# Configuration Guide for Google CCAI Call Recording Using AudioCodes VE SBC 7.60A.100.022

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# 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 Call Recording** 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 Call Recording with AudioCodes Virtual Edition Session Border Controller 7.60A.100.022.

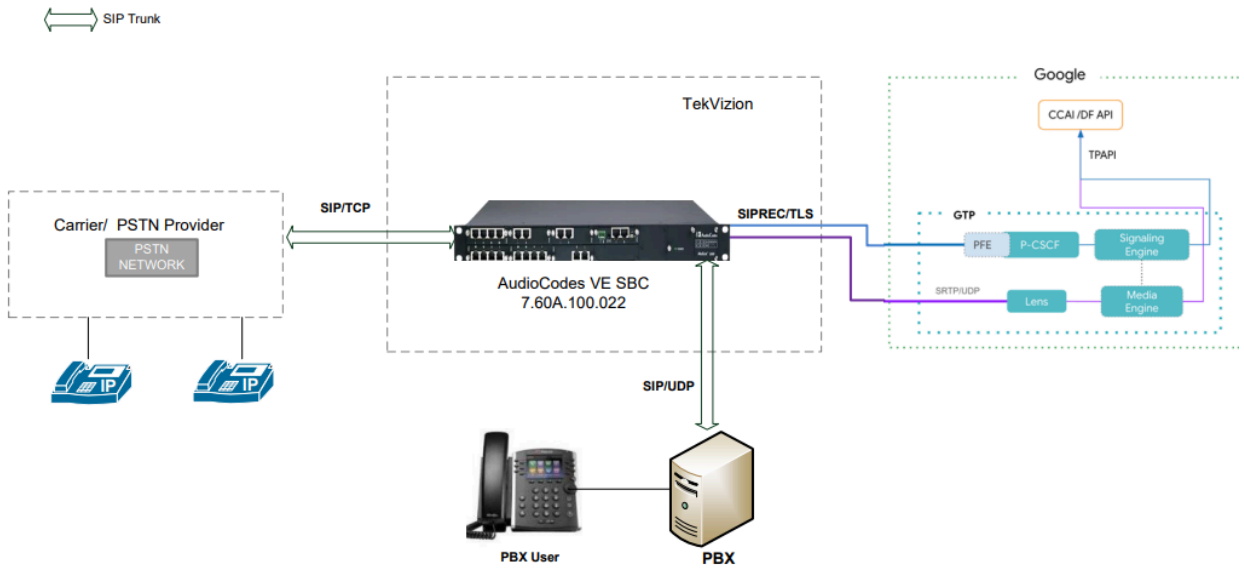


**Figure 1: SIP TrunkLab Reference Network**

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 Versions**

| Google CCAI - Verified version | |
|---|---|
| AudioCodes Virtual SBC | 7.60A.100.022 |
| AudioCodes Virtual SBC | 7.40A.500.786 |

# 6 Features

## 6.1 Features Tested for Google CCAI Call Recording

- Basic Inbound calls
- Call Hold and Resume
- Call Transfer (Blind and Consultative transfer)
- Conference

## 6.2 Features Not Tested for Google CCAI Call Recording

- None

## 6.3 Caveats and Limitations

| | |
|---|---|
| DTLS | DTLS towards Google CCAI is not tested |

# 7 Configuration

## 7.1 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 7.4.1 |
| Step 2 | Configure TLS Context for Google CCAI | Section 7.4.2 |
| Step 3 | Configure Media Realms | Section 7.4.3 |
| Step 4 | Configure SIP Signaling Interfaces | Section 7.4.4 |
| Step 5 | Configure Proxy Sets and Proxy Address | Section 7.4.5 |
| Step 6 | Configure Coders | Section 7.4.6 |
| Step 7 | Configure IP Profiles | Section 7.4.7 |
| Step 8 | Configure IP Groups | Section 7.4.8 |
| Step 9 | Configure SRTP | Section 7.4.9 |
| Step 10 | Configure IP to IP Call Routing | Section 7.4.10 |
| Step 11 | Configure SIP Recording | Section 7.4.11 |
| Step 12 | Configure Message Manipulation Rules | Section 7.4.12 |
| Step 13 | Configure Message Manipulation Rules (Participation label) | Section 7.4.13 |

## 7.2 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 |

## 7.3 Google CCAI API Configuration

Below link can be referred to configure Google CCAI call recording.

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

## 7.4 AudioCodes VE SBC Configuration

The following is the example configuration of AudioCodes VE SBC for Google CCAI Call Recording.

### 7.4.1 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.

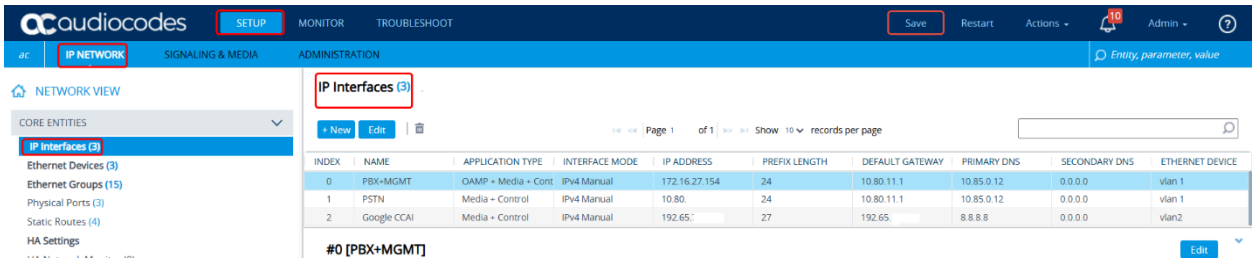


**Figure 2: IP Interfaces**

#### 7.4.1.1 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.

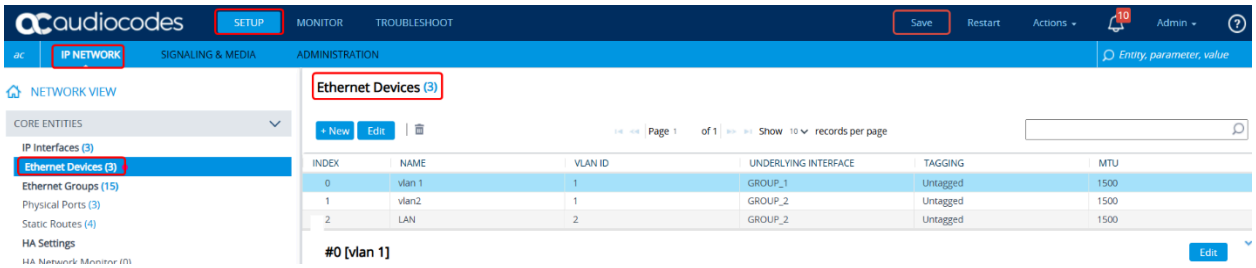


**Figure 3: VLAN Configuration**

#### 7.4.1.2 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**

### 7.4.2 Configure TLS Context for Google CCAI

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

#### 7.4.2.1 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.

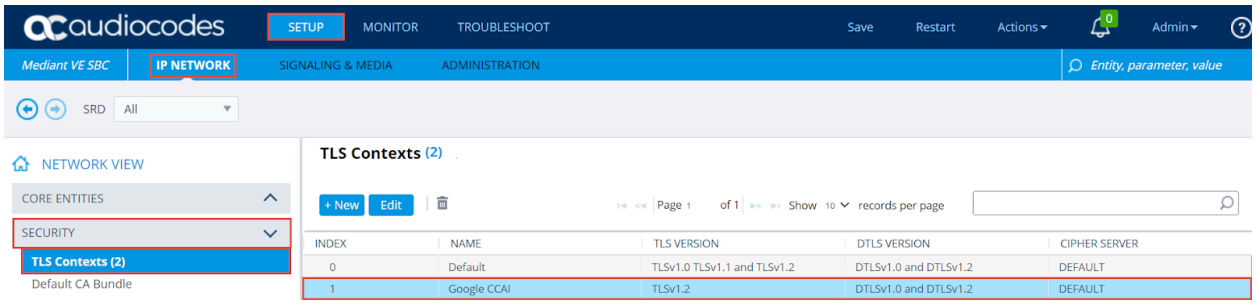


**Figure 5: TLS Context for Google CCAI**

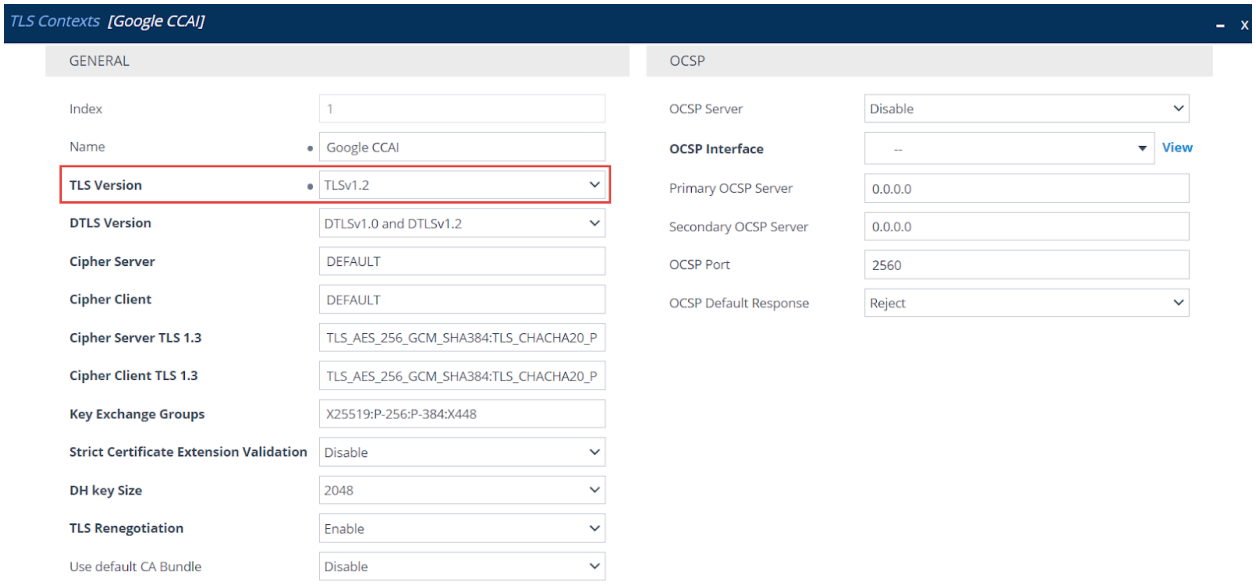


**Figure 6: TLS Context for Google CCAI (Cont.)**

### 7.4.2.2 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.

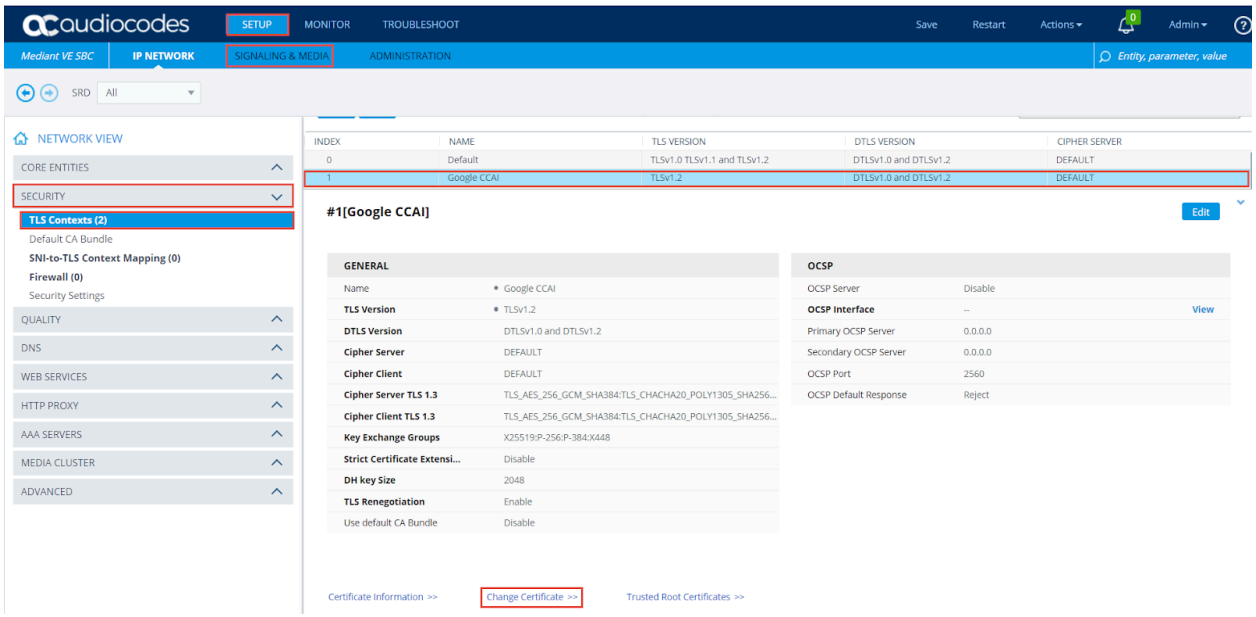


**Figure 7: Change Certificate for CSR Generation**

- 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.

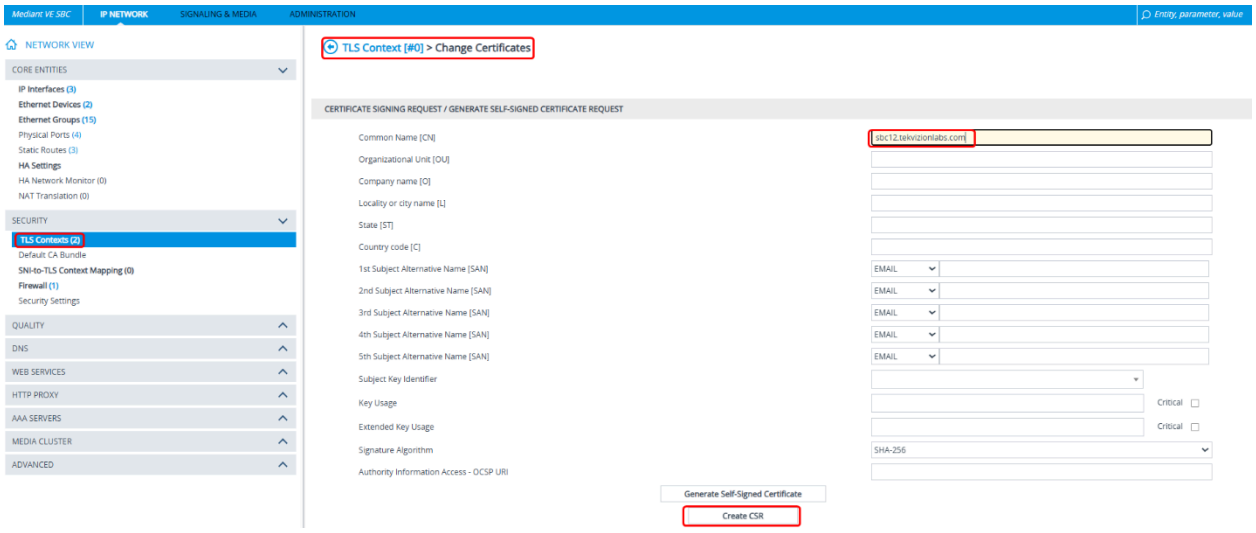


**Figure 8: CSR Generation for Google CCAI TLS Context**

### 7.4.2.3 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.

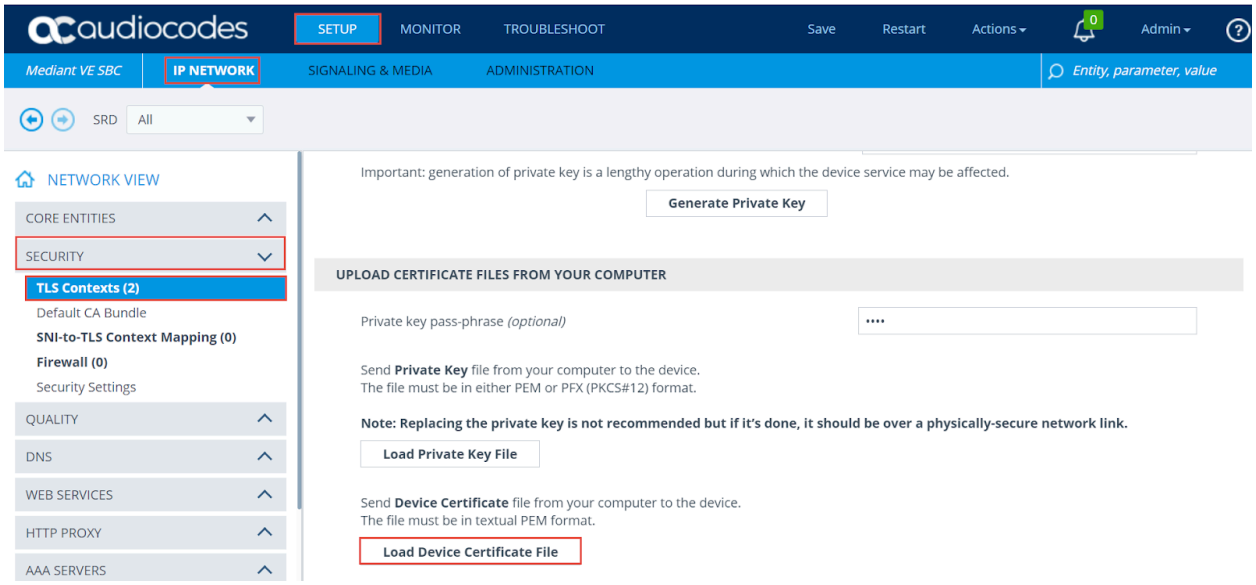


**Figure 9: SBC Certificate Upload**

- 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.

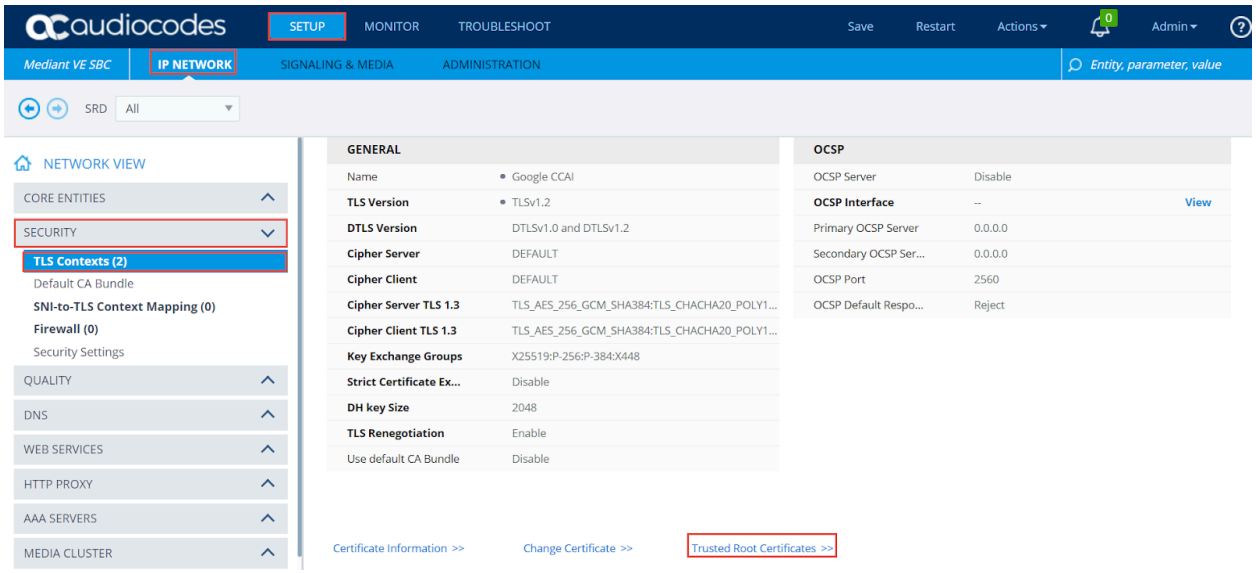


**Figure 10: Trusted Root Certificates Upload**

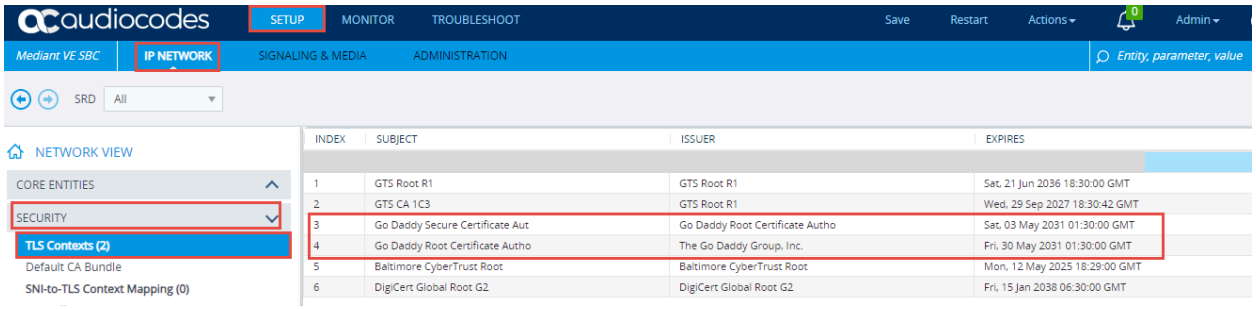


**Figure 11: Trusted Root Certificates Upload (Cont.)**

- 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.

