Configuration Guide for Google CCAI Agent Handoff Using Avaya Session Border Controller v10.2.1.1-104-25336

TekVizion

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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 Agent Handoff** using **Avaya Session Border Controller v10.2.1.1-104-25336**.

1.1.1 TekVizion Labs

TekVizion Labs™ 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 Center, 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 Avaya Session Border Controller (ASBC) v10.2.0.0-86-24077 configuration.

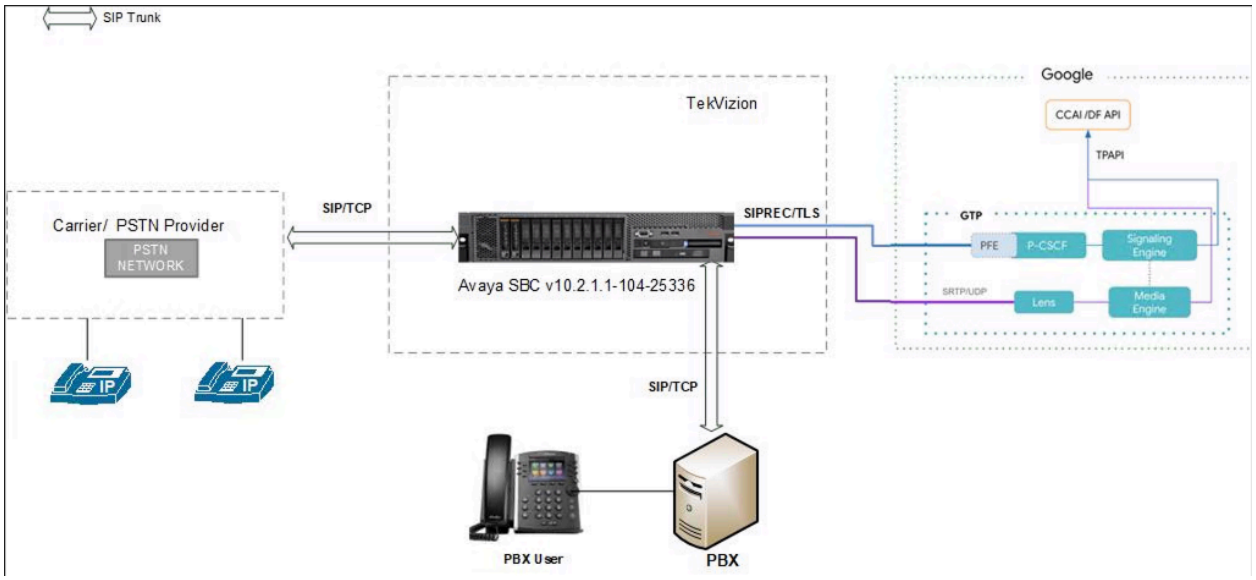

Figure 1: SIP Trunk Lab Reference Network

The lab network consists of the following components:

- Google CCAI Cloud Environment
- Avaya Session Border Controller (ASBC) v10.2.1.1-104-25336
- OnPrem PBX

3 Hardware Components

- Running on ESXi- 7.0.3: Avaya SBC v10.2.1.1-104-25336

4 Software Requirements

- Avaya SBC v10.2.1.1-104-25336
- OnPrem PBX

5 Google CCAI Certified Avaya SBC Version

Table 1 – Google CCAI Certified Avaya Version

Google CCAI Certified Avaya Version	
Avaya SBC	10.2.1.1-104-25336

6 Configuration

6.1 Configuration Checklist

Below are the steps that are required to configure Avaya SBC.

Table 2 – Avaya SBC Configuration Steps

Step	Description	Reference
Step 1	Avaya SBC Login	Section 6.4.1
Step 2	Server Interworking	Section 6.4.2
Step 3	SIP Servers	Section 6.4.3
Step 4	Topology Hiding	Section 6.4.4
Step 5	Routing	Section 6.4.5
Step 6	Signaling Manipulation	Section 6.4.6
Step 7	End Point Policy Groups	Section 6.4.7
Step 8	Media Interface	Section 6.4.8
Step 9	Network Management	Section 6.4.9
Step 10	Signaling Interface	Section 6.4.10
Step 11	End Point Flow	Section 6.4.11
Step 12	TLS Configuration	Section 6.4.12

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
Media	74.125.X.X
OnPrem PBX	
LAN IP Address	10.80.X.X
Avaya 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 API configuration for Call recording.

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

6.4 Avaya ASBC Configuration

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

6.4.1 Avaya SBC Login

- Log into Avaya Session Border Controller (ASBC) web interface by typing **"https://X.X.X.X/sbc".**
- Enter the **Username** and **Password**
- Click **Log In**

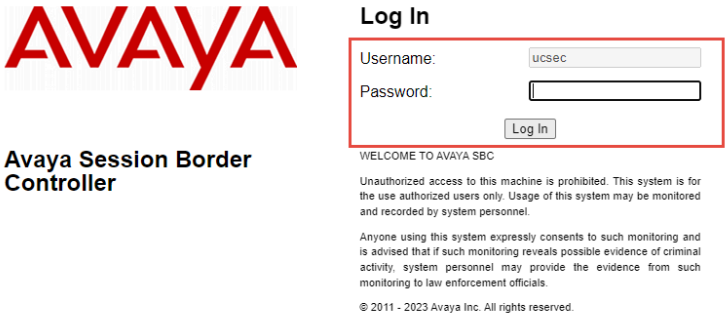

Figure 2: Avaya ASBC Login

- Device, select **Name(avayasbc1)** from drop down to expand the configuration for Avaya SBC.

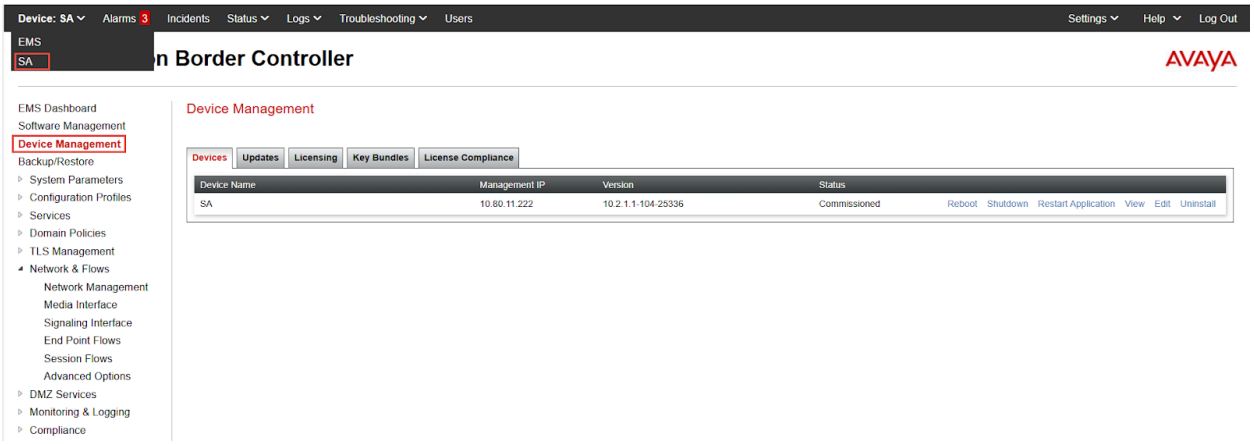

Figure 3: Selection of Avaya SBC Device

6.4.2 Server Interworking

Server Interworking for **CUCM**

- Navigate: **Configuration Profiles > Server Interworking**
- Select the default Interworking Profile avaya-ru, click Clone
- Set Clone Name: **CUCM**
- Click **Finish**

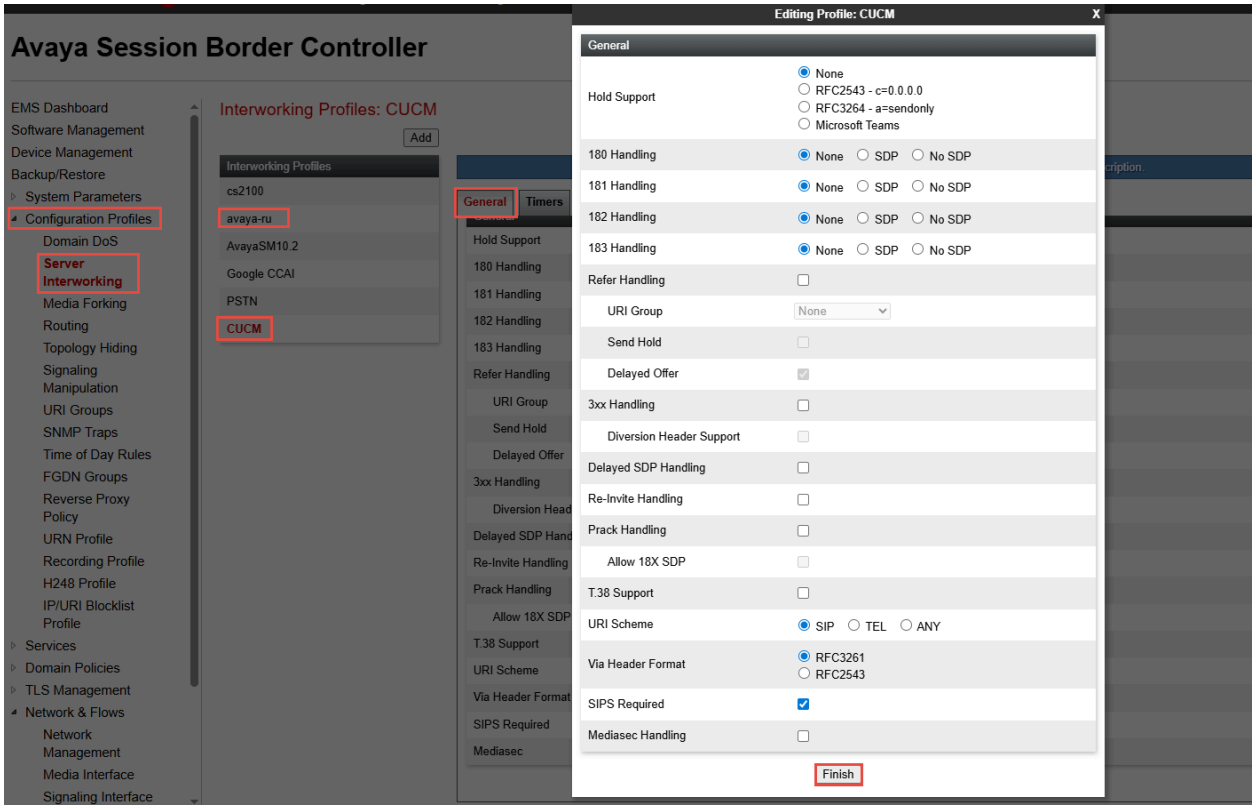

Figure 4: Server Interworking Profile for CUCM

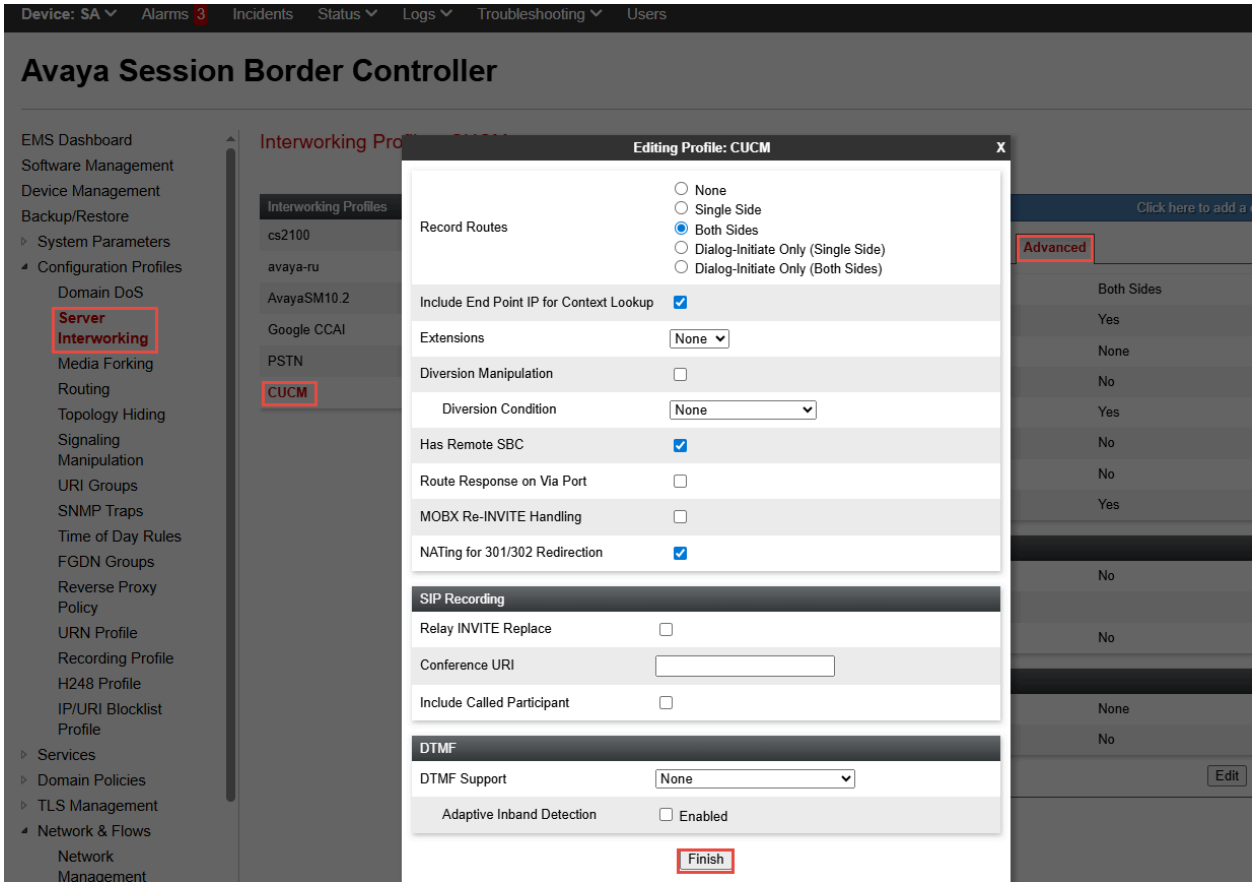

Figure 5: Server Interworking Profile for CUCM (Cont.)

Server Interworking for **Google CCAI**

- Repeat the same procedure to create the Interworking Profile towards **Google CCAI**.

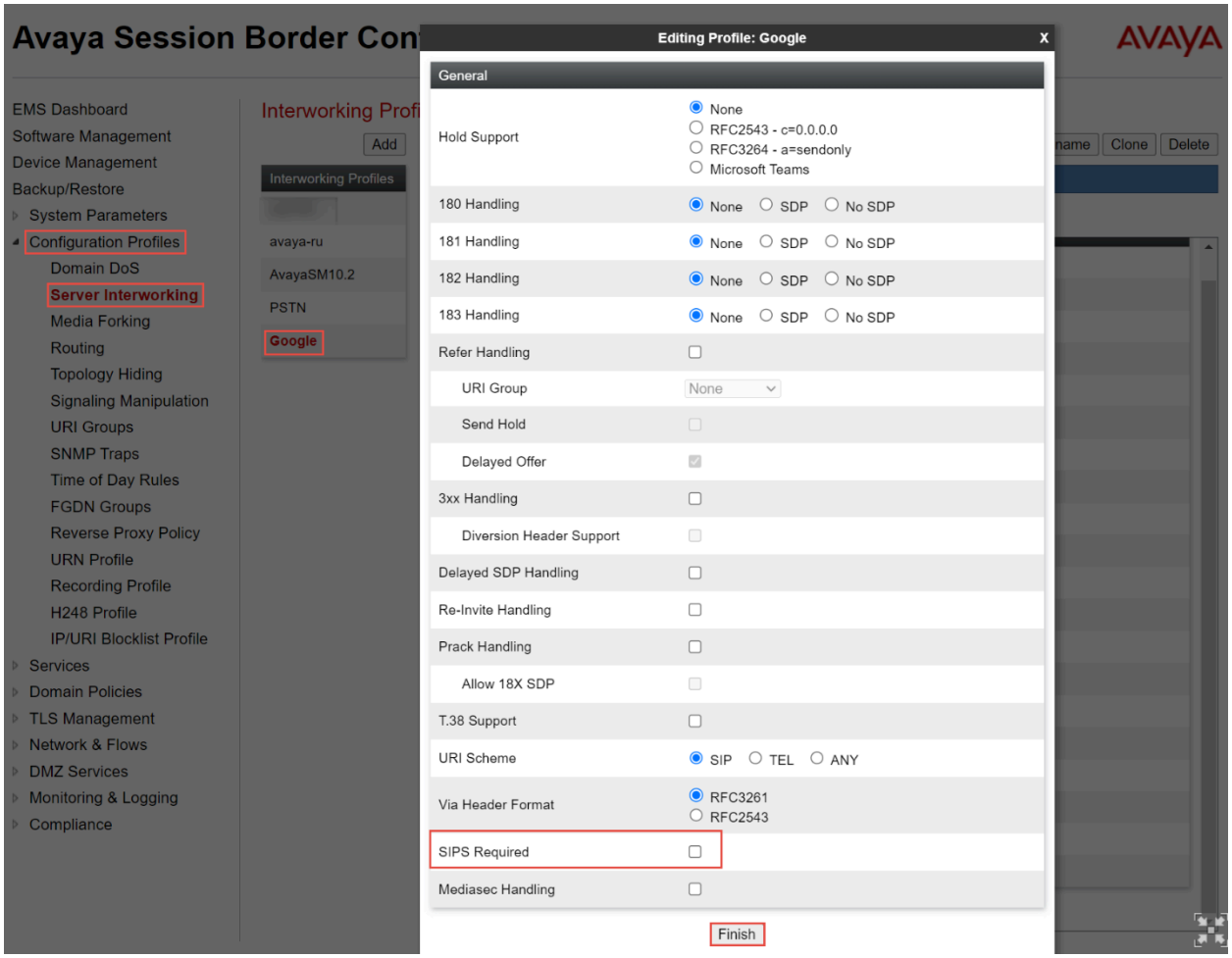

Figure 6: Server Interworking Profile for Google CCAI

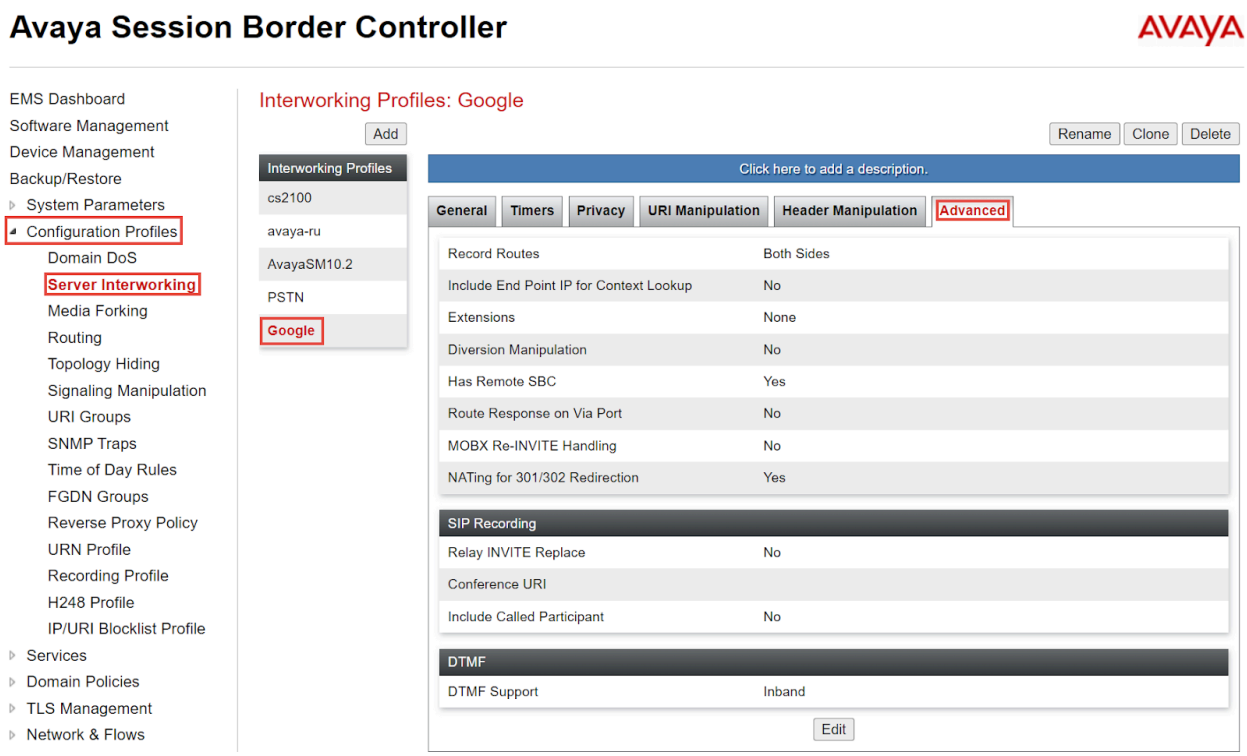

Figure 7: Server Interworking Profile for Google CCAI (Cont.)

