zoomphone

Configuration Guide For Avaya SBC

Document version 1.1

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Revision History

Version	Date	Author	Change
1.0	10-August-2020	Zoom	Template design
1.1	4-December-2024	Rajesh Kannan	Updated document for Avaya SBC configurations

1 Overview

This document provides instructions on how to configure and add your device to the Zoom web portal. This document provides instructions on how to set up **Avaya Session Border Controller** (hereafter, referred to as SBC) for interoperability between Generic SIP Trunk and Zoom Phone environment.

2 Topology



3 Configuration Steps- ZOOM PBX

This section covers checking the basic readiness, adding the external BYOC DID phone numbers and mapping them to corresponding end point devices (such as IP phones and other SIP devices).

3.1 Adding Your SBC

• Login to Zoom Admin Portal and Navigate to Phone System Management->Company Info->Account Settings->Routing

ZOOM Products Sol	lutions Resources Plar	s & Pricing Sc	hedule Joi	n Host ~	Web App 🗸 💄	
> Device Management						
> Room Management	Company Info > Account	settings				
> Workspaces Management						
 Phone System Management 	Settings Policy	Block List Spam List External Contacts Emergency Services	5			
Users & Rooms						
Auto Receptionists	Multiple Sites	Multiple Sites				
Call Queues	Routing Notifications	Multiple Sites				
Shared Lines	Desk Phone	Once enabled, your current site will default to your Main Site.				
Group Call Pickup	Security	Site Code				
Phone Numbers	Templates	Once enabled, you can assign a site code to each site. Extensions will be in the forma of [site code]-[short extension number]. Users can dial the short extension number t	at to			
Provider Exchange	Others	reach another user in the same site or the full extension number to reach users in oth sites.	er			
Phones & Devices		Site Mesone				
Monitoring		Site manage				
Assets Library		Routing				
Logs		BYOC Settings				
Company Info		Configurations for Bring Your Own Carrier (BYOC).				
> Account Management		Allow Caller Name Delivery				
anced		Caller Name information will be included in the signaling messages for a BYOC (Premises) call			Q)

• To add your SBC, locate Session Border Controllers and click on Manage



• Click on Add



- **Display Name:** Provide the Display name of your choice. Here, AVAYA_SBC is used
- **IP Address:** Provide the IP address AVAYA SBC interface facing towards Zoom and configure the port number
- In-Service: Enabled
- **Settings:** Check "Send OPTIONS ping messages to the SBC to monitor connectivity status" and "Include diversion headers in the sip signaling messages for forwarded calls"
- Click Save

Display Name	AVAYA_SBC
Description (Optional)	Enter
Protocol	TLS
IP Address ⑦	Public IP Address Port Number ⑦ 19 14
In-Service ⑦	
Settings	 Integrate an on-premises PBX (Bring Your Own PBX - Premises) with Zoom Send OPTIONS ping messages to the SBC to monitor connectivity status Include diversion headers in the sip signaling messages for forwarded calls Include original calling number within the P-Asserted-Identity (PAI) header for forwarded calls Use T.38 protocol for faxing ⑦ Allow REFER support to transfer calls BETA
Address(Optional)	Country/Region Select
Email(Optional) ⑦	Enter Email

3.2 Adding Route Group

Navigate to Phone System Management -> Company Info -> Account Settings -> Routing



• To add the Route Groups, locate Route Groups and click on Manage



• Click on Add

ZOOM Products	Solutions Resources Plans & Pricing	Schedule	Join	Host ~	Web App ~	
> Room Management						
> Workspaces Management	Company Info > Account Settings > Route Group					
 Phone System Management 						
Users & Rooms	Route Group					
	Last Updated Time: 04:11 PM, Oct 16, 2024 C					
Auto Receptionists				— –		
Call Overver	Add			🖰 Pro	visioning Inform	ation

- Display Name: Provide the display name of your choice. Here, Avaya_Route Group is used
- Type: Select BYOC-P
- Region: Select "US01-US(SJ/DV/NY)"
- **Distribution:** Select Sequential from the dropdown and then add Avaya_SBC that was created in the above step
- Click Save

Add a new	Route Group	
Display Name	Avaya_Route Group	
Туре	BYOC-P	~
Region	US01 - US (SJ/DV/NY)	×
Distribution	Sequential	~
	Session Border Controllers 1: AVAYA_SBC (192.65.79.114:5061) & Add	
Backup Route Group (Optional)	Select	
Got old Route Gro	ups? Save	Cancel

ZOOM Products So	lutions Resources Plan	s & Pricing			Schedule Join Host v	Web App 🗸 💄
Analytics & Reports		(az.co./ 9190.5001)				
ADMIN	Avaya_Route Group					
Dashboard	Region (?) : US01 - US (SJ/DV/NY)	Sequential (?) :				
> User Management	- US Central (Colorado)	AVAYA_SBC				
> Device Management	0	(192.) :5061)	BYOC-P	 Completed (?)	Avaya_SG	Edit
> Room Management	- US West (N. California)	AVAYA_SBC (192.(:5061)				
> Workspaces Management	- US East (New York) (i)	AVAYA_SBC				
 Phone System Management 		(192. :5061)				
Users & Rooms						
Auto Receptionists	Route_	Sequential (?):				
Call Queues	US01 - US (SJ/DV/NY)					
Shared Lines	- US Central (Colorado)	•	BYOC-P	 Completed (?)	sip_group_ribbon	Edit
Group Call Pickup	- US West (N. California)	t				
Phone Numbers	0	• ()				
Phones & Devices	- US East (New York) 🛈	•j1)				
onitoring						Q
anote Library	Poute Group Audicodes					

• A green led indicates the trunk status is active as shown in screenshot below

• Moving the cursor towards green led shows the trunk status as shown in screenshot below

Avay Regi USO - US (j) - US	Normal: We sent Of to the SBC and rece responses Central (Colorado) West (N. California)	otions Ping messages eived successful AVAYA_SBC (* :5061) AVAYA_SBC	BYOC-P	 Completed ⑦	Avaya_SG	Edit
- US (i) - US	West (N. California) East (New York) ()	AVAYA_SBC (1 :5061) AVAYA_SBC (1 :5061)				

3.3 Adding SIP Group

 Navigate to Phone System Management -> Company Info -> Account Settings -> Routing



• To add the SIP Groups, locate SIP Groups and click on Manage

Multiple Sites Routing Notifications Desk Phone	SIP Groups Manage Define SIP Groups and assign Route Groups to them, so as to route the calls placed by BYOC numbers, or import external contacts for Global Directory. Any outgoing calls from the SIP Groups will be routed to the specific Route Groups.
Security	Routing Rules Manage
Templates	The routing rules are a series of predefined Regular Expressions. These rules are used to route outgoing
Directory	calls. If a dialed number does not match a Zoom Phone user, and does not match a defined External
Others	Contact, these rules are tested next. If a dialed number does not match any rules, the call will be routed via the PSTN.

Click on Add

ZOOM P	roducts Solutio	ons Resources	Plans & Pricing	Schedule	Join	Host ~	Web App ~	•
> Room Management								
> Workspaces Manager	ment	Company Info > A	ccount Settings > SIP Groups					
 Phone System Manag 	jement	SIP Groups						
Users & Rooms								
Auto Receptionists		Add						

- Display Name: Provide display name of your choice. Here Avaya_SG is used
- **Route Group:** Select Avaya_Route Group (BYOC) from the drop down
- Click Save

Add SIP Group					
Display Name	Avaya_SG				
	Send SIP Group Name in SIP header ⑦				
Route Group	Avaya_Route Group (BYOC)				
Description (Optional)	Enter				
	Save Cancel				

3.4 Adding Routing Rule

• To add the Routing Rule, Navigate to Phone System Management -> Company Info -> Account Settings -> Routing



• Locate Routing Rules and click on Manage



• Click Add Routing Rule to add your rule for outbound calls



- Rule Name: Provide Rule Name as per your choice. Here Outgoing is used
- Number Matching and Translation: Provide the Number Pattern as given below in the screenshot and select the Routing path as "Avaya_SG" which was created before
- Click on Save

Rule Name	Outgoing
Number Matching and Translation 🥝	Number Pattern
	Translation (Optional) Replacement Pattern must be in E.164 format Test ⑦
Number m codes or e DTMF code will not ser	atching patterns for routing rules must not conflict with DTMF mergency numbers. Click here for details to learn more about e. Using emergency numbers as number matching patterns nd location information to the PSAP.
Routing Path	Avaya_SG
	Save Cancel

3.5 Adding Phone Users

• Navigate to User Management-> Users-> Add Users for adding new users

zoom	Products	Solutions	Resources	Plans & Pricing	Schedule	Join	Host ~	Web App ~	0
Analytics & Repor	rts								
ADMIN			Important no account who	tice: Zoom modified user license assignments for Zoom Workplace. As a can join meetings but cannot host or schedule meetings. Read support	a new option, you o article	an now cre	ate users on	^{your} ×	
Dashboard			CORC NUMBER						
 User Managemen 	it	0	sers you have i	icenses still available to users. Assign license to users or manage your li	icense count.			Documen	it
Users			Users Per	nding Advanced					
Groups		C	ک Search	Advanced Search 👻		Import	Export 🗸	+ Add Users	

- Enter the user email address
- Zoom Workplace: choose Zoom Workplace as "Zoom Meetings" from the dropdown
- In "License and add-ons", select the checkbox "Zoom Phone Basic"
- Click on Add

Г

Add Users								
Add users with their email addresses								
If you enter the email address	If you enter the email address of account owners, all users on their accounts will be added to this account.							
.com								
Zoom Workplace	Zoom Meetings (1 available)							
Licenses and add-ons	Large Meeting (500 participants) (20 available)							
	Zoom Phone Basic							
	i To assign Zoom Phone packages, go to Phone System Management.							
	Zoom Webinars (500 attendees) (20 available)							
Department	e.g. Product							
Manager	Enter manager's name or email							
Job Title	e.g. Product Manager							
Location	e.g. San Jose							
Cost Center								
	Add							

Add Calling Plan package to the user. When Zoom Phone license is assigned for a user, an extension number gets assigned to the user automatically. Navigate to Phone System Management -> Users & Rooms. To assign a calling plan package to the user, click on the user that has been created

ZOOM Products Soluti	ns Resources Plans & Pricing	Schedule	Join Host ~	Web App ~
	Plan Details			
Dashboard	Add Import Export to CSV			
> User Management				
> Device Management	Q Search by Name, Ext. or Number			
> Room Management	Department v Entre department full server	Site (All)		
> Workspaces Management	Department V Enter department full name	Site (All)		
 Phone System Management 				
Users & Rooms	Desk			A
Auto Receptionists	Name \$ Ext. \$ Package Number(s) Phone(s)	User Status	Site	Group
Call Queues	poly user54 Zoom Phone Basic			
Shared Lines	om with the second seco	Active	Main Site	

