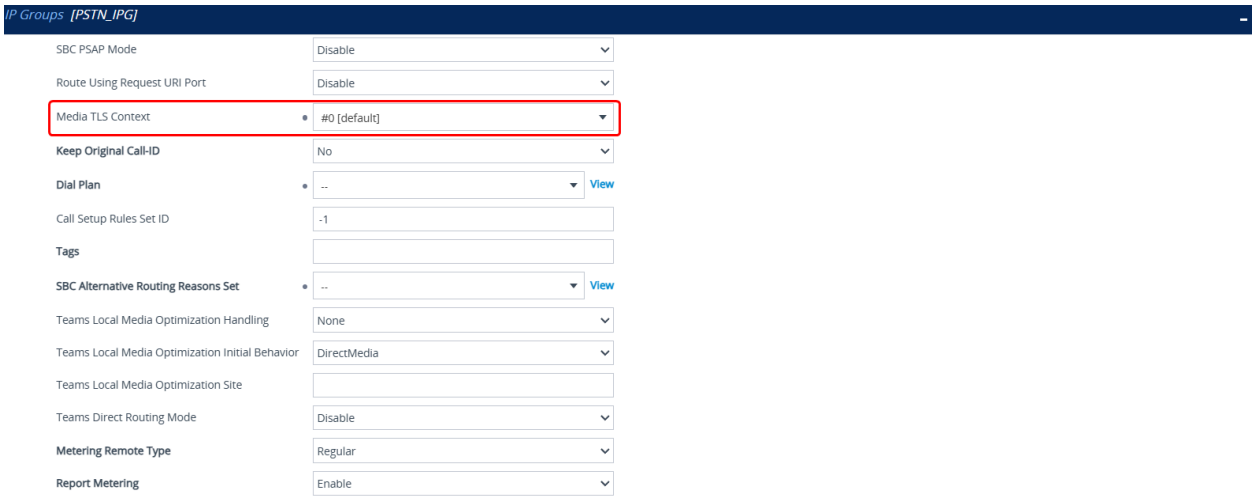

Figure 63: IP Group Configurations of PSTN (Cont.)

6.4.9 Configure Media Security

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

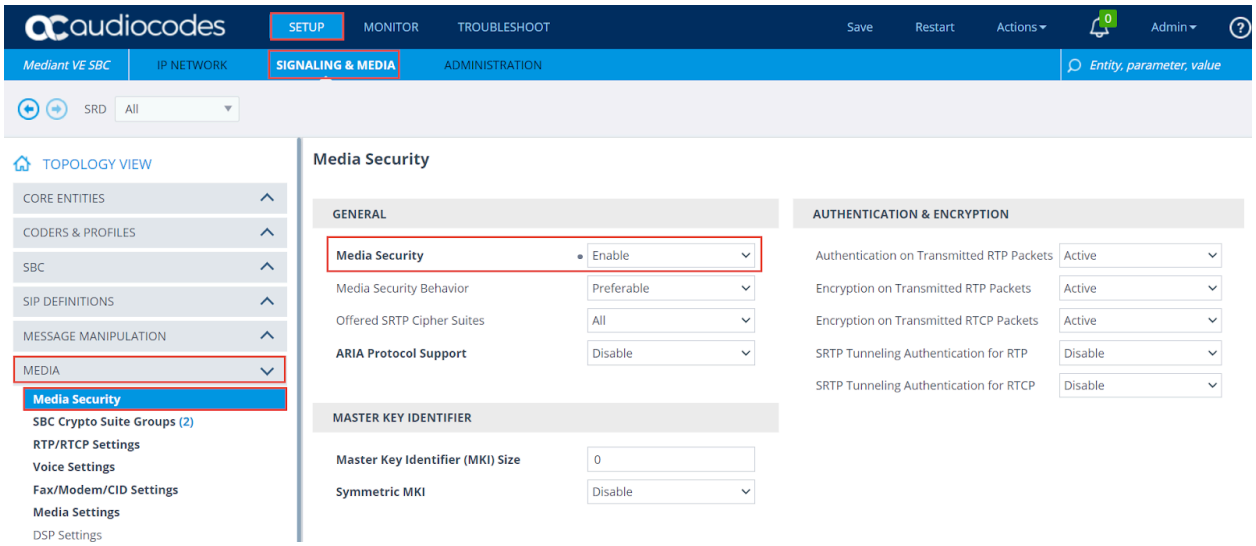

Figure 64: Media Security Configuration.