Server Interworking for **PSTN Gateway**

- Repeat the same procedure to create the Interworking Profile towards **PSTN Gateway.**

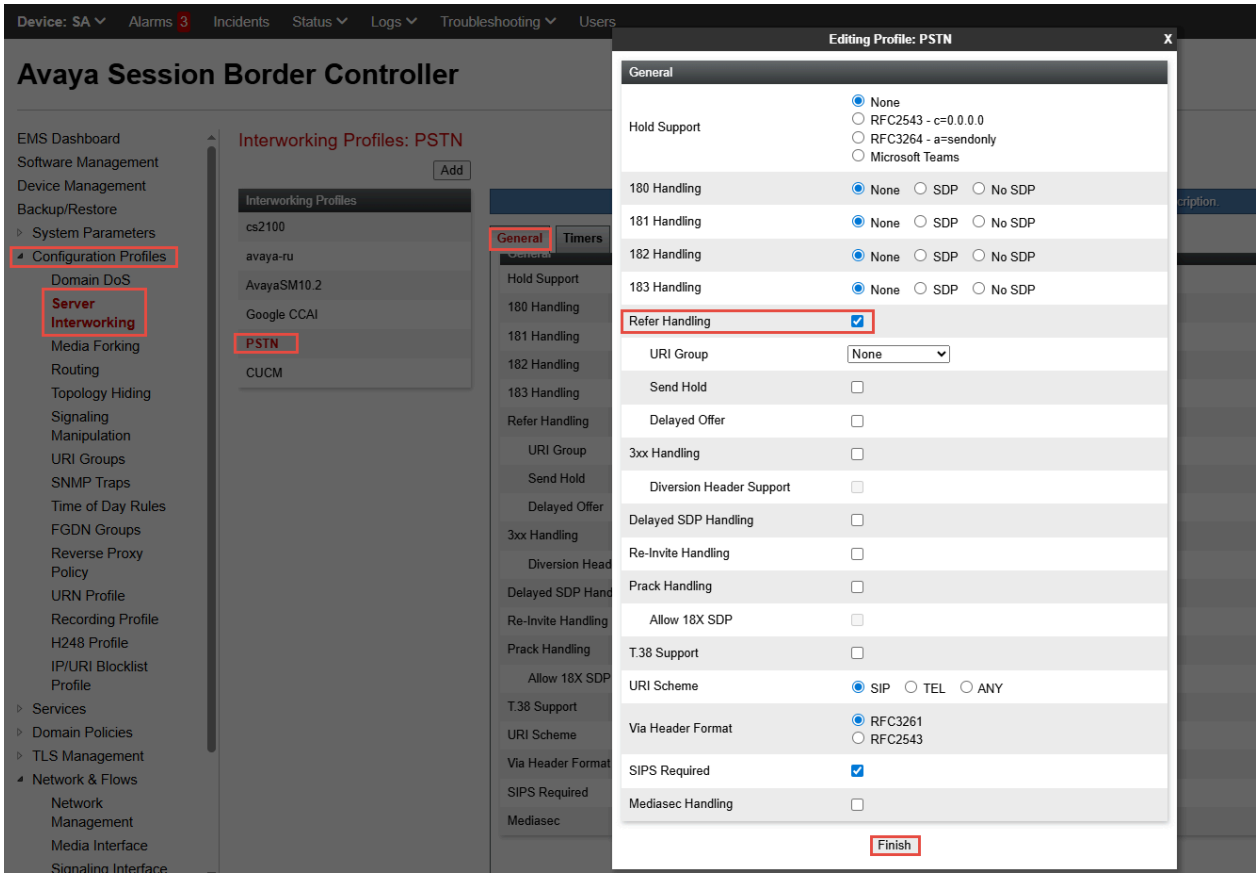

Figure 8: Server Interworking Profile for PSTN Gateway

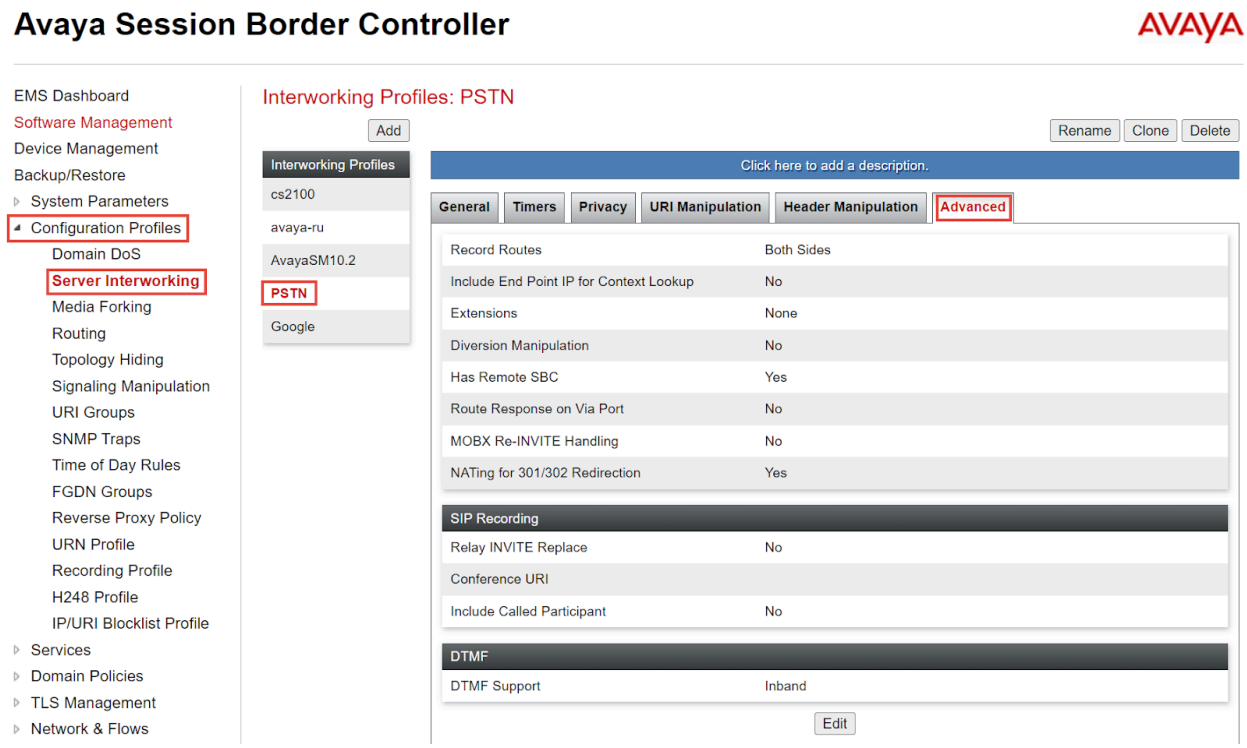

Figure 9: Server Interworking Profile for PSTN Gateway (Cont.)

6.4.3 SIP Servers

SIP Server for **CUCM**

- Navigate: **Services > SIP Servers**
- Click **Add**
- Set Profile Name: **CUCM**
- Click **Next**

Figure 10: SIP Server For CUCM

- Set Server Type: Select Trunk Server from the drop down
- Set IP Address/FQDN/CIDR Range: Enter the CUCM IP Address
- Set Port: **5060**
- Set Transport: **TCP**
- Click **Finish**

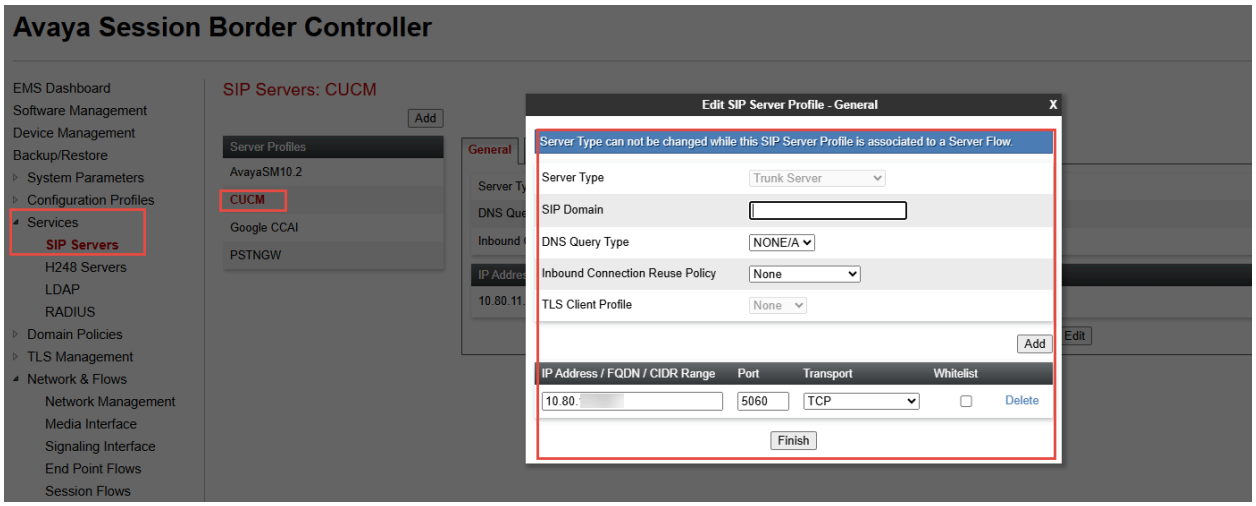

Figure 11: SIP Server for CUCM (Cont.)

- Navigate: **Heartbeat** tab
- Set Enable Heartbeat: **Checked**
- Click **Finish**

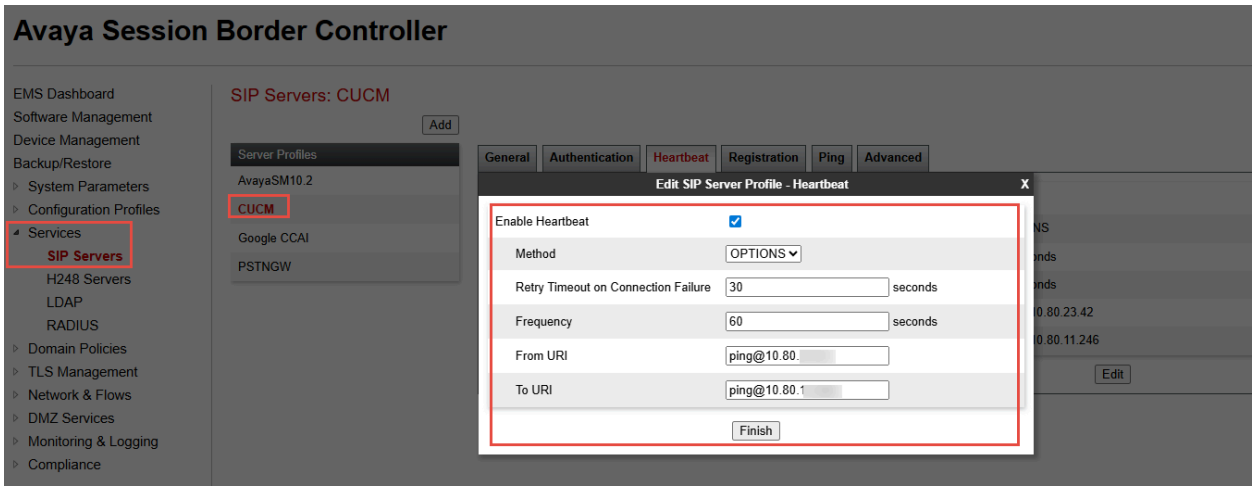

Figure 12: SIP Server for CUCM (Cont.)

- Navigate: **Ping** tab
- Set Enable Ping: **Checked**
- Click **Finish**

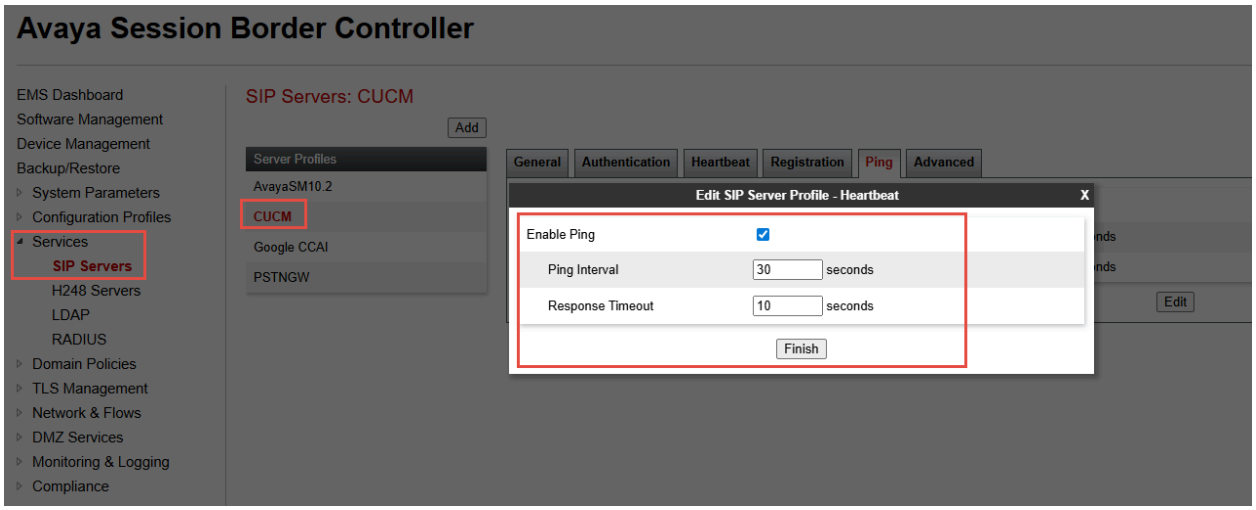

Figure 13: SIP Server for CUCM (Cont.)

- Navigate: **Advanced** tab
- Set Enable Grooming: **Checked**
- Set Interworking Profile: Select **CUCM**

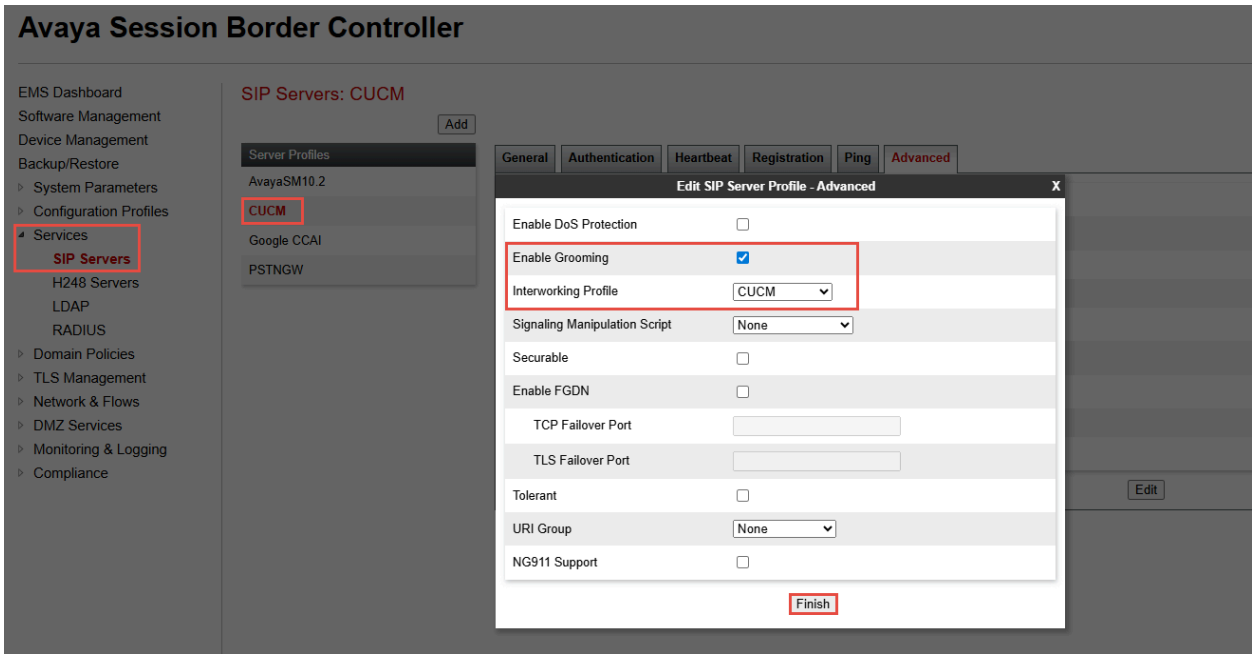

Figure 14: SIP Server for CUCM (Cont.)