• Click on Assign

ZOOM Products So	olutions Resources Plans & Pricing	Schedule	Join	Host ~	Web App ~
Dashboard	Users & Rooms > Users > poly user54 (
Viser Management Device Management	poly user54 (
> Room Management	Profile Policy History Llear Sottings				
> Workspaces Management	Fine Folicy History User Settings				
 Phone System Management 	Site Main Site				
Users & Rooms	Deskage Zeem Dhone Drois (Migrated) (2)				
Auto Receptionists	Assign				
Call Queues	Extension Number 980076 Edit				

ZOOM Products Sol	utions Resources Plans &	& Pricing	Schedule	Join	Host v	Web App ~	
Dashboard	Users & Rooms → Users → p	boly user54 (.com)					
Vser Management Device Management	poly user54 (.com)					
 Room Management Workspaces Management 	Profile Policy His	story User Settings					
✓ Phone System Management	Site	Main Site					
Users & Rooms							
Auto Receptionists	Package	belect Package					
Call Queues		US/CA Unlimited Calling Plan (8 Available) Pro Features · Unlimited Domestic					
Shared Lines	Extension Number	Zoom Phone Power Pack (20 Available) Power Pack Features					

• Select US/CA Unlimited Calling Plan as shown in below screenshot

3.6 Adding Phone Numbers

• Add the BYOC phone numbers as shown below. Navigate to **Phone System Management** -> **Phone Numbers-> BYOC-P->**Click **Add**

ZOOM Products Sol	utions Resources Plans & Pricing Basel and Pricing States and States States Schedule Join Host - Web App -
> Room Management	Phone Numbers
> Workspaces Management	Assigned Unassigned Ported BYOC-P Cloud Peering
 Phone System Management 	
Users & Rooms	Main Company Number : Set
Auto Receptionists	Add Import Export to CSV
Call Queues	Q Search Number Type (All) v Assigned to (All) v Status (All) v Status (All)
Shared Lines	
Group Call Pickup	Number * Area * Number Ture Voice Messaging Verification Accioned to S
Phone Numbers	Rumber , Area , Rumber type Capability Capability Status Status Status
Provider Exchange	

- Carrier: BYOC
- Numbers: Enter the phone numbers as shown in screenshot below
- SIP Group: Select the SIP Group "Avaya_SG" which was created before
- Check the acknowledgement box and Click on Submit

Add BY	OC Numbers
Site	Main Site
Carrier	BYOC ~
Numbers	972: 5,97: 5,972:
SIP Group	Choose a routing path for calls to/from the numbers
l acknowle belong to	edge that by checking the box, I attest that the phone numbers to be imported me or my organization
	Submit Cancel

• Assign the BYOC numbers to the Zoom phone users as shown below. Navigate to **Phone System Management -> Phone Numbers-> Unassigned**

ZOOM Products Solution	ons Resources Plans & Pricing Schedule Join Host -> Web App -> 💄
> Room Management	Phone Numbers
 Workspaces Management Phone System Management 	Assigned Unassigned Ported BYOC-P Cloud Peering
Users & Rooms	Add Export to CSV
Auto Receptionists	Q Search Status (All) V Status (All) V Site (All)
Call Queues	
Shared Lines	Move Site Delete
Group Call Pickup	Voice Messaging Number
Phone Numbers	Number \$ Area \$ Number Type Capability Capability Status Status
Provider Exchange	languing 0
Phones & Devices	United States Toll Number Outgoing Consoled Unverified Normal Main Site

• Select the phone number that needs to be assigned to Zoom phone users

	(9) B	United States	Toll Number	Incoming & Outgoing	Disabled	Unverified	Normal	Main Site
	(97:`6 B	United States	Toll Number	Incoming & Outgoing	Disabled	Unverified	Normal	Main Site
	(9 B	United States	Toll Number	Incoming & Outgoing	Disabled	Unverified	Normal	Main Site

- Click on Edit near "Assigned to" as shown below in the screenshot
- A dialog box pops out and in **Assign to**: select the user you need to assign the phone number and click **OK**. The number will be assigned to the selected user

ZOOM Products Solution	ons Resources Plans & P	ricing		Schedule	Join	Host ~	Web App ~	
Device Management Room Management Workspaces Management Users & Rooms Auto Receptionists Call Queues Shared Lines	Phone Number > Unassigned (97 6) Set Dicplay Name Site Number Type Area SIP Group	Assign Number Assign to	OPER (972) 598-0076 (BYOC) User poly user54 - Ext. 980076, Main Site OK Cancel					
Group Call Pickup Phone Numbers Provider Exchange	Voice Capability	Outgoing Incoming						
Phones & Devices Monitoring Assets Library Logs	Messaging Capability ⑦	Disabled Unverified Complete the ver	rification process to enable the messaging capability.					
Account Management Advanced	Assigned to Number Status	Edit						

3.7 Provisioning Phones for Zoom Phone Users

- Provision desk phones for Zoom Phone users. Zoom certified vendor phone models are used for this test and will be available as shown below after provisioning
- Navigate to Phone System Management -> Phones & Devices ->Add

ZOOM Products	Solutions Resources Plans & Pricing	Schedule	Join Host v	Web App 🗸 💄
Vorkspaces Management Phone System Management	Starting July 10th, 2024, customers who intend to send SMS/MMS to US numbers must ensure that their US and Canada Toll/Virtus SMS campaign. Canada to Canada SMS/MMS will not require 10DLC Registration. More Details	al Service numbe	rs are added to an a	pproved 10DLC
Users & Rooms Auto Receptionists Call Queues	Phones & Devices Assigned Unassigned			
Shared Lines Group Call Pickup	Note: Zoom Phone Appliance devices can be assigned to Common Area. To manage Zoom Phone Appliance, please go to Device 1	Management		
Phone Numbers Provider Exchange	Add Export to CSV ③ Q Search by User, Ext., MAC Address, or IP Address Device (All) V Status ((All) v	Resyn	Site (All)
Phones & Devices Monitoring				
Assets Library Logs	Display Name Device Type MAC Address Assigned to Status Firmware Version Site	IP Ad	Idress Hot (Sign	Desking P :
Company Info Account Management	Image: Constraint of the sector of the se	Site 172.17	7.13.35 Uns	upported U

- Display Name: Provide the display name for the phone
- MAC Address: Enter the MAC Address of the Phone
- **Device Type**: Here Yealink t57w is used as an example
- Assigned to: Select the user to be assigned to the Phone and Click Add
- Click Save

Add Device	e e
Display Name	Test user 1
Description (Optional)	
MAC Address	80-5e-0c-56-ac-db
Device Type	Yealink
	(t57w ~
Assigned to	This device type supports up to 1 assignee.
	Add Cancel This field is required
Provision Template (Optional)	Not Set
	Save

4 Configuration Steps-Avaya SBC

The Avaya Session Border Controller (SBC) is a critical component in modern enterprise communication networks, providing robust security and seamless interoperability for SIP-based Unified Communications (UC). Designed to terminate SIP trunks efficiently, the Avaya SBC offers a cost-effective solution without the complexity typically associated with traditional SBCs. One of the standout features of the Avaya SBC is its comprehensive security capabilities. It protects enterprise networks from various threats, including Denial of Service (DoS) attacks, toll fraud, and malformed packets. Additionally, it ensures privacy by hiding internal network topology and encrypting SIP signaling and media packets. Interoperability is another key strength of the Avaya SBC. It facilitates communication between different networks through Network Address Translation (NAT) and header manipulation within SIP messages. This ensures that diverse systems can work together smoothly. The Avaya SBC also supports regulatory compliance by prioritizing emergency calls and enabling lawful interception of communications. Its media services include interpreting DTMF tones, transcoding media, and supporting diverse media streams such as video.

This document outlines the configuration best practices for the Avaya SBC when deployed with Zoom Bring Your Own Carrier (BYOC). This means that for all subscribers catering to Zoom customers, the PSTN calls terminating through the SBC are directly connected to the Service Provider of their choice.

4.1 Avaya SBC Login

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

AVAYA	Log In				
	Username: ucsec				
Avaya Session Border Controller	WELCOME TO AVAYA SBC Unauthorized access to this machine is prohibited. This system is for the use authorized users only. Usage of this system may be monitored and recorded by system personnel.				
	Anyone using this system expressly consents to such monitoring and is advised that if such monitoring reveals possible evidence of criminal activity, system personnel may provide the evidence from such monitoring to law enforcement officials.				
	© 2011 - 2023 Avaya Inc. All rights reserved.				

• Navigate to **Device: EMS** and select **sa** from drop down to expand the configuration for Avaya SBC

Device: EMS Alarms 1 EMS sa N	Incidents Status V Logs V Troubleshooting V Border Controller	Users				Settings 🗸	Help	Log Out
EMS Dashboard Software Management Device Management System Administration	Device Management							
Templates	Device Name	Management IP	Version	Status				
Backup/Restore Monitoring & Logging	58	10.80.13.196	10.2.0.2-94-24441	Commissioned	Reboot Shutdow	n Restart Application	View Edit	Uninstall

4.2 Zoom Leg Configuration

4.2.1 Server Interworking for Zoom PBX

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

Device: sa ⊻ Alarms <mark>1</mark>		shooting 🗸 Users	01 DE1-	
Avaya Sessio	n Border Controller	Profile Name Clone Name	avaya-ru ZOOM intervorking	AVAYA
EMS Dashboard Software Management Device Management Backup/Restore System Parameters Configuration Profiles	Add Interworking Profiles: avaya-ru Add Interworking Profiles cs2100 avaya-ru	not recommended to edit the defaults. Try do neral Timers Privacy URI Manipul: eneral	Finish ning or adding a new profile instead. ation Header Manipulation	Cione
Server Interworking Media Forking Routing	ZOOM interworking PSTN INTERWORKING 1 1 1	old Support 80 Handling 81 Handling 82 Handling	None None None None	
Signaling Manipulation URI Groups SNMP Traps	1	83 Handling efer Handling URI Group Send Hold	None No None No	
FGDN Groups FGDN Groups Reverse Proxy Policy URN Profile	3	Delayed Offer ox Handling Diversion Header Support	Yes No No	
Recording Profile H248 Profile IP/URI Blocklist Profile	R	ekyeu Suff Handing e-Invite Handling rack Handling	No	

- Select Zoom Interworking that we had created in above step
 Select General tab and click Edit

Device: sa ∽ Alarms <mark>1</mark>	Incidents Status V Logs V Ti	oubleshooting 🗸 Users		Settings 🗸 Help 🖌 Log Out
Avaya Sessior	n Border Controlle	r		Αναγα
EMS Dashboard Software Management Device Management Backup/Restore Configuration Profiles Domain DoS Server Interworking Media Forking Routing Topology Hiding Signaling Manipulation URI Groups SMMP Traps Time Dug Rules FGDN Groups Reverse Proxy Policy URN Profile	Interworking Profiles: ZOC Add Interworking Profiles cs2100 avaya-ru ZOOM Interworking PSTN INTERWORKING	M interworking General Timers Privacy URI Manipul Refer Handling URI Group Send Hold Delayed Offer 3ox Handling Diversion Header Support Delayed SDP Handling Re-Invide Handling Allow 18X SDP T38 Support URI Scheme	Click here to add a description. No No None No Vone No No	Rename Clone Delete
Recording Profile H248 Profile		SIPS Required	No	
IP/URI Blocklist Profile		Mediasec	No	
Services			Edit	w.