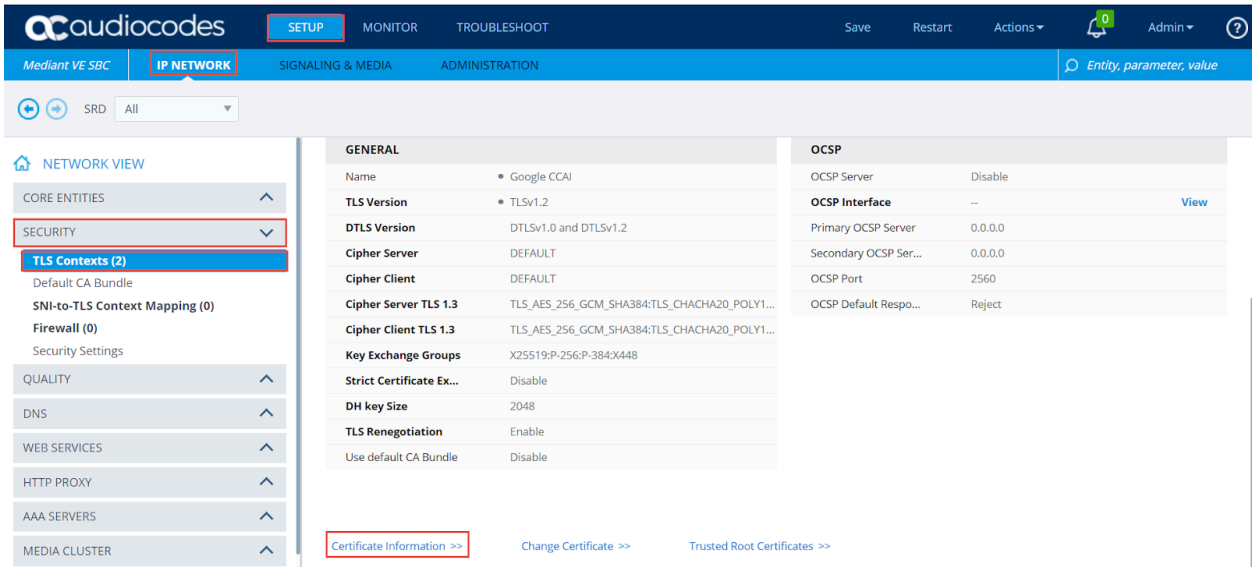


**Figure 12: Certificate Information**

### 7.4.2.4 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.

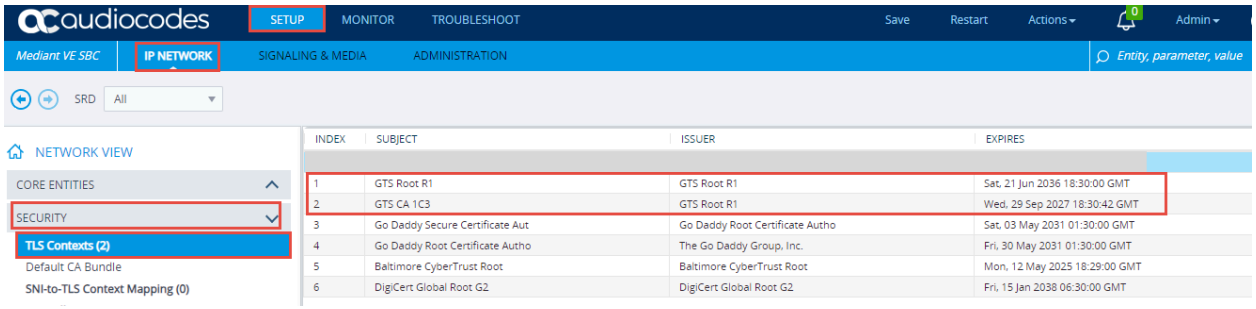


**Figure 13: Google Root Certificates**

### 7.4.3 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.

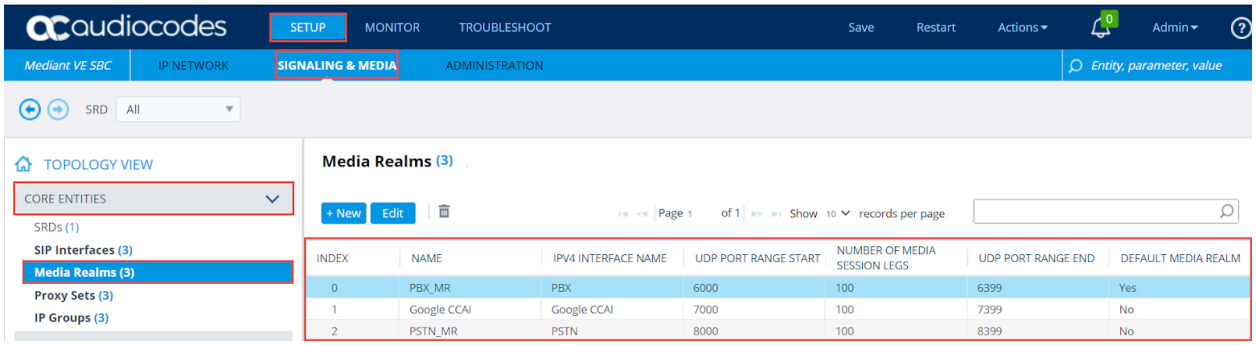


**Figure 14: Configure Media Realms**

### 7.4.4 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.

**PBX:**

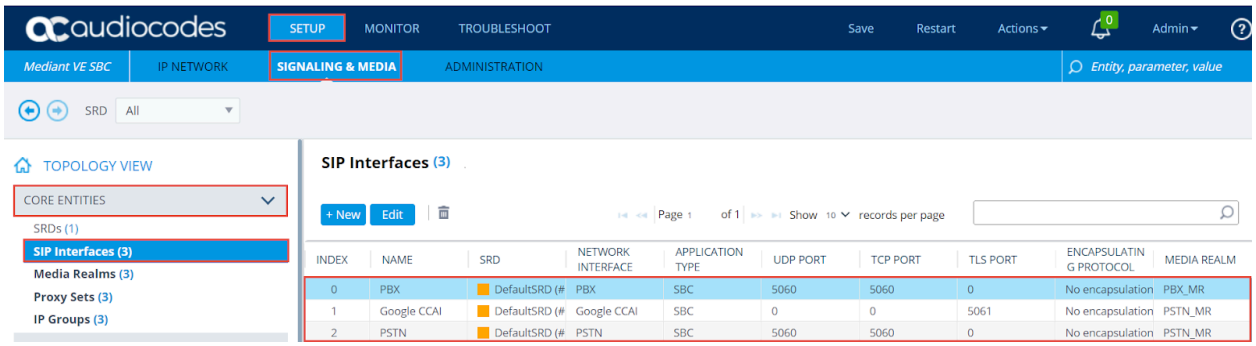


**Figure 15: SIP Signaling Interfaces**

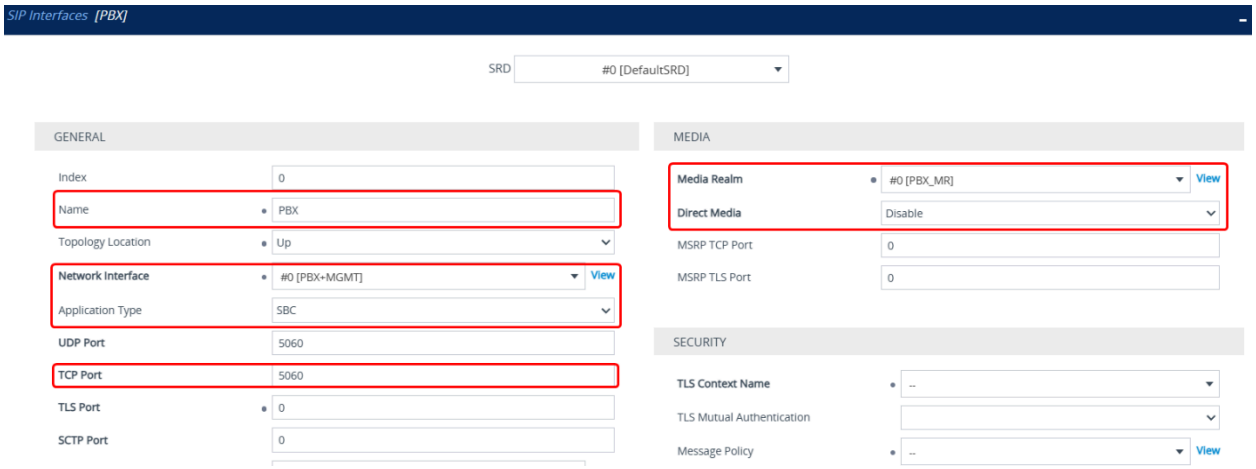


**Figure 16: SIP Signaling Interfaces for PBX**

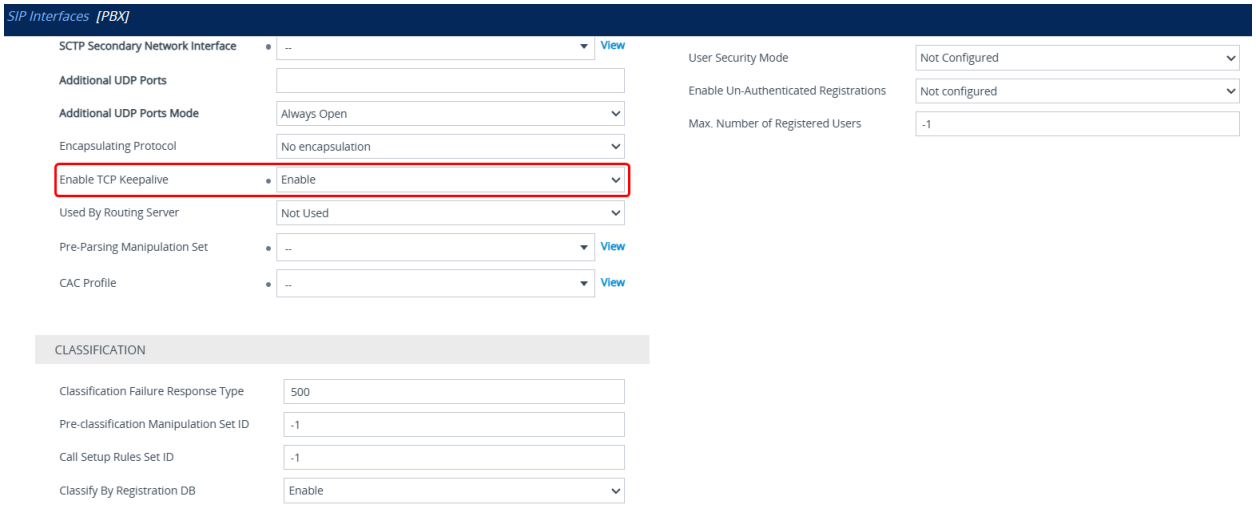


**Figure 17: SIP Signaling Interfaces for PBX (Cont.)**

## Google CCAI:

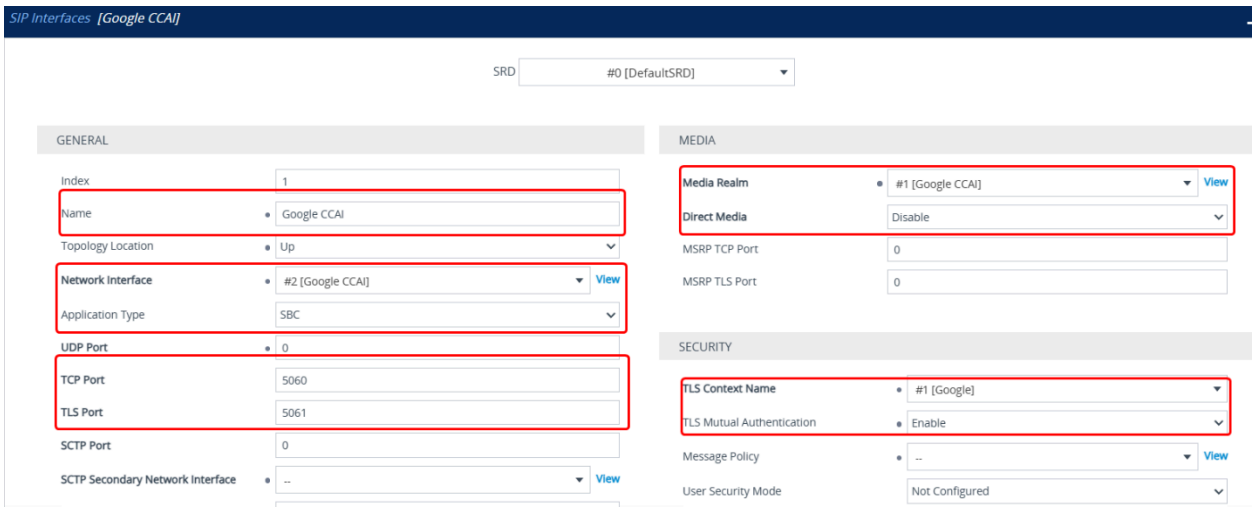


**Figure 18: SIP Signaling Interfaces for Google CCAI**

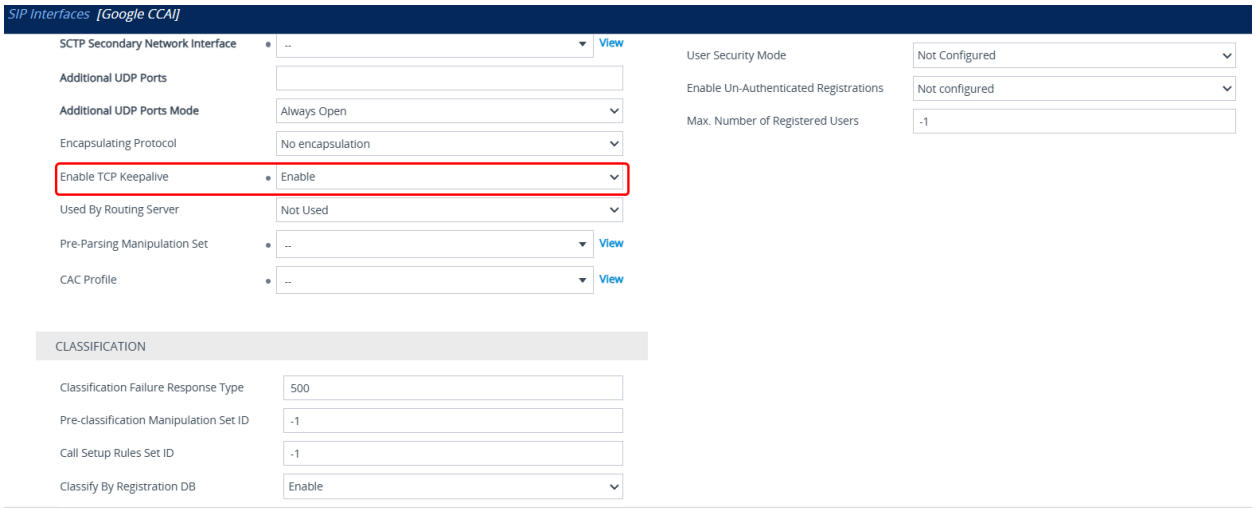


**Figure 19: SIP Signaling Interfaces for Google CCAI (Cont.)**

## PSTN:

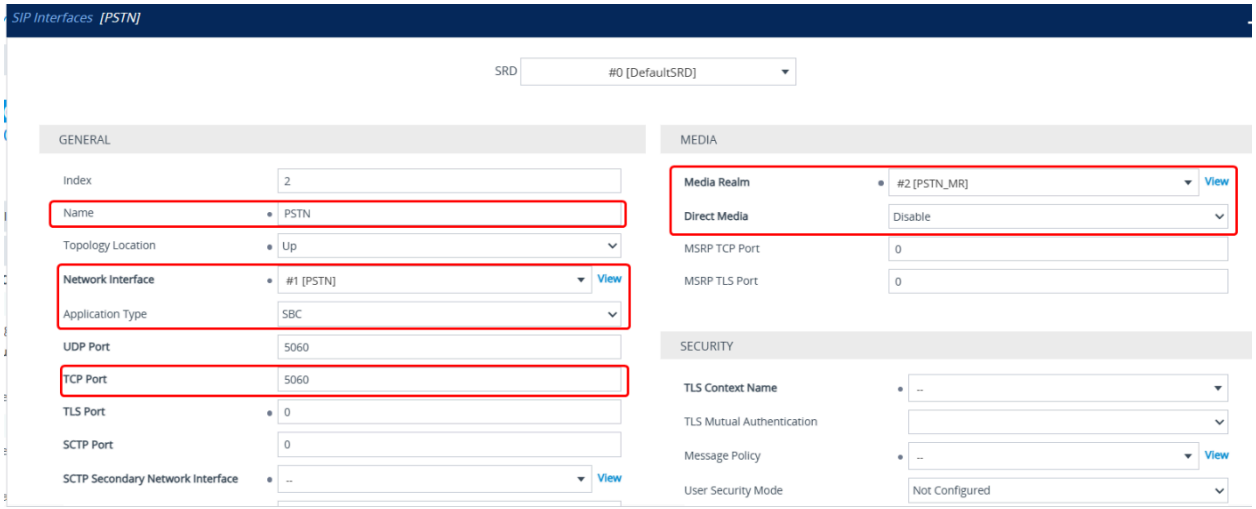


**Figure 20: SIP Signaling Interfaces for PSTN**

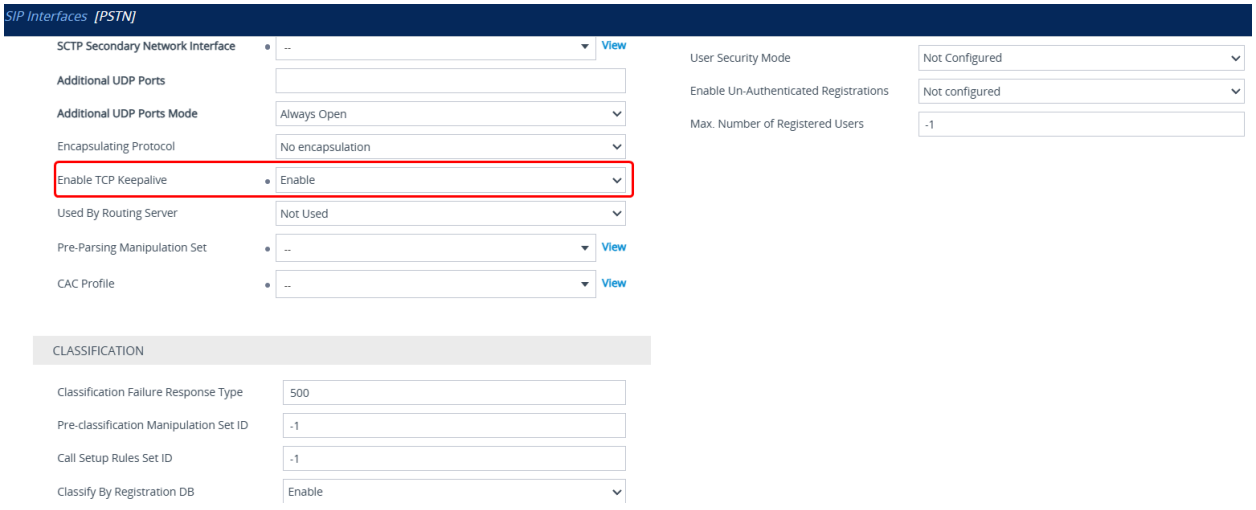


**Figure 21: SIP Signaling Interfaces for PSTN (Cont.)**

### 7.4.5 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.

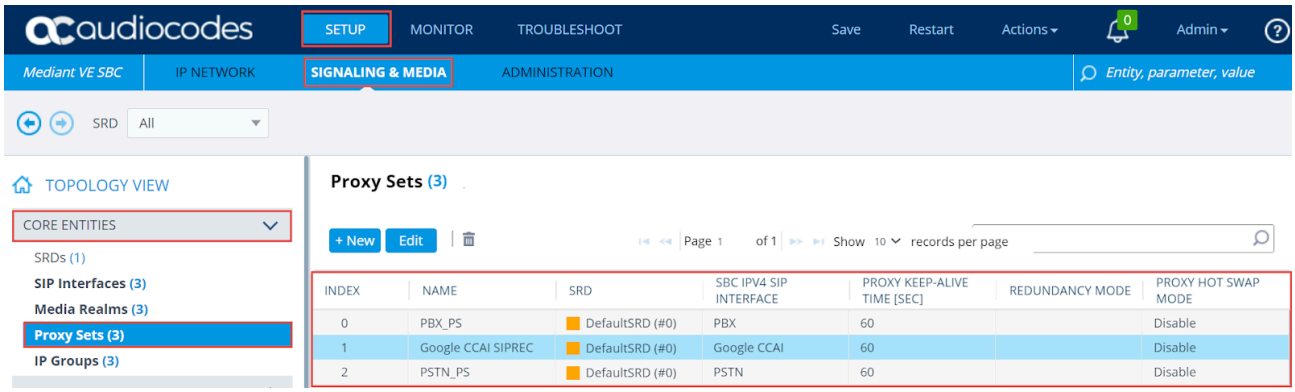


**Figure 22: Configurations of Proxy Sets**

**PBX:**

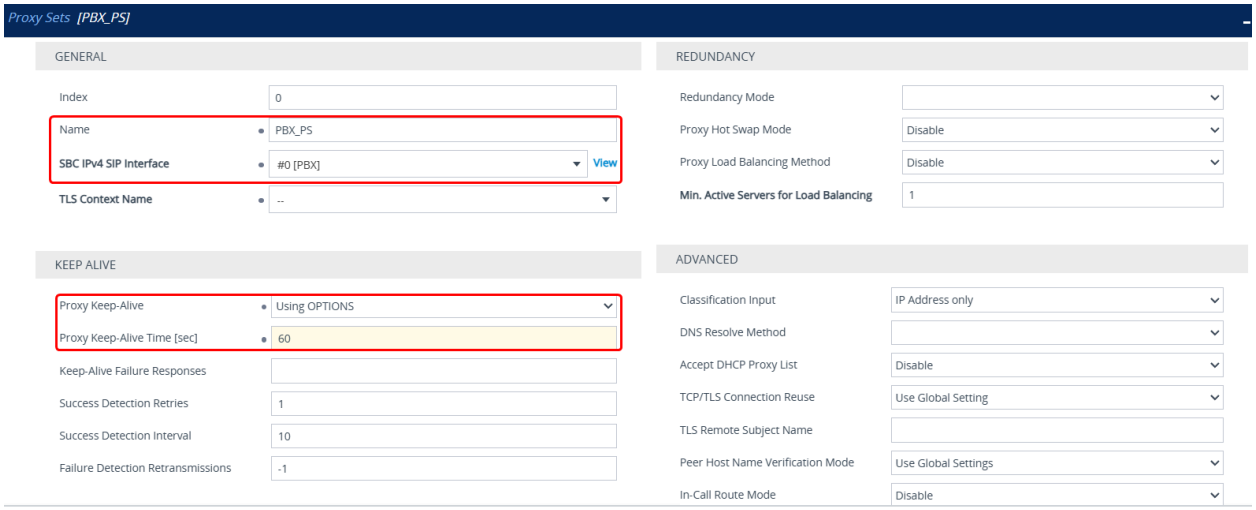