SIP Server for **Google CCAI**

- Navigate: **Services > SIP Servers**
- Click **Add**
- Set Profile Name: **Google CCAI**
- Click **Next**

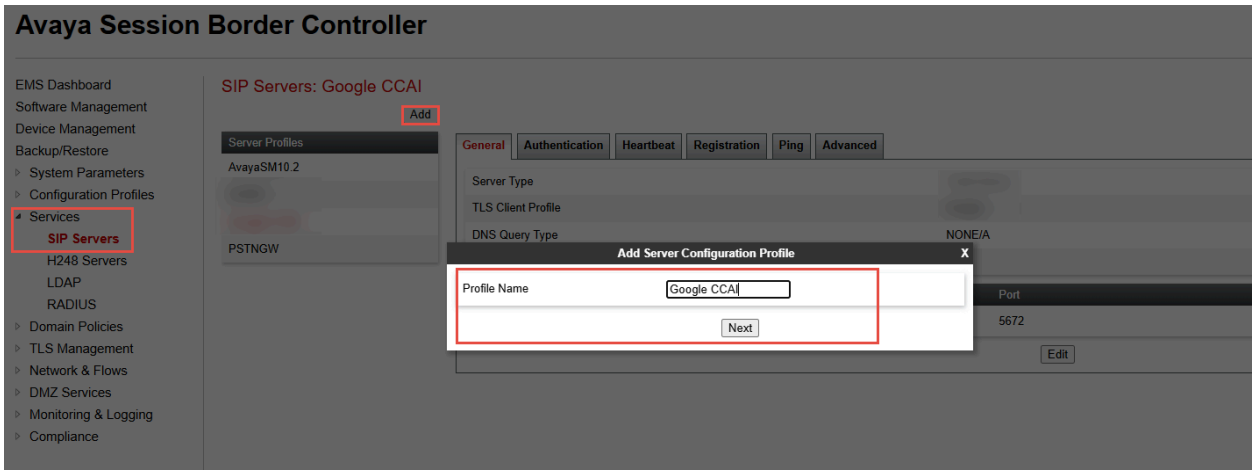

Figure 15: SIP Server for Google CCAI

- Set Server Type: Select Trunk Server from the drop down
- Set IP Address/FQDN: Enter Google CCAI FQDN
- Set Port: **5672**
- Set Transport: **TLS**
- Click **Finish**

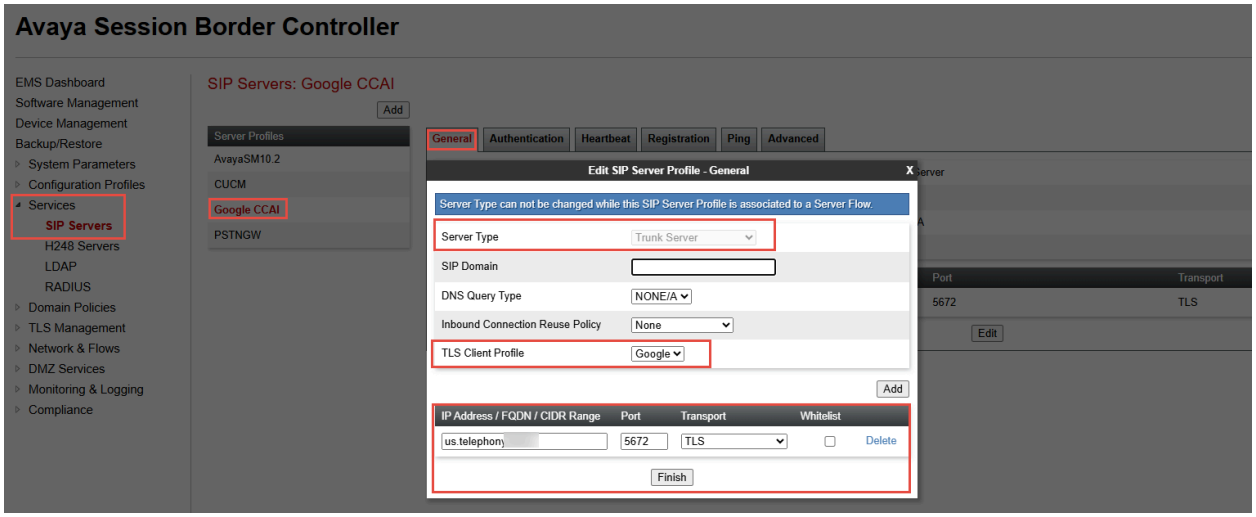

Figure 16: SIP Server for Google CCAI (Cont.)

- Navigate: **Heartbeat** tab
- Set Enable Heartbeat: **Checked**
- Click **Finish**

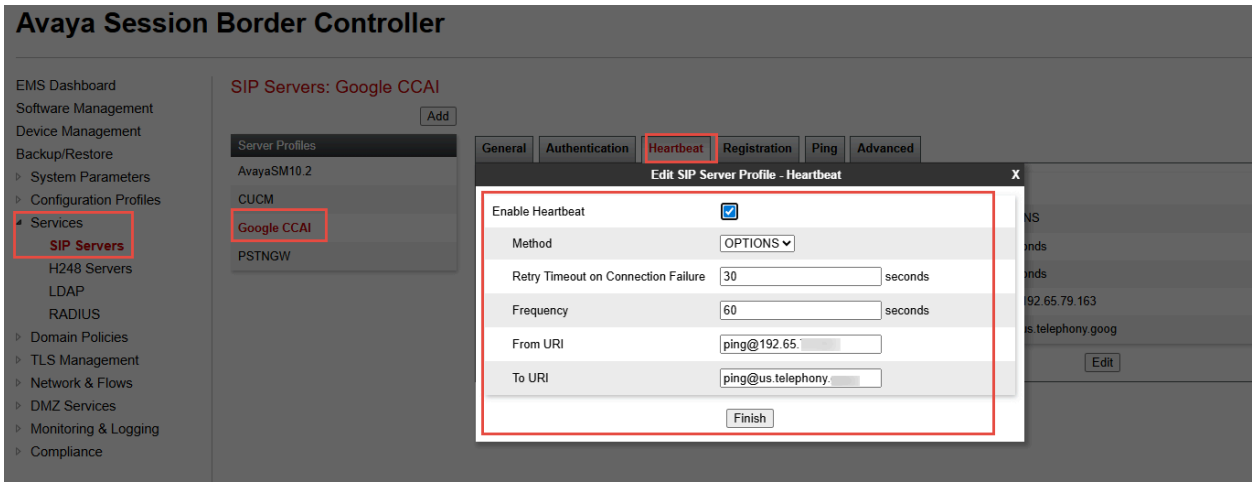

Figure 17: SIP Server for Google CCAI (Cont.)

- Navigate to **Ping** tab
- Set Enable Ping: **Checked**
- Click **Finish**

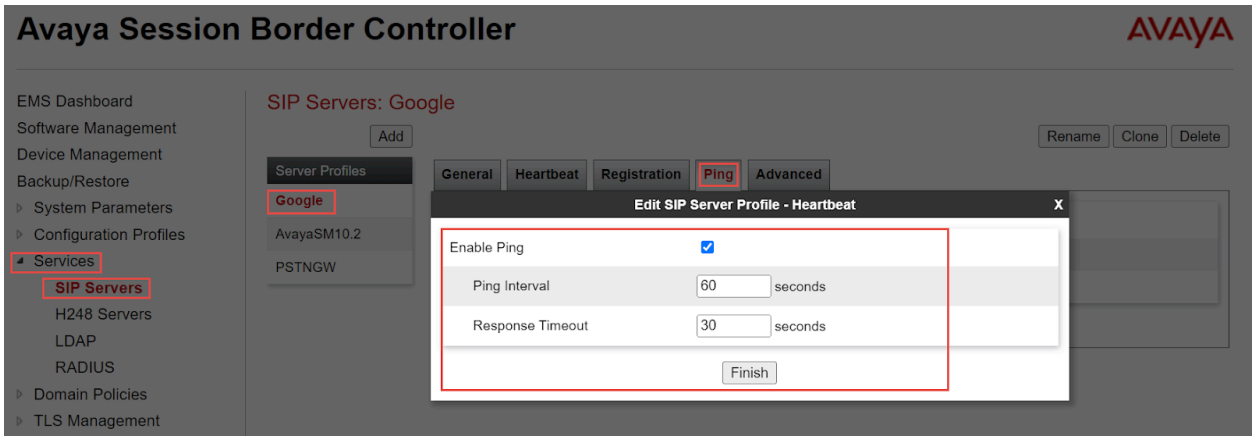

Figure 18: SIP Server for Google CCAI (Cont.)

- Navigate: **Advanced** tab
- Set Enable Grooming: **Checked**
- Set Interworking Profile: Select **Google**
- Click **Finish**

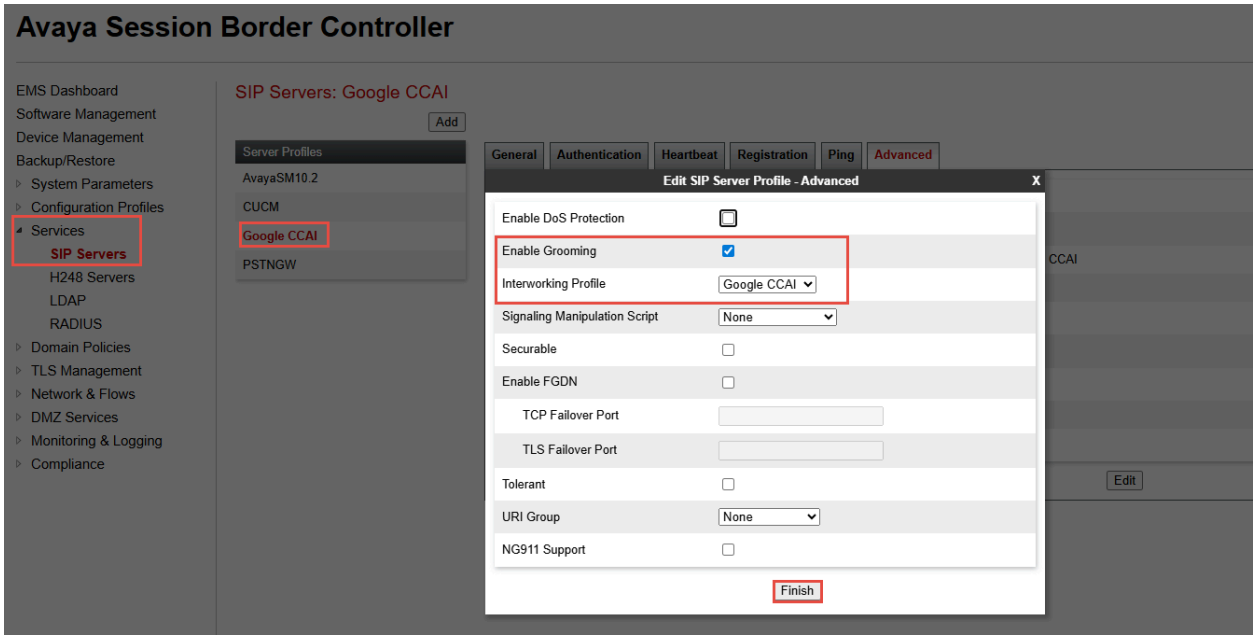

Figure 19: SIP Server for Google CCAI (Cont.)

SIP Server for **PSTN Gateway**

- Navigate: **Services > SIP Servers**
- Click **Add**
- Set Profile Name: **PSTNGW**
- Click **Next**

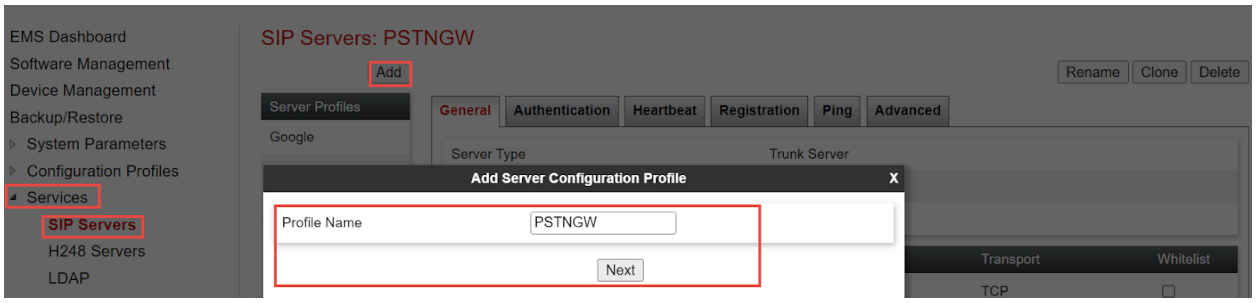

Figure 20: SIP Server for PSTN Gateway

- Set Server Type: Select Trunk Server from the drop down
- Set IP Address/FQDN: Enter the PSTN IP address.
- Set Port: **5060**
- Set Transport: **TCP**
- Click **Finish**

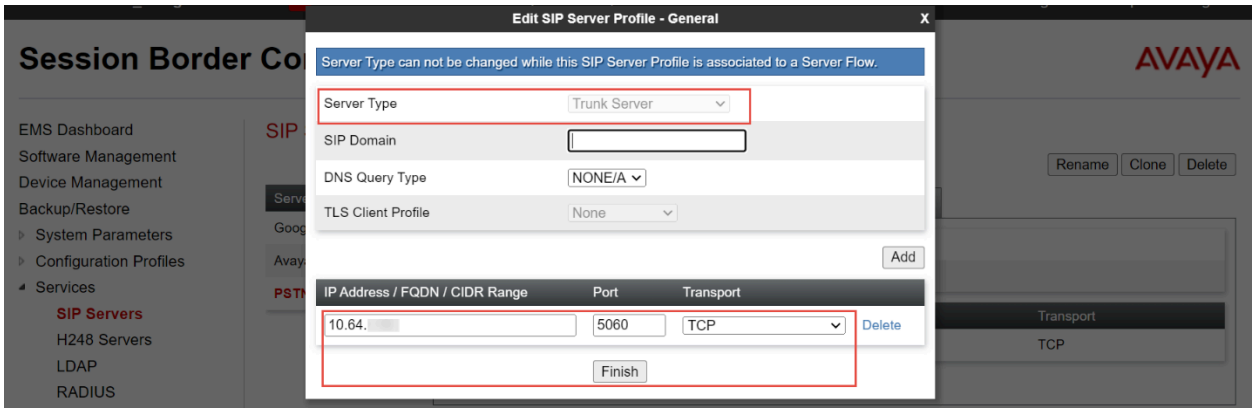

Figure 21: SIP Server for PSTN Gateway (Cont.)

- Navigate: **Heartbeat** tab
- Set Enable Heartbeat: **Checked**
- Click **Finish**

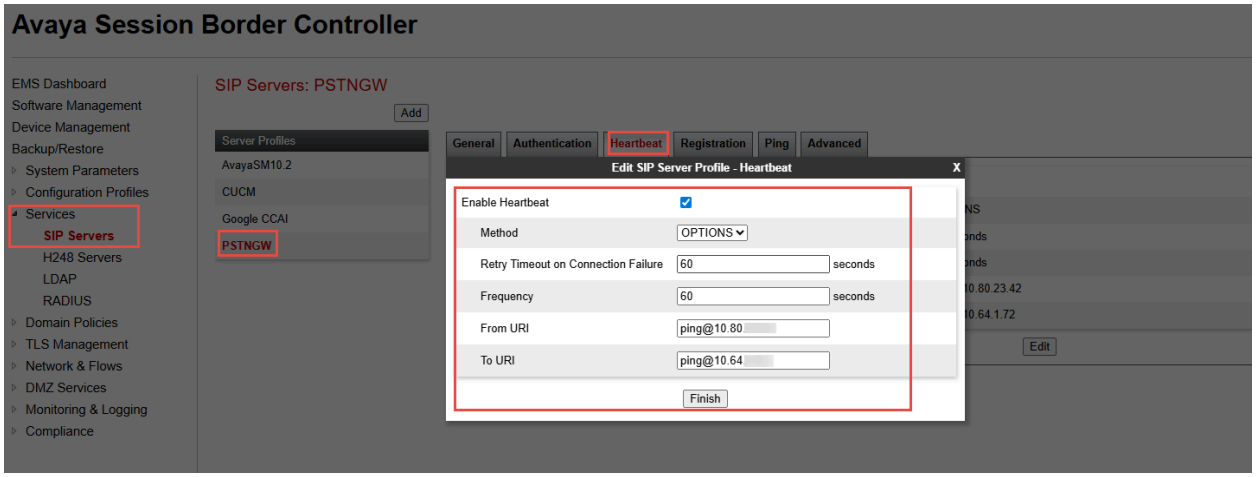

Figure 22: SIP Server for PSTN Gateway (Cont.)

- Navigate: **Ping** tab
- Set Enable Ping: **Checked**
- Click **Finish**

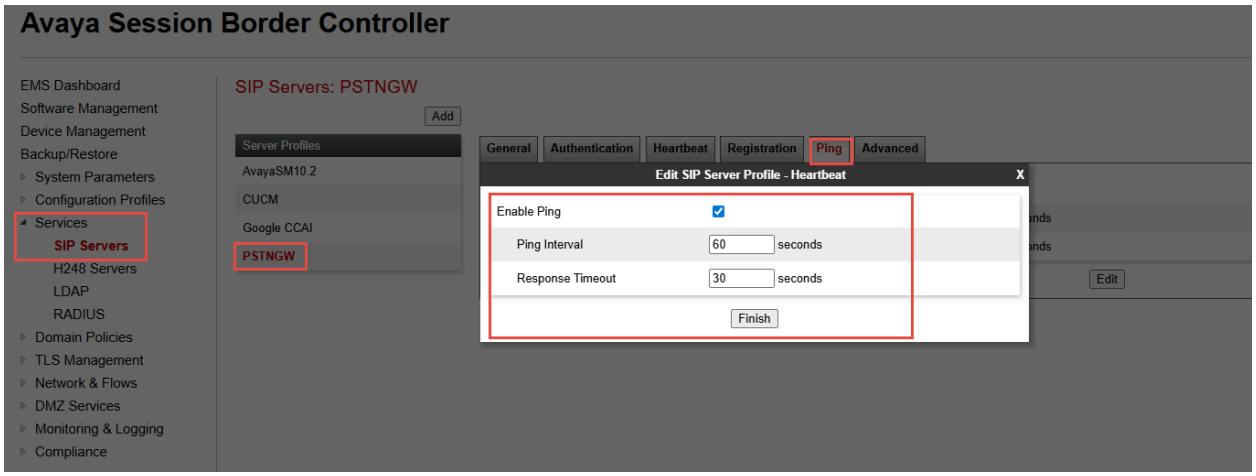

Figure 23: SIP Server for PSTN Gateway (Cont.)