- All parameters are set to default, refer the below figure
- Click on Finish

Device: sa 🗸 🛛 Alarms 💈	Incidents Status 🗸 Logs 🗸 Tro	Editing	Profile: ZOOM interworking	Settings V Help V Log Out
Avaya Sessio	on Border Controlle	General Hold Support	None RFC2543 - c=0.0.0.0 RFC2543 - asondonly	Αναγα
MS Dashboard Coftware Management Device Management Sackup/Restore System Parameters Configuration Profiles Domain DoS Server Interworking Media Forking Routing Topology Hidting Signaling Manjoulation URI Groups SIMMP Traps Time of Day Rules FGDN Groups	Interworking Profiles: ZOO Add interworking Profiles cs2100 avaya-ru ZOOM Interworking PSTN INTERWORKING	Hold Support 180 Handling 181 Handling 182 Handling 183 Handling URI Group URI Group Send Hold Delayed Offer 3xx Handling Diversion Header Support Delayed SDP Handling Re-Invite Handling	PFC2843 - c=0.0.0 PFC2843 - e=sendonly Microsoft Teams Incode SDP None O SDP Image: I	Rename Cione Delete
Reverse Proxy Policy URN Profile Recording Profile H248 Profile IP/URI Blocklist Profile Services Domain Policies TLS Management Network & Flows DMZ Services Monitoring & Logaing		Prack Handling Aliow 18X SDP T.38 Support URI Scheme Via Header Format SIPS Required Mediasec Handling		

• Select Advanced tab and click Edit

Device: sa ∽ Alarms <mark>1</mark> In	acidents Status 🗸 Logs 🖌 Tra	oubleshooting Y Users		Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller	r		AVAYA
EMS Dashboard Software Management Device Management Backup/Restore System Parameters Configuration Profiles Domain DoS Server Interworking Media Forking Routing Topology Hiding Signaling Manipulation URI Groups SNNP Traps Time of Day Rules FGDN Groups Reverse Proxy Policy URN Profile Recording Profile H248 Profile	Interworking Profiles: ZOO Add Interworking Profiles cs2100 avaya-ru ZOOM Interworking PSTN INTERWORKING	Minterworking General Timers Privacy URI Manipulation Record Routes Include End Point IP for Context Lookup Extensions Diversion Manipulation Has Remote SBC Route Response on Via Port MOBX Re-INVITE Handing NATing for 301302 Redirection SIP Recording Relay INVITE Replace Conference URI Include Called Participant DIME	Click here to add a description Header Manipulation Advanced Both Sides Ves No No Ves No No Ves No	Rename Cione Delete
IP/URI Blocklist Profile		DTMF Support	None	

- All parameters are set to default, refer the below figure
- Click on Finish

Device: sa 🗸 🛛 Alarms 💈 🛛	ncidents Status 🗸 Logs 🛩 Tro	Editing Pro	ofile: ZOOM interworking X	Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller	Record Routes	 None Single Side Both Sides Dialog-Initiate Only (Single Side) Dialog-Initiate Only (Both Sides) 	AVAYA
Software Management	Interworking Profiles: 200	Include End Point IP for Context Lookup		Deserve Ofere Delate
Device Management	Interventing Draffler	Extensions	None 🗸	
Backup/Restore	cs2100	Diversion Manipulation		JION.
 System Parameters Configuration Profiles 	avaya-ru	Diversion Condition	None	
Domain DoS	ZOOM interworking	Has Remote SBC		
Server	PSTN INTERWORKING	Route Response on Via Port		
Media Forking		MOBX Re-INVITE Handling		
Routing		NATing for 301/302 Redirection	3	
Topology Hiding Signaling			_	
Manipulation		SIP Recording		
URI Groups		Relay INVITE Replace		
Time of Day Rules		Conference URI		
FGDN Groups		Include Called Participant		
Reverse Proxy		DTMF		
Policy LIBN Profile			None	
Recording Profile			O SIP Notify	
H248 Profile		DTMF Support	O SIP Info	
IP/URI Blocklist			RFC 2833 Relay & SIP Info Inband	
 Services 				
Domain Policies			Finish	
TLS Management				
Network & Flows				
DMZ Services				
Monitoring & Logging				تع 20 راه اي

4.2.2 SIP Server

- Navigate to Services > SIP Servers
- Click Add
- Set Profile Name: zoom
- Click Next

Device: sa ∨ Alarms <mark>1</mark> II	ncidents Status 🗸 Logs 🖌 Tro	ubleshooting Y Users			Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller				AVAYA
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Services Services H248 Servers H248 Servers	SIP Servers: zoom Add Server Profiles zoom PSTN	General Authentication Heartbeat Registration Pin Add Server Tor TIS Clien DNS Que Inbound Connection reuse Francy	g Advanced uration Profile X		Rename Clone Delete
RADIUS		IP Address / FQDN /CIDR Range	Port	Transport	Whitelist
Domain Policies		us01peer01.dv.zoom.us	5061	TLS	
TLS Management		us01peer01.ny.zoom.us	5061	TLS	
 Network & Flows DMZ Services 		us01peer01.sc.zoom.us	5061	TLS	
 Monitoring & Logging Compliance 			Edit		

- Set Server Type: Select **Trunk Server** from the drop down
- Set IP Address/FQDN/CIDR Range: Enter the **Zoom PBX FQDNs**
- Set Port: **5061**
- Set Transport: TLS
- Click **Finish**

Device: sa 🗸 🛛 Alarms <mark>1</mark>			
Avaya Session	Border Controller	Edit SIP Server Profile - General X	AVAYA
EMS Dashboard Software Management Device Management Backup/Restore 9 System Parameters 9 Configuration Profiles 9 Services 9 Services 9 Domain Policies 9 Domain Policies 9 Domain Policies 9 Domain Policies 9 Domain Policies 9 Daty Services 9 Monitoring & Logging 9 Compliance	SIP Servers: zoom Add zoom PSTN	Server Type can not be changed while this SIP Server Profile is associated to a Server Flow Server Type Trunk Server SIP Domain	Rename Clone Delete Transport Whitehat TLS

- Navigate to SIP Servers > zoom > Advanced tab
- Click Edit
- Enable Grooming: Checked
- Signaling Manipulation Script: signaling manipulation 2 (Refer 4.2.12.2 FQDN to IP Manipulation)
- Interworking Profile: Select **ZOOM interworking**
- Click on **Finish**

Device: sa 🗸 Alarms 1 In	idents Status ♥ Logs ♥ Troubleshooting ♥ Users	Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller	Αναγα
EMS Dashboard Software Management Device Management Backup/Restore System Parameters System Parameters Services MP Servers LDAP RADUS Domain Policies TLS Management Network & Flows DMZ Services Monitoring & Logging Compliance	Add Server Profiles PSTN Enable DoS Protection Enable Grooming Interworking Profile Signaling Manipulation Script Signaling Manipulation Script Securable Enable FGDN TOP Fallover Port Tolerant URI Group NG911 Support	tion Ping Advanced
Device: sa ∨ Alarms 1 Inc Avaya Session I	dents Status V Logs V Troubleshooting V Users Border Controller	Settings V Help V Log Out
Avaya Session I EMS Dashboard Software Management Device Management Backup/Restore System Parameters Configuration Profiles Services Services Services H248 Servers LDAP RADIUS Domain Policies TLS Management Network & Flows DMZ Services Monitoring & Logging Compliance	Sorder Controller	Rename Clone Delete

4.2.3Topology Hiding

- Navigate: Configuration Profiles > Topology Hiding
- Click Add
- Set Profile Name: zoom topology hiding
- Click Next



- Select the newly created profile **zoom topology hiding a**nd click **Edit**
- Overwrite Value: Replace the From header with ZOOM PBX Facing Public FQDN
- Click Finish

Device: sa 🗸 🛛 Alarms 🚹 Ir	ncidents Status 🗸 Logs 🗸	Troubleshooting \checkmark	Users					Settings 🗸 🛛 Help 🖌 Log Out
Avaya Session	Border Controll	er I	-	-	Edit Topology Hiding I	Profile	x	AVAYA
EMS Dashboard Software Management Device Management Backup/Restore • Sogern Parameters • Configuration Profiles • Domain DoS server Intervorking Media Forking Routing • Topology Hiding Signaling Manipulation URI Groups SMMP Traps Time of Day Rules FGDN Groups Reverse Proxy Policy URN Profile Recording Profile H248 Profile H248 Profile H248 Profile	Topology Hiding Profiles Add Topology Hiding Profile zoom topology Hiding PSTN TOPOLOGY HIDING	zoom topolog Topology Hiding Heeder Via Di Record-Route Record-Route Record-Route Refer-To From	Header Via SDP To Record-Route Request-Line Refered-By Refer-To From	Criteria Criter	Replace Action I (Auto I (Overwrite I (Finish)	Verwrite Vale	e Delete Delete Delete Delete Delete Delete	Rename Cione Deiete

4.2.4 Routing

- Navigate to **Configuration Profiles > Routing**
- Click Add
- Set Profile Name: zoom2
- Click Next

Device: sa ∽ Alarms 1	Incidents Status Y Logs Y T	roubleshooting 💙 Users				Settings 🗸 🛛 F	lelp 🖌 🛛 Log Out
Avaya Session	Border Controlle	r					AVAYA
EMS Dashboard Software Management Device Management Backup/Restore	Routing Profiles: default Add Routing Profiles		Rou	ting Profile	_	x	Clone
System Parameters Configuration Profiles Domain DoS Server Interworking	default zoom2 PSTN	Profile Name	zoomą	Next		Transport	Add
Media Forking Routing Topology Hiding Signaling Manipulation		<u>۱</u> .	default	DNS/SRV	Auto-Detect	Auto-Detect	Edit Delete
URI Groups SNMP Traps Time of Day Rules FGDN Groups Reverse Proxy							
Policy URN Profile Recording Profile H248 Profile IP/URI Blocklist Profile							