**Figure 23: Proxy Set Configuration of PBX.**

## Google CCAI:

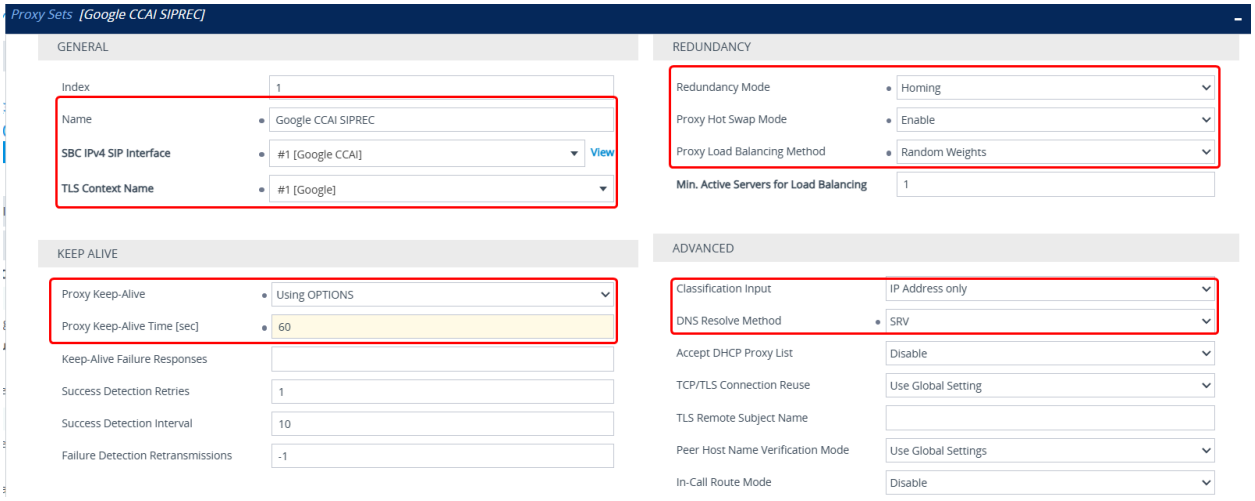


**Figure 24: Proxy Set Configuration of Google CCAI**

## PSTN:

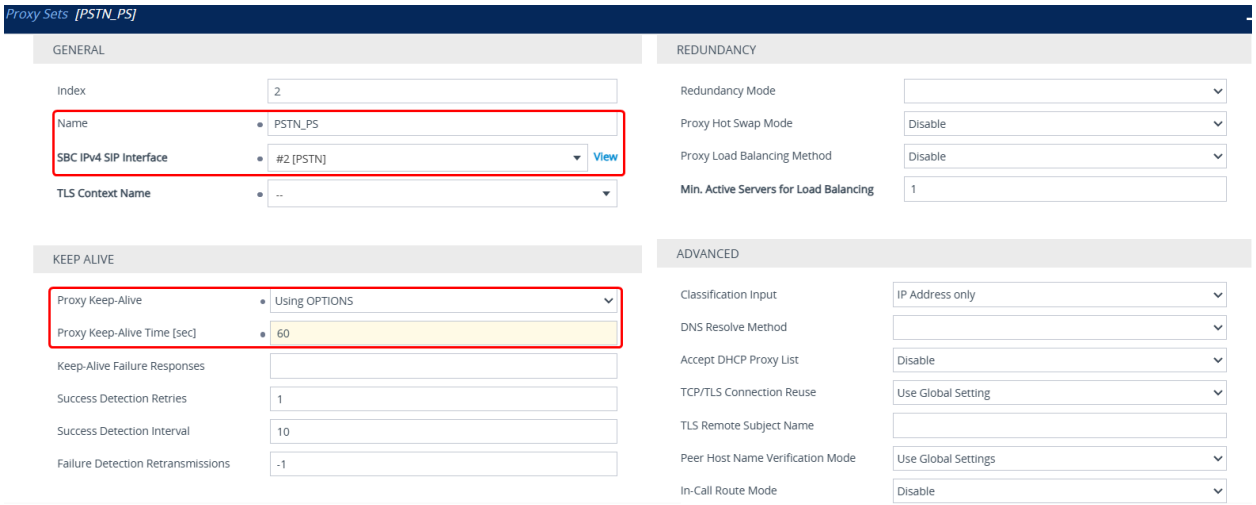


**Figure 25: Proxy Set Configuration of PSTN**

- 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.**

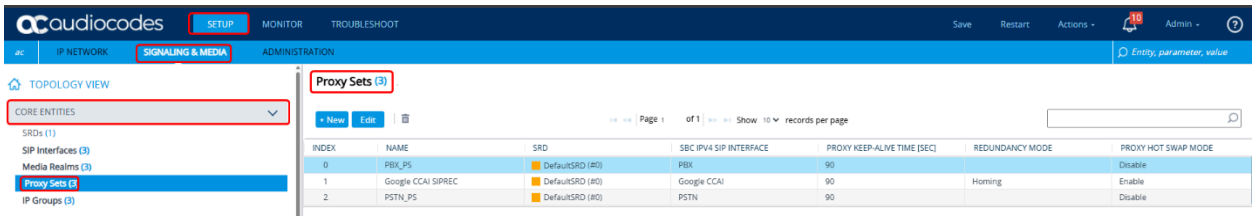


**Figure 26: Proxy Address Configuration of PBX**

- 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.**

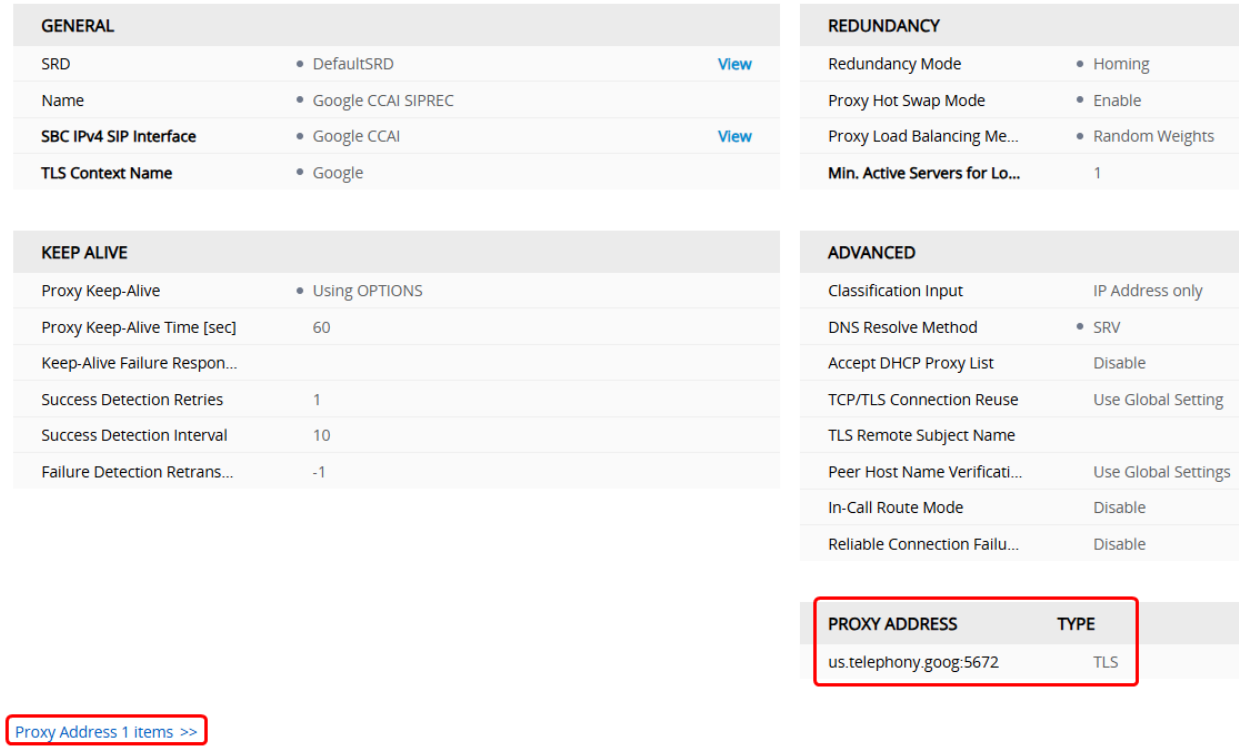


**Figure 28: Proxy Address Configuration of Google CCAI**

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

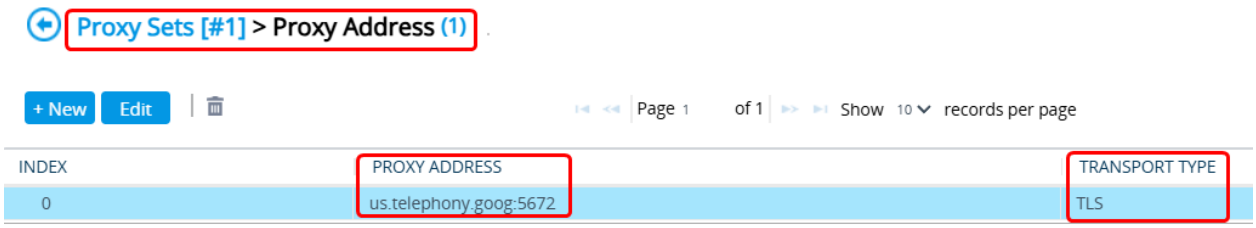


**Figure 29: Proxy Address Configuration of Google CCAI (Cont.)**

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

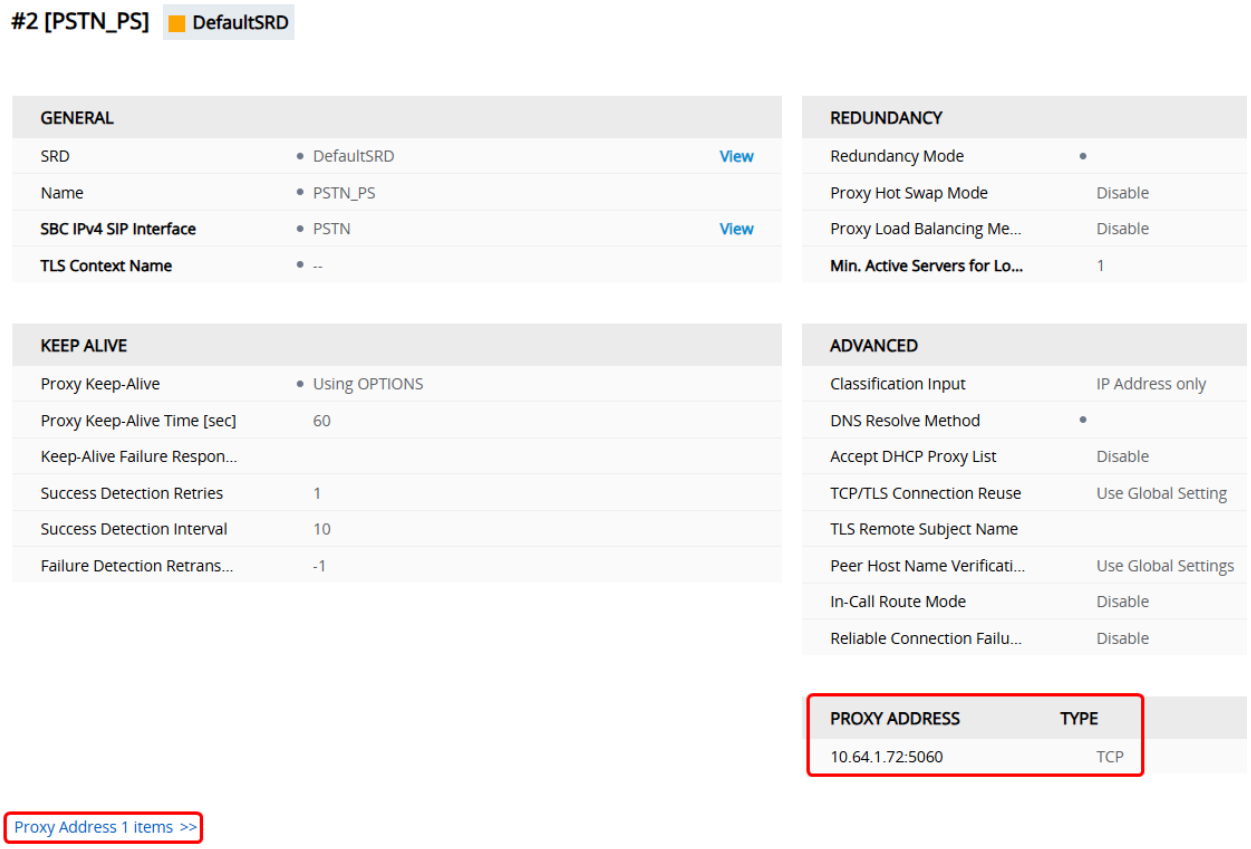


**Figure 30: Proxy Address Configuration of PSTN**

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

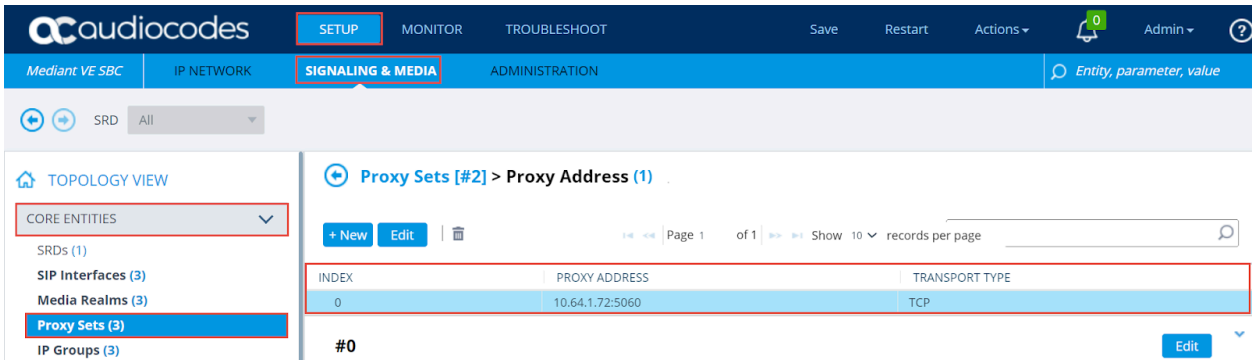


**Figure 31: Proxy Address Configuration of PSTN**

### 7.4.6 Configure Coders

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

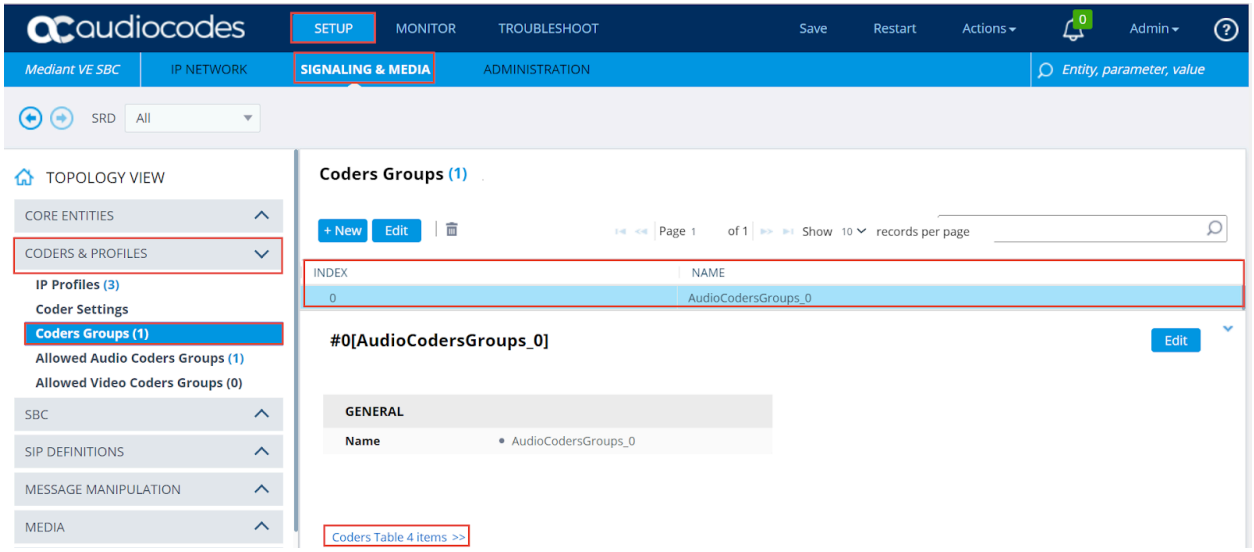


**Figure 32: Coders Configurations**

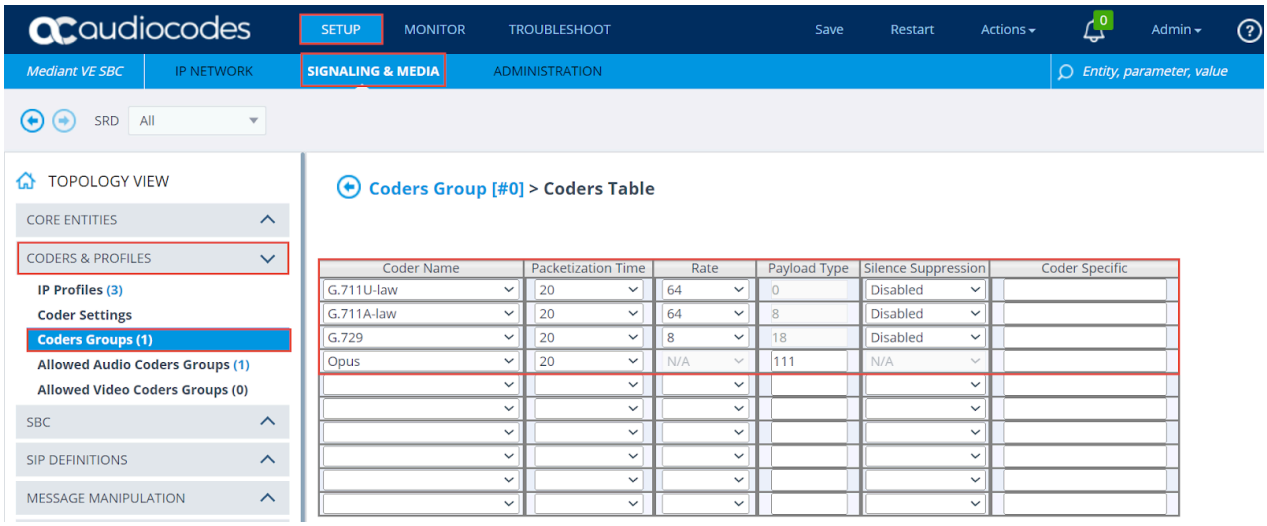


**Figure 33: Coders Configurations (Cont.)**

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.