- Navigate: **Advanced** tab
- Set Enable Grooming: **Checked**
- Set Interworking Profile: Select **PSTN**
- Click **Finish**

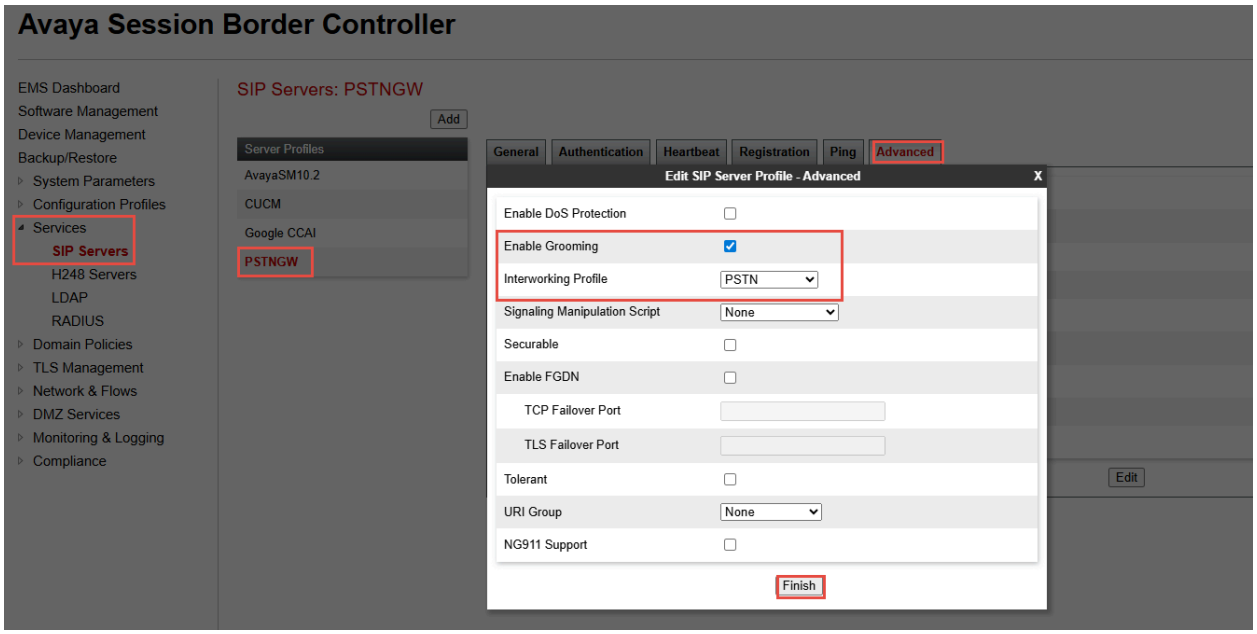

Figure 24: SIP Server for PSTN Gateway (Cont.)

6.4.4 Topology Hiding

Topology Hiding profile for **Google**

- Topology Hiding profiles are added for Google CCAI to overwrite and hide certain headers
- Navigate: **Configuration Profiles > Topology Hiding**
- Click **Add**
- Set Profile Name: **Google CCAI**
- Click **Next**

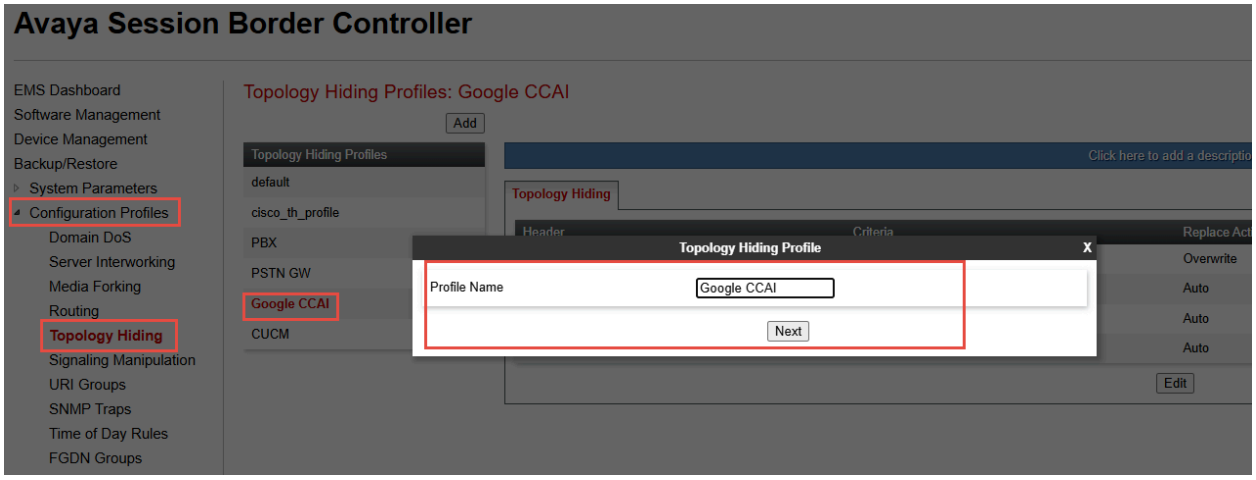

Figure 25: Topology Hiding for Google CCAI

- Select the newly created profile **Google** and Click **Edit**
- Overwrite Value: Replace the **From Header** with Google CCAI Facing Public IP
- Click **Finish**

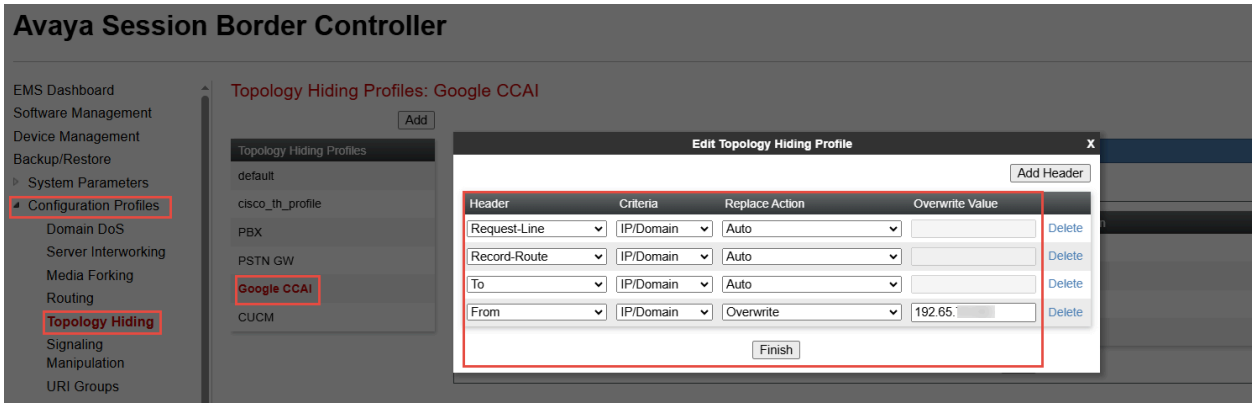

Figure 26: Topology Hiding for Google CCAI (Cont.)

- Select the newly created profile **CUCM** and Click **Edit**
- Overwrite Value: Replace the **From Header** with Google CCAI Facing Public IP
- Click **Finish**

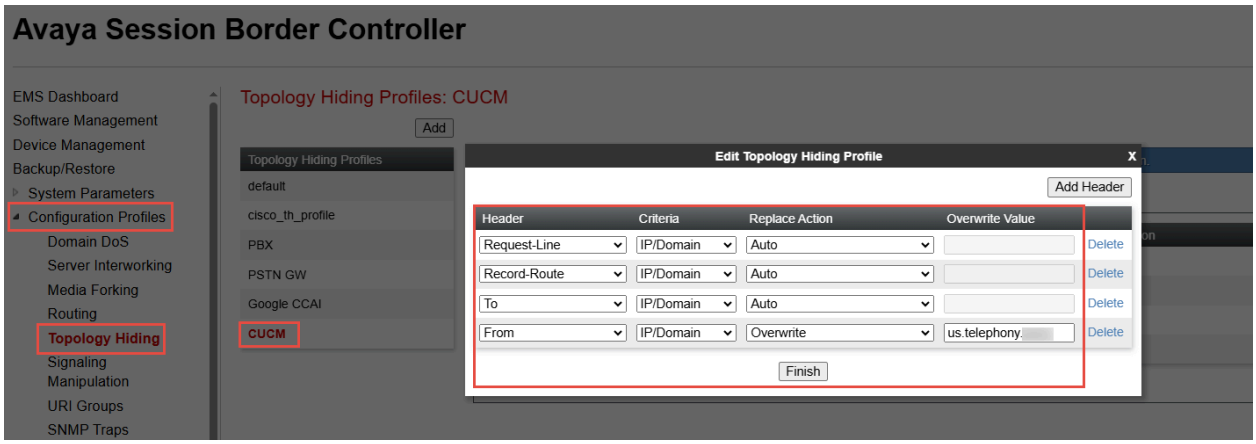

Figure 27: Topology Hiding for CUCM

- Select the newly created profile **PSTNGW** and Click **Edit**
- Click **Finish**

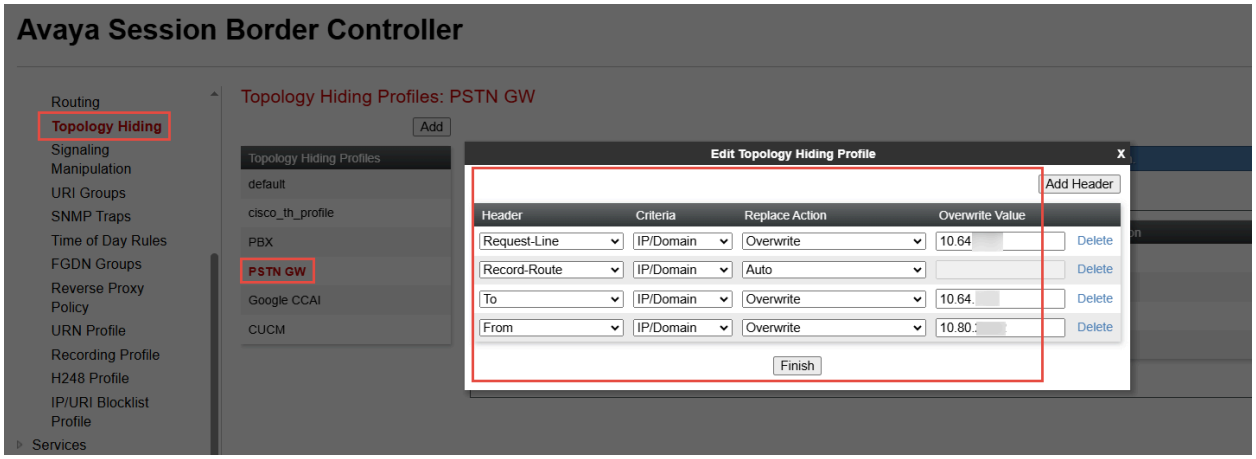

Figure 28: Topology Hiding for PSTN Gateway

6.4.5 Routing

Routing for **CUCM**

- Navigate: **Configuration Profiles > Routing**
- Click **Add**
- Set Profile Name: **CUCM**
- Click **Next**

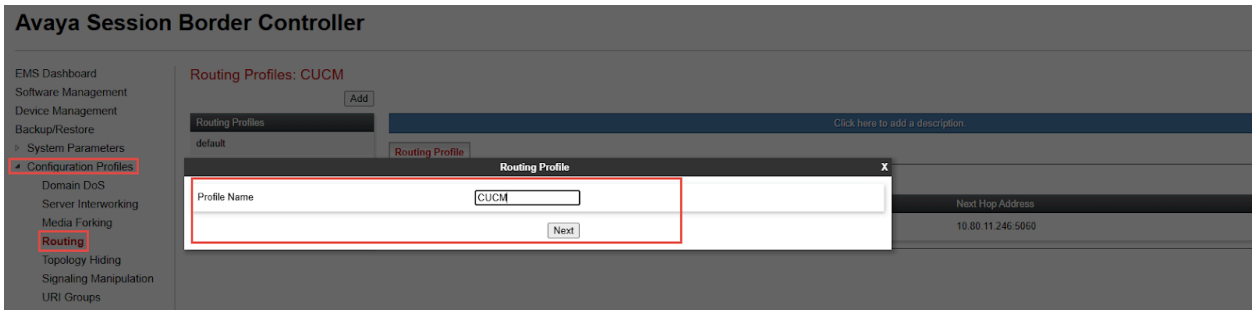

Figure 29: Routing for CUCM

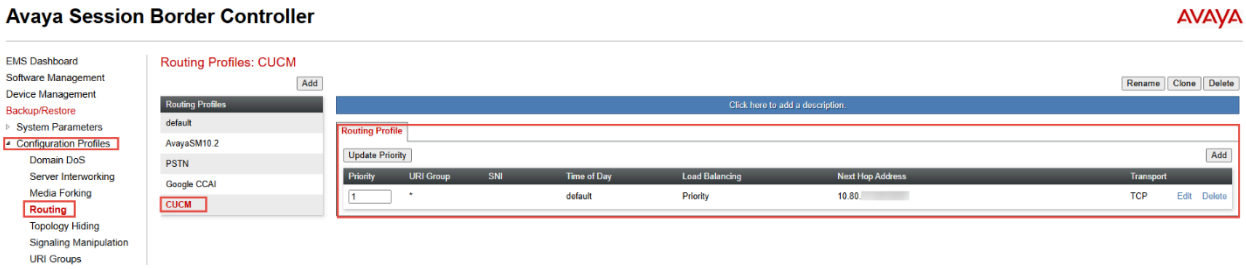

Figure 30: Routing for CUCM (Cont.)

- At Routing Profile Window, Click **Add**
- Set Priority/Weight: **1**
- Select **SIP Server Profile, Next Hop Address** from the drop-down menu
- Click **Finish**

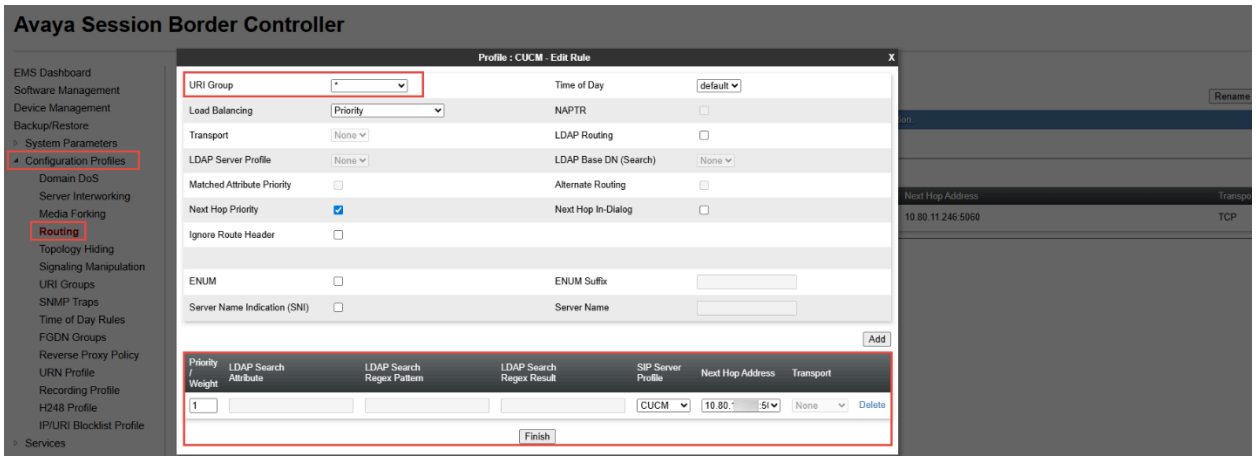

Figure 31: Routing for CUCM (Cont.)

Routing for **PSTN Gateway**

- Navigate: **Configuration Profiles > Routing**
- Click **Add**
- Set Profile Name: **PSTNGW**
- Click **Next**

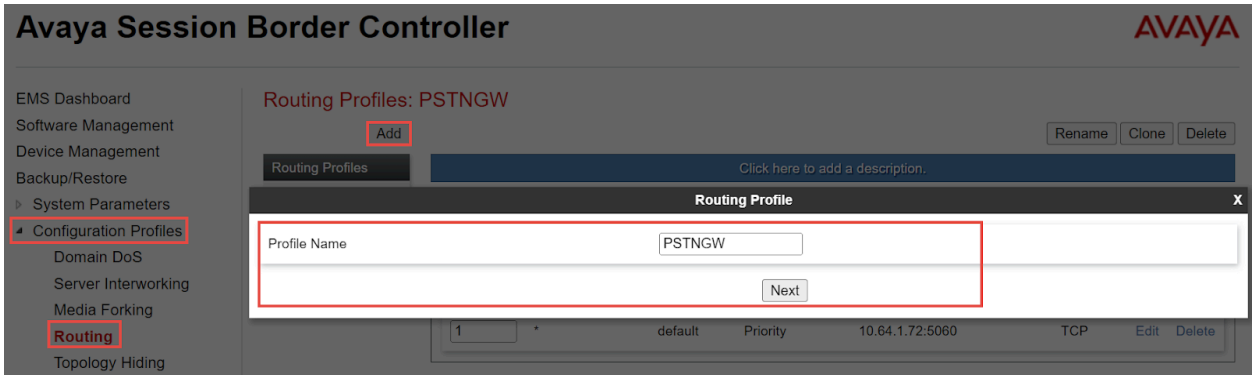

Figure 32: Routing for PSTN Gateway

- At Routing Profile Window, Click **Add**
- Set Priority/Weight: **1**
- Select **SIP Server Profile, Next Hop Address** from the drop-down menu
- Click **Finish**

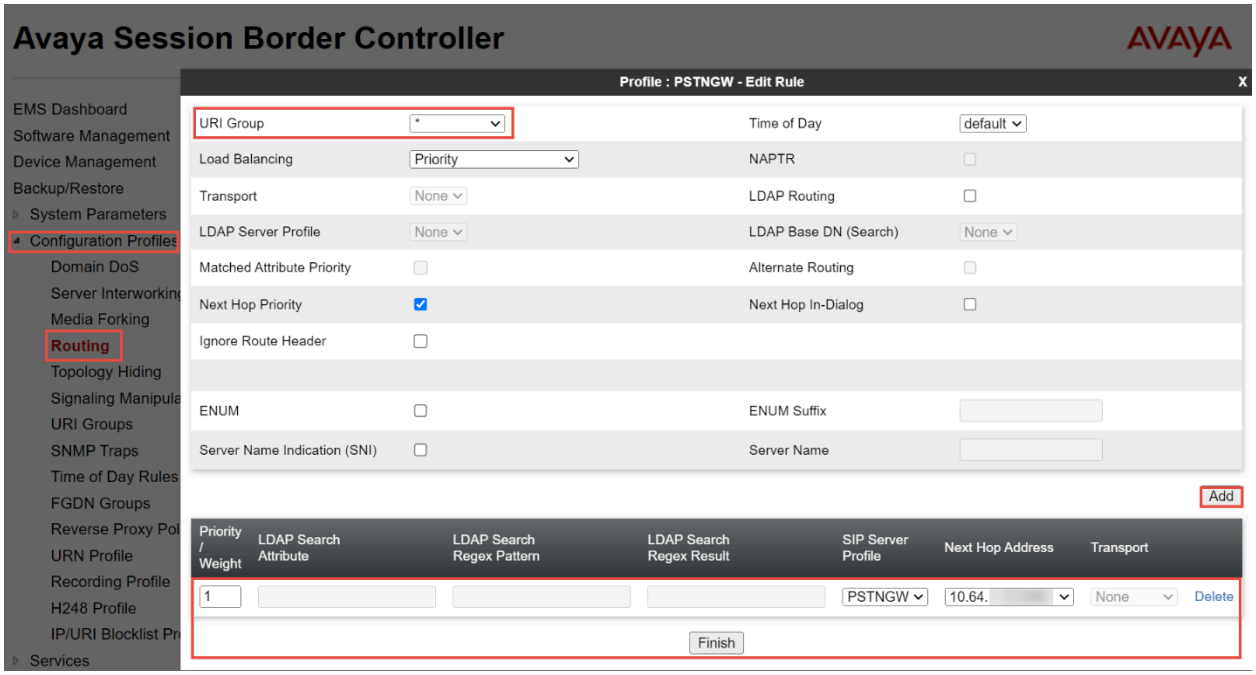

Figure 33: Routing for PSTN Gateway (Cont.)