- At Routing Profile Window, Click Add.
- Set Priority/Weight: 1, 2, 3.
 Select SIP Server Profile: zoom from the drop-down menu.
- Select Next Hop Address: Zoom PBX FQDN according to priority.
- Click **Finish**.

	icidentis Status -	Logs • Housieshooding •	03015			Settings - Heip - Eog Out
Avava Session	Border Co		Pro	ofile : zoom2 - Edit Rule	2	AVAVA
		URI Group	* •	Time of Day	default 🗸	
EMS Dashboard	Routing Profiles	Load Balancing	Priority 🗸	NAPTR		
Software Management		Transport	None 🗸	LDAP Routing	0	Rename Clone Delete
Backup/Restore	Routing Profiles	LDAP Server Profile	None 🗸	LDAP Base DN (Search)	None 🛩	
System Parameters	default	Matched Attribute Priority		Alternate Routing		
Configuration Profiles Domain DoS	PSTN	Next Hop Priority		Next Hop In-Dialog		Add
Server Interworking		Ignore Route Header	0			Transport
Media Forking Routing						TLS
Topology Hiding		ENUM		ENUM Suffix		TLS Edit Delete
Signaling		Server Name Indication (SNI)	0	Server Name		11.5
URI Groups					Add	
SNMP Traps Time of Day Rules		Priority LDAP Search / Attribute	LDAP Search Regex Pattern	LDAP Search SiP Serve Regex Result Profile	r Next Hop Address Transport	
Reverse Proxy		1		zoom	♥ us01peer01.ny♥ None ♥ Delete	
Policy LIDN Profile		2		zoom	♥ us01peer01.sc ♥ None ♥ Delete	
Recording Profile		3		zoom	v us01peer01.dv V None v Delete	
H248 Profile IP/URI Blocklist Profile				Finish		

4.2.5 Media Rules

- Navigate to **Domain Policies > Media Rules**
- Select Media Rules **default-low-med** Click Clone
- Set Clone Name: SRTP-ZOOM
- Click on **Finish**

Device: sa 🗸 🛛 Alarms 🚺	Incidents Status Y Logs Y	Troubleshooting Y Users			Settings 🛩 Help 🖌 Log Out
Avaya Sessio	n Border Control	ler			AVAYA
EMS Dashboard Software Management Device Management Backup(Restore System Parameters Configuration Profiles Services Pomain Policies Application Rules Barder Rules Barder Rules Barder Rules Charging Rules Charging Rules Charging Rules Charging Rules Charging Rules Charging Rules Charging Rules Session Policies = TLS Management Network & Flows = Network & Flows = DMZ Services	Media Rules: default-lo Articles: default-low-med default-low-med-enc default-high default-high default-high-enc avaya-low-med-enc SRTP-ZOOM dddddd		Cione Rule default-low-med SRTP-200M Finish	RTP C C C C C C C C C C C C C C C C C C C	

- Select newly created Media Rules **SRTP-ZOOM**
- Set Preferred Formats: SRTP_AES_CM_128_HMAC_SHA1_32, SRTP_AES_CM_128_HMAC_SHA1_80, RTP
- Set Encrypted RTCP: Checked
- Click on **Finish**.

Device: sa 🗸 🛛 Alarms 🚹 🛛 I	ncidents Status 🛩 Logs 🛩 Tro		Media Encryption	×	Settings 🌱 Help 🌱 Log Out
		Audio Encryption			
Avaya Session	Border Controller	Preferred Format #1	SRTP_AES_CM_128_HMAC_SHA1_32 V		AVAYA
		Preferred Format #2	SRTP_AES_CM_128_HMAC_SHA1_80 ~		
EMS Dashboard	Media Rules: SRTP-ZOON	Preferred Format #3	RTP		
Software Management Add		Encrypted RTCP			Rename Clone Delete
Backup/Restore	Media Rules	MKI	0	_	stion.
System Parameters	default-low-med	Lifetime	2^		
Configuration Profiles	default-low-med-enc	Leave blank to match any value.			
Services	default-high	Interworking		_	C SHA1 32
Application Bules	default-high-enc	Symmetric Context Reset			C_SHA1_80
Border Rules	avaya-low-med-enc	Key Change in New Offer			
Media Rules	SRTP-ZOOM	Video Encryption			
Security Rules	ddddd	Preferred Format #1	RTP		
Charging Rules		Preferred Format #2	NONE		
End Point Policy		Preferred Format #3	NONE		
Session Policies		Encrypted RTCP			
TLS Management		MKJ			
 Network & Flows DMZ Services 		Lifetime Leave blank to match any value.	2^		
Monitoring & Logging		Interworking			
Compliance		Symmetric Context Reset			
		Key Change in New Offer			
		Miscellaneous			
		Capability Negotiation			
			Finish		
	L				Su_10

4.2.6 End Point Policy Groups

- Navigate to **Domain Policies > End Point Policy Groups**
- Select **default-low** under Policy Groups
- Click Clone
- Set Clone Name: ZOOM SRTP
- Click Finish.

Device: sa 🗸 🛛 Alarms 🚹	Device: sa 🗸 Alarms 🚹 Incidents Status 🔨 Logs 🗸 Troubleshooling 🗸 Users Settings 🗸 Help 🗸 Log Out									
Avaya Session	Border Controll	er								AVAYA
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Services > Borvices > Domain Policies Border Rules Border Ru	Policy Groups: default-to Add Policy Groups default-tow default-med default-med-enc default-high default-high-enc avaya-def-high-subscriber avaya-def-high-subscriber avaya-def-high-subscriber avaya-def-high-subscriber	W It is not recomm Policy Group Order	Group Name Clone Name Application default	Border default	Clone Group default-low ZOOM SRTF Finish Minda default-low-med	Security default-low	X Signaling default	Changing None	RTGP Man Gen Off	Summary

- Select the newly created Group **ZOOM SRTP** and click **Edit**
- Set Media Rule: SRTP-ZOOM
- Click Finish

Device: sa V Alarms 1 Incidents Status V Logs V Troubleshooting V Users								Settings 🗸 🛛 Help	 Log Out
				Edit Policy Set		x			
Avaya Session	Border Controller	Application Rule		default 🗸					AVAYA
		Border Rule		default 🗸					
EMS Dashboard	Policy Groups: ZOOM SRTI	P Media Rule		SRTP-ZOOM V					
Software Management	Add	Security Rule		default-low 🗸				Rename Clon	e Delete
Backup/Restore	Policy Groups	Signaling Rule		default 🗸]				
System Parameters	default-low	Charging Rule		None 🗸					
Configuration Profiles	default-low-enc	BTCP Monitoring	Report Generation						_
Services	default-med	incy e intron monitoring							
Domain Policies	default-med-enc			Finish					Summary
Border Rules	default-high	Order Application	Border	Media	Security	Signaling	Charging	RTCP Mon Gen	
Media Rules	default-high-enc	0 default	default	SRTP-ZOOM	default-low	default	None	Off	Edit
Security Rules	avaya-def-low-enc								
Signaling Rules	avaya-def-high-subscriber								
End Point Policy	avaya-def-high-server								
Groups	ZOOM SRTP								
Session Policies									
ILS Management Network & Flows									
DMZ Services									
Monitoring & Logging									
Compliance									

4.2.7 Network Management

- Navigate to Network & Flows > Network Management > Networks
- Click Add. A window will appear titled Add Network
- Set Name: WAN is given for the network facing ZOOM PBX
- Set Default Gateway: **192.65.XX.XX**
- Set Network Prefix or Subnet Mask: 255.255.255.XXX
- Set Interface: A1
- Set IP Address: 192.65.XX.XX facing ZOOM PBX
- Click Finish

Avaya Session Border Contr	oller											
	oner					A	/AYA					
EMS Dashboard Network Manageme	ent	Add Network		x								
Software Management Device Management	Name	WAN										
Backup/Restore Interfaces Networks	Default Gateway	192.65.										
System Parameters	Network Prefix or Subnet Mask	255.255.255.1					Add					
Configuration Profiles Services Name	Interface	A1 🗸			IP Address							
Domain Policies				Add		Edit	Delete					
TLS Management	10 Address Dublis ID	Ostaven Osarida	O	Add								
A Network & Flows	102 CE		Passillough	Delete								
Management	182.00.1			Denete								
Media Interface		Finish	-									
Signaling Interface End Point Flows Session Flows Advanced Options > DMZ Services > Monitoring & Logging												

4.2.8 Media Interface

- Navigate to Network & Flows > Media Interface. Click Add
- Set Name: A1_ZOOM is given here
- Set IP Address: Select WAN(A1,VLAN0) from the drop down and the IP address populates automatically. The IP address for Interface facing ZOOM PBX is **192.65.XX.XX**
- Set Port Range: **35000-40000**
- Click Finish.

Device: sa 🗸 Alarms <mark>1</mark> In	cidents Status 🛩 Logs 🛩 Tr	roubleshooting Y Users			Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controlle	r			Αναγα
EMS Dashboard Software Management	Media Interface				
Device Management	Media Interface		Edit Media Interface	x	
 System Parameters 		Name	A1_ZOOM		Add
 Configuration Profiles Services 	Name	IP Address	WAN (A1, VLAN 0)	Port Range	
Domain Policies TLS Management	A1_ZOOM	Port Range	35000 - 40000	35000 - 40000	Edit Delete
Network & Flows	B1_PSTN		Finish	35000 - 40000	Edit Delete
Media Interface					
Signaling Interface					
Session Flows					
Advanced Options					
DMZ Services					
Monitoring & Logging					
Compliance					

4.2.9 Signaling Interface

- Navigate to Network & Flows > Signaling Interface. Click Add, a new Add Signaling Interface window appears
- Set Name: **ZOOM_A1** is given for the interface facing **ZOOM PBX**
- Set IP Address: Select WAN(A1,VLAN0)
- Set TLS Port: **5061**
- Click Finish

Device: sa 🗸 🛛 Alarms 💈		oubleshooting 🛩 Users						
			Edit Signaling Interface	x				
Avaya Session	n Border Controlle	Name	ZOOM_A1				AVAY	/Α
EMS Dashboard	Signaling Interface	IP Address	WAN (A1, VLAN 0)					
Software Management	Ŭ Ŭ	TCP Port Leave blank to disable						
Backup/Restore	Signaling interface	UDP Port Leave blank to disable						
 System Parameters Configuration Profiles 		TLS Port Leave blank to disable	5061				Add	ð
Services	Name	TLS Profile	ZOOM 🗸		S Port	TLS Profile		
 Domain Policies TLS Management 	ZOOM_A1	Enable Shared Control			51	ZOOM	Edit Delete	e
 Network & Flows 	PSTN_B1	Shared Control Port				None	Edit Delete	е
Network Management			Finish					
Signaling Interface								
End Point Flows								
Session Flows								
Advanced Options								
DMZ Services								
Monitoring & Logging								