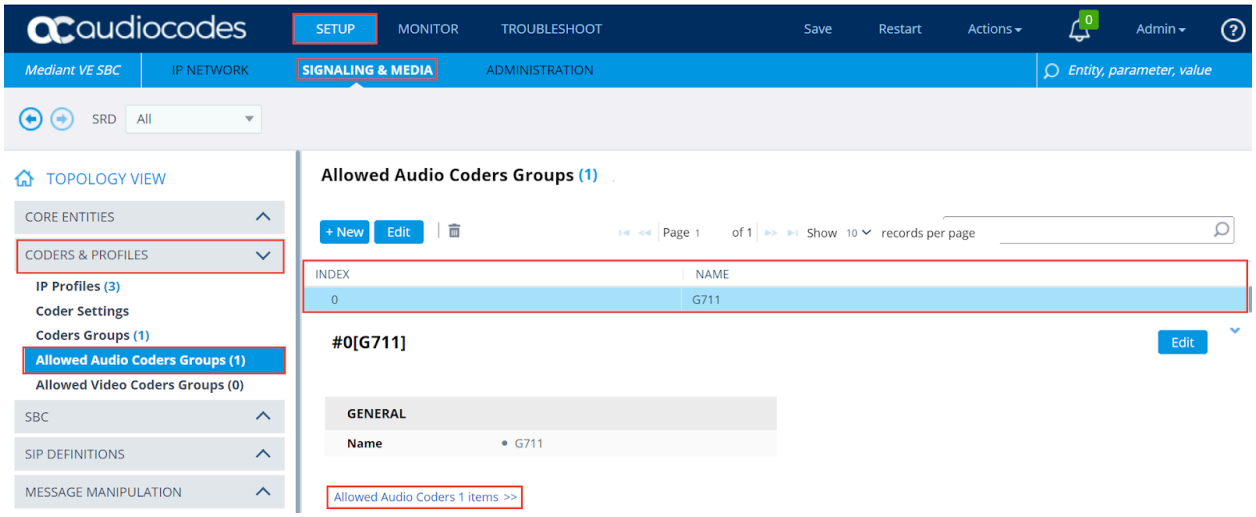


**Figure 34: Coders Configurations (Cont.)**

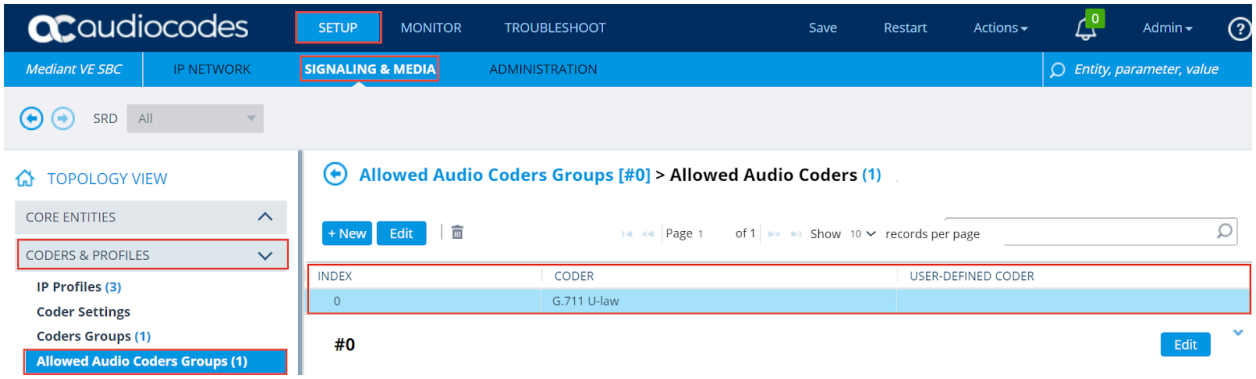


**Figure 35: Coders Configurations (Cont.)**

### 7.4.7 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.

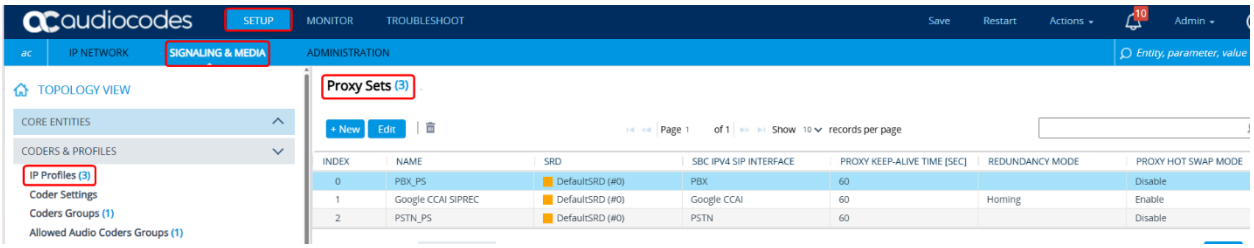


**Figure 36: IP Profile Configurations**

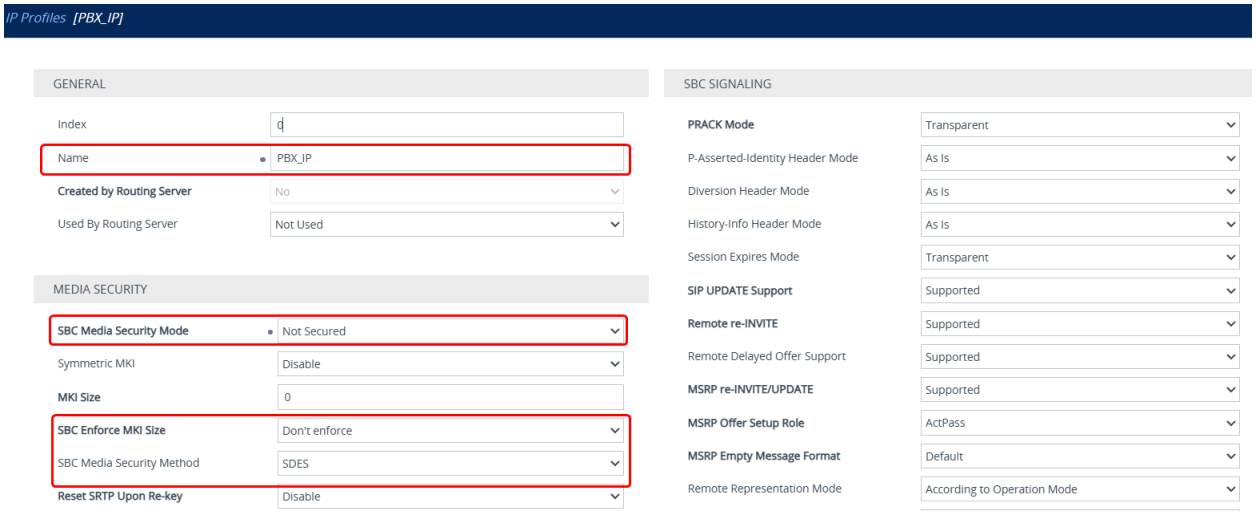


**Figure 37: IP Profile Configurations of PBX**

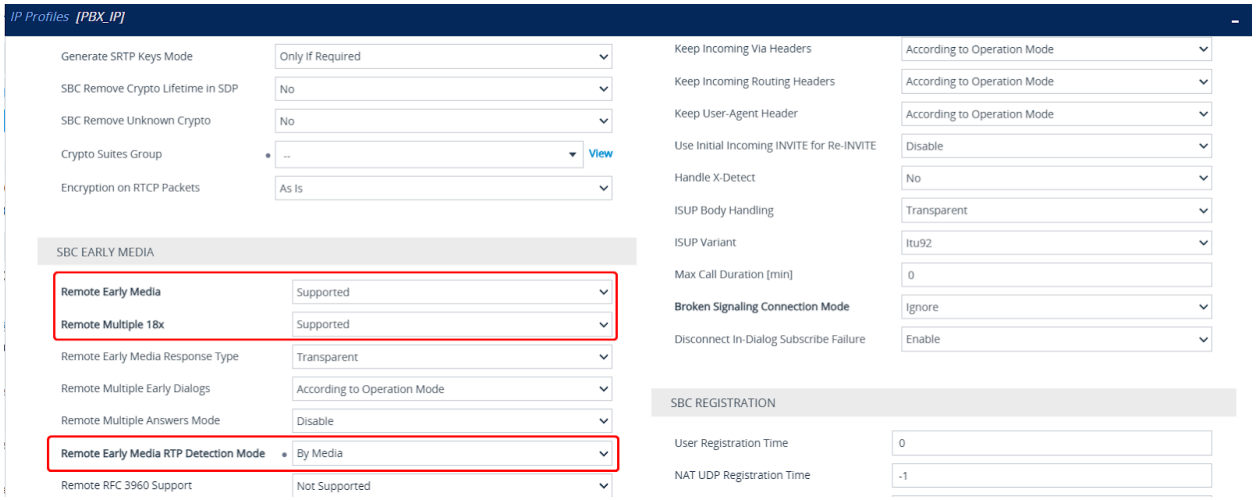


**Figure 38: IP Profile Configurations of PBX (Cont.)**

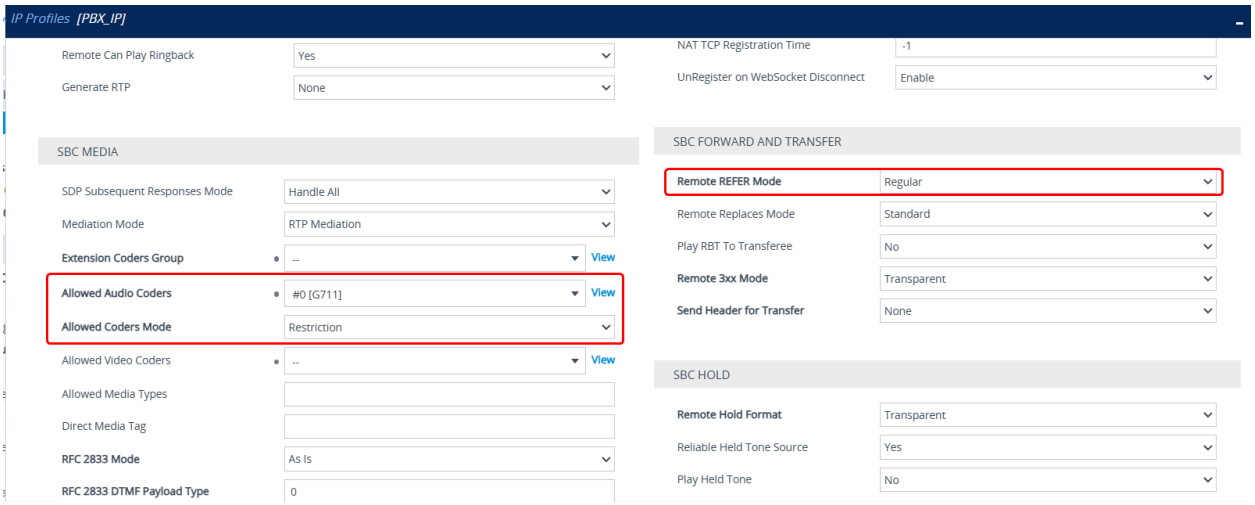


**Figure 39: IP Profile Configurations of PBX (Cont.)**

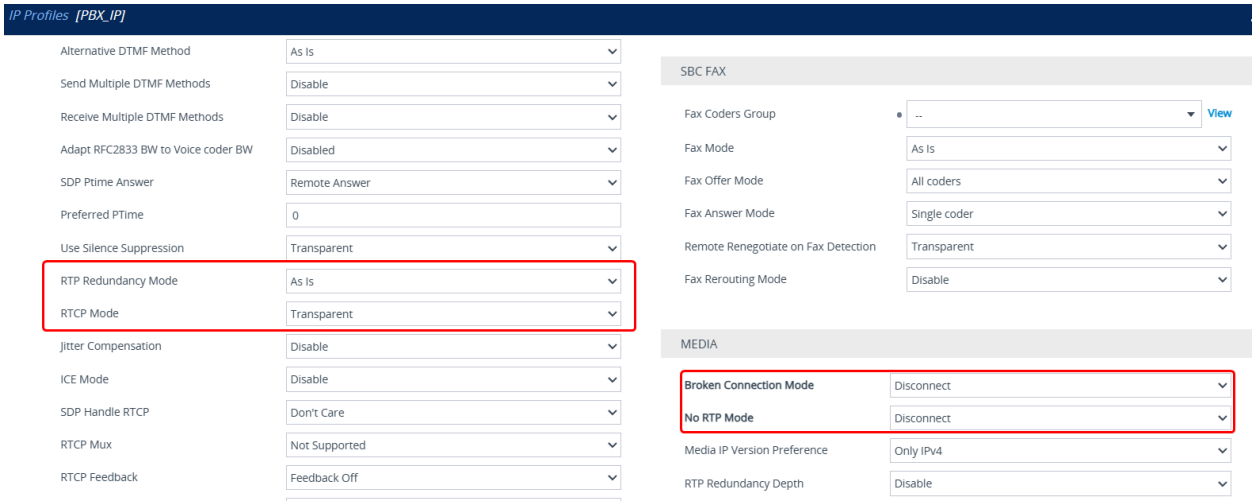


**Figure 40: IP Profile Configurations of PBX (Cont.)**

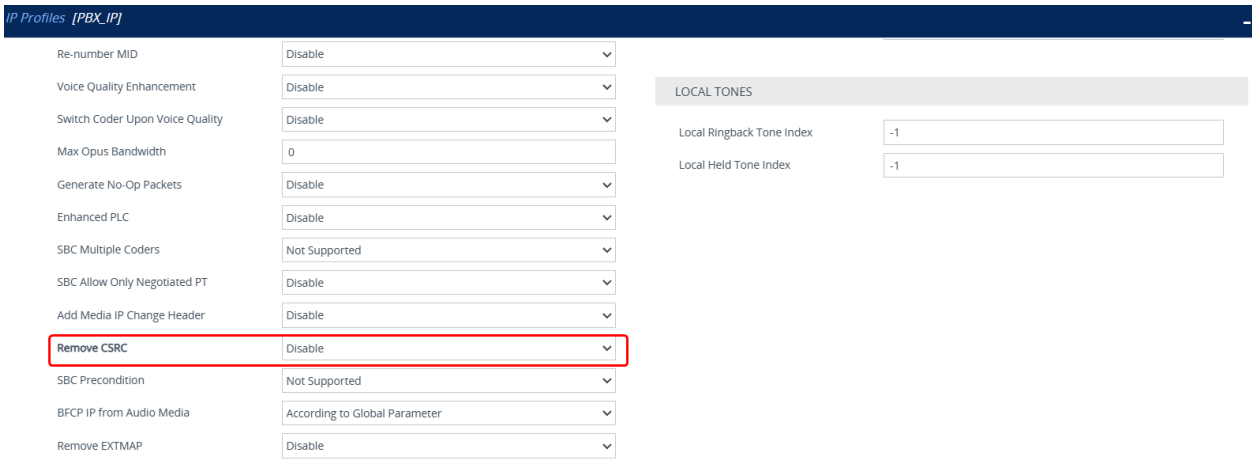


**Figure 41: IP Profile Configurations of PBX (Cont.)**

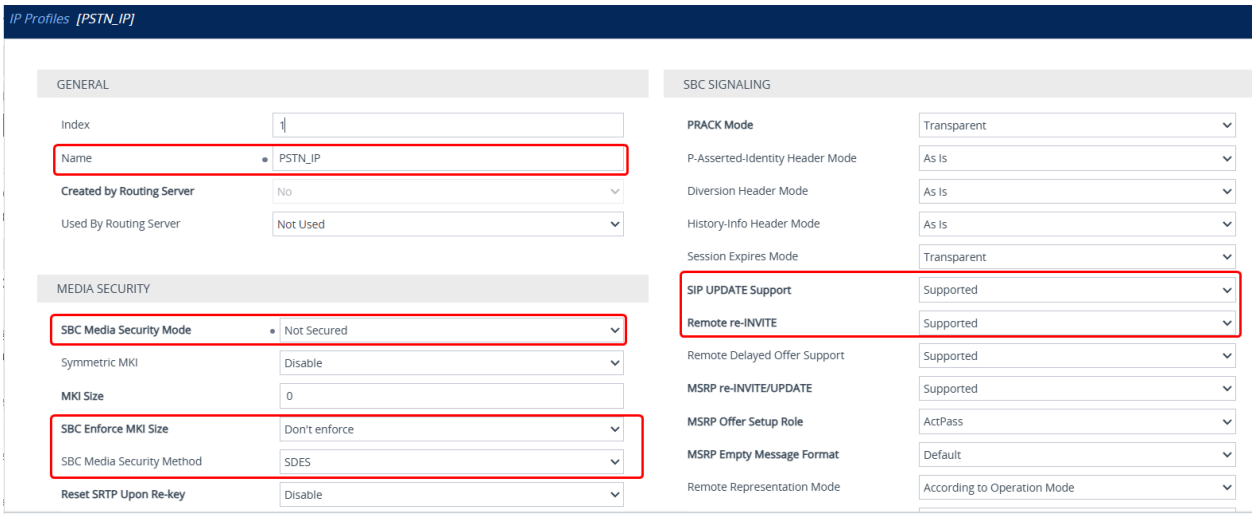


**Figure 42: IP Profile Configurations of PSTN**

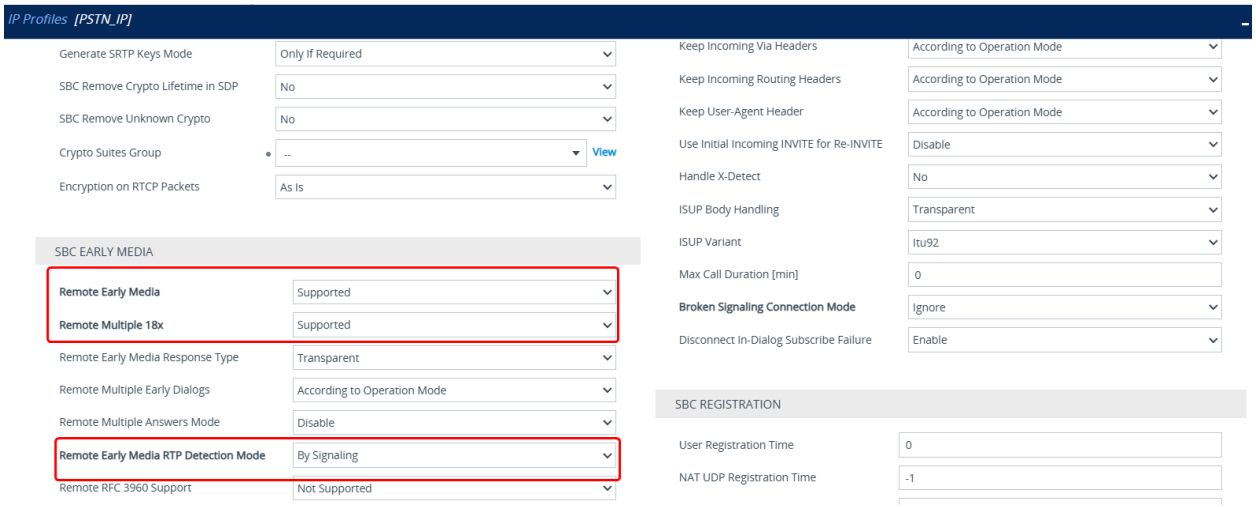


**Figure 43: IP Profile Configurations of PSTN (Cont.)**

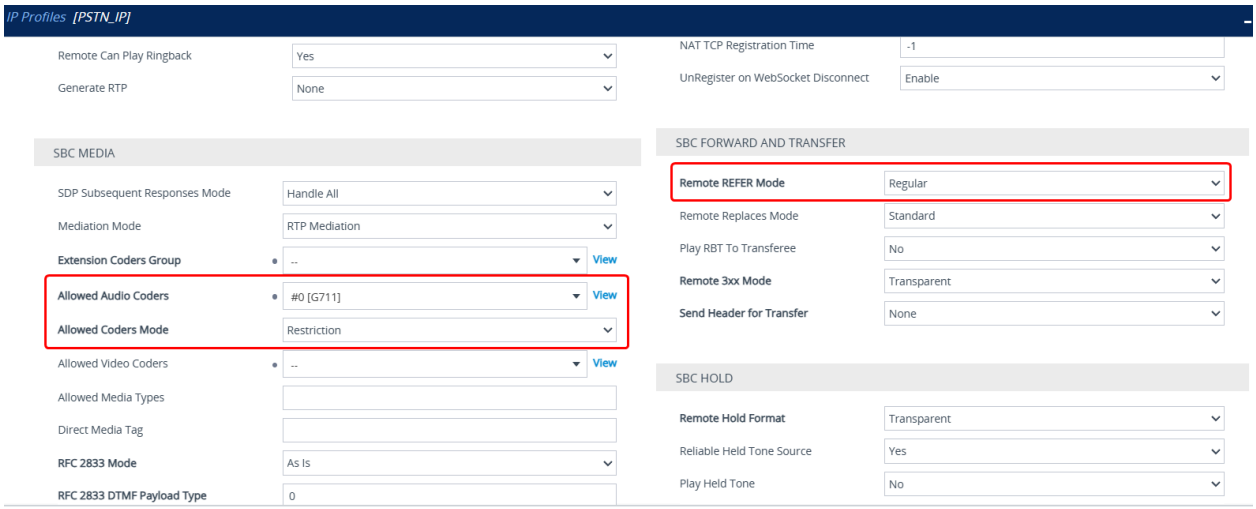


**Figure 44: IP Profile Configurations of PSTN (Cont.)**

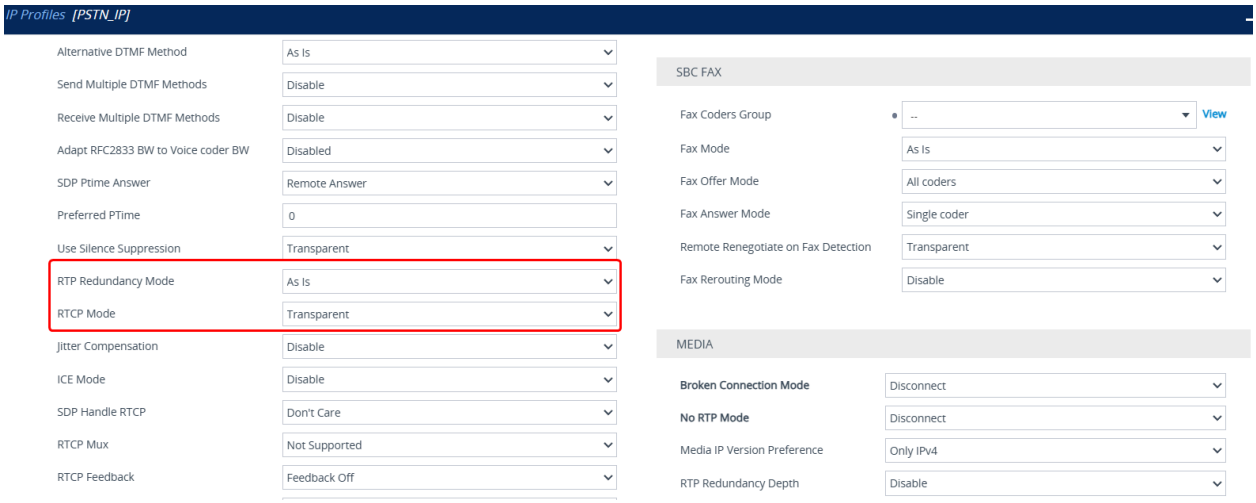


**Figure 45: IP Profile Configurations of PSTN (Cont.)**

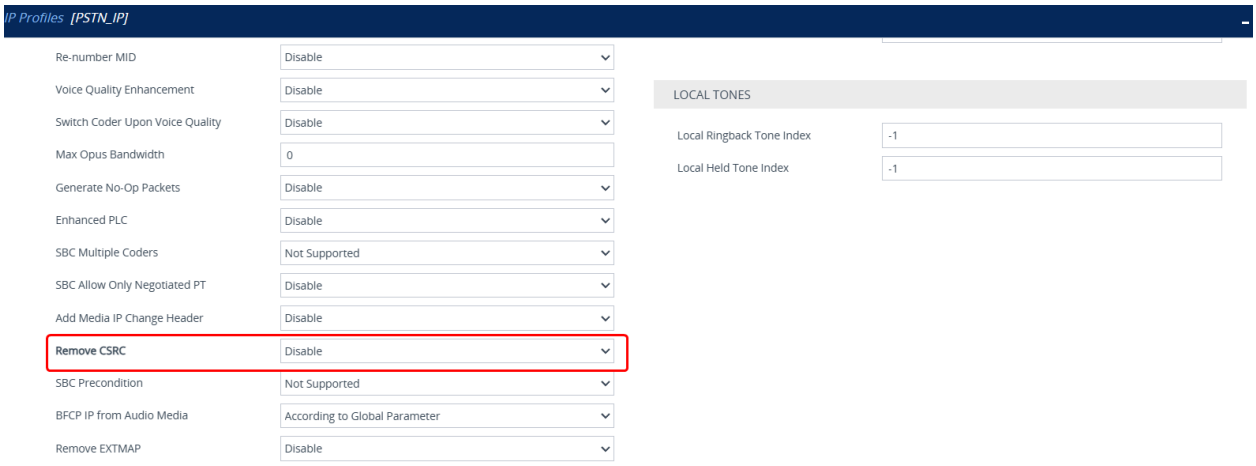