Routing for **Google CCAI**

- Navigate: **Configuration Profiles > Routing**
- Click **Add**
- Set Profile Name: **Google**
- Click **Next**

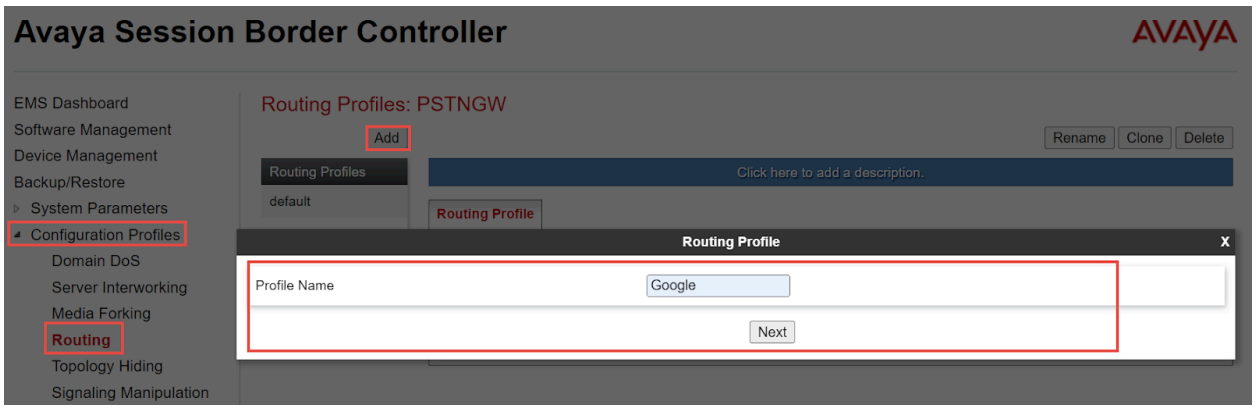

Figure 34: Routing for Google CCAI

- At Routing Profile Window, Click **Add**
- Set Priority/Weight: **1**
- Select **SIP Server Profile, Next Hop Address** from the drop-down menu
- Click **Finish**

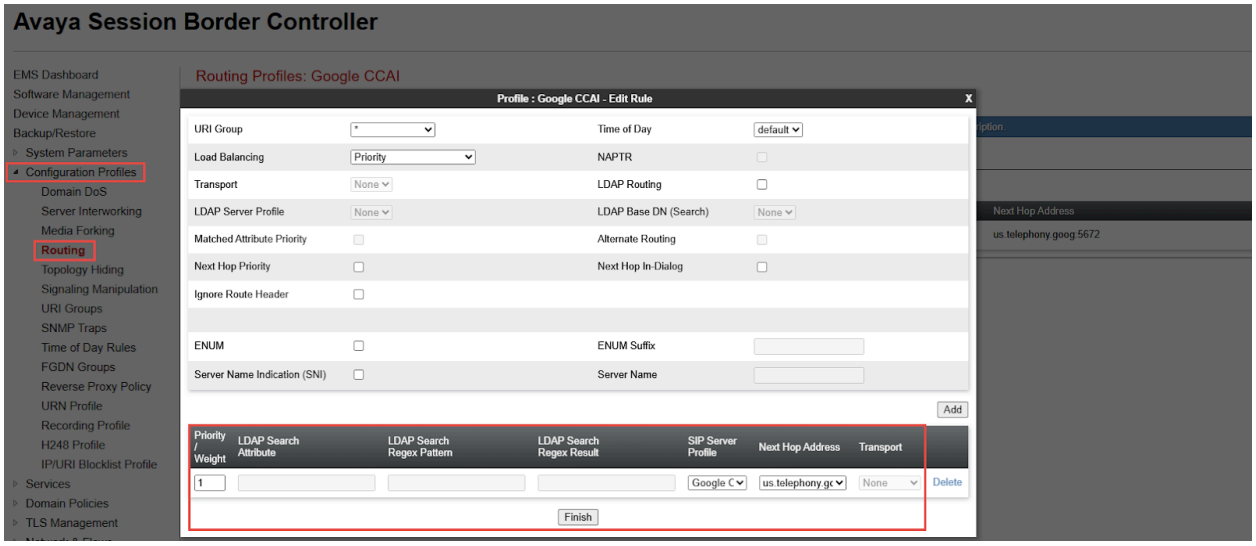

Figure 35: Routing for Google CCAI (Cont.)

6.4.6 Signaling Manipulation

- Navigate: **Configuration Profiles > Signaling Manipulation**
- Click **Add**
- Title: **Google**
- Click **Save**
- Below sigma script is created to add **Call-Info** header towards Google CCAI with the Dialog Flow API request along with the Conversation ID.
- Avaya signaling manipulation does not allow to add double slash (http://) in the manipulation, hence "**&slash"** is added to the **%baseURI** as shown below. Later "**&slash"** is replaced with symbol **"/"** using manipulations.
- **%baseUri** value provided below is a reference value. Project name("**ccai-38XXXXXconversations"**) present in the call-info header will vary according to the project created by user. **Ab_** is just an identifier, you can use any values which matches the regex pattern requirement of call info header.

```
within session "all"
{
   act on request where %DIRECTION="OUTBOUND" and
%ENTRY_POINT="POST_ROUTING" and %METHOD="INVITE"
   {
      %aor = %HEADERS["Call-ID"][1];
      %baseUri =
"<http:&slash/dialogflow.googleapis.com/v2beta1/projects/ccai-389811/conversations/
Sr_";
      append( %baseUri, %aor);
```

```
            %newUri1 = ">;purpose=Goog-ContactCenter-Conversation";
            append( %baseUri, %newUri1);
            %HEADERS["Call-Info"][1] = %baseUri;
            %HEADERS["Call-Info"][1].URI.regex_replace("&slash","/");
            %HEADERS["Request_Line"][1].URI.USER.regex_replace("^.*", "+1314944XXXX");
            %HEADERS["TO"][1].URI.USER.regex_replace("^.*", "+1314944XXXX");
            %HEADERS["FROM"][1].URI.USER.regex_replace("^.....", "+1214550XXXX");
            %HEADERS["Allow"][1].regex_replace(", UPDATE,", "");
        }

}
```

Figure 36: Signaling Manipulation - Google CCAI

- Navigate: **Configuration Profiles > Signaling Manipulation**
- Click **Add**
- Title: **CUCM**
- Click **Save.**

```
within session "all"
{
  act on request where %DIRECTION="OUTBOUND" and
%ENTRY_POINT="POST_ROUTING" and %METHOD="INVITE"
  {

    %HEADERS["Request_Line"][1].URI.USER.regex_replace("^.....",
"+1972852XXXX");
    %HEADERS["TO"][1].URI.USER.regex_replace("^.....", "+1972852XXXX");
    %HEADERS["FROM"][1].URI.USER.regex_replace("^.....", "+1214550XXXX");

  }
```

```
}
```

6.4.7 End Point Policy Groups

End Point Policy Group for **Google CCAI**

- A new End Point Policy Group has been created for Avaya Aura Session Manager.
- Navigate: **Domain Policies > End Point Policy Groups**
- Select **default-low** under Policy Groups
- Click **Clone**
- Set Group Name: **Google CCAI**
- Click **Next**

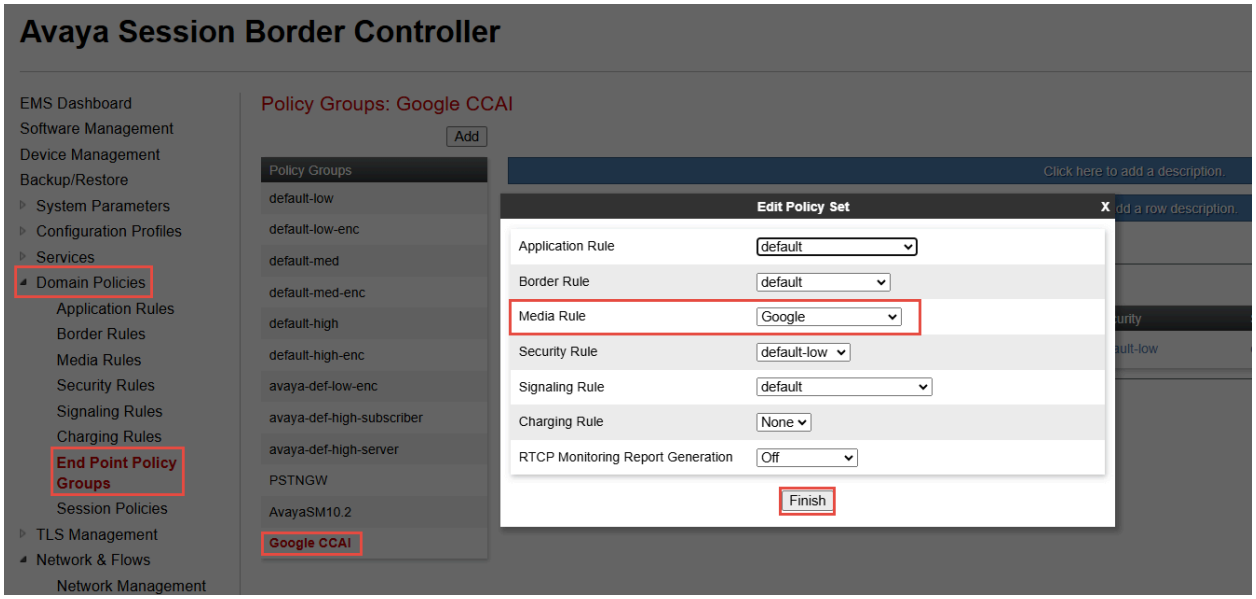

Figure 37: End Point Policy Group for Google CCAI

End Point Policy Group for **PSTN Gateway**

- Repeat the same steps to create End Policy Group for **PSTNGW**

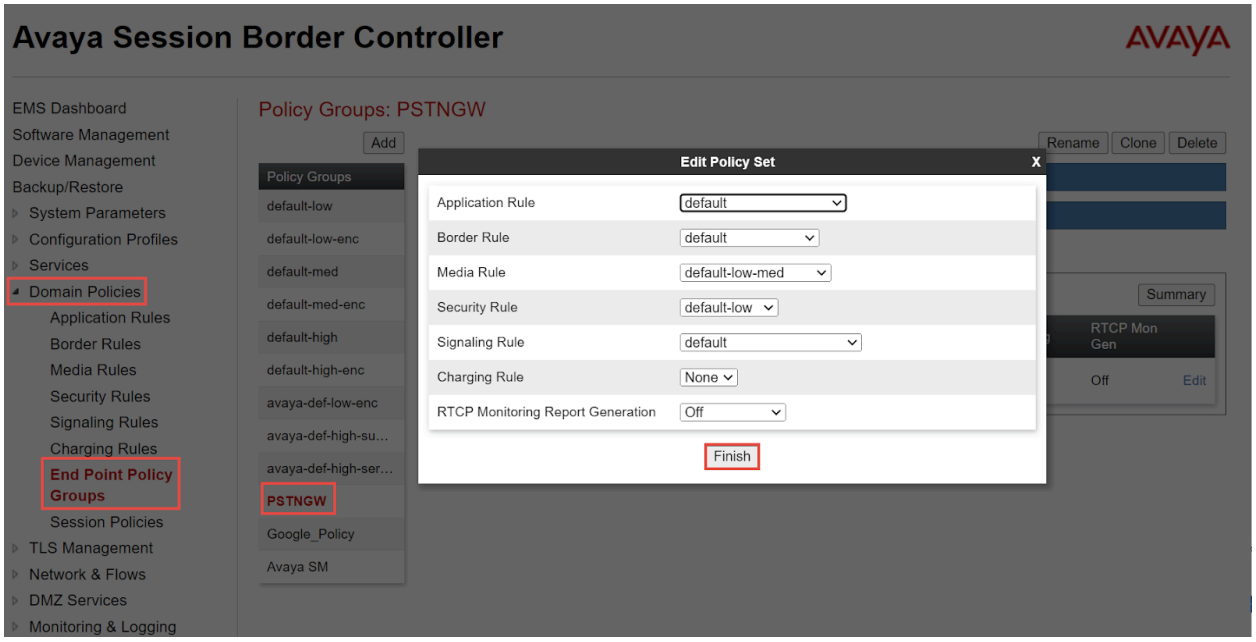

Figure 38: End Point Policy Group for PSTN Gateway

6.4.8 Media Interface

- Navigate: **Network & Flows > Media Interface**. Click **Add**
- Set Name: **Google_MI** is given here
- Set IP Address: Select LAN_PBX from the drop down and the IP address populates automatically. The IP address for Interface facing Google is **192.65.X.X**
- Set Port Range: **35000-40000**
- Click **Finish**

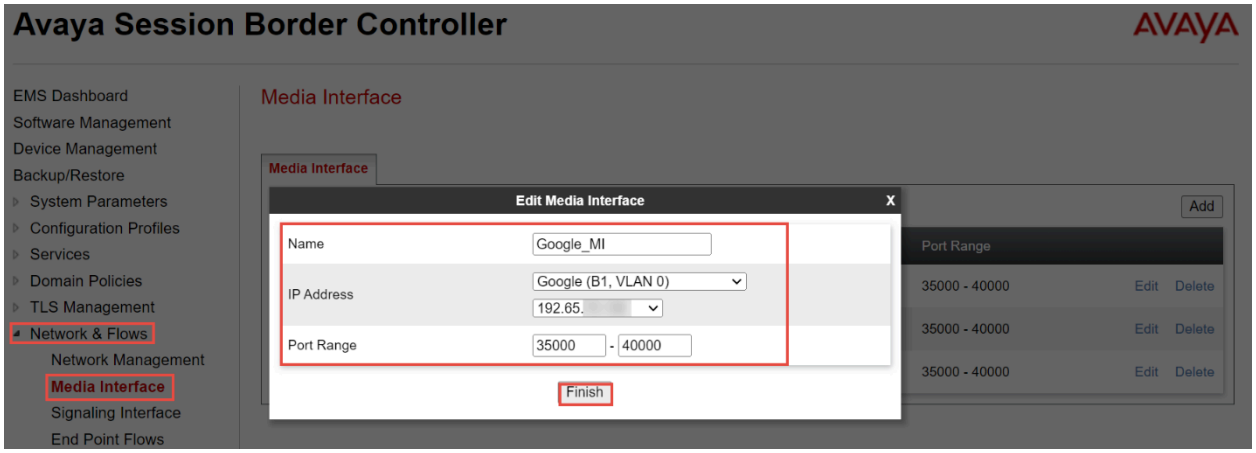

Figure 39: Media Interface Facing Google CCAI

- Repeat the same steps to create a Media Interface facing **PSTN Gateway**

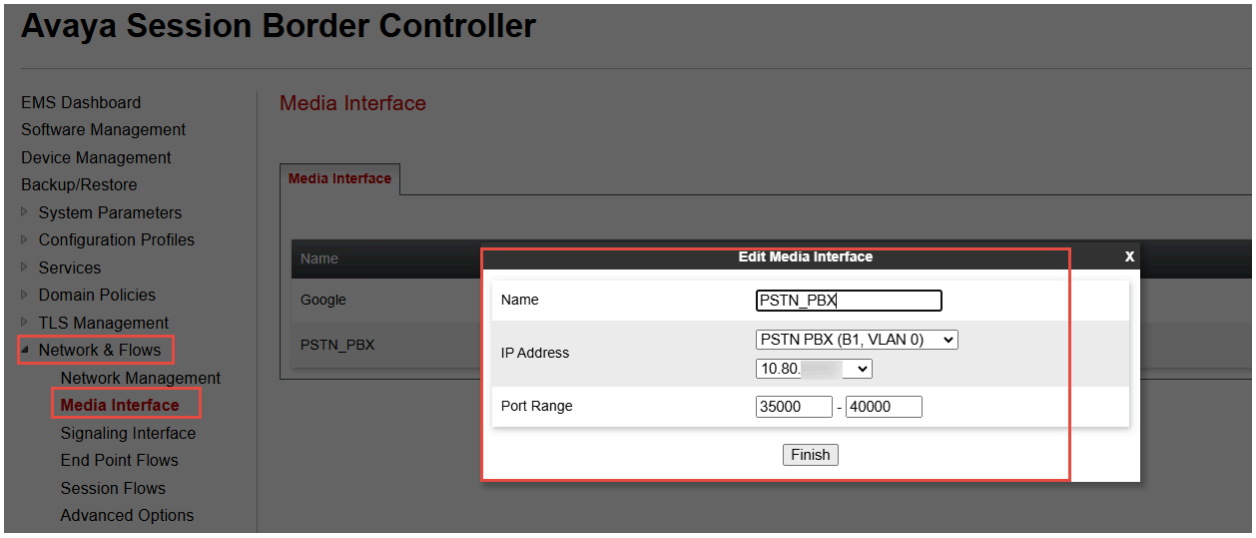

Figure 40: Media Interface Facing PSTN Gateway

6.4.9 Network Management

Network Management for **Google**

- Navigate: **Network & Flows > Network Management**. Click **Add**, new Add Network Interface window appears
- Set Name: **Google** is given for the network facing **Google**
- Set **default Gateway IP Address**
- Set **Network Prefix or Subnet Mask**
- Set **Interface**
- Set **IP Address** facing Avaya Aura SM
- Click **Finish**

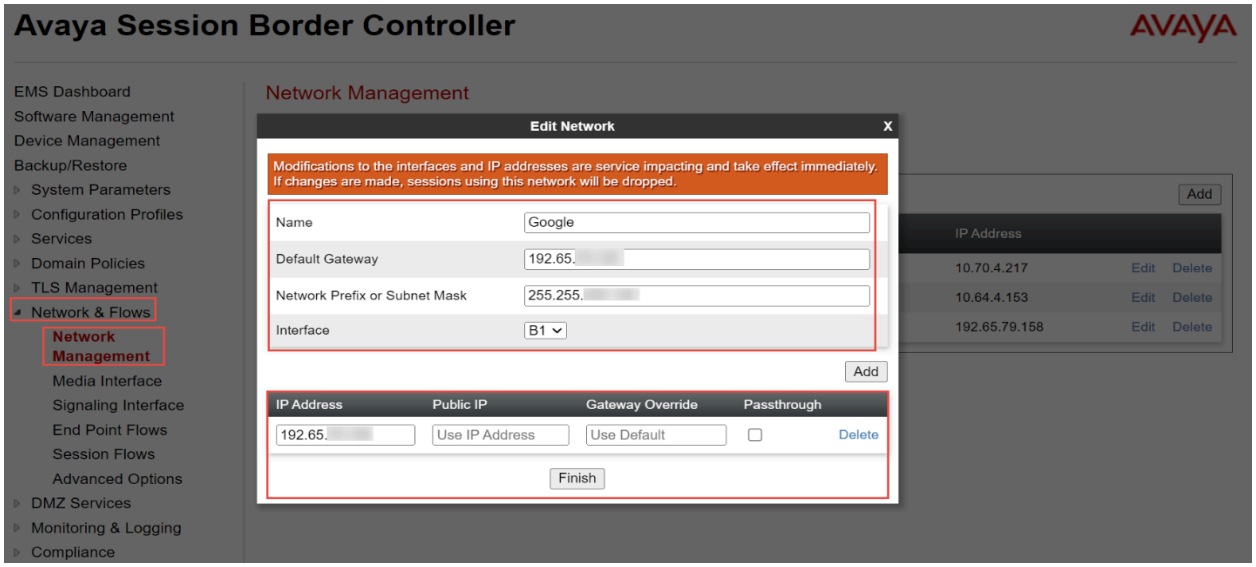

Figure 41: Network Management Facing Google CCAI

Network Interface for **PSTN Gateway**

- Repeat the same steps to create the Signaling Interface facing PSTN.