4.2.10 End Point Flow

- Navigate to Network & Flows > End Point Flows > Server Flows and Click Add
- Set Flow Name: **ZOOM-PSTN**
- Set SIP Server Profile: zoom
- Received Interface: PSTN_B1
- Signaling Interface: **ZOOM_A1**
- Media Interface: A1_ZOOM
- End Point Policy Group: ZOOM SRTP
- Routing Profile: **PSTN**
- Topology Hiding Profile: zoom topology hiding
- Signaling Manipulation Script: manipulation zoom (Refer 4.2.12.1 Signaling Manipulation)
- Link Monitoring from Peer: Checked
- FQDN Support: Checked
- FQDN: sbc4.tekvizionlabs.com
- Leave the other parameters set to default.
- Click on Finish

Device: sa ∨ Alarms 1	Device: sa 🗸 Alarms 1 Incidents Status 🗸 Logs 🗸 Troubleshooting 🗸 Users Settings 🖍 Help 🗸 Log Out							
Avaya Session	n Border Controller		Edit Flow: ZOOM-PSTN	x			A۱	/AYA
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Services > Domain Policies > TLS Management <a href="https://www.www.www.www.www.www.www.www.www.w</th> <th>End Point Flows Subscriber Flows Server Flows Filter Modifications made to a Server Flow will only SIP Server: PSTN Priority Priority Flow Name 1 PSTN-ZOOM SIP Server: zoom Priority Priority Flow Name 1 ZOOM-PSTN</th> <th>Flow Name SIP Server Profile URI Group Transport Remote Subnet Received Interface Signaling Interface Media Interface Secondary Media Interface End Point Policy Group Routing Profile Topology Hiding Profile Signaling Manipulation Script Remote Branch Office Link Monitoring from Peer FQDN Support FQDN</th> <th>ZOOM-PSTN zoom V * V PSTN_B1 V ZOOM_A1 V A1_ZOOM V None V ZOOM SRTP V PSTN V ZOOM topology hiding V manipulation zoom V Any V E sbc4 tekvizionilabs com</th> <th></th> <th>olay Graup Colay Graup P</th> <th>Routing Profile zoom2 PSTN</th> <th>View Clone Edit</th> <th>Add Delete</th>	End Point Flows Subscriber Flows Server Flows Filter Modifications made to a Server Flow will only SIP Server: PSTN Priority Priority Flow Name 1 PSTN-ZOOM SIP Server: zoom Priority Priority Flow Name 1 ZOOM-PSTN	Flow Name SIP Server Profile URI Group Transport Remote Subnet Received Interface Signaling Interface Media Interface Secondary Media Interface End Point Policy Group Routing Profile Topology Hiding Profile Signaling Manipulation Script Remote Branch Office Link Monitoring from Peer FQDN Support FQDN	ZOOM-PSTN zoom V * V PSTN_B1 V ZOOM_A1 V A1_ZOOM V None V ZOOM SRTP V PSTN V ZOOM topology hiding V manipulation zoom V Any V E sbc4 tekvizionilabs com		olay Graup Colay Graup P	Routing Profile zoom2 PSTN	View Clone Edit	Add Delete

4.2.11 TLS Profile

4.2.11.1 Generate CSR

• Navigate: TLS management > Certificates. Click Generate CSR.

Device: sa ∽ Alarms <mark>2</mark>	ncidents Status V Logs V Troubleshooting V Users	Settings ∽ H	lelp Y	r Lo	g Out
Avaya Session	Border Controller		A	VAV	γA
EMS Dashboard Software Management Device Management Backup/Restore	Certificates	Install	Ge	nerate C	SR
System Parameters Configuration Profiles Services Domain Policies	Installed Certificates sbc4 pem		View	Delete	Î
TLS Management Certificates Client Profiles	DigiCertGlobalRootG2.crt zoom2.pem		View View	Delete Delete	
Server Profiles SNI Group Network & Flows	entrust_g2_ca.cer avayaitrootca2.pem zoom1.pem		View View View	Delete Delete Delete	
 DMZ Services Monitoring & Logging Compliance 	root.pem AvayaDeviceEnrollmentCAchain.crt		View View	Delete Delete	
	Installed Certificate revocation LISIS No certificate revocation lists have been installed. Installed Certificate Signing Requests				
	sbc4 telwizionlabs com req			Delete	

- Set Country Name: **US**
- State/Province Name: **Texas**
- Locality Name: Plano
- Organization Name: Tekvizion
- Organizational Unit: lab
- Common Name: sbc4.tekvizionlabs.com
- Select Algorithm: SHA256
- Select Key Size (Modulus Length): 2048 bits
- In Key Usage Extension(s): Key Encipherment, Non-Repudiation, Digital Signature is checked
- In Extended Key Usage: Server Authentication, Client Authentication is checked
- Subject Alt Name: DNS: sbc4tekvizionlabs.com
- Set Passphrase & Confirm Passphrase: XXXXX
- Click Generate CSR

	Generate CSR X
Country Name	US
State/Province Name	Texas
Locality Name	Plano
Organization Name	Tekvizion
Organizational Unit	lab
Common Name	sbc
Algorithm	SHA256
Key Size (Modulus Length)	 2048 bits 4096 bits
Key Usage Extension(s)	 Key Encipherment Non-Repudiation Digital Signature
Extended Key Usage	Server AuthenticationClient Authentication
Subject Alt Name	DNS:sbc4
Passphrase	
Confirm Passphrase	[····•]
Contact Name	
Contact E-Mail	
	Generate CSR

4.2.11.2 Certificates Upload

- Navigate: TLS management > Certificates. Click Install
- Set Type: Select CA Certificate
- Set Name: zoom1
- Set Allow weak Certificate/Key: checked
- Set Certificate File: Click Choose File to select DigiCertGlobal1.crt.pem
- Click Upload

Device: sa ∨ Alarms 1 I	incidents Status 🗸 Logs 🗸 Tri	publeshooting 🗸 Users		Settings 🗸 🛛 Help 🗸	Log Out
Avaya Session	Border Controlle	r		A	VAYA
EMS Dashboard Software Management	Certificates		Install Certificate	X Install Ger	nerate CSR
Device Management Backup/Restore	Certificates	Туре	Certificate CA Certificate Certificate Certificate Revocation List		
 Configuration Profiles Services 	Installed Certificates sbc4.pem	Name	zoom1	View	Delete
 Domain Policies TLS Management 	Installed CA Certificates DigiCertGlobalRootG2.crt	Allow Weak Certificate/Key		View	Delete
Certificates Client Profiles	zoom2.pem	Certificate File	Choose File DigiCertGlobal1.crt.pem	Vew	
Server Profiles SNI Group	avayaitrootca2.pem		Upload	View	
 Network & Flows DMZ Services 	zoom1.pem			View	Delete
 Monitoring & Logging Compliance 	AvayaDeviceEnrollmentCAchain.crt			View	Delete

- Navigate: TLS management > Certificates. Click Install
- Set Type: Select CA Certificate
- Set Name: **zoom2**
- Set Allow weak Certificate/Key: checked
- Set Certificate File: Click Choose File to select DigiCertGlobalRootG2.crt.pem
- Click Upload

Device: sa ∨ Alarms 1 Ir	ncidents Status 🗸 Logs 🗸 Tro	ubleshooting Y Users			Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller				AVAYA
EMS Dashboard Software Management	Certificates	_	Install Certificate	x	Install Generate CSP
Device Management Backup/Restore	Certificates	Туре	Certificate CA Certificate Cartificate Certificate Revocation List		
 Configuration Profiles Services 	Installed Certificates sbc4.pem	Name Overwrite Existing	zoom2		View Delete
Domain Policies TLS Management Certificates	Installed CA Certificates DigiCertGlobalRootG2.crt	Allow Weak Certificate/Key			View Delete
Client Profiles Server Profiles	zoom2.pem entrust_g2_ca.cer		Upload		View Delete View Delete
SNI Group Network & Flows DMZ Services	zoom1.pem				View Delete
 Monitoring & Logging Compliance 	AvayaDeviceEnrollmentCAchain.crt				View Delete

- Set Type: Select CA Certificate
- Set Name: root (i:e Go daddy intermediate certificate)
- Set Allow weak Certificate/Key: checked
- Set Certificate File: Click Choose File to select gd-g2_iis_intermediates.pem
- Click Upload

Device: sa Y Alarms 1	Incidents Status V Logs V Trouble	eshooting 🖌 Users		Settings 🗸 He	lp 🖌	Log Out
Avaya Sessior	n Border Controller				AVA	ауа
EMS Dashboard Software Management Device Management	Certificates	_	Install Certificate	X Instat	General	ite CSR
Backup/Restore System Parameters Configuration Profiles Services	Installed Certificates sbc4 pem	Type Name	Certificate Certificate Certificate root		View D	Delete
 Domain Policies TLS Management Certificates Client Profiles Server Profiles 	Installed CA Certificates DigiCertGlobalRootQ2.crt zoom2.pem entrust_g2_ca cer	Overwrite Existing Allow Weak Certificate/Key Certificate File	Choose File gd-g2_iis_inates (1) pem		View D View D View D	Delete Delete Delete
SNI Group Network & Flows DMZ Services Monitoring & Logging Compliance	avayatrootcaz pēm zoom1 pēm root.pēm AvayaDeviceEnrollmentCAchain.crt				View D View D View D	Delete Delete Delete

- Navigate: TLS management > Certificates. Click Install
- Set Type: Select Certificate
- Set Name: sbc4
- Set Allow weak Certificate/Key: Checked
- Set Certificate File: Click Choose File to select sbc4.pem
- Set Key: Use Existing Key
- Select Key file: sbc4.key
- Click Upload

Device: sa 🗸 Alarms <mark>1</mark> II					
Avaya Session	Border Controller				Αναγα
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Domain Policies < TLS Management Certificates Cleint Profiles Server Profiles Server Profiles SNI Group > Network & Flows	Certificates Certificates Instanted Certificates sbc4 pem Instanted CA Certificates Dig/Certificates Dig/	Type Name Overwrite Existing Allow Weak Certificate/Key Certificate File Trust Chain File	Install Certificate Certificate Cartificate Certificate Certificate Revocation List sbc4 Choose File sbc4 Choose File No file chosen Use Existing Key		Install Generate CSR Vew Delete Vew Delete Vew Delete Vew Delete Vew Delete Vew Delete Vew Delete
 DMZ Services Monitoring & Logging Compliance 	root pem AvayaDeviceEnrollmentCAchain crt Installed Certificate Revocation Lists No certificate revocation lists have been in	Key File	O Upload Key File sbc4 key ♥	_=	View Delete View Delete