**Figure 46: IP Profile Configurations of PSTN (Cont.)**

## Google CCAI:

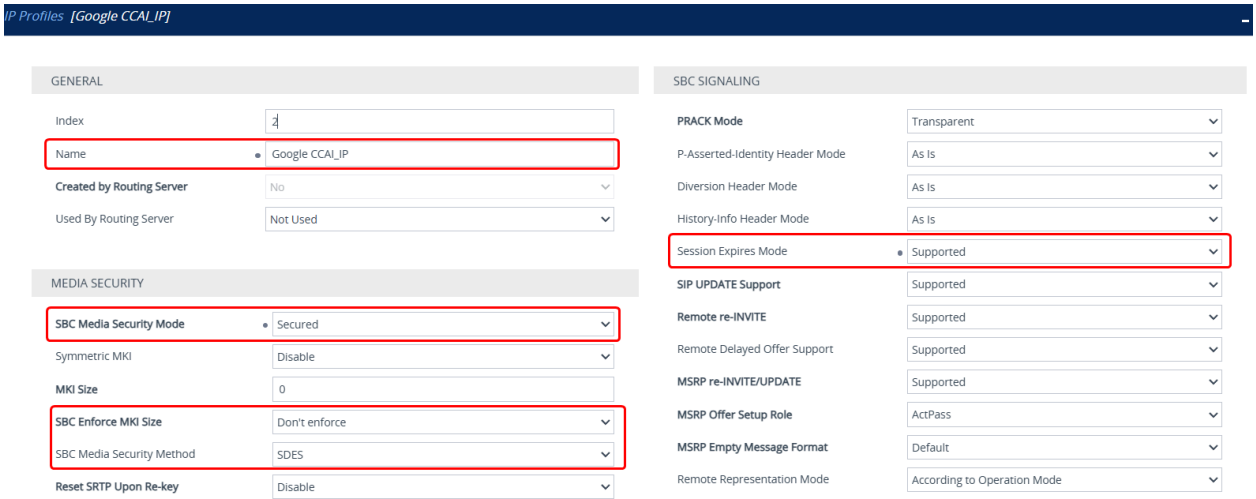


**Figure 47: IP Profile configurations of Google CCAI**

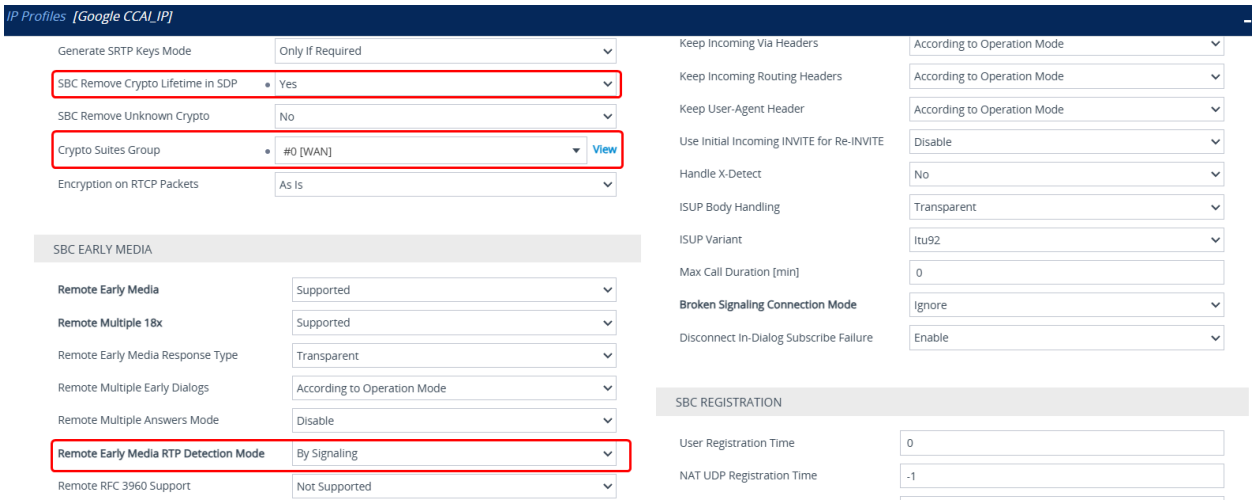


**Figure 48: IP Profile Configurations of Google CCAI (Cont.)**

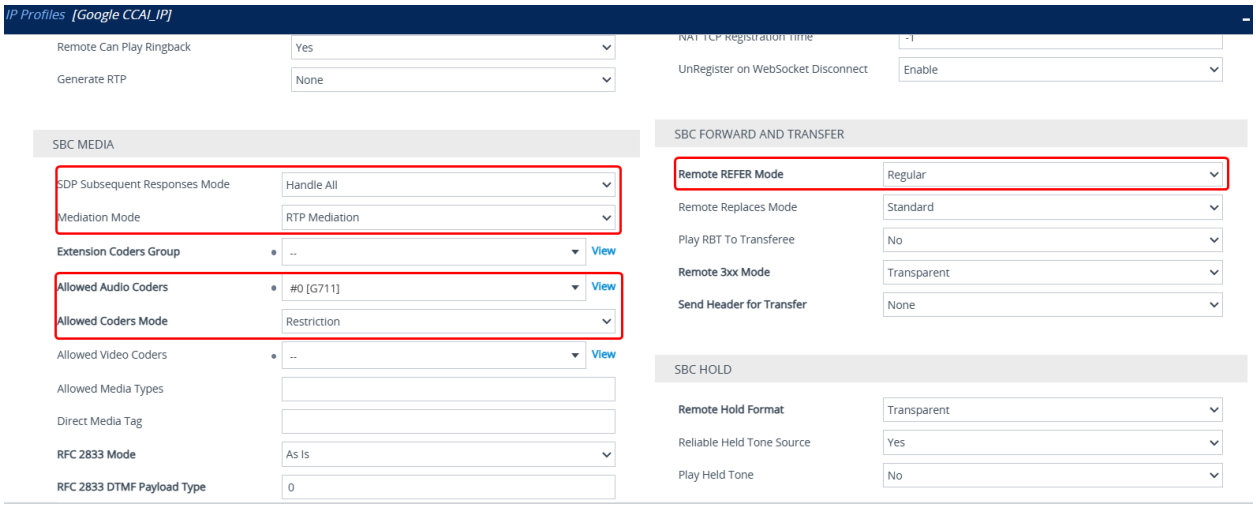


**Figure 49: IP Profile Configurations of Google CCAI (Cont.)**

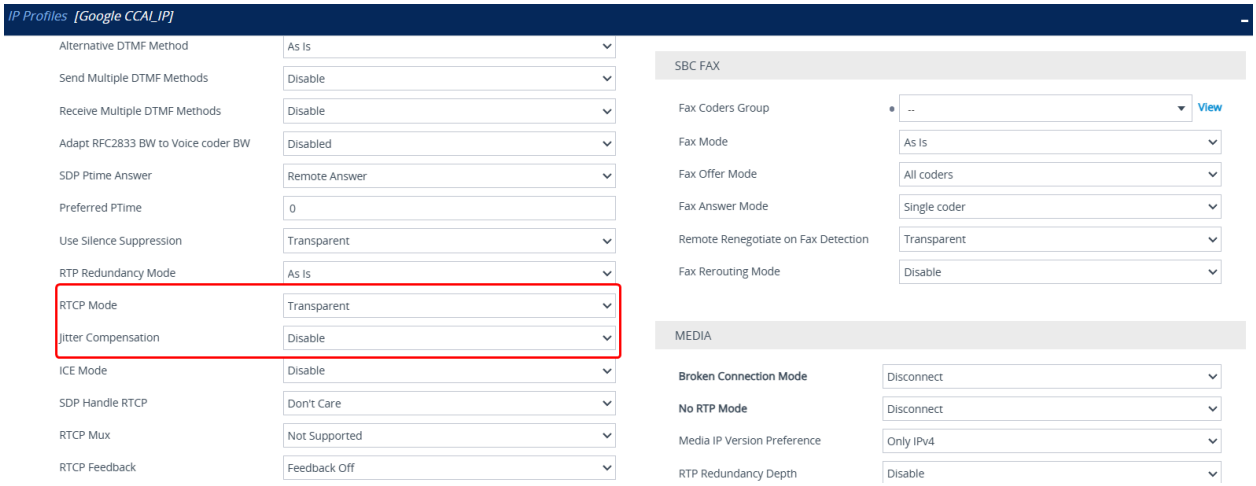


**Figure 50: IP Profile Configurations of Google CCAI (Cont.)**

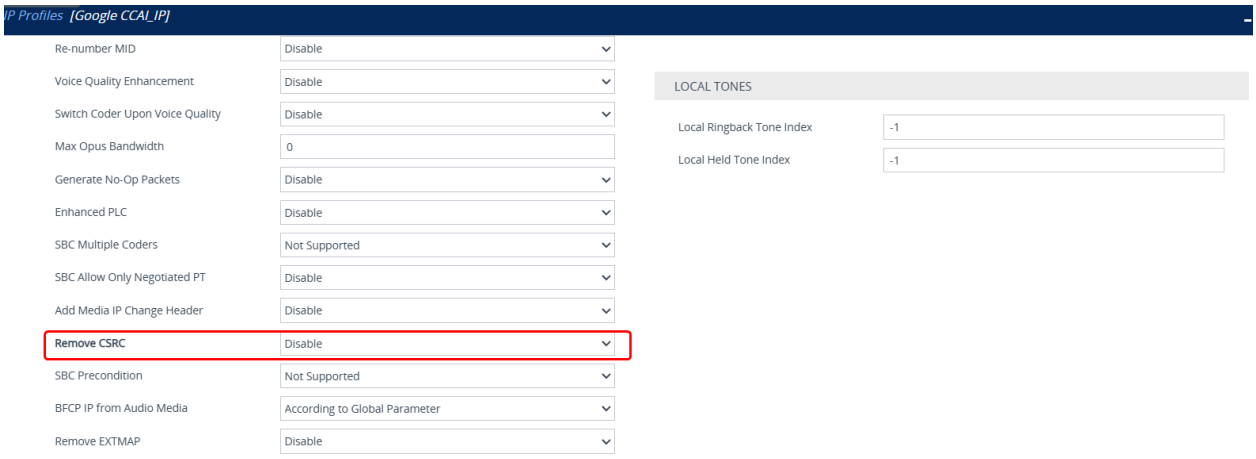


**Figure 51: IP Profile Configurations of Google CCAI (Cont.)**

### 7.4.8 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.

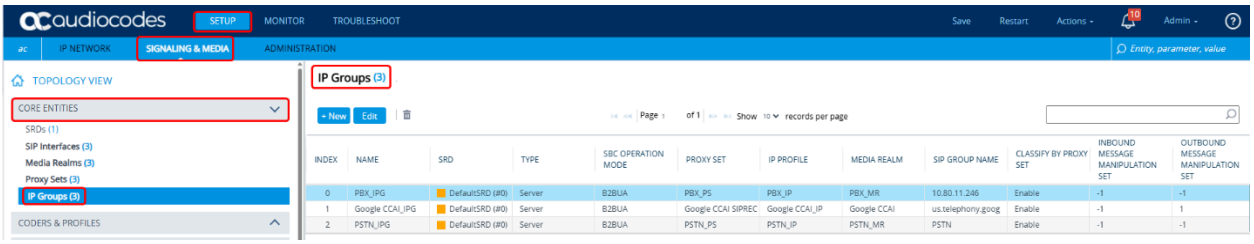


**Figure 52: IP Group Configurations**

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

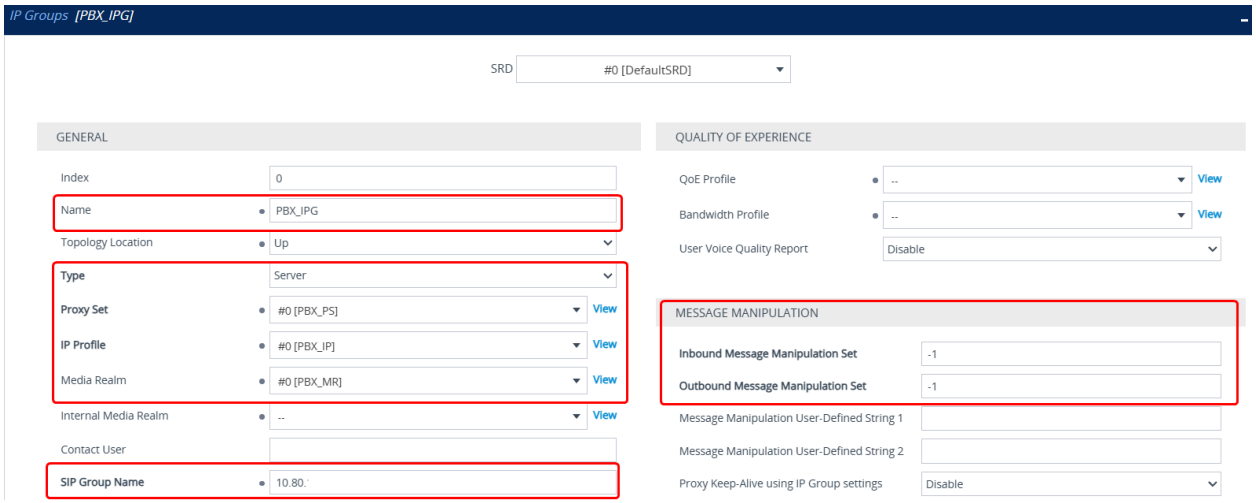


**Figure 53: IP Group configurations of PBX**

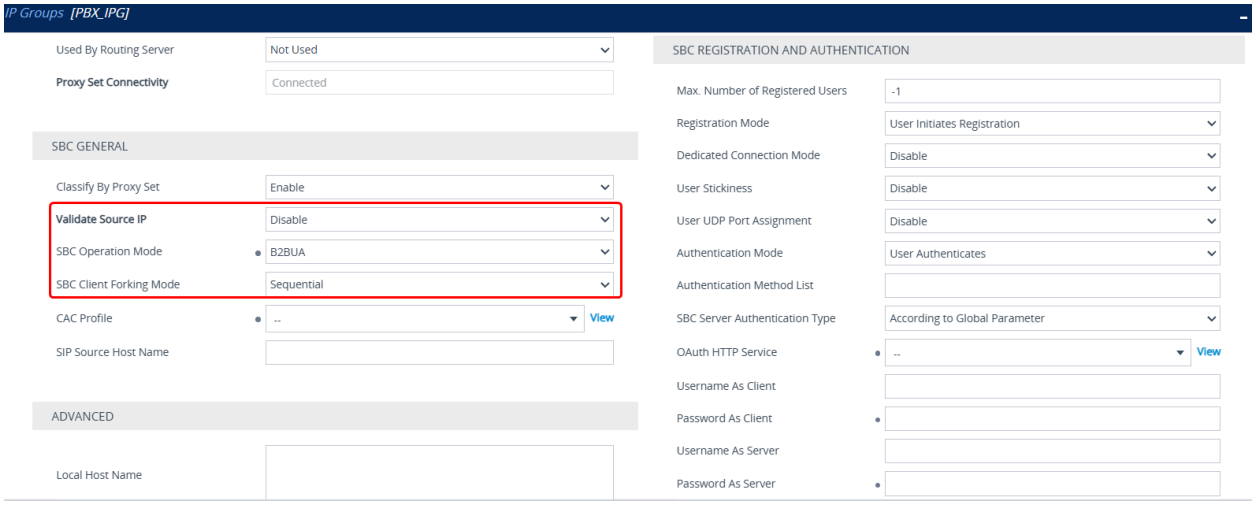


**Figure 54: IP Group Configurations of PBX (Cont.)**

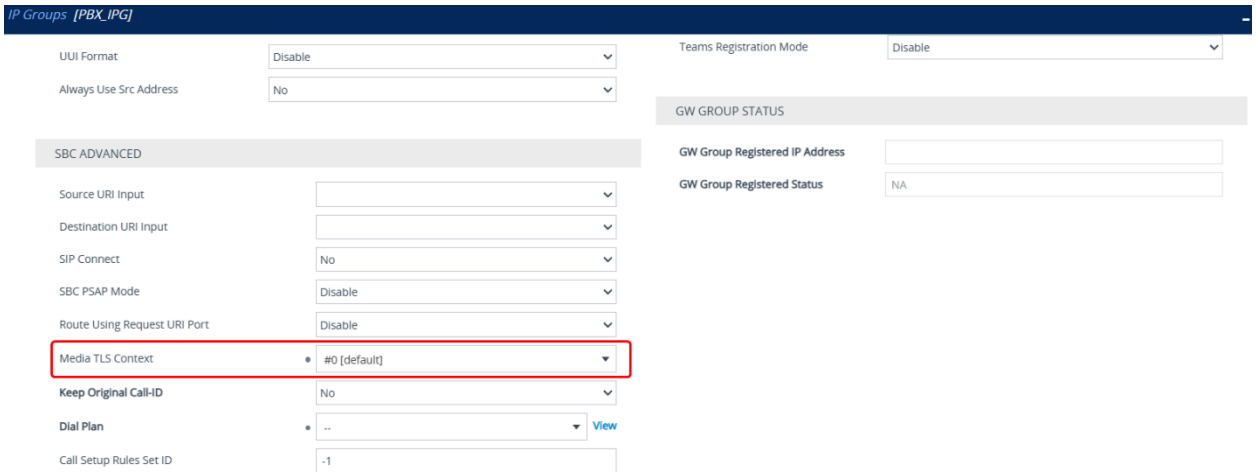


**Figure 55: IP Group Configurations of PBX (Cont.)**

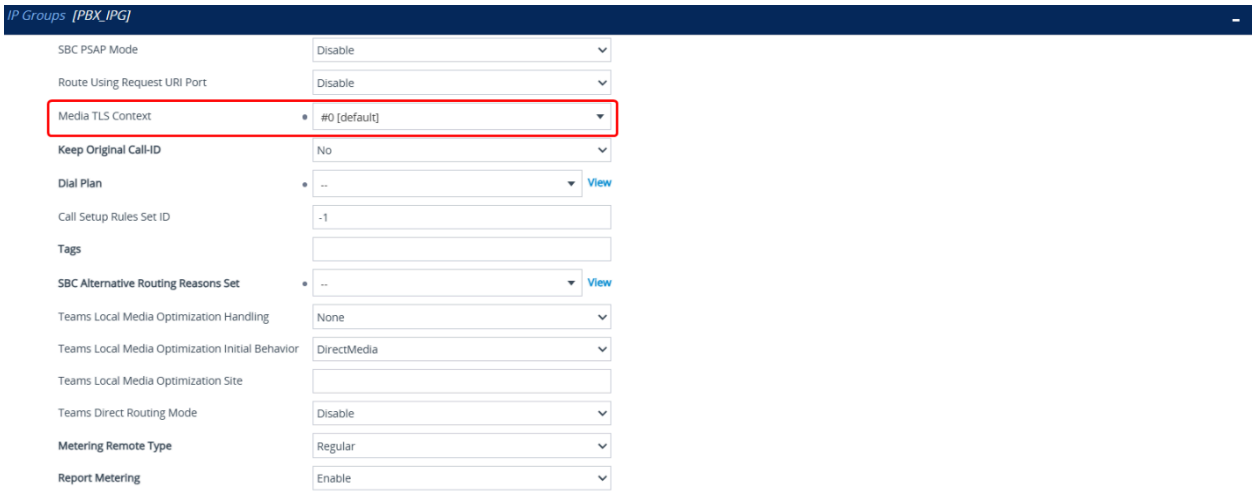


**Figure 56: IP Group Configurations of PBX (Cont.)**

- 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.