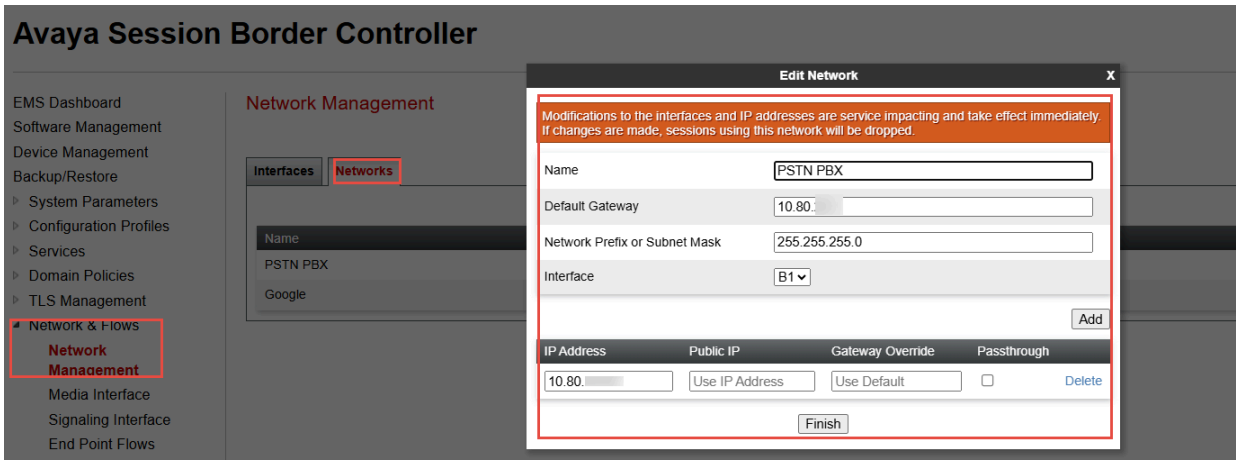

Figure 42: Network Management Facing PSTN Gateway

6.4.10 Signaling Interface

Signaling Interface for **Google**

- Navigate to: **Network & Flows > Signaling Interface**. Click **Add**, new Add Signaling Interface window appears
- Set Name: **Google_SI** is given for the interface facing **Google**
- Set IP Address: Select LAN_PBX
- Set TCP Port: **5060**
- Click **Finish**

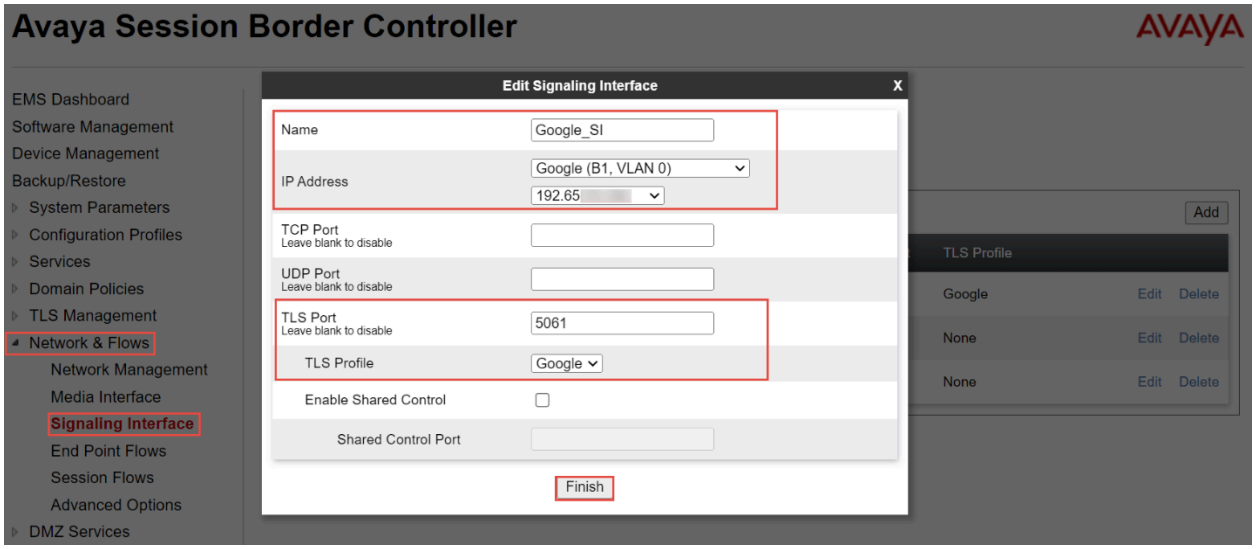

Figure 43: Signaling Interface Facing Google CCAI

Signaling Interface for **PSTN Gateway**

- Repeat the same steps to create the Signaling Interface facing PSTN. TCP is used between Avaya SBC and PSTN.

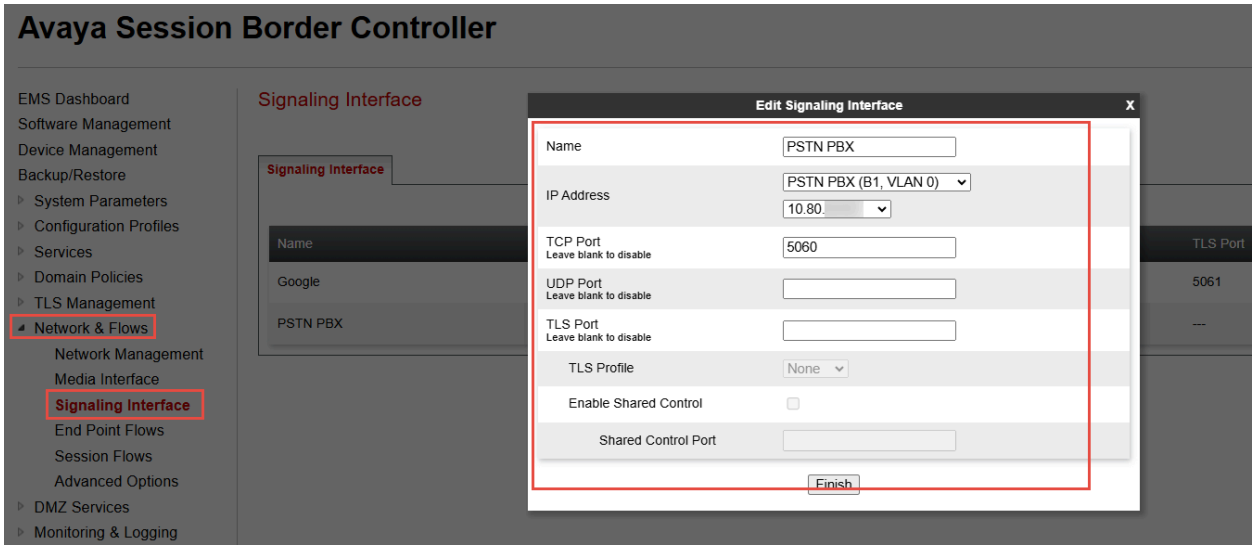

Figure 44: Signaling Interface Facing PSTN Gateway

6.4.11 End Point Flow

End Point Flow for **PSTN Gateway**

- Navigate: **Network & Flows > End Point Flows > Server Flows** Click **Add**
- Set SIP Server: **PSTNGW**
- Select the required section: **Received Interface, Signaling Interface, Routing Profile and Topology Hiding Profile**

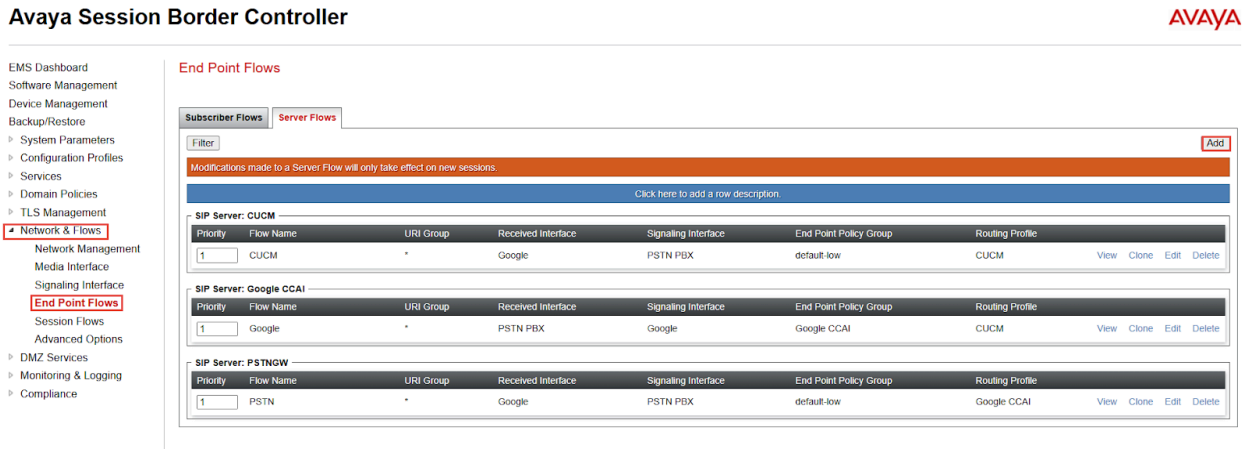

Figure 45: Server Flow for PSTN Gateway

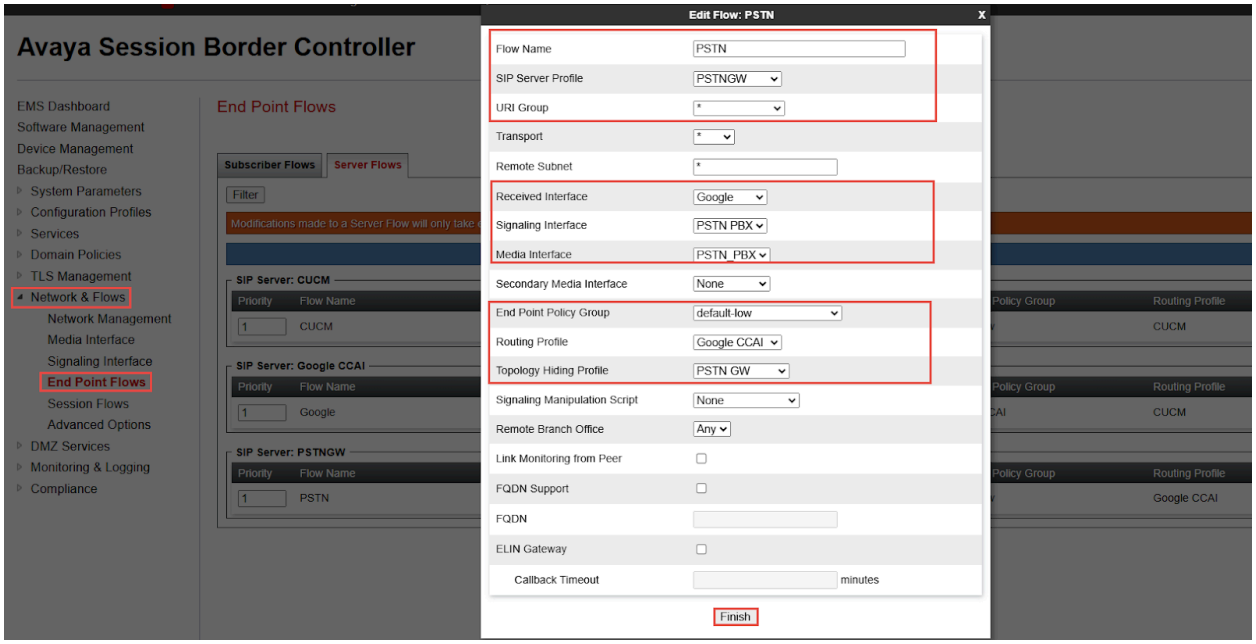

Figure 46: Server Flow for PSTN Gateway Continuation

End point flow for **Google CCAI**

- Navigate: **Network & Flows > End Point Flows > Server Flows**
- Click **Add**
- Set SIP Server: **Google**
- Select the required section: **Received Interface, Signaling Interface, Routing Profile, End Point Policy Group, Topology Hiding Profile and Signaling Manipulation script**

Figure 47: Server Flow for Google CCAI

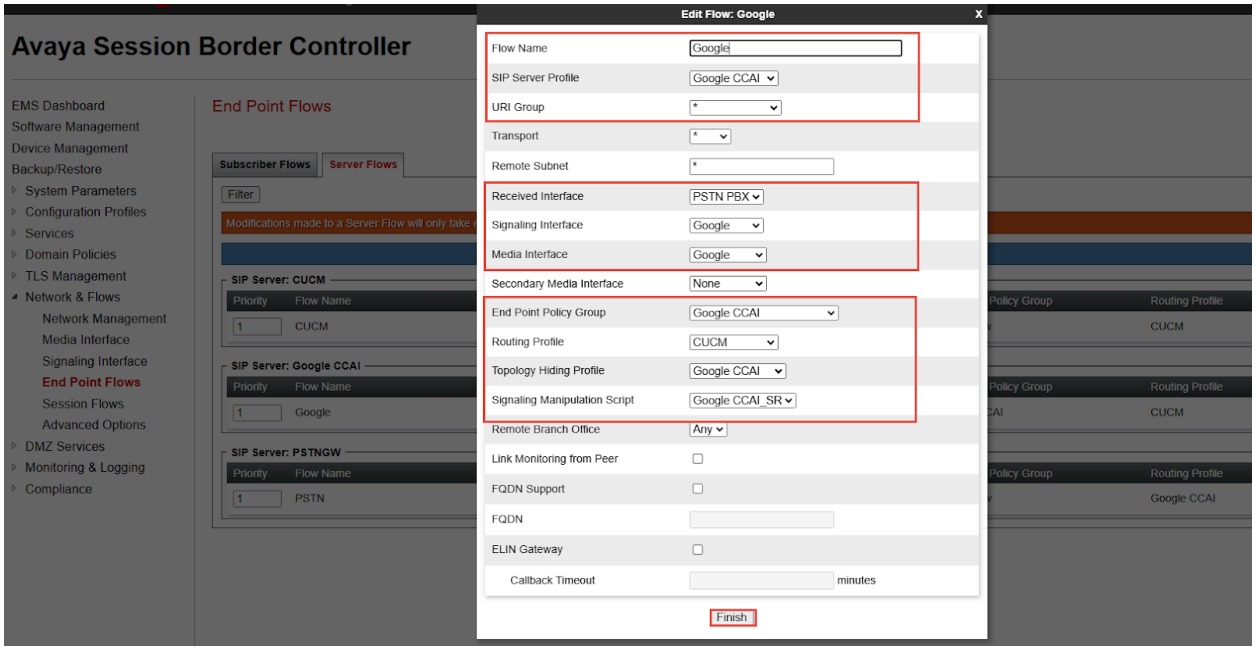

Figure 48: Server Flow for Google CCAI (Cont.)

End point flow for **CUCM**

- Navigate: **Network & Flows > End Point Flows > Server Flows** Click **Add**
- Set SIP Server: **CUCM**
- Select the required section: **URI Group, Received Interface, Signaling Interface, Routing Profile, Topology Hiding Profile**

Figure 49: Server Flow for Avaya Aura SM

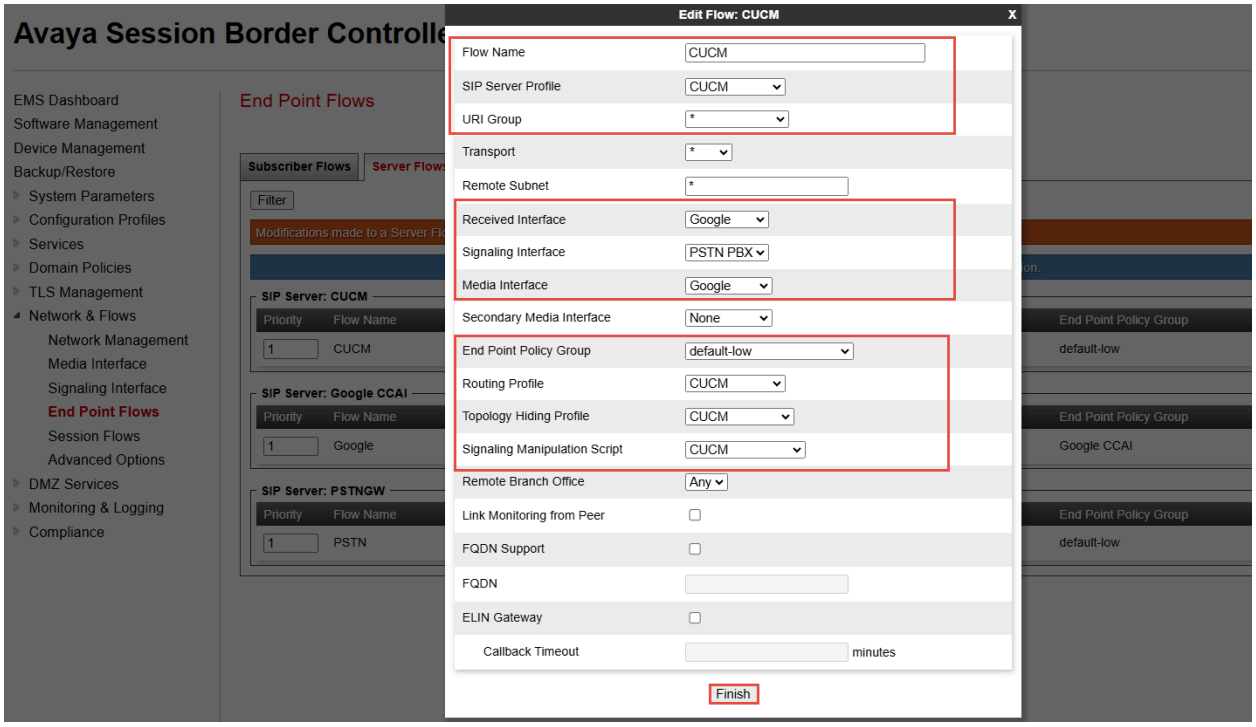

Figure 50: Server Flow for CUCM (Cont.)