4.2.11.3 Client Profile

- Navigate to TLS management > Client Profiles and Click Add
- Set Profile Name: ZOOM is given for interface facing ZOOM PBX
- Set **Certificate**: Select server certificate **sbc4.pem** for Avaya SBC interface facing ZOOM PBX
- Set **Peer Certificate Authorities**: Select **zoom1.pem**, **zoom2.pem**, **root.pem** which is uploaded in previous step
- Set Verification Depth: 1
- Click Next

Device: sa 🗸 🛛 Alarms 🚹 Ir					
			New Profile X	4	
Avaya Session	Border Controller	WARNING: Due to the way OpenSSL pass even if one or more of the cipher sure to carefully check your entry as it may cause catastrophic prohlems	handles cipher checking, Cipher Suite validation will s are invalid as long as at least one cipher is valid. Make walid or incorrectly entered Cipher Suite custom values	AVAY	Α
EMS Dashboard Software Management	Client Profiles: ZOOM	TLS Profile			
Device Management	Client Profiles	Profile Name	ZOOM	Delete	
Backup/Restore System Parameters	ZOOM	Certificate	sbc4.pem 🗸	nu a description.	
 Configuration Profiles Semicore 		SNI	Enabled		
 Domain Policies 		Certificate Verification	Postiond		
TLS Management Certificates		Peer Verification	avayaitrootca2.pem		
Server Profiles		Peer Cerunicate Admonues	root.pem AvayaDeviceEnrollmentCAchain.crt		
SNI Group A Network & Flows Network Management		Peer Certificate Revocation Lists	▲ ▼		
Media Interface Signaling Interface		Verification Depth	1		
End Point Flows		Extended Hostname Verification	0		
Session Flows Advanced Options		Server Hostname			
DMZ Services Monitoring & Logging			Next		
Compliance		Renegotiation Byte Count	0		

- Set Version: Select TLS 1.2, TLS 1.3 versions
- Click **Finish**

	New Profile	x			
Renegotiation Parameters					
Renegotiation Time	0 seconds				
Renegotiation Byte Count	0				
Handshake Options					
Version	TLS 1.3 TLS 1.2				
Ciphers	● Default ○ FIPS ○ Custom				
Value (What's this?)	DEFAULT:ISHA				
Back Finish					

4.2.11.4 Server Profile

- Navigate: TLS management > Server Profiles. Click Add
- Set Profile Name: **ZOOM** is given for interface facing Zoom
- Set Certificate: Select server certificate **sbc4.pem** for Avaya SBC interface facing ZOOM
- Click on Next

Device: sa 🗸 Alarms 1 Ir			ng 🗸 Users			
				New Profile	X	
Avaya Session Border Controller			WARNING: Due to the way OpenSSL pass even if one or more of the cipher sure to carefully check your entry as in may cause catastrophic problems.	handles cipher checking, Cipher Suite vali s are invalid as long as at least one cipher valid or incorrectly entered Cipher Suite o	dation will is valid, Make ustom values	Αναγα
EMS Dashboard	Server Profiles: ZOOM		TLS Profile			
Software Management Device Management	Add		Profile Name	ZOOM		Delete
Backup/Restore	Server Profiles		Certificate	sbc4.pem	~	ption.
 System Parameters Configuration Profiles 		Server Pr	SNI Options	None 🗸		
Services		TLS Pro	SNI Group	None 🛩		
Domain Policies		Profile N				
 TLS Management 		Certifica	Certificate Ventication		_	
Certificates		SNI Opt	Peer Verification	None 🗸		
Client Profiles Server Profiles		Certifica	Rear Cartificate Authorities	avayaitrootca2.pem zoom1.pem		
SNI Group		Peer Ve	Teel Cerdicate Additities	root.pem AvayaDeviceEnrollmentCAchain.crt	-	
 Network & Flows 		Extende				
Network Management			Peer Certificate Revocation Lists			
Media Interface		Renego			W	
End Point Flows		Renego	Verification Depth			
Session Flows		Renego				
Advanced Options		Handsh		Next		
 DMZ Services Monitoring & Logging 		Version		TLS 1.3	TLS 1.2	
 Komoning & Logging Compliance 		Ciphers		Default	O FIPS O	Custom
		Value		DEFAULT:IS	на	

- Set Version: Select TLS 1.2, TLS 1.3 versions
- Click **Finish**

	New Profile	x
Renegotiation Parameters		
Renegotiation Time	0 seconds	
Renegotiation Byte Count	0	
Handshake Options		
Version	TLS 1.3 TLS 1.2	
Ciphers	Default FIPS Custom	
Value (What's this?)	DEFAULT: ISHA	
	Back Finish	

Edit SIP Server

- Navigate to Services > SIP Servers
- Select Server Profiles: zoom
- Under General tab and Click Edit
- Set Server Type: Select Trunk Server from the drop down
- Set TLS Client Profile: **ZOOM**
- Set IP Address/FQDN/CIDR Range: Enter the ZOOM PBX FQDN's
- Set Transport: Select TLS from Dropdown
- Set Port: 5061
- Set TLS Client Profile: Select Client Profile ZOOM
- Click Finish



Edit Signaling Interface

- Navigate to Network & Flows > Signaling Interface
- Select interface ZOOM_A1
- Click Edit

Device: sa ∽ Alarms <mark>2</mark>	Inc	idents Status 🗸 Logs 🗸	Troubleshooting V Users					Settings 🗸	Help 🔨	• Log	Out
Avaya Sessio	Avaya Session Border Controller							4	VAY	Ά	
EMS Dashboard Software Management	Î	Signaling Interface									
Device Management	н.	Signaling Interface									
Backup/Restore	н.										
 System Parameters Configuration Brofiles 	н.									Add	
Services	н.	Name	Signaling IP Network	TCP Port	UDP Port	TLS Port	TLS Profile				
SIP Servers	н.	Z00M_A1		5080	5060	5061	ZOOM		Edit	Delete	
H248 Servers	н.	20011211	WAN (A1, VLAN 0)	0000	0000	0001	2000		Lun		
LDAP	н.	PSTN_B1	LAN (B1, VLAN 0)	5060	5060	-	None		Edit	Delete	
RADIUS	н.										l.
Domain Policies	н.										
 TLS Management 	н.										
Certificates	н.										
Client Profiles	н.										
Server Profiles	н.										
SNI Group	н.										
 Network & Flows 	н.										
Network											
Management Media Interface	-										
Signaling Interface											
End Point Flows											
Session Flows	-										

- Set TLS Port: 5061.
 Set TLS Profile: Select ZOOM from the drop-down menu.
- Click Finish.

E	dit Signaling Interface X
Name	ZOOM_A1
IP Address	WAN (A1, VLAN 0)
TCP Port Leave blank to disable	5060
UDP Port Leave blank to disable	5060
TLS Port Leave blank to disable	5061
TLS Profile	ZOOM 🗸
Enable Shared Control	
Shared Control Port	
	Finish

4.2.12 Signaling Manipulation

The signaling manipulation feature provides the ability to add, change and delete any of the headers and other information in SIP messages. This feature addresses the interop issues.

4.2.12.1 SIP OPTIONS URI Manipulation

Zoom PBX expecting the request URI and To URI with resolved IP address of configured FQDN for OPTIONS heartbeat request, below sigma script is created to send OPTIONS message with resolved IP address of Zoom PBX. (Refer 4.2.10 End point Flow)

- Navigate to Configuration Profiles > Signaling Manipulation > manipulation zoom
- Below is the "manipulation zoom" script that is used in this test

Device: sa ∨ Alarms <mark>1</mark>	Incidents Status V Logs V Tr	uubleshooting	Settings 🗸 🛛 Help 🖌 Log Out
Avaya Session	n Border Controlle	·	Αναγα
EMS Dashboard	Signaling Manipulation Sc	ipts: manipulation zoom	
Device Management	Upload		Download Clone Delete
Backup/Restore	Signaling Manipulation Scripts	Click here to add a description.	
System Parameters	international call	Signaling Manipulation	
 Configuration Profiles 	manipulation zoom1		
Domain DoS	signalling manipulation 2		
Server Interworking	manipulation zoom		
Media Forking			
Topology Hiding			
Signaling			
Manipulation			
URI Groups			
SNMP Traps			
Time of Day Rules			
FGDN Groups			
Reverse Proxy			
LIBN Profile			
Recording Profile			
H248 Profile			
IP/URI Blocklist			
Profile			

```
Title manipulation zoom
    1 within session "ALL"
     2
     3
         act on message where %DIRECTION="OUTBOUND" and %ENTRY_POINT="POST_ROUTING" and %METHOD="OPTIONS"
   4
5
7
8
9
          {
              if(%REMOTE_IP ="162.12. ")then
              {
                    %HEADERS["Request_Line"][1].URI.HOST = "162.12."";
%HEADERS["To"][1].URI.HOST = "162.12.";
  10

11

12

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14

15

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22

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24

25

26

}
             }
              if(%REMOTE_IP ="162.12. ")then
              {
                    %HEADERS["Request_Line"][1].URI.HOST = "162.12. 5";
%HEADERS["To"][1].URI.HOST = "162.12.: ";
             }
             if(%REMOTE_IP ="162.12.1 ")then
              {
                   %HEADERS["Request_Line"][1].URI.HOST = "162.12.";
%HEADERS["To"][1].URI.HOST = "162.12.";
         }
```

```
within session "ALL"
{
act on message where %DIRECTION="OUTBOUND" and %ENTRY_POINT="POST_ROUTING" and
%METHOD="OPTIONS"
{
if(%REMOTE_IP ="162.12.XX.XX")then
{
%HEADERS["Request_Line"][1].URI.HOST = "162.12.XX.XX";
%HEADERS["To"][1].URI.HOST = "162.12.XX.XX";
}
if(%REMOTE_IP ="162.12.XX.XX")then
{
%HEADERS["Request_Line"][1].URI.HOST = "162.12.XX.XX";
                     %HEADERS["To"][1].URI.HOST = "162.12.XX.XX";
                                           }
if(%REMOTE_IP ="162.12.XXX.XX")then
                                           {
%HEADERS["Request_Line"][1].URI.HOST = "162.12.XX.XX";
                     %HEADERS["To"][1].URI.HOST = "162.12.XX.XX";
                                           }
                                           }
                                           }
```

4.2.12.2 FQDN to IP Translation

Avaya SBC uses SIGMA configuration to translate the FQDN to its IP address at the ingress. This translation is required for all In-dialog requests coming from Zoom. Without this SIGMA properly configured, In-dialog request coming from Zoom would be rejected with appropriate error response. For an example, in a Zoom to PSTN active call through Avaya SBC, In-Dialog request BYE coming from Zoom to terminate the call will be rejected, caused the SIP session towards PSTN will remain active until it is disconnected by the PSTN user. (Refer 4.2.2 SIP Server)