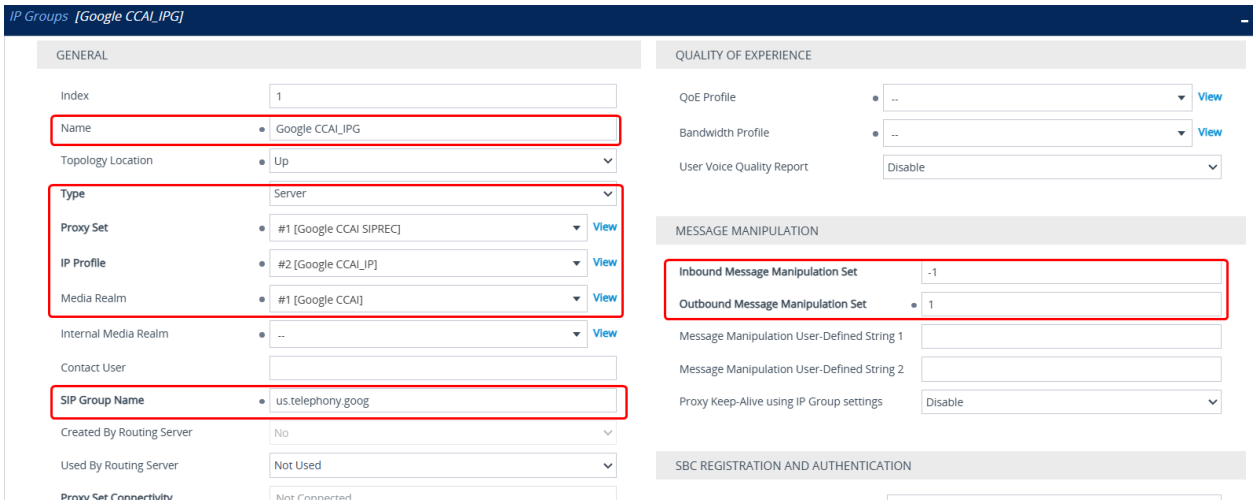


**Figure 57: IP Group Configurations of Google CCAI**

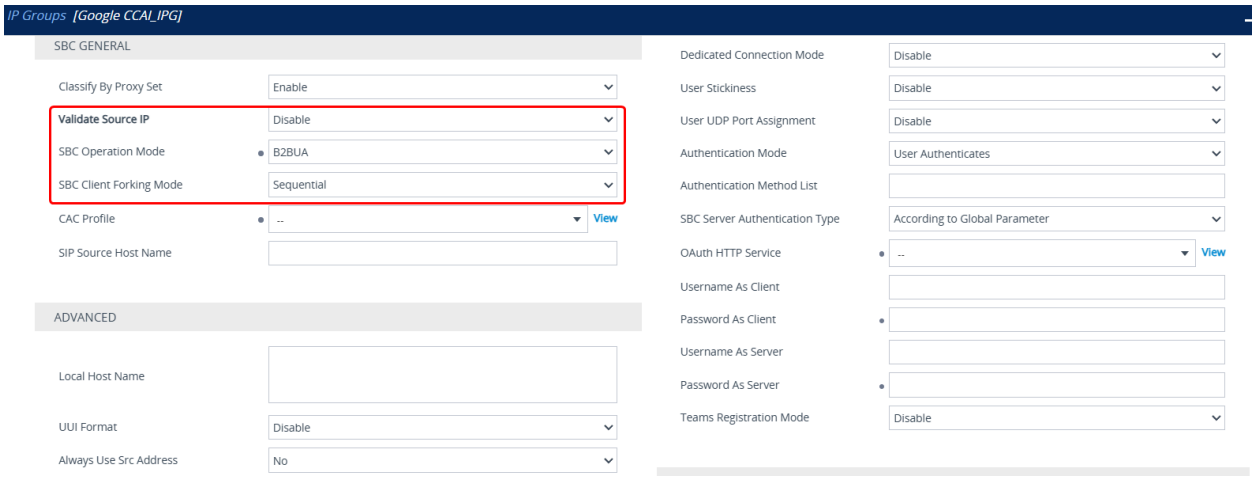


**Figure 58: IP Group Configurations of Google CCAI (Cont.)**

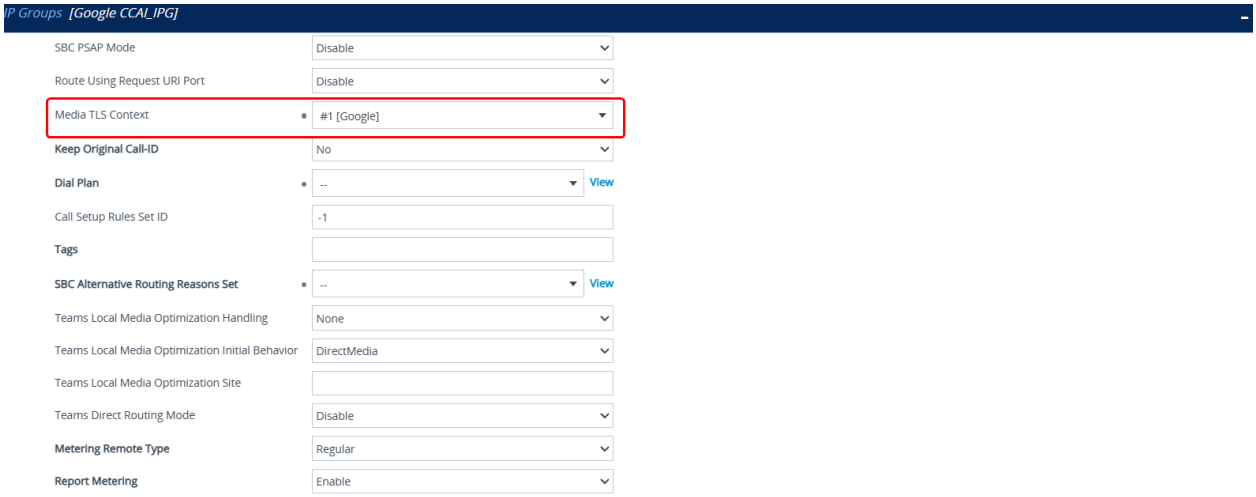


**Figure 59: IP Group Configurations of Google CCAI (Cont.)**

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

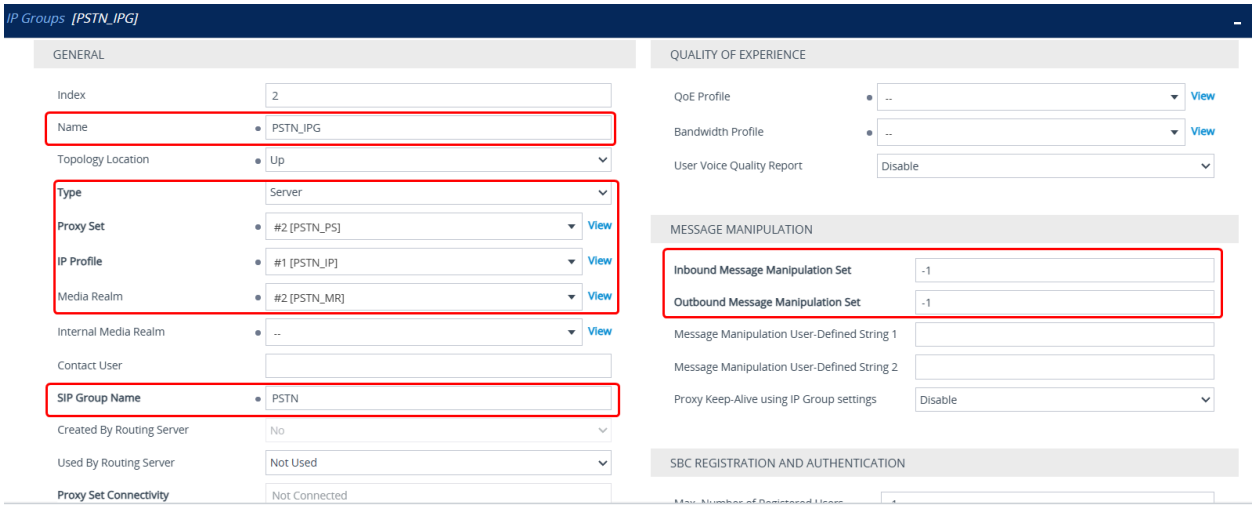


**Figure 60: IP Group Configurations of PSTN**

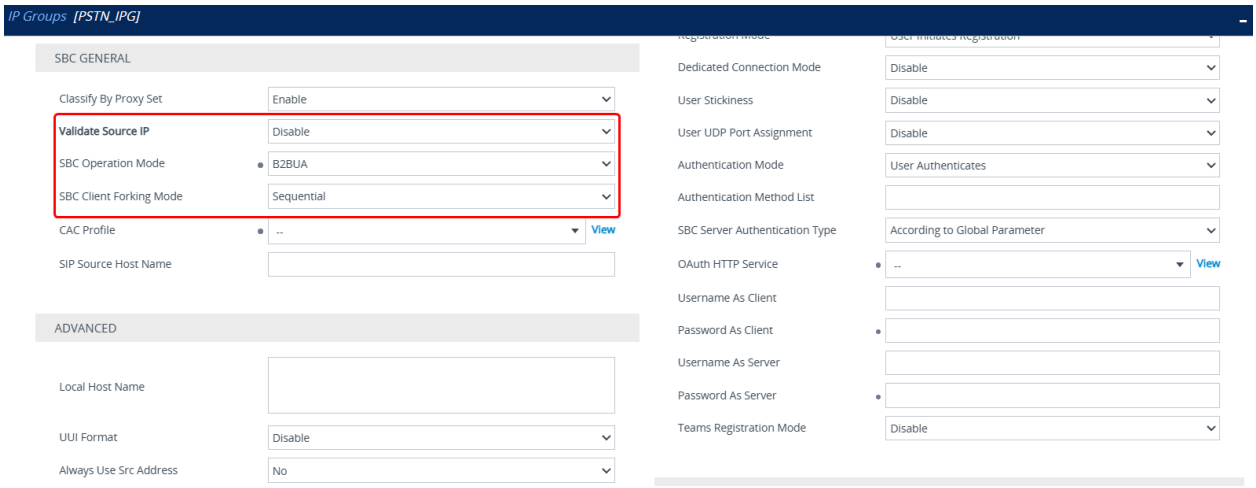


**Figure 61: IP Group Configurations of PSTN (Cont.)**

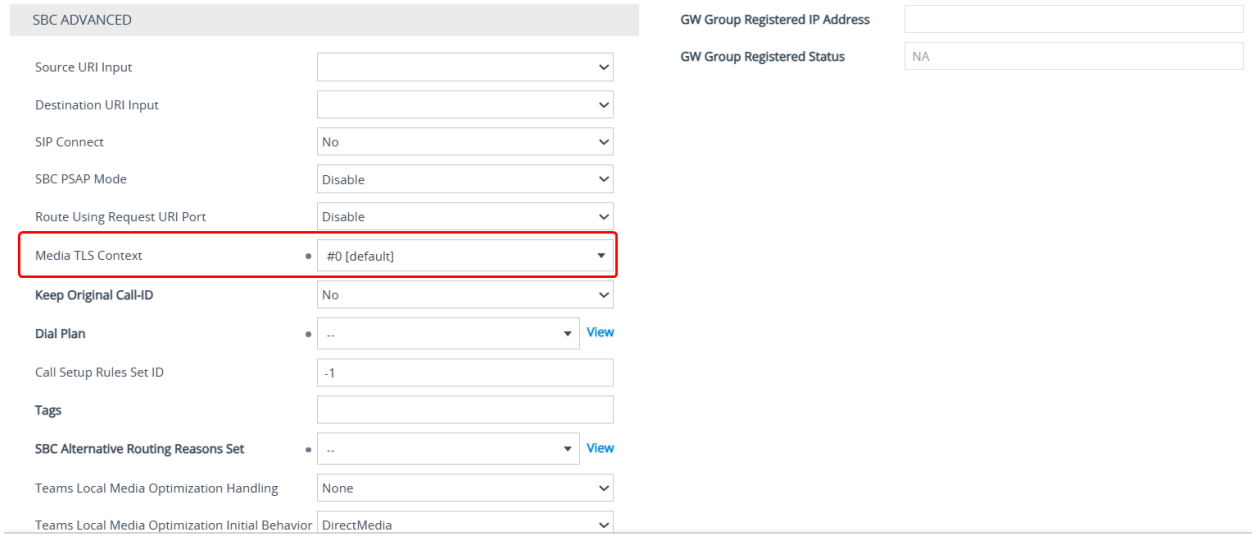


**Figure 62: IP Group Configurations of PSTN (Cont.)**

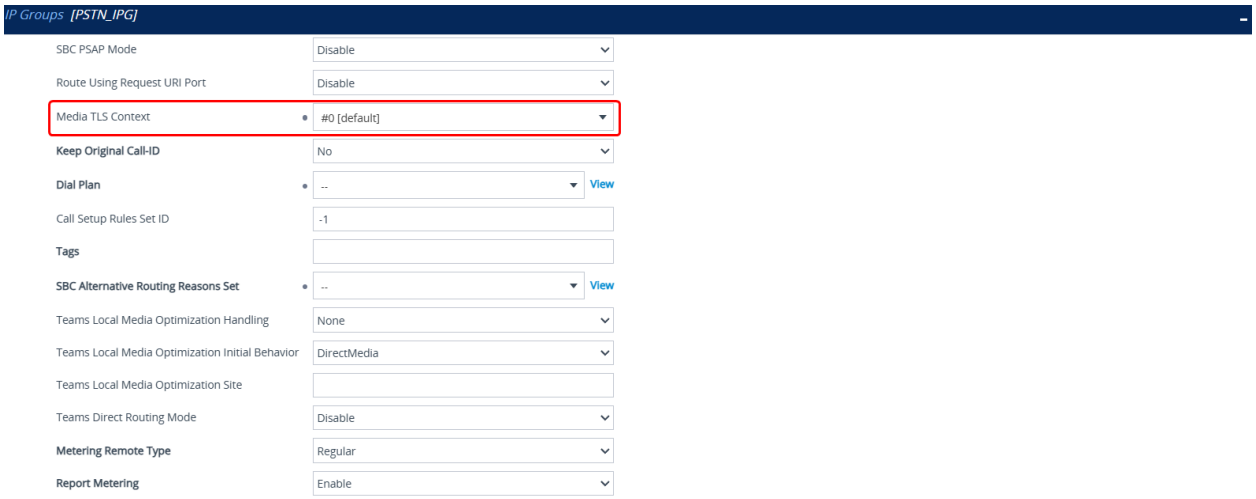


**Figure 63: IP Group Configurations of PSTN (Cont.)**

### 7.4.9 Configure Media Security

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

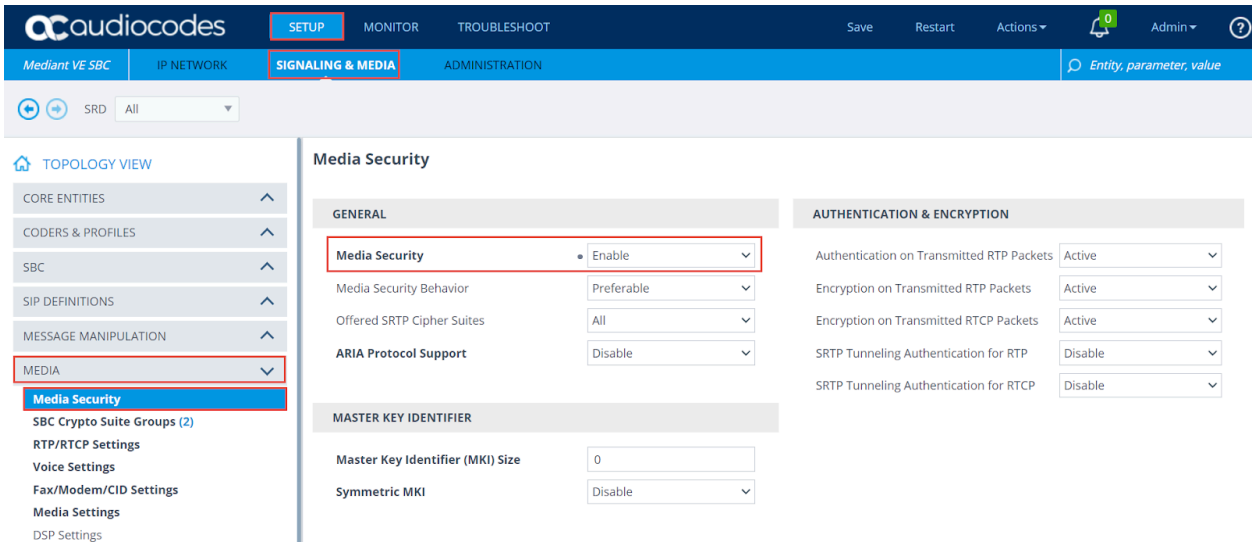


**Figure 64: Media Security Configuration**

### 7.4.10 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.

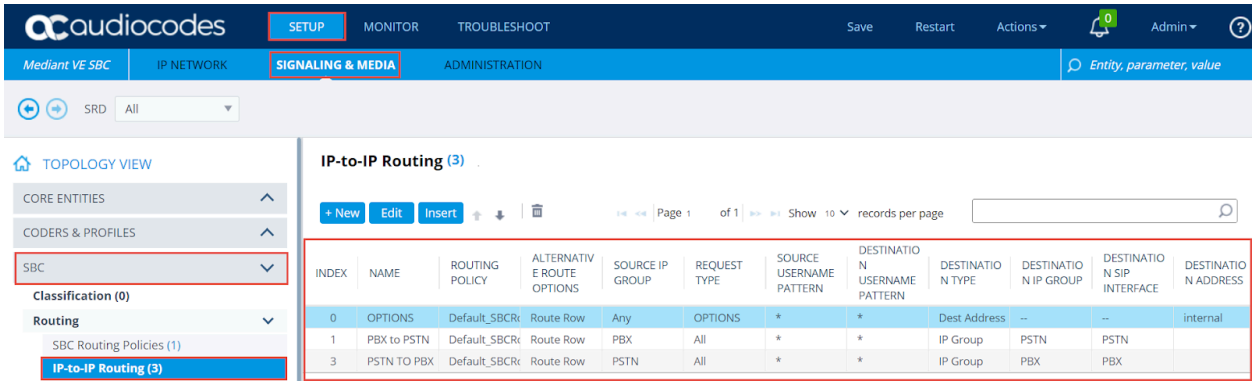


**Figure 65: IP to IP Routing**

### 7.4.11 Configure SIP Recording

- Navigate to **SETUP** menu □ **SIGNALING & MEDIA** tab □ **SIP RECORDING** folder □ **SIP Recording Settings**
- Configure Recording Server (SRS) Destination Username as Pilot number of Google CCAI SIPREC number as shown below.