6.4.12 TLS Configuration

Creating SBC Certificate

- Navigate: **TLS management > Certificates.**
- Click **Generate CSR.**

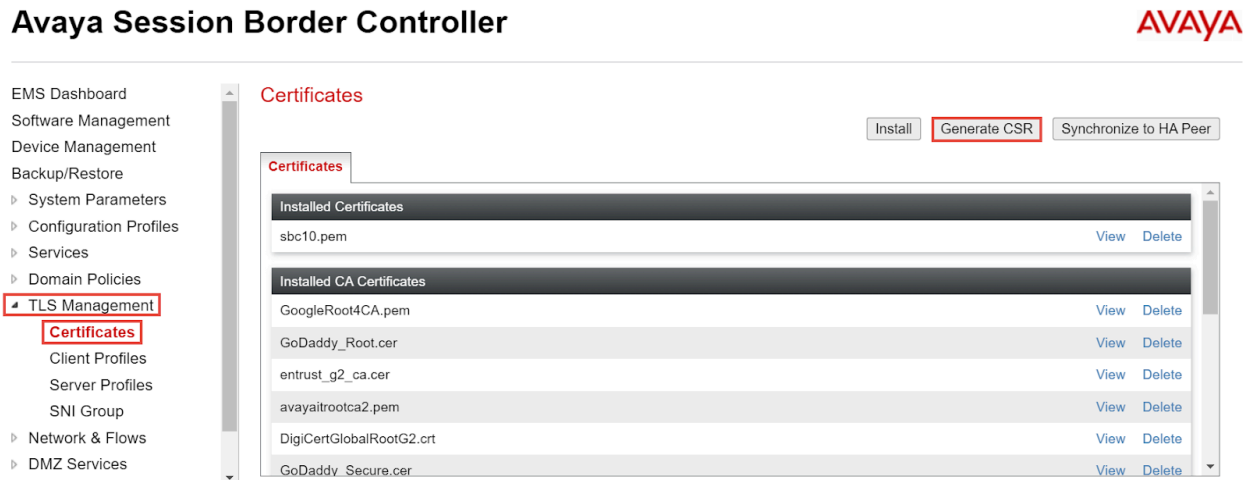

Figure 51: Generate CSR

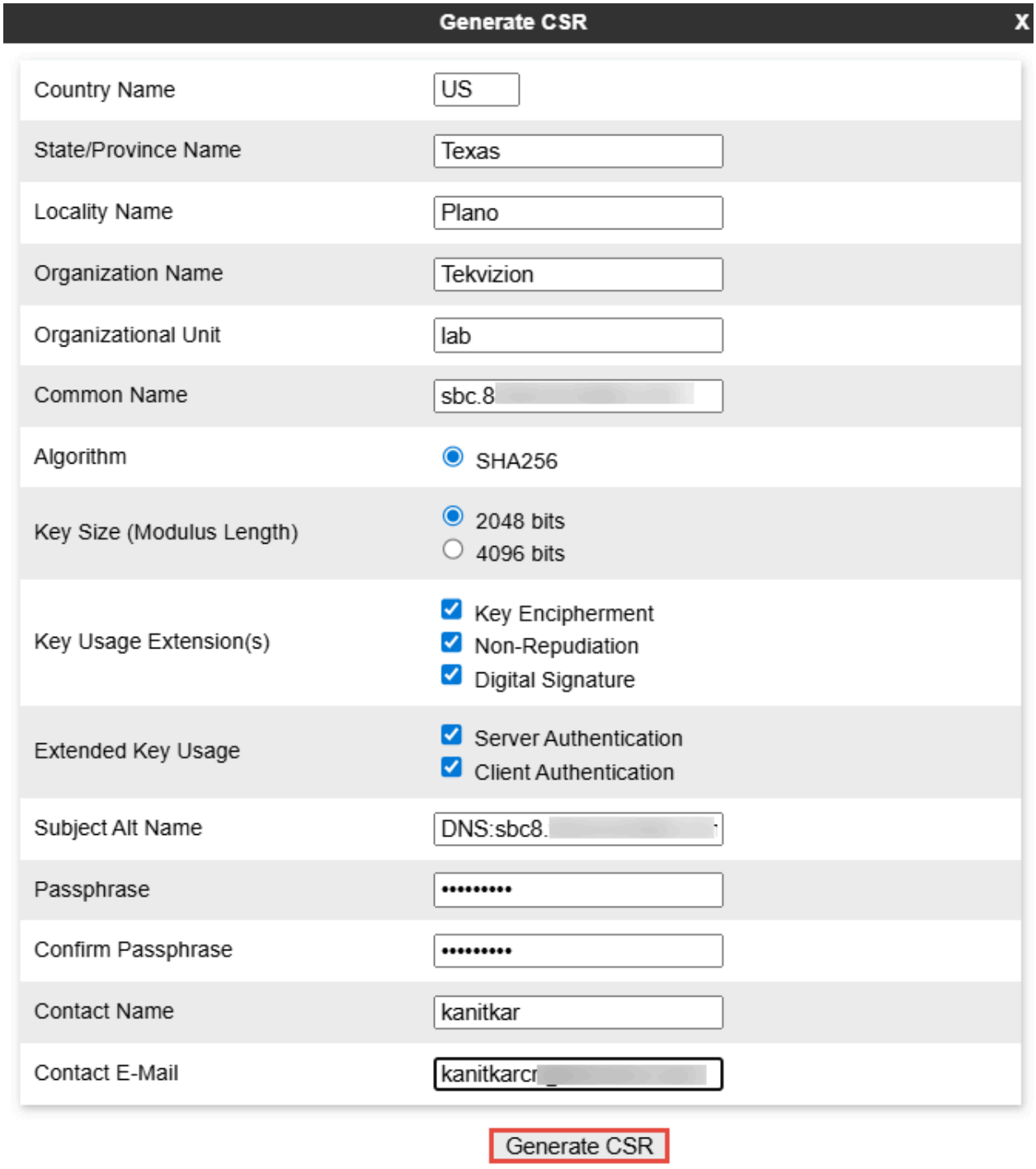

Figure 52: Generate CSR (Cont.)

- Navigate: **TLS management > Certificates**. Click **Install**
- Set Type: Select **CA Certificate**
- Set Name: **GoogleRoot1CA** (**GTS Root R1**)
- Set Allow weak Certificate/Key: Checked
- Set Certificate File: Click Choose File to select Google Root CA
- Click **Upload**
- Repeat the same steps to upload the GTS Root2.pem, GTS Root3.pem, GTS Root4.pem

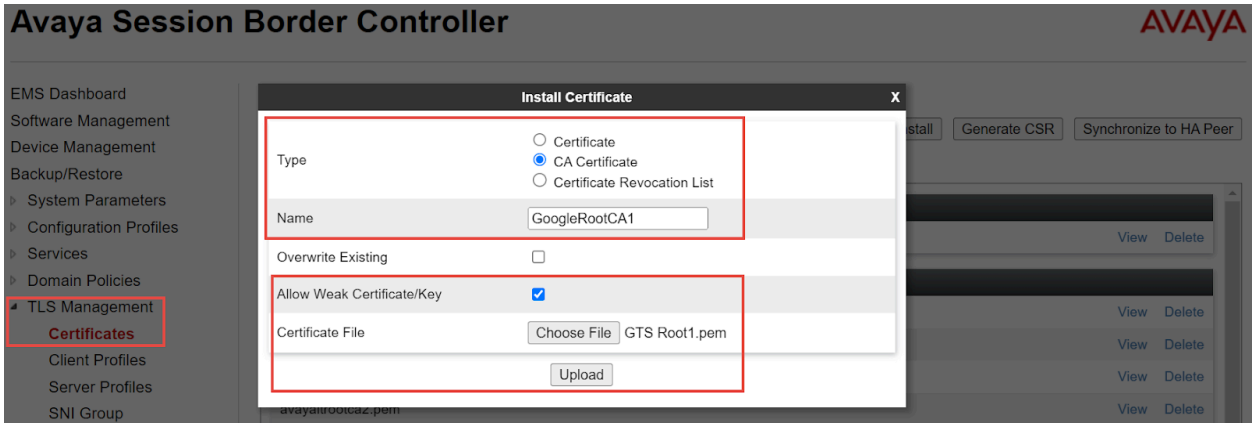

Figure 53: Upload Google Root CA

- Set Name: **GoDaddy_Root**
- Set Allow weak Certificate/Key: **Checked**
- Set Certificate File: Click Choose File to select **Go_Daddy_Root.cer**
- Click **Upload**

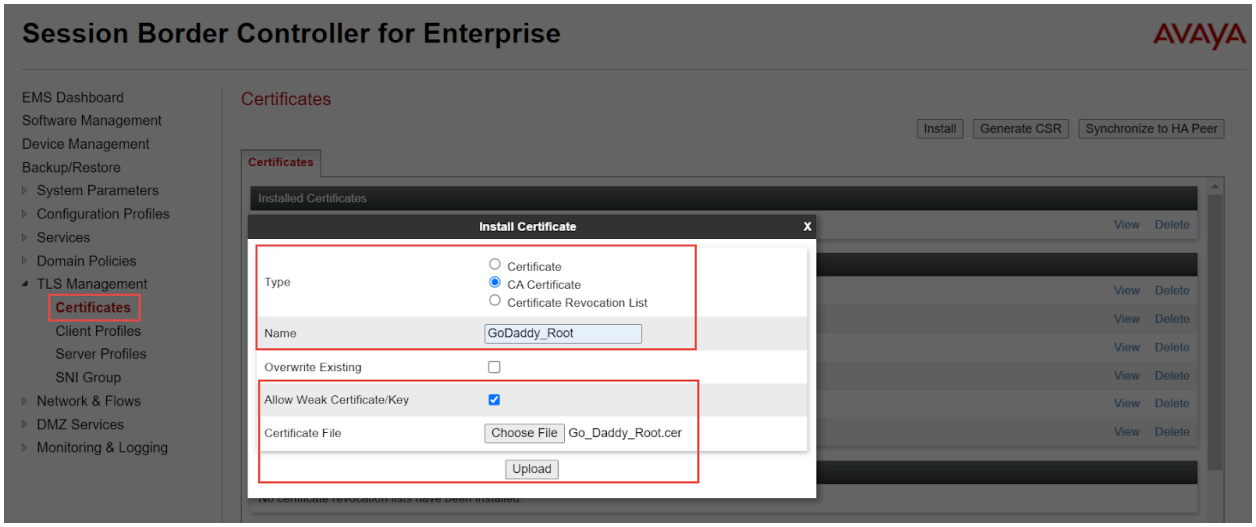

Figure 54: Upload GoDaddy Root CA

- Set Name: **Go_Daddy_Secure**
- Set Allow weak Certificate/Key: **Checked**
- Set Certificate File: Click Choose File to select **Go_Daddy_Secure.cer**
- Click **Upload**

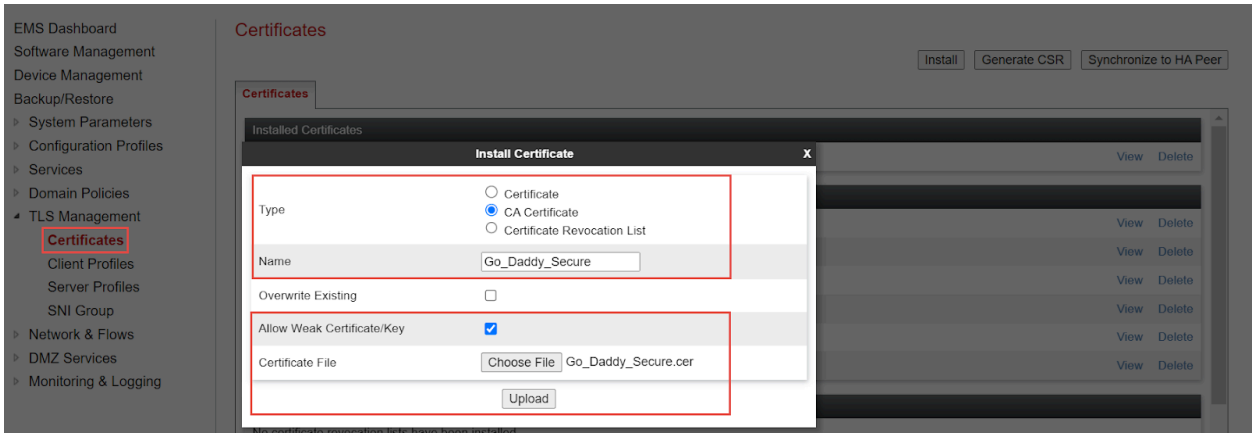

Figure 55: Upload GoDaddy Secure CA

- Navigate: **TLS management > Certificates**. Click **Install**
- Set Type: Select **Certificate**
- Set Name: **sbc8**
- Set Allow weak Certificate/Key: Checked
- Set Certificate File: Click Choose File to select **sbc8.pem**
- Select **Use Existing Key**
- Click **Upload**

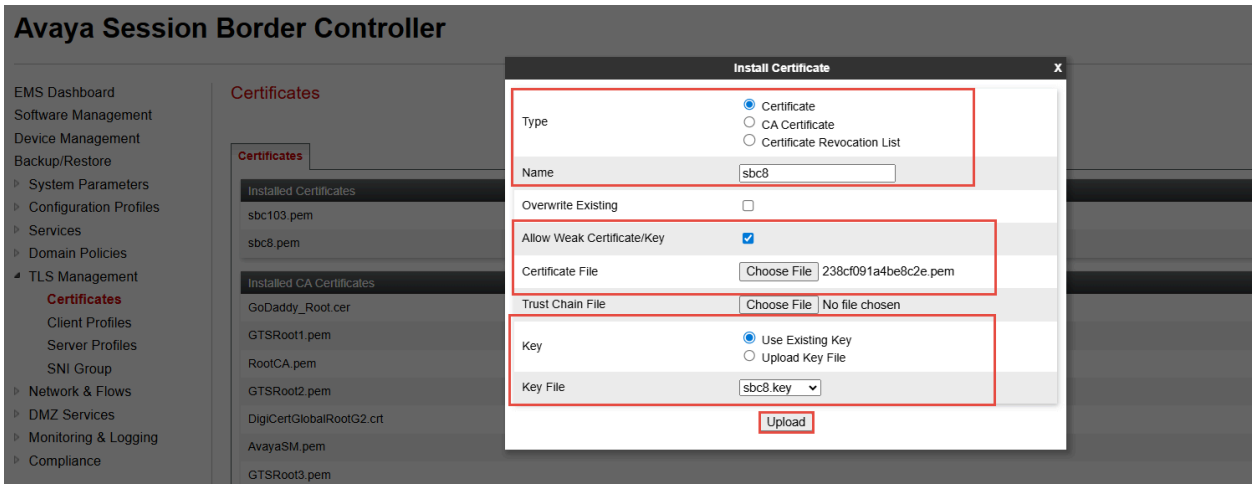

Figure 56: Upload SBC Certificate

Client Profile for **Google CCAI**

- Navigate: **TLS management > Client Profiles**. Click **Add**
- Set Profile Name: **Google** is given for interface facing Google
- Set Certificate: select server certificate **sbc10.pem** for Avaya SBC interface facing Google
- Set Peer Certificate Authorities: Select **GoogleRoot1CA.pem**, **GoogleRoot2CA.pem** , **GoogleRoot3CA.pem**, **GoogleRoot4CA.pem** which is uploaded in previous step
- Set Verification Depth: **5**

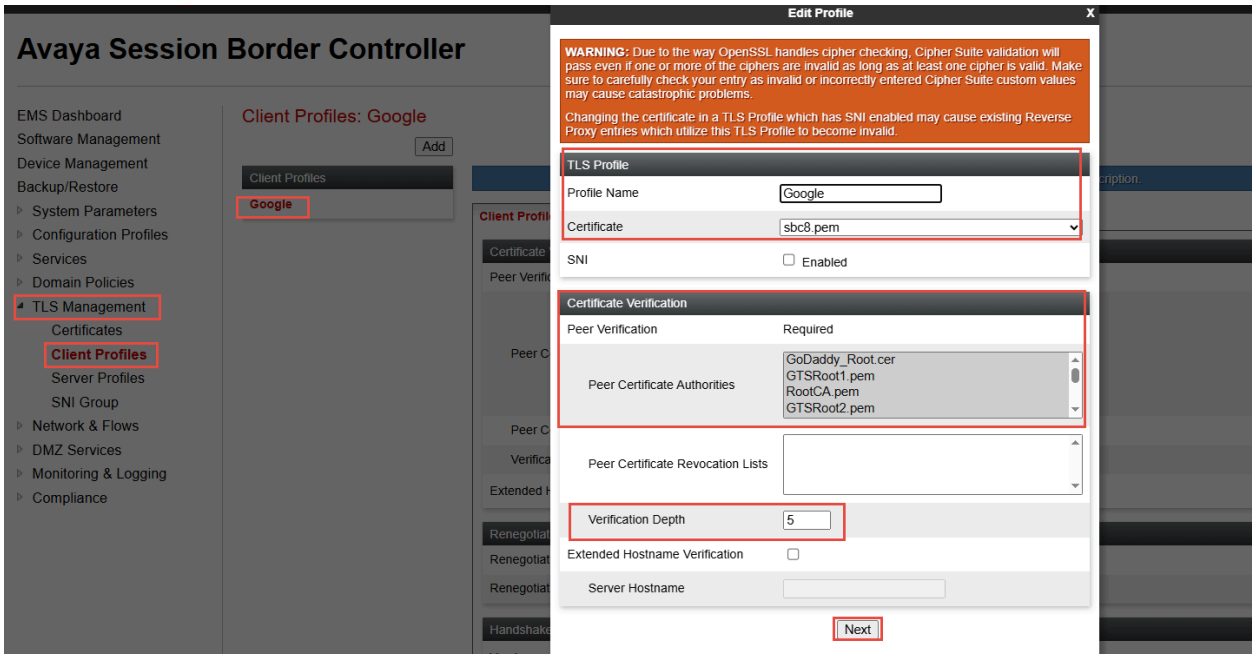

Figure 57: Client Profile facing Google CCAI

- Set Version: Select **TLS 1.2** versions

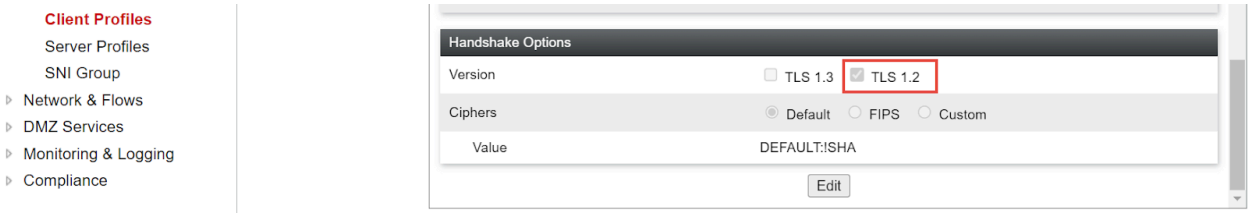

Figure 58: Client Profile facing Google CCAI (Cont.)