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.

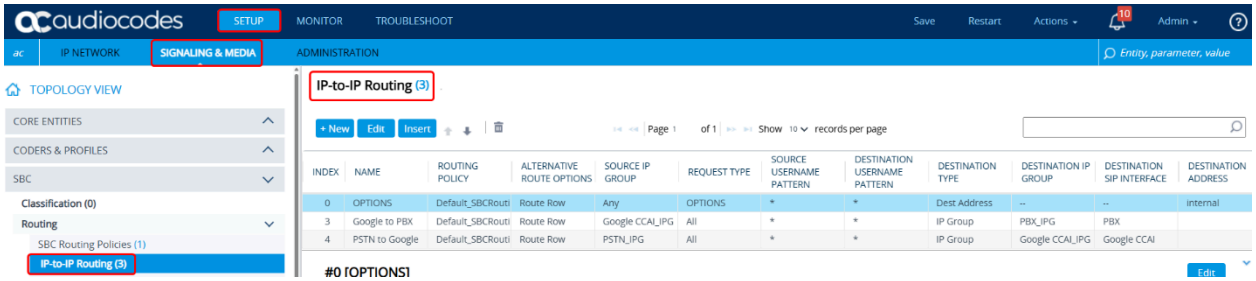

Figure 65: IP to IP Routing

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.