- Navigate to Configuration Profiles > Signaling Manipulation > signaling manipulation 2
- Below is the "signaling manipulation 2" script that is used in this test

Device: sa ∽ Alarms 1	ncidents Status 🗸 Logs 🗸 Troub	leshooting ✓ Users	Settings 🏏 Help 🌱 Log Out
Avaya Session	Border Controller		AVAYA
EMS Dashboard Software Management Device Management Backup/Restore ■ Oxytem Parameters ■ Oxytem Parameters ■ Oxytem Parameters ■ Oxytem Parameters ■ Oxytem Parameters ■ Oxytem Parameters Domain DoS Server Intervorking Manajoulation URI Groups SNNIP Traps Time of Day Rules FGDN Groups Reverse Proxy Palicy URN Profile Recording Profile H248 Profile	Signaling Manipulation Script Upload Add Signaling Manipulation Script international call manipulation zoom signalling manipulation 2 manipulation zoom	is: signalling manipulation 2 Circk here to add a description ignaling Manipulation	[Download][Clone][Delete]
IP/URI Blocklist Profile			



```
within session "all"
{
    act on message where %DIRECTION="INBOUND" and %ENTRY_POINT="AFTER_NETWORK"
    {
        %HEADERS["Request_Line"][1]. URI.HOST = "192.65.XX.XX";
    }
}
```

4.3 PSTN Leg Configuration

4.3.1 Server Interworking for PSTN Gateway

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

Device: sa ∽ Alarms 1 Incide	ents Status 🗸 Logs 🖌 Troublesh	ooting Y Users	Clone Profile	Settings V Help V Log Out
Avaya Session B	order Controller	Profile Name Clone Name	avaya-ru PSTN INTERWORKIN	Αναγα
EMS Dashboard Software Management Device Management Backup Restore > System Parameters <a configuration="" profiles<br="">Domain DoS Server Interworking Media Forking Routing Topology Hiding Signaling Manpulation URI Groups SINMP Traps Time of Day Rules FGON Groups Reverse Proxy Policy URN Profile	Add Interworking Profiles: avaya-ru Add Interworking Profiles avaya-ru ZOOM interworking PSTN INTERWORKINS Refe	Clone Name f recommended to edit the defaults. Try do f recommended to edit the defaults. Try do f recommended to edit the defaults. Try do f recommended for edit the defaults. Try do f recommended f		
H248 Profile IP/URI Blocklist Profile	Re-II Prac	Invite Handling	No	

- Select Server Interworking: PSTN INTERWORKING
- Select General tab and click Edit

Device: sa ∨ Alarms <mark>1</mark> I	Incidents Status V Logs V Tri	oubleshooting Y Users		Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controlle			Αναγα
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters	Interworking Profiles: PST Add Interworking Profiles cs2100 addream	N INTERWORKING General Timers Privacy URI Manipulati	Click here to add a description.	Rename Clone Delete
Domain DoS Server Intervorking Media Forking Routing Topology Hiding Signaling Manipulation URI Groups SINIMP Traps Time of Day Butes	ZOOM interworking PSTN INTERWORKING	Refer Handling URI Group Send Hold Delayed Offer 3xx Handling Diversion Header Support Delayed SDP Handling Re-Innite Handling Prack Handling	No None Yes No No No No No	
FGDN Groups Reverse Proxy Policy URN Profile Recording Profile H248 Profile IP/URI Blocklist Profile Services		Allow 18X SDP T38 Support URI Scheme Via Header Format SIPS Required Mediasec	No No SIP RFC3261 Yes No Edit	

- All the parameters are set to default, refer the below figure
- Click on **Finish**

Device: sa ∽ Alarms <mark>1</mark> In	ncidents Status 🗸 Logs 🖌 Troublesho	oting 🗸 Users Editing I	Profile: PSTN IN TERWORKING	Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller	General		Αναγά
EMS Dashboard	Interworking Profiles: PSTN INTE	Hold Support	None RFC2543 - c=0.0.0.0 RFC2546 - a=sendonly Microsoft Teams	
Device Management	Add	180 Handling	None O SDP O No SDP	Rename Cione Delete
Backup/Restore	Interworking Profiles	181 Handling	None O SDP O No SDP	ption.
 System Parameters Configuration Profiles 	General General General	182 Handling	None O SDP O No SDP	
Domain DoS	ZOOM interworking Hold	183 Handling	None O SDP O No SDP	
Server Interworking	PSTN INTERWORKING 180 H	Refer Handling		1
Media Forking Routing	181 #	URI Group	None V	
Topology Hiding	182 1	Send Hold		
Signaling Manipulation	183 H	Delayed Offer		
SNMP Traps	Refer	3xx Handling	0	
Time of Day Rules		Diversion Header Support		
FGDN Groups		Delayed SDP Handling		
URN Profile	3xx H	Re Invite Handling		
Recording Profile		Prack Handling	0	
H248 Profile	Delay	Alley 10X CDD	0	
 Services 	Re-Ir	Allow 16X SUP		
Domain Policies	Prace	1.38 Support		
 TLS Management Network & Elows 	A	URI Scheme	I SIP O TEL O ANY	
 DMZ Services 	T.38	Via Header Format	RFC3261 RFC2543 RFC2543	
Monitoring & Logging		SIPS Required		
Compliance	SIPS	Mediasec Handling	0	
	Medi		Finish	
			Eot	
				· · · · · · · · · · · · · · · · · · ·

• Select Advanced tab and click Edit

Device: sa ∨ Alarms <mark>1</mark> I	ncidents Status 🗸 Logs 🗸 Troublesh	ooting 🗸 Users					Settings 🗸 🛛 He	lp 🗸 🛛 Log Out
Avaya Session	Border Controller							avaya
EMS Dashboard Software Management Device Management Backup/Restore	Interworking Profiles: PSTN INT Add Interworking Profiles	ERWORKING			Click here to add	d a description.	Rename	Clone Delete
System Parameters	cs2100 Gene	al Timers Privacy U	RI Manipulation	Header Manipulation	Advanced			
Configuration Profiles Domain DoS	avaya-ru ZOOM intervention	ord Routes			Both Sides			
Server Interworking	200M Interworking	de End Point IP for Context L	ookup		Yes			
Media Forking	Ext	nsions			Avaya			
Routing	Div	reion Maninulation			No			
Topology Hiding	011				140			
Signaling Manipulation	Has	Remote SBC			Yes			
URI Groups	Rou	e Response on Via Port			No			
SNMP Traps	MO	X Re-INVITE Handling			No			
Time of Day Rules	NAT	ing for 301/302 Redirection			Yes			
FGDN Groups								
Reverse Proxy Policy	SIP	Recording			_			
URN Profile	Rel	y INVITE Replace			No			
Recording Profile	Cor	erence URI						
H248 Profile	Incl	de Called Participant			No			
IP/URI BIOCKIISt Profile								
 Services Domoin Policios 	п	F	_	_	_			
TLS Management	DTI	F Support			None			
 Network & Flows 					Ed	dit		
DMZ Services								
Monitoring & Logging								
Compliance								

- All the parameters are set to default, refer the below figure
- Click on **Finish**

Device: sa 🗸 🛛 Alarms 🚹 Ir		oling ∽ Users		
	Doudou Contuollou	Editing Prof		
AVaya Session EMS Dashboard	Interworking Profiles: PSTN INTE	Record Routes	None Single Side Both Sides Dialog-Initiate Only (Single Side) Dialog-Initiate Only (Both Sides)	
Device Management	Add	Include End Point IP for Context Lookup		Rename
Backup/Restore	Interworking Profiles	Extensions	Avaya 🗸	otion.
System Parameters Configuration Profiles	avaya-ru Genera	Diversion Manipulation	0	
Domain DoS	ZOOM interworking Reco	Diversion Condition	None	
Server Interworking	PSTN INTERWORKING Includ	Has Remote SBC		
Routing	Exter	Route Response on Via Port	D	
Topology Hiding	Diver	MOBX Re-INVITE Handling		
Signaling Manipulation	Has	NATing for 301/302 Redirection		
SNMP Traps	MOB	SIP Recording		
Time of Day Rules	NATir	Relay INVITE Replace	0	
Reverse Proxy Policy	SIP R	Conference URI		
URN Profile	Relay	Include Called Participant	0	
Recording Profile H248 Profile	Confe	DTMF		
IP/URI Blocklist Profile Services Domain Policies TLS Management Network & Flows Montoring & Logging Compliance	DTM DTM	DTMF Support	None SiP Notfy SiP Notfy RFC 2333 Relay & SiP Notfy SiP Info RFC 2333 Relay & SiP Info Inband Finish	

4.3.2SIP Server

- Navigate to Services > SIP Servers
- Click Add •
- Set Profile Name: PSTN
- Click Next

Device: sa 🗸 🛛 Alarms 🚹 🛛	ncidents Status 🛩 Logs 🛩 Tro	ubleshooting Y Users			Settings 🌱 Help 🌱 Log Out		
Avaya Session Border Controller AVAYA							
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Services SIP Servers H248 Servers LDAP RADIUS > Domain Policies > TLS Management > Network & Flows > DMZ Services > Monitoring & Logging	Add Server Profiles zoom PSTN	Add Server Con Profile Name PSTN DNS Query Type Inhound Connection Reuse Policy IPAddews FEDIN (c)IDR Range us01 peer01 dv.zoom us us01 peer01 sc.zoom us us01 peer01 sc.zoom us	figuration Profile X I NONE/A NONE/A None Port 5061 5061 5061 EDIT	Transport TLS TLS TLS TLS	Rename Clone Detee		
 Monitoring & Logging Compliance 	DMZ Services Monitoring & Logging Compliance		Edit				

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

Device: sa 🗸 🛛 Alarms 💈 Inc		oubleshooting 🗸 Users		v	Settings 🛩 Help 🖌 Log Out
Avaya Session	Border Controlle	Earch Server Type can not be changed wh	air Server Prome - General		avaya
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters > Configuration Profiles > Configuration Profiles > Services SIP Servers LDAP RADIUS > Domain Policies > TLS Management > Network & Flows > DMZ Services > Monitoring & Logging > Compliance	SIP Servers: PSTN Add Server Profiles zoom PSTN	Server Type SIP Domain DNS Query Type Inbound Connection Reuse Policy TLS Client Profile IP Address / FQDN / CIDR Range 10.	Trunk Server INONE/A → None None None Add Port Transport Whitelist 5060 TCP Finish	Transport UDP	Rename Clone Delete

- Navigate to Heartbeat tab
- Set Enable Heartbeat: Checked
- Set Method: **OPTIONS**
- Set Retry Timeout on Connection Failure: 30 seconds
- Set Frequency: 60 seconds
- Set From URI: ping@<Signaling Interface IP of PSTN Gateway>
- Set To URI: ping@< PSTN Gateway IP>
- Click Finish