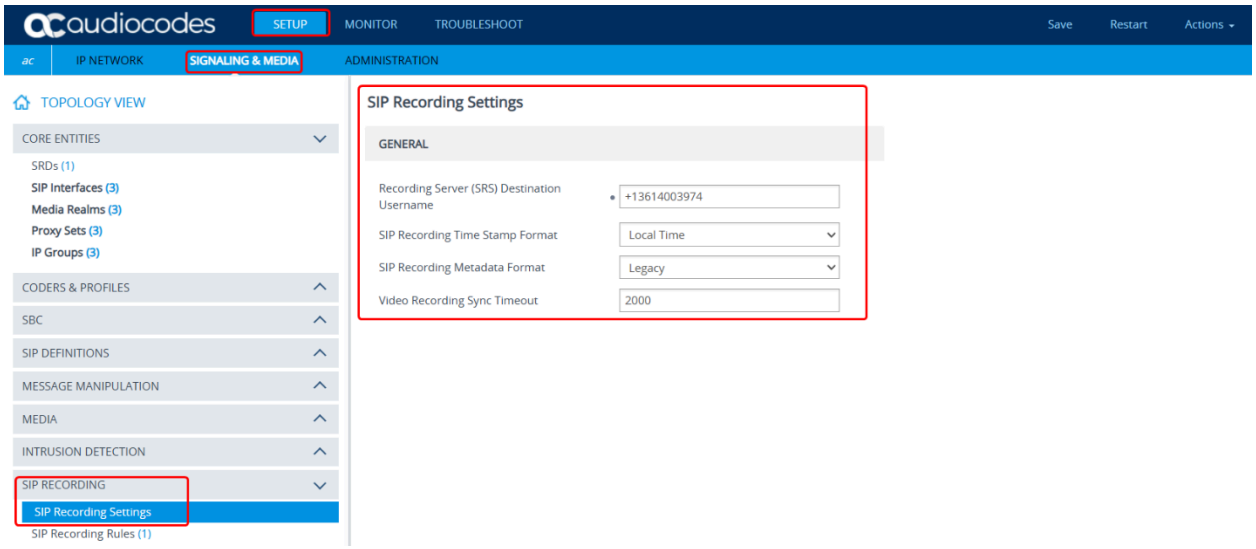


**Figure 66: SIP Recording Settings**

- Navigate to **SETUP** menu □ **SIGNALING & MEDIA** tab □ **SIP RECORDING** folder □ **SIP Recording Rules**

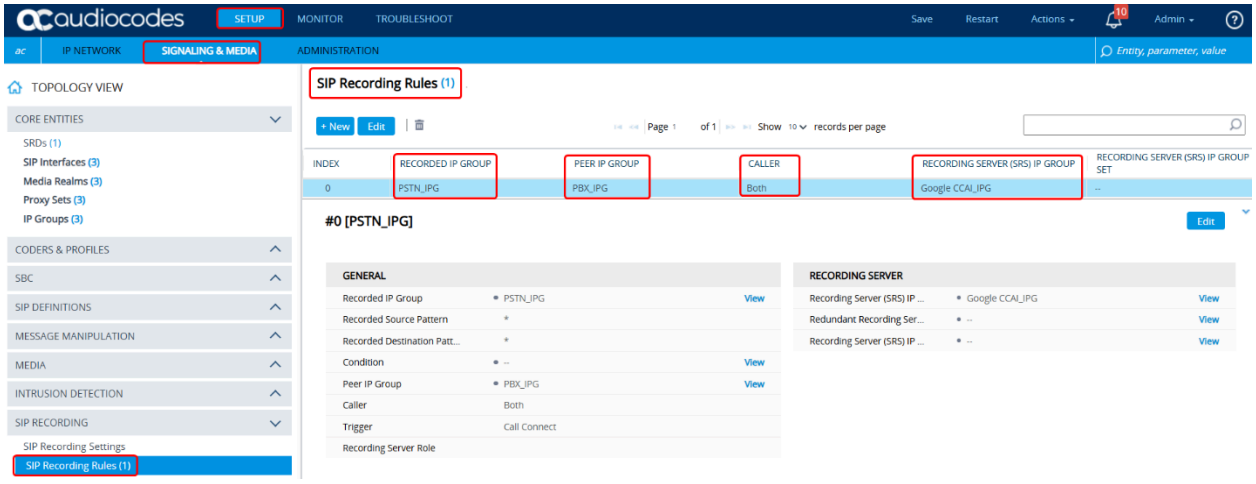


**Figure 67: SIP Recording Rules**

- Create SIP recording rules as shown below

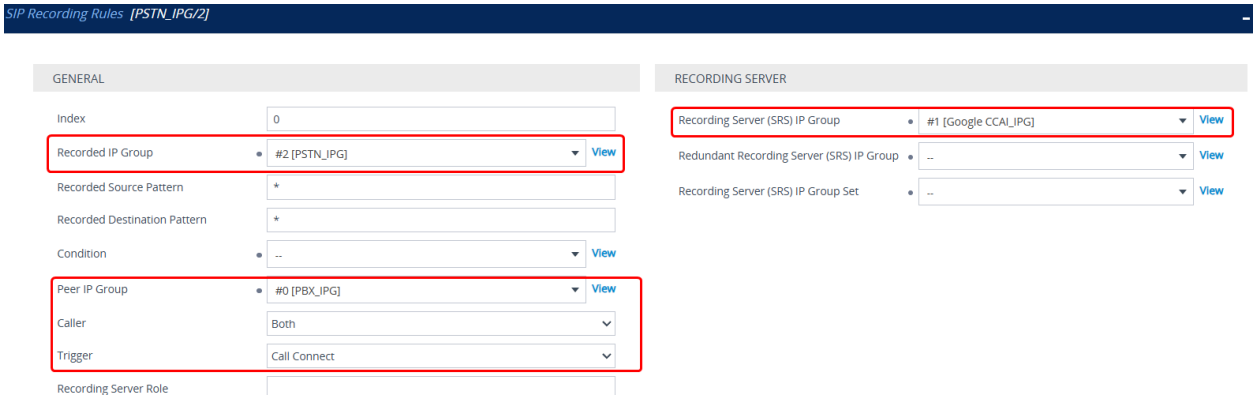


**Figure 68: SIP Recording Rules (Cont.)**

### 7.4.12 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.

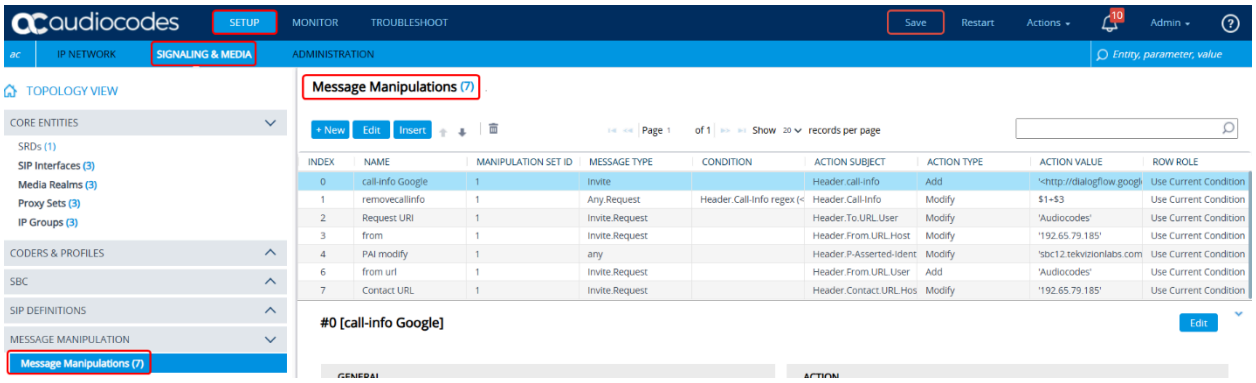


**Figure 69: Message Manipulation towards Google CCAI**

- Below header rule is created to add Call-Info header towards Google CCAI with the Dialog Flow API request along with the Conversation ID.
- **Conversation on the Fly** is set to True in Goole CCAI using REST API. Conversation ID is randomly generated by AudioCodes SBC for each call.
- New Value is set to **<http://dialogflow.googleapis.com/v2beta1/projects/ccai-389811/conversations/Sr_'+Header.Call-ID.ID+'>;purpose=Goog-ContactCenter-Conversation.**

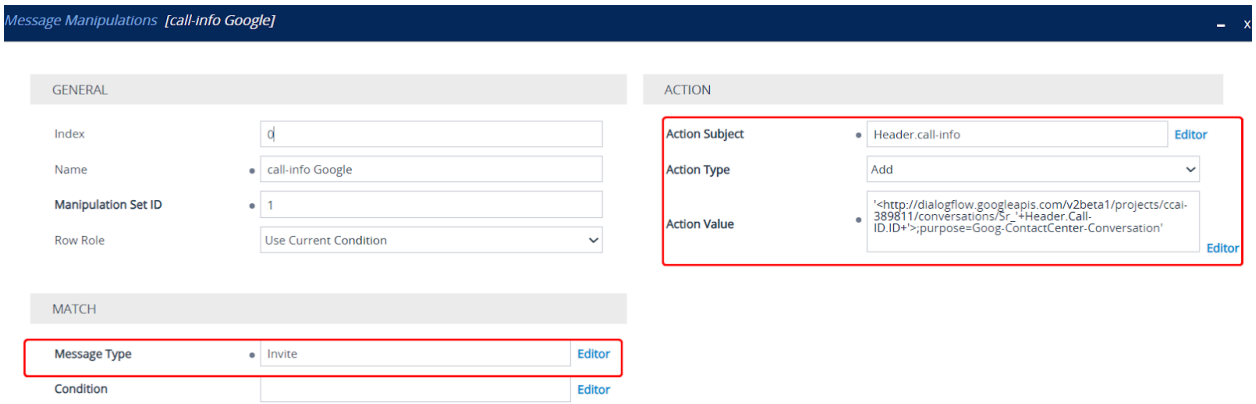


**Figure 70: Message Manipulation: Call Info towards Google CCAI**

- Below header rule is created to eliminate 192.65.X.X SBC WAN IP details from the call-Info header towards Google CCAI.