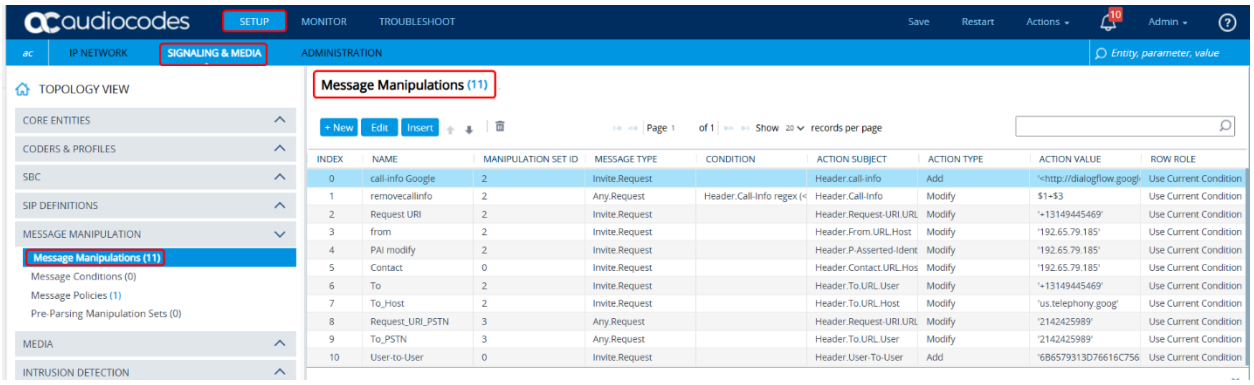

Figure 66: Message Manipulation towards Google CCAI

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

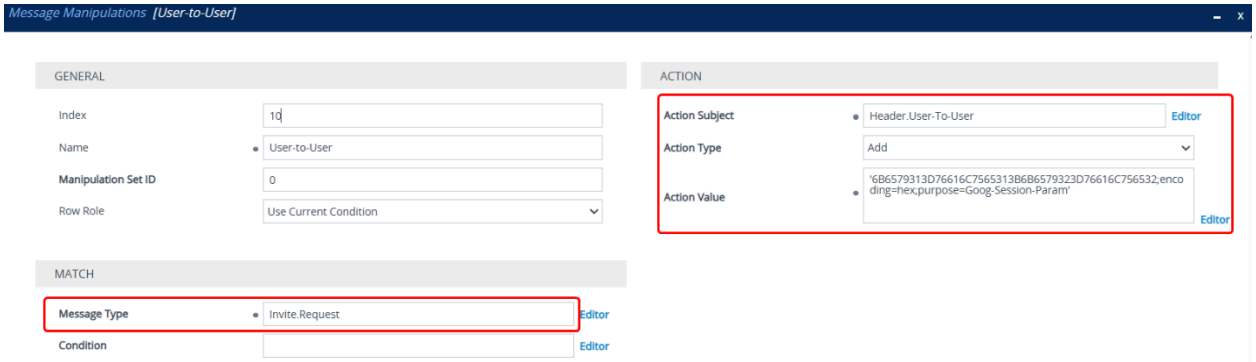

Figure 67: UUI Header Manipulation towards Google CCAI

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

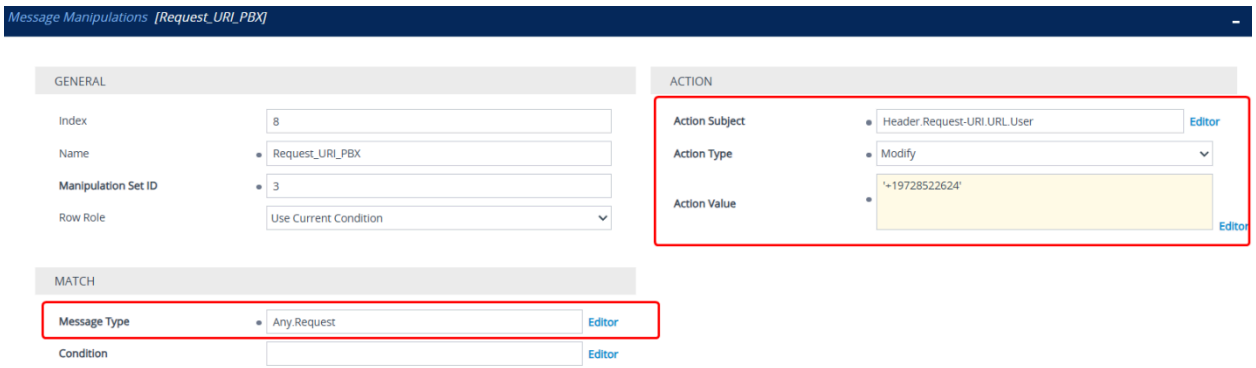

Figure 68: Message Manipulation: Request URI header to PBX

- To Header

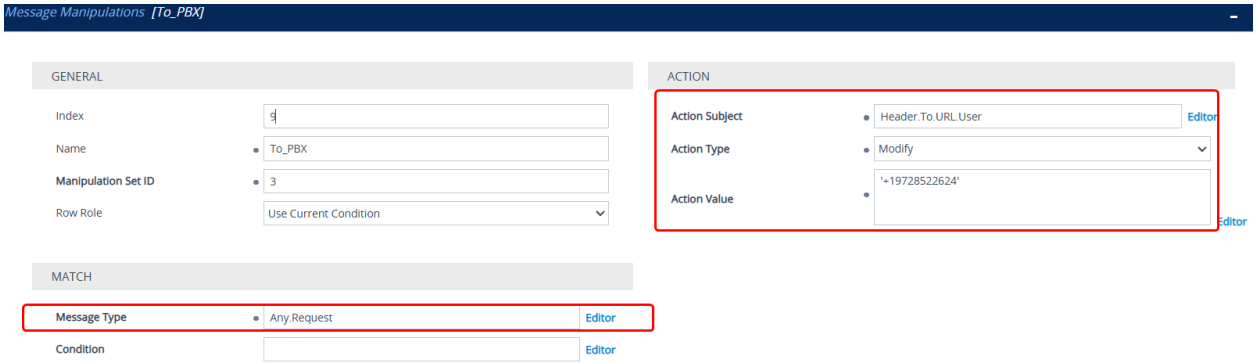

Figure 69: Message Manipulation: To header to PBX

7 AudioCodes VE SBC Running configuration

Attached is the AudioCodes VE SBC running configuration.

BOARD_SN63402107173605.ini