Server Profile for **Google CCAI**

- Navigate: **TLS management > Server Profiles**. Click Add
- Set Profile Name: **Google** is given for interface facing Google
- Set Certificate: Select server certificate **sbc10.pem** for Avaya SBCE interface facing Google
- Set Version: Select **TLS 1.2** versions

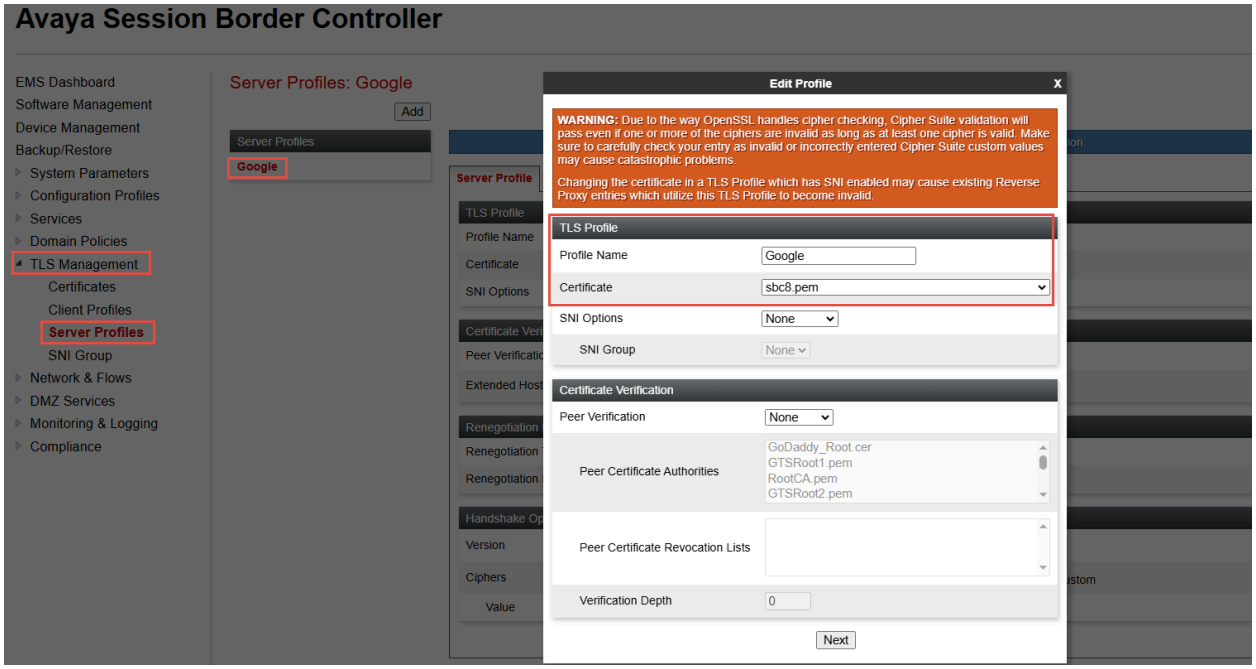

Figure 59: Client Profile facing Google CCAI (Cont.)

Edit **SIP Server**

- Navigate: **Services > SIP Servers**
- Select Server Profile **Google CCAI**
- Under **General** tab, Click **Edit**
- Set Transport: Select **TLS** from Dropdown
- Set Port: **5672**
- Set TLS Client Profile: Select Client Profile **Google**
- Click **Finish**

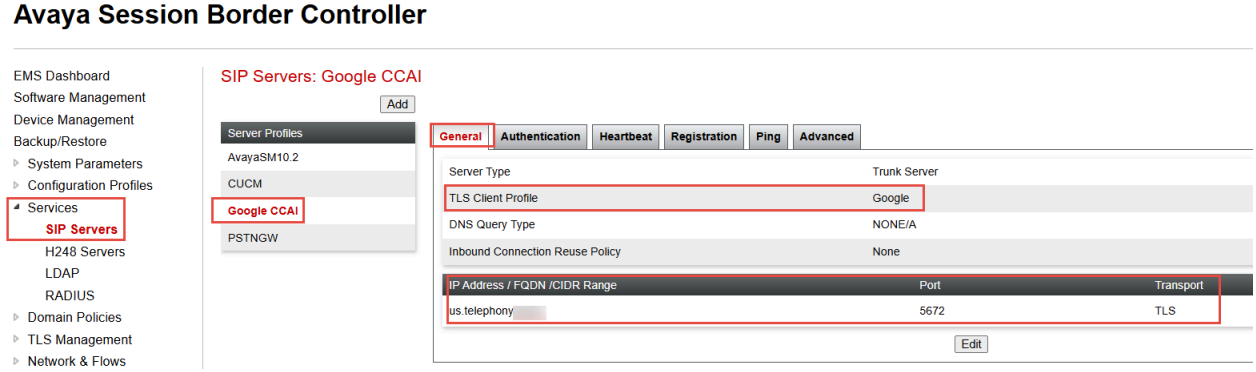

Figure 60: SIP Server Profile – Google CCAI

Configure SRTP

- Navigate: **Domain Policies > Media Rules**
- Select Media Rule default-low-med Click **Clone**
- Set Clone Name: **Google_MR**
- Click **Next**

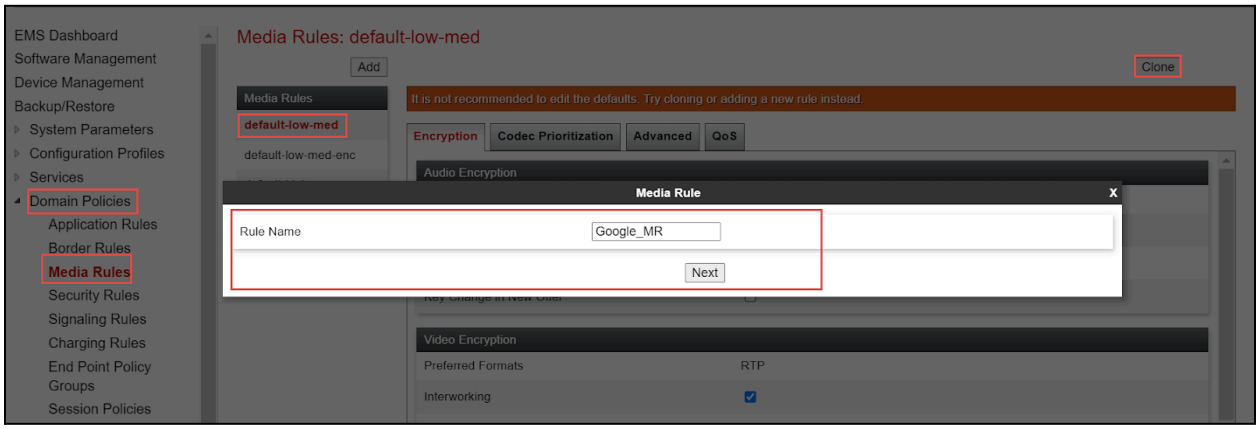

Figure 61: Media Rule – Google CCAI

- Select newly created Media Rule **Google**
- Set Preferred Format **SRTP_AES_CM_128_HMAC_SHA1_80**
- Set Encrypted RTCP: **checked**

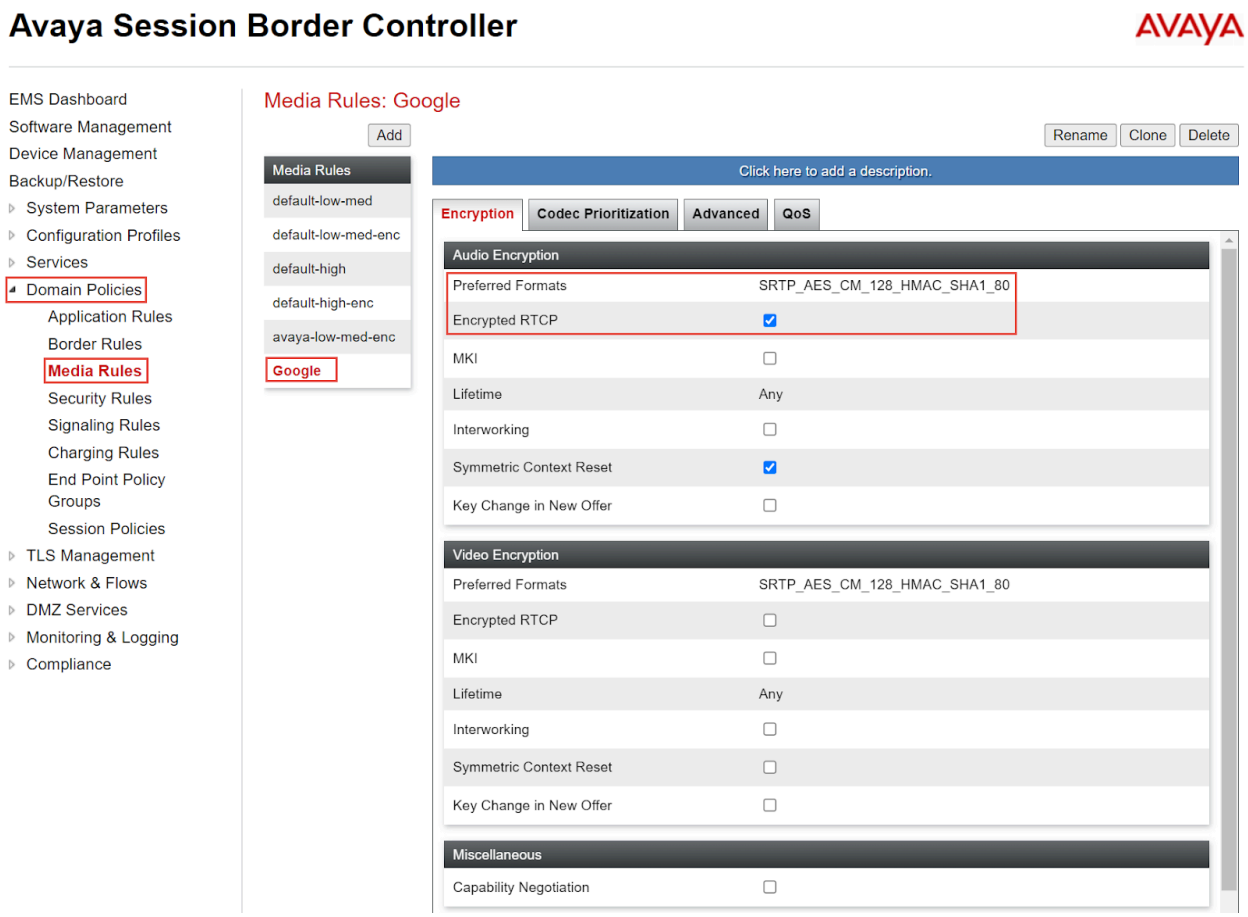

Figure 62:Media Rule – Google CCAI (Cont.)

Edit **End Point Policy Groups**

- Navigate to: **Domain Policies > End Point Policy Groups**
- Select **Google** under Policy Groups
- Click **Edit**

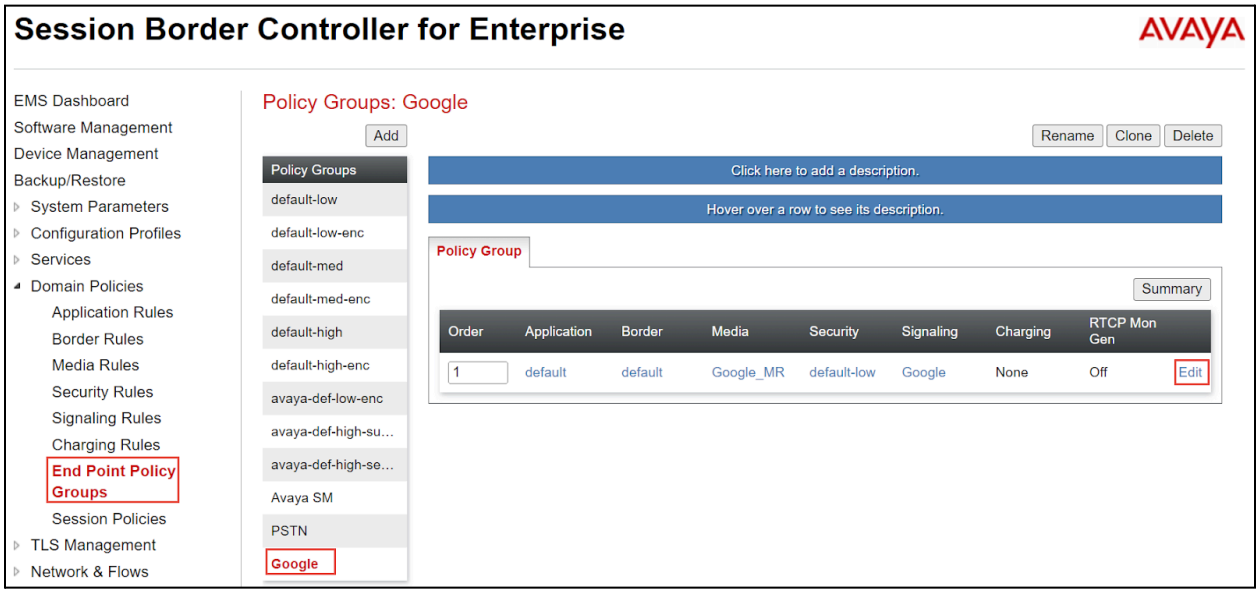

Figure 63:End Point Policy Group – Google CCAI

- Set **Media Rule**: Select **Google**
- Click **Finish**

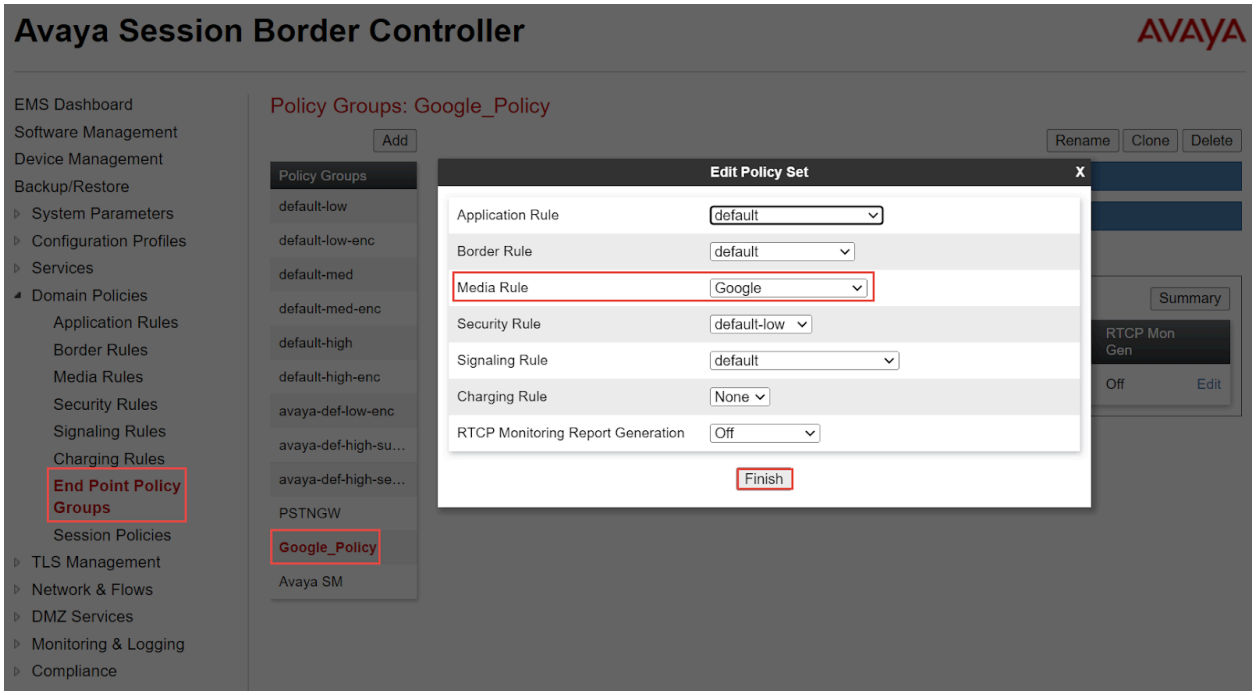

Figure 64:End Point Policy Group – Google CCAI (Cont.)

Edit **Signaling Interface**

- Navigate: **Network & Flows > Signaling Interface**
- Select interface **Google**
- Click **Edit**

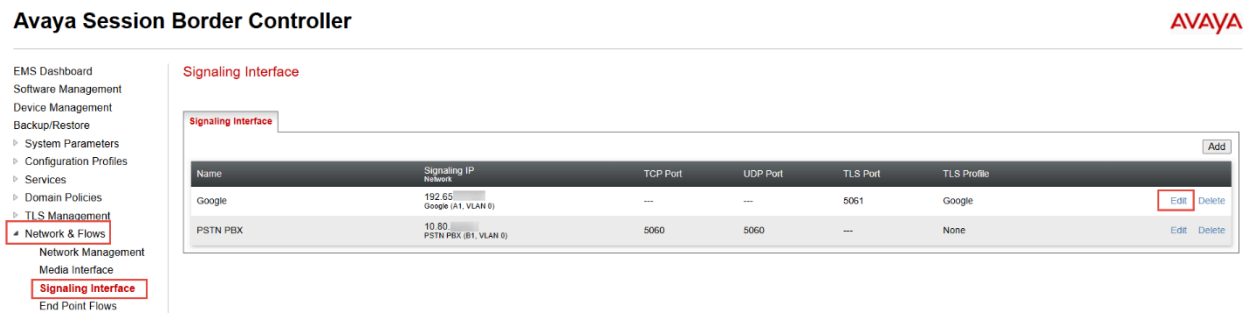

Figure 65:Signaling Interface – Google CCAI

- Set TLS Port: **5061**
- Set TLS Profile: Select **Google** from the drop-down menu
- Click **Finish**

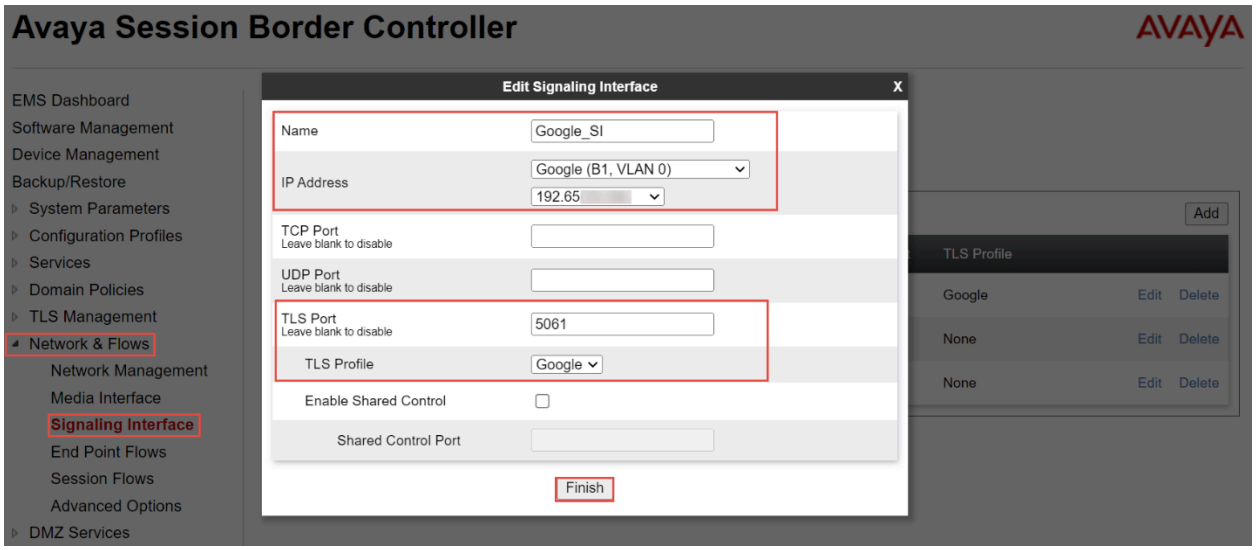

Figure 66:Signaling Interface – Google CCAI Continuation

6.5 Avaya SBC Running Configuration

Working Backup.tar