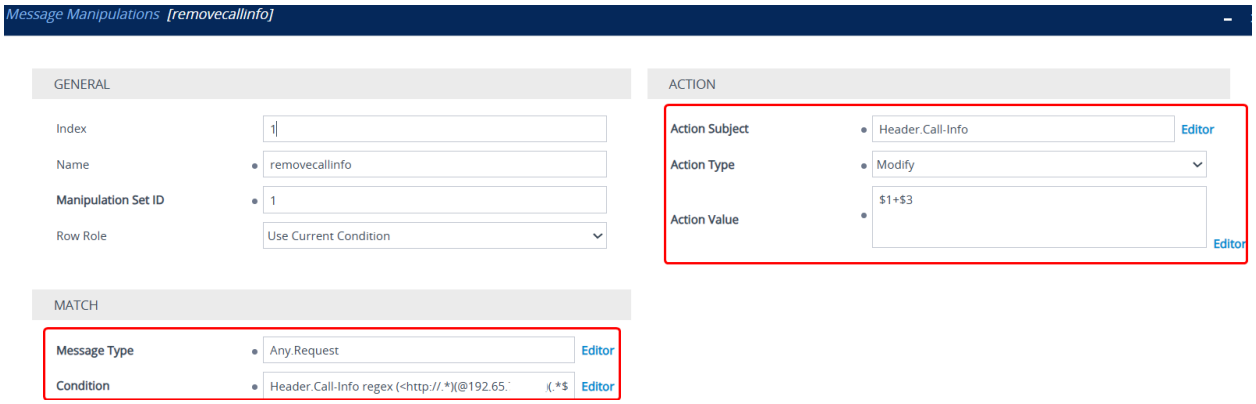


**Figure 71: Message Manipulation: Call Info Modification towards Google CCAI**

- Below header rule is created to change from header user part towards Google CCAI as 'AudioCodes'

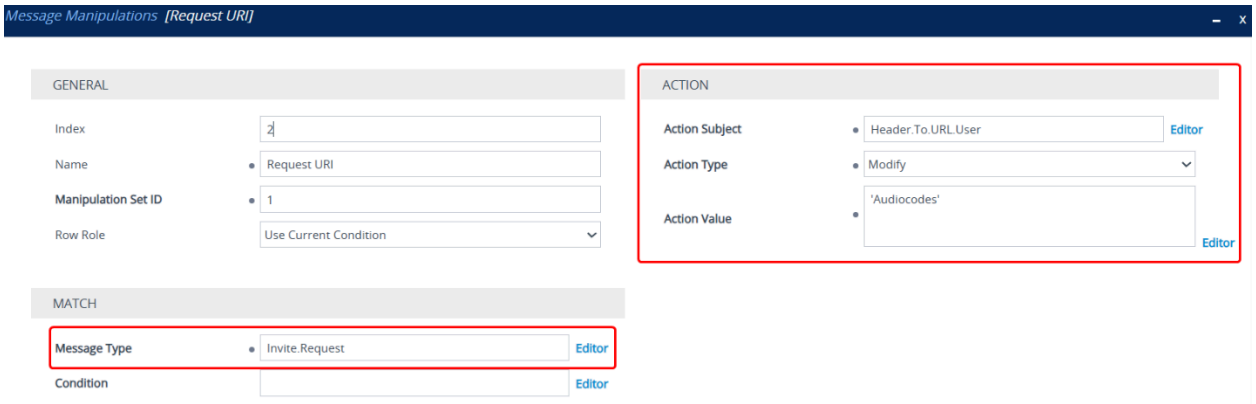


**Figure 72: Message Manipulation: From Header User Part Modification towards Google CCAI.**

- Below header rule is created to change P-Asserted Identity host part towards Google CCAI as 'sbc12.tekvizionlabs.com'

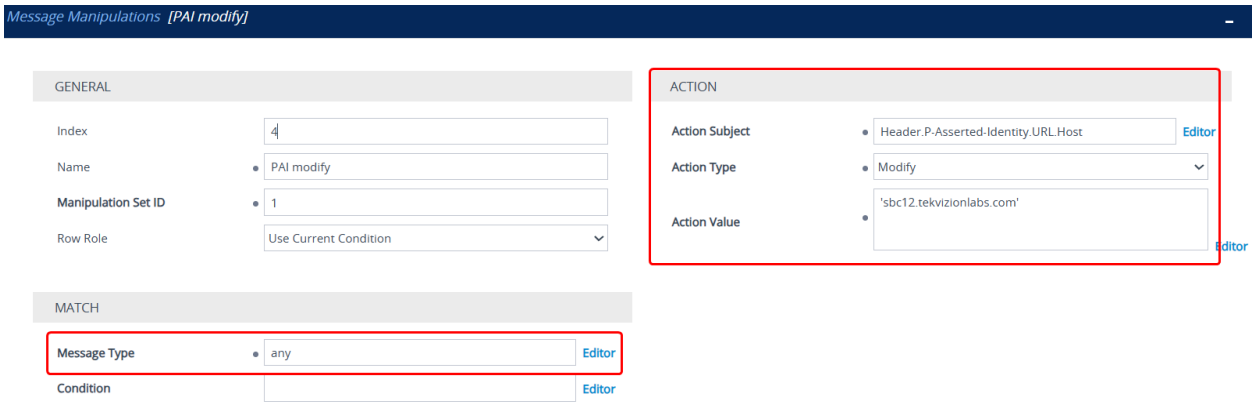


**Figure 73: Message Manipulation: P-Asserted Identity Host Part Modification towards Google CCAI**

- Below header rule is created to change From host part towards Google CCAI as '192.65.X.X'

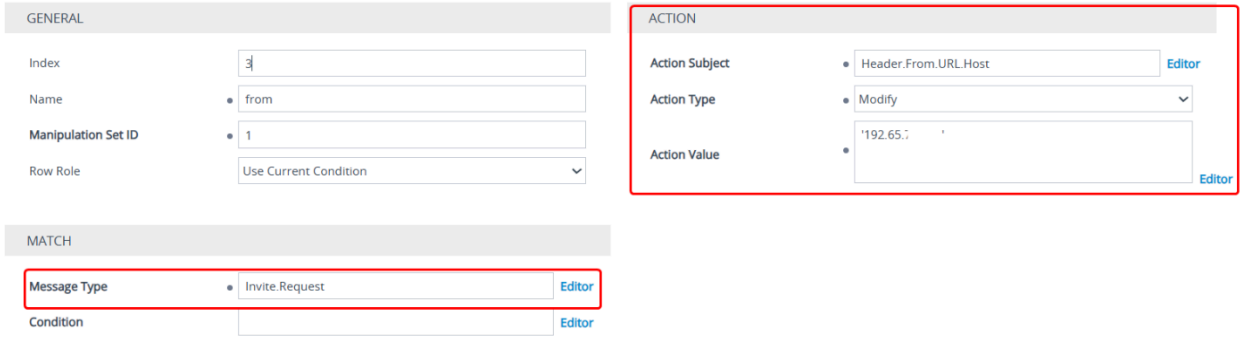


**Figure 74: Message Manipulation: From Host Part Modification towards Google CCAI**

- Below header rule is created to change From host part towards Google CCAI as 'AudioCodes'

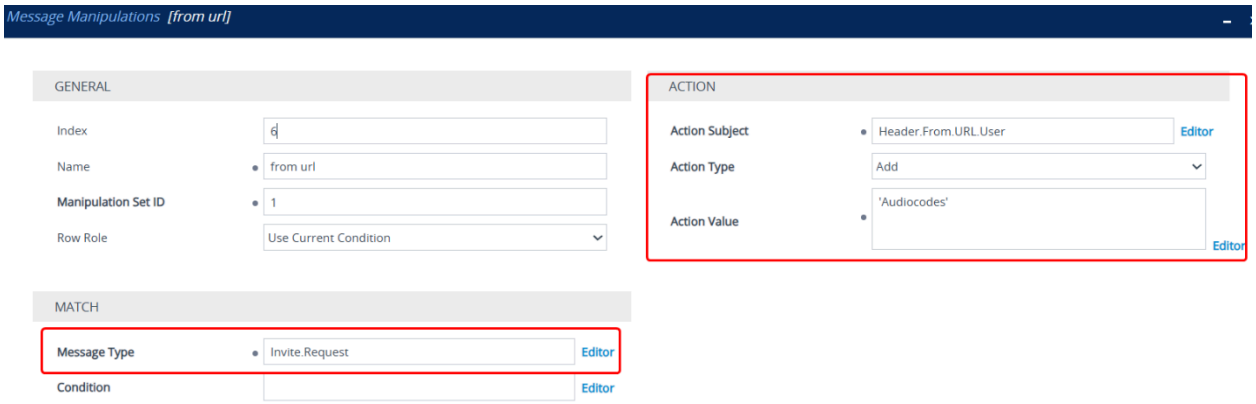


**Figure 75: Message Manipulation: From User Part Modification towards Google CCAI**

- Below header rule is created to change Contact host part towards Google CCAI as '192.65.X.X'

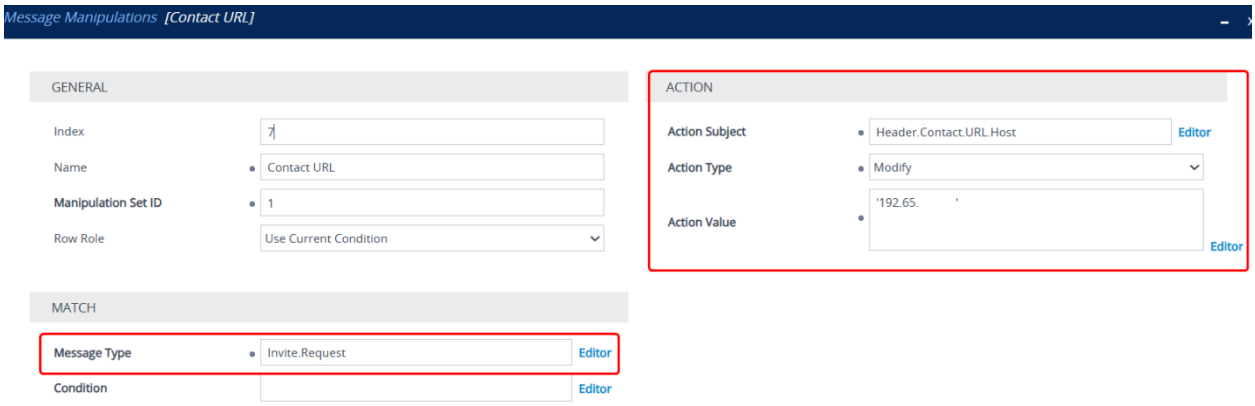


**Figure 76: Message Manipulation: Contact User Part Modification towards Google CCAI**

### 7.4.13 Configure Message Manipulation Rules (Participation Label)

- The transcript recording files stored in the Google CCAI bucket include two participant roles "HUMAN_AGENT" and "END_USER".
- To map the participant roles to the transcripts generated, Google uses the participant labels provided in the call-info header. Use the below rule only if Participant labels are required in your setup.
- Sample call-info header with participant roles:

  Call-info: <http://dialogflow.googleapis.com/v2beta1/projects/ccai-389811/conversations/Sr_XXXX?**roles=HUMAN_AGENT,END_USER**>;purpose=Goog-ContactCenter-Conversation

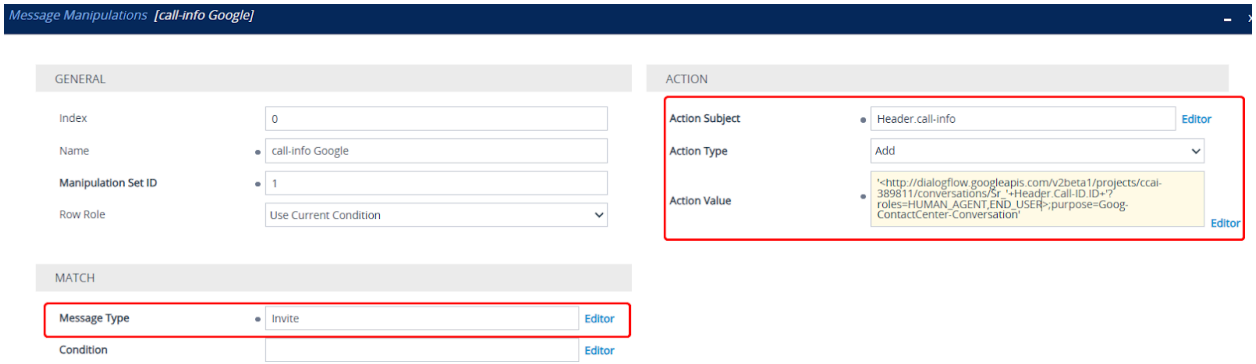


**Figure 77: Message Manipulation: Call Info Modification (participation label) towards Google CCAI**

# 8 AudioCodes VE SBC Running Configuration

Attached is the AudioCodes VE SBC running configuration.

BOARD_SN63402107173605.ini

# 9 Summary of Tests and Results

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| **SBC Configuration Verification** | | | | | |
| 1 | SBC Configuration Verification | TLS connection SETUP. SBC initiates TLS connection with CCAI | Successful 4way handshake with Google CCAI. Validate the right certificates are being negotiated. SBC should be loaded with GTSR1 cert for Google. SBC should also send the certificate chain when sending its cert. | PASSED | TLS certificates have been verified, and a successful TLS connection has been established. |
| 2 | SBC Configuration Verification | TCP Keep Alive. SBC will perform monitoring checks by attempting TCP Keep Alive to ensure Network Connectivity | Successful 3way handshake and thereafter termination | PASSED | |
| 3 | SBC Configuration Verification | TCP link is persistent. Establish call, send multiple calls that should all use the same TCP transport connection | Persistent TCP connection, we should establish a single connection and multiplex all calls over that connection | PASSED | |
| 4 | SBC Configuration Verification | Session Timer support. SBC should be initiator for the Session Refresh timer using | every 900 secs the SBC should refresh the SIP session. | PASSED | Update message sent to Google CCAI every 900 secs. |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| | | Update or Re-Invite | | | |
| 5 | SBC Configuration Verification | SIP Header Manipulation (call-info header) | Validate if the Google requested header manipulation is present in the SIP INVITE. Ensure every SDP media has a label. | PASSED | |
| 6 | SBC Configuration Verification | *SBCs may need further Header manipulations based on SIP stack constraints. Verify required manipulation are added in SBC to support Google CCAI Example: FROM, TO header manipulations HOST part change in headers etc.., | All signaling in e.164 format | PASSED | |
| 7 | SBC Configuration Verification | SDES for SRTP. Configure the SDES parameters for crypto negotiation for the BYOT trunk | Validate the crypto is successfully negotiated and media is encrypted. All SBCs should support SDES for media encryption. | PASSED | |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| 8 | SBC Configuration Verification | DTLS for Media Encryption. Configure the DTLS parameters for crypto negotiation for the BYOT trunk, certificate for DTLS must be self-signed by the SBC. | Validate the crypto is successfully negotiated and media is encrypted. | NOT SUPPORTED | |
| **Inbound** | | | | | |
| 9 | Inbound | SIP OPTIONS. SBC send SIP options every 60 seconds | Verify SBC sends SIP OPTIONS every 60 seconds and responded with 200 OK | PASSED | |
| 10 | Inbound | Inbound call: Calling Party disconnects the call. Inbound siprec call, ensure recording are present, disconnect call from calling party and confirm proper disconnect | Verify Call is established with audio and transcripts from both participants Verify call is disconnected properly | PASSED | |
| 11 | Inbound | Inbound call: Called Party disconnects the call. Inbound siprec call, ensure recording are present, disconnect call from called party and confirm | Verify Call is established with audio and transcripts from both participants Verify call is disconnected properly | PASSED | |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| | | proper disconnect | | | |
| 12 | Inbound | Long duration call-Outbound Call- 1 hour max. Long duration siprec call | Ensure siprec calls stay up for an hour, confirm transcripts are present for entire duration | PASSED | |
| 13 | Inbound | Long duration hold and resume (wait until session audit\session refresh occurs from DUT). Long duration siprec call, have the call placed on hold by agent, have call resume. Have customer place on hold then have call resume. | Call is connected, we have two active streams, confirm once a stream goes on hold, we receive corresponding signaling events, and that we no longer record transcripts for the participant on hold. | PASSED | UPDATE message is sent from SBC every 900 seconds without SDP |
| 14 | Inbound | Handling Error codes 603 decline. User A Calls PSTN A PSTN A rejects the incoming call | Verify SBC handles Call rejected properly | PASSED | |
| 15 | Inbound | Inbound call hold scenarios. Call starts out inactive for both participants, session moves to active | Validate if media is present when expected, confirm signaling events modify sdp properly, once call is move to active validate media and transcripts | PASSED | No audio was recorded during call hold is activated and when hold made inactive and recording continues. |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| 16 | Inbound | Inbound call hold scenarios. call starts out as active for both participants and making the Deactivate/Activate Conversation via grpc api. | Validate if media should not be present when activated and conversation starts to happen after deactivation. Confirm Signaling events and validate media and transcripts | PASSED | Recording is not present when deactivate conversation is started and recording resumed after activate conversation is initiated. |
| 17 | Inbound | Update. Validate that update sent prior to call establishment do not contain SDP | Validate that update prior to call establishment do not contain SDP as expected | PASSED | UPDATE message is sent from SBC every 900 seconds without SDP |
| 18 | Inbound | Update. Validate that updates post call establishment contain SDP to modify session | If SBC uses update to modify session, ensure SDP is included | NOT APPLICABLE | No UPDATE with SDP is sent |
| 19 | Inbound | re-invites. Ensure re-invites that modify session include SDP | Ensure re-invites that modify session include SDP | PASSED | UPDATE message is sent to Google CCAI as part of hold and Resume scenarios |
| 20 | Inbound | Codec negotiation. Ensure that g711 u-law is preferred codec | Ensure we can prioritize g711 as preferred codec, note where SBC configures preferred codec | PASSED | |
| 21 | Inbound | 3 way conference. Determine requirements, record all leg. | Determine requirements, record all legs | PASSED | |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| 22 | Inbound | CCAI cloud project SETUP. Establish CCAI cloud project, provision the project with a GTP phone number for access (Create conversations/participants on the fly through SIP headers) | Verify project is SETUP, functional test to confirm you can connect to the GTP access phone number | PASSED | |
| 23 | Inbound | Establish CCAI cloud project, provision the project with a GTP phone number for access (Pre-creation of conversations/participants | Verify project is SETUP, functional test to confirm you can connect to the GTP access phone number | NOT APPLICABLE | This test case is not applicable for call recording |
| 24 | Inbound | Consultative transfer. Consultative transfer from 1. PSTN > User1 > User2 2. PSTN > User1 > PSTN user2 | | PASSED | |
| 25 | Inbound | Blind transfer. Blind transfer from 1. PSTN > User1 > User2 2. PSTN > User1 > PSTN user2 | | PASSED | |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| 26 | Validate Provisioning of trunk using self service | Validate Provisioning of trunk using self service | Use documentation to build trunk using self-service model | PASSED | |
| 27 | Inbound | Inbound call hold scenarios using a-law | Validate if media is present when expected, confirm Signaling events modify sdp properly, once call is move to hold active validate media and transcripts | PASSED | |
| 28 | Inbound | Inbound call: Called Party disconnects the call. using a a-law codec | "Verify Call is established with audio and transcripts from both participants Verify call is disconnected properly Validate media stays in region" | PASSED | |
| 29 | Inbound | Long duration call-Outbound Call- 1 hour max using a-law codec | Ensure siprec calls stay up for an hour, confirm transcripts are present for entire duration. | PASSED | UPDATE message is sent from SBC to Google CCAI every 15min (900 seconds) |
| 30 | Inbound | Inbound call: Configure trunk in non default region, | Verify Call is established with audio and transcripts from both participants Verify call is disconnected properly Validate media stays in region | PASSED | Testing conducted on US region |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| | | | | | |
| 31 | Outbound | Participant Labels test | Configure call info header to specify roles, ensure the media streams align, Frist media stream HUMAN_AGENT role and Second is END_USER. | PASSED | When the roles are set to "HUMAN AGENT" and "END USER," (Call-Info<http://dialogflow.googleapis.com/v2beta1/projects/ccai-389811/conversations/Sr_176025953025820257 1816?roles=HUMAN_AGENT,END_USER>;purpose=Goog-ContactCenter-Conversation) the transcript shows the first media stream with the participation role as "HUMAN AGENT," followed by "END USER." It showed 7/10 attempts. The call-id in the call-info header is sent with hyphen sign |
| 32 | Inbound | DTLS test | | Not supported | |
| 33 | Inbound | Conference TEST | Determine requirements, record all legs | PASSED | |

| ID | Title | Description | Expected Results | Status (Passed or Failed etc) | Observations |
|---|---|---|---|---|---|
| 34 | Inbound | Validate Call recording | Verify call recording is recorded throughout the call | PASSED | |