SIP Servers: PSTN			
Server Profiles	General Authentication Heartbeat	Registration Ping Advanced	
PSTN	Edit SIP S	erver Profile - Heartbeat	x
	Enable Heartbeat		
	Method		
	Retry Timeout on Connection Failure	30 seconds	abs.com
	Frequency	60 seconds	abs.com
	From URI	ping@sbc4.tekvizionlabs.con	
	To URI	ping@10.64.1.72	
		Finish	

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

SIP Servers: PSTN		
Server Profiles	General Authentication Heartbea	at Registration Ping Advanced
zoom	Edit SI	P Server Profile - Advanced X
PSTN	Enable DoS Protection	
	Enable Grooming	
	Interworking Profile	PSTN INTERWORKING -
	Signaling Manipulation Script	None 🗸
	Securable	
	Enable FGDN	
	TCP Failover Port	
	TLS Failover Port	
	Tolerant	
	URI Group	None
	NG911 Support	
		[Finish]

4.3.3Topology Hiding

- Navigate to Configuration Profiles > Topology Hiding
- Click Add
- Set Profile Name: PSTN TOPOLOGY HIDING
- Click Next

Device: sa Y Alarms 1 Ir	ncidents Status 🗸 Logs 🗸 T	roubleshooting Y Users			Settings 🛩 Help 🛩 Log Out
Avaya Session	Border Controlle	er			Αναγα
EMS Dashboard Software Management	Topology Hiding Profiles:	default			Cione
Backup/Restore	Topology Hiding Profiles default	It is not recommended to edit t	he defaults. Try cloning or adding a new profile instead. Topology Hiding Profile	×	
Configuration Profiles	cisco_th_profile	Profile Name	PSTN TOPOLOGY HIE		Overwrite Value
Server Interworking	zoom topology hiding		Next		
Media Forking		Vid	1P/Domain	AUIO	
Routing		То	IP/Domain	Auto	
Signaling		Record-Route	IP/Domain	Auto	
Manipulation		Request-Line	IP/Domain	Auto	
URI Groups		Referred-By	IP/Domain	Auto	
SNMP Traps		Refer-To	IP/Domain	Auto	
FGDN Groups		From	IP/Domain	Auto	
Reverse Proxy Policy				Edit	
URN Profile Recording Profile H248 Profile IP/URI Blocklist Profile					

- Select the newly created profile **PSTN TOPOLOGY HIDING** and click **Edit**
- Overwrite Value: Replace the Request-line with PSTN facing IP
- Overwrite Value: Replace the To with PSTN facing IP
- Click Finish

Device: sa 🗸 🛛 Alarms 🚹 🛛 I							
Avaya Session	Border Controlle			Edit Topology Hiding Pi	rofile	X	Αναγα
EMS Dashboard	Topology Hiding Profiles:	Header	Criteria	Replace Action	Overwrite Value		
Software Management	Add	Via	✓ IP/Domain	✓ Auto	~	Delete	Rename Clone Delete
Device Management	Topology Hiding Profiles	SDP	✓ IP/Domain	✓ Auto	~	Delete	
Backup/Restore	default	То	✓ IP/Domain	✓ Overwrite	✔ 10.64.1.72	Delete	
Configuration Profiles	cisco th profile	Record-Route	✓ IP/Domain	✓ Auto	~	Delete	
Domain DoS	znom topology biding	Request-Line	✓ IP/Domain	✓ Overwrite	✔ 10.64.1.72	Delete	Overwrite Value
Server Interworking	PSTN TOPOLOGY HIDING	Referred-By	✓ IP/Domain	✓ Auto	~	Delete	
Media Forking		Refer-To	✓ IP/Domain	✓ Auto	~	Delete	
Routing		From	✓ IP/Domain	✓ Auto	~	Delete	10.64.1.72
Topology Hiding							
Manipulation				Finish			10.64.1.72
URI Groups		Referred-By		IP/Domain	Auto		
SNMP Traps		Refer-To		IP/Domain	Auto		
Time of Day Rules		From		IP/Domain	Auto		
Reverse Proxy Policy					Edit		
URN Profile							
Recording Profile							
H248 Profile							
IP/URI Blocklist							آتور بيتاً
							**

4.3.4 Routing

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

Device: sa ∨ Alarms <mark>1</mark> In							
Avaya Session	Border Control	ler					AVAYA
EMS Dashboard Software Management Device Management Backup/Restore > System Parameters	Routing Profiles: defaul	t It is not recomme	ended in with the defaults. Try closen or addice a	new arable instead Routing Profile	_	x	Clone
Configuration Profiles Domain DoS Server Interworking	zoom2 PSTN	Profile Name	PST	Next		Transport	Add
Media Forking Routing Topology Hiding Signaling Manipulation URI Groups SINIAP Traps Time of Day Rules FGDN Groups Reverse Proxy Policy URN Profile Recording Profile H248 Profile IP/URI Blocklist			* default	DNSSRV	Auto-Detect	Auto-Detec	Edit Delete

- At Routing Profile Window, Click Add.
- Set Priority/Weight: 1
- Select SIP Server Profile: PSTN from the drop-down menu
- Click Finish

Device: sa 🗸 Alarms 🚹 Incidents Status 🗸 Logs 🗸 Troubleshooting 🗸 Users							
Avera Cassian	Dandan Cant	Profile : PSTN - Edit Rule					A) /A) /A
Avaya Session Border Conti		URI Group	* •	Time of Day	default 🗸		АУАУА
EMS Dashboard	Pouting Profiles: D	Load Balancing	Priority 🗸	NAPTR			
Software Management	Routing Fromes. Fo	Transport	None 🗸	LDAP Routing			Rename Clone Delete
Device Management	Routing Profiles	LDAP Server Profile	None 🗸	LDAP Base DN (Search)	None 🗸		
 System Parameters 	default	Matched Attribute Priority		Alternate Routing			
 Configuration Profiles 	zoom2	Next Hop Priority		Next Hop In-Dialog			
Domain DoS Server Intervorking	PSTN	Ignore Route Header					Transport
Media Forking							TCP Edit Delete
Routing		ENUM		ENUM Suffix			
Topology Hiding Signaling		Server Name Indication (SNI)		Server Name			
Manipulation						Add	
URI Groups SNMP Trans		Priority LDAP Search	I DAP Search	I DAP Search SIP Serve	re and a second s		
Time of Day Rules		Weight Attribute	Regex Pattern	Regex Result Profile	Next Hop Address	Transport	
FGDN Groups		1		PSTN	✓ 50€ ✓	None 🗸 Delete	
Policy				Finish			
URN Profile					_	_	
H248 Profile							
IP/URI Blocklist Profile							

4.3.5 Network Management

- Navigate to Network & Flows > Network Management > Networks
- Click Add. A window will appear titled Add Network
- Set Name: LAN is given for the network facing PSTN gateway
- Set Default Gateway IP Address: 10.80.XX.X
- Set Network Prefix or Subnet Mask: 255.255.255.X
- Set Interface: B1
- Set IP Address facing PSTN Gateway: 10.80.XX.XX
- Click Finish

Device: sa 🗸 🛛 Alarms 🚹 In	cidents Status 🗸 Logs 🖌 Troub	leshooting 🗸 Users				Settings 🗸 Help 🖌 Log Out
Avaya Session	Border Controller					Αναγά
EMS Deshboard Software Management Device Management Backup Restore Device Management Software Management Configuration Profiles Domain Policies Darmain Policies TLS Management Management Media Interface Signaling Interface Signali	Network Management	Name Default Gateway Network Prefix or Subnet Mask Interface IP Address Public IP [10.80] Use IP Addr	Add Network LAN 10:0 265:255:265: B Cateway Overnde es Use Default Frieh	A Passthrough	Add	Edit Delete

4.3.6 Media Interface

- Navigate to Network & Flows > Media Interface. Click Add
- Set Name: **B1_PSTN** is given here
- Set IP Address: Select LAN(B1,VLAN0) from the drop down and the IP address populates automatically. The IP address for Interface facing PSTN Gateway is **10.XX.XX.XX**
- Set Port Range: 35000-40000
- Click Finish

Device: sa ⊻ Alarms <mark>1</mark> In	ncidents Status Y Logs Y Troublest	nooting 💙 Users				Settings 🗸 Help 🗸	Log Out
Avaya Session	Border Controller					A	VAYA
EMS Dashboard Software Management Device Management Backup/Restore	Media Interface	_	Edit Media Interface	×			
System Parameters Configuration Profiles Services Domain Policies TLS Management Network & Flows Network Management	Name A1_ZOOM B1_PSTN	Name IP Address Port Range	B1_PSTN LAN (B1, VLAN 0) → 10.80 → 35000 - (40000 Finish)		Port Range 35000 - 40000 35000 - 40000	Edit	Add Delete Delete
Media Interface Signaling Interface End Point Flows Session Flows Advanced Options DMZ Services Monitoring & Logging Compliance							

4.3.7 Signaling Interface

- Navigate to Network & Flows > Signaling Interface. Click Add, a new Add Signaling Interface window appears
- Set Name: **PSTN_B1** is given for the interface facing **PSTN gateway**
- Set IP Address: Select LAN(B1, VLAN0)
- Set TCP Port: 5060
- Click Finish

Device: sa V Alarms 2 Incidents Status V Logs V Troubleshooting V Users							Settings		
Avaya Session Border Controller		Name	PSTN_B1					AVA	ŊΑ
EMS Dashboard	Signaling Interface	IP Address	LAN (B1, VLAN 0)						
Software Management		TCP Port Leave blank to disable	5060						
Backup/Restore	Signaling Interface	UDP Port Leave blank to disable							
System Parameters Configuration Profiles		TLS Port Leave blank to disable						ļ	dd
 Services 	Name	TLS Profile	None 🗸		S Port	TLS Profile			
 Domain Policies TLS Management 	ZOOM_A1	Enable Shared Control		-	51	ZOOM			
Network & Flows	PSTN_B1	Shared Control Port				None			
Network Management Media Interface			Finish						
Signaling Interface									
Session Flows									
Advanced Options									
Monitoring & Logging									

4.3.8 End Point Flow

- Navigate to Network & Flows > End Point Flows > Server Flows and Click Add
- Set Flow Name: **PSTN-ZOOM**
- Set SIP Server Profile: PSTN
- Received Interface: **ZOOM_A1**
- Signaling Interface: PSTN_B1
- Media Interface: **B1_PSTN**
- Routing Profile: zoom2
- Topology Hiding Profile: PSTN TOPOLOGY HIDING
- Click on **Finish**



END OF THE DOCUMENT