

Oracle SBC integration with Genesys PureCloud BYOC and Zoom Phone

**Technical Application Note** 



# Disclaimer

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# **Revision History**

As a best practice always follow the latest Application note available on the Oracle TechNet Website. https://www.oracle.com/technical-resources/documentation/acme-packet.html

Version	Description of Changes	Date Revision Completed
1.0	Oracle SBC integration with Genesys PureCloud and Zoom Phone BYOC	20 Aug 2021
1.1	Oracle Public IP Address masked	18 Nov 2021
1.2	Added Section Genesys PureCloud Configuration Assistant	03 Feb 2022

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# **1 Intended Audience**

This document is intended for use by Oracle Systems Engineers, third party Systems Integrators, Oracle Enterprise customers and partners and end users of the Oracle Enterprise Session Border Controller (SBC). It is assumed that the reader is familiar with basic operations of the Oracle Enterprise Session Border Controller platform along with Genesys PureCloud and Zoom Phone.

### 2. Document Overview

This Oracle technical application note outlines how to configure the Oracle SBC to interwork between Genesys PureCloud and Zoom Phone BYOC. The Application note focuses on the steps required to create a SIP connection between PureCloud BYOC, Oracle SBC and Zoom Phone through which voice communication is possible between PureCloud and Zoom Phone Users.

It should be noted that the SBC configuration provided in this guide focuses strictly on the Genesys PureCloud and Zoom Phone related parameters. Calls between Zoom Phone and PureCloud are terminated via a carrier SIP Trunk. The steps required to configure the Carrier Trunk are specific to individual customers and are not covered in this guide. Please contact your Oracle representative with any questions pertaining to this topic.

You can follow our Application Note - <u>https://www.oracle.com/a/otn/docs/oracle-sbc-with-genesys-pure-cloud-and-twillio-sip-trunk.pdf</u> as a reference to configure the Twilio SIP Trunk with Oracle SBC.

Related documentation can be found below -

### 2.1 Zoom Phone

- https://zoom.us/docs/doc/Zoom-Bring%20Your%20Own%20Carrier.pdf
- https://zoom.us/phonesystem
- <u>https://zoom.us/zoom-phone-features</u>
- 2.2 Genesys PureCloud

The Genesys PureCloud solution provides flexibility and interoperability to the PureCloud suite of voice services by allowing you to define SIP trunks between the PureCloud AWS-based Edge and Media Tier and third-party carriers over the public Internet.

https://help.mypurecloud.com/articles/about-byoc-cloud/

# 3. Validated Oracle Versions

We have successfully conducted testing with the Oracle Communications SBC versions: SCZ840p5a

These software releases with the configuration listed below can run on any of the following products:

- AP 1100
- AP 3900
- AP 4600
- AP 6350
- AP 6300
- VME

# 4. Architecture.



Above figure illustrates the connection between Genesys PureCloud, Oracle SBC and Zoom Phone. Both PureCloud and Zoom Phone are connected to the Oracle SBC Public FQDN /IP

Oracle SBC which is certified with Zoom Phone is used to steer the signaling, media to, and From the PureCloud to Zoom Phone and vice versa. The Scenario represents a use-case where SBC is hosted in On

Premise Network however the Oracle SBC can also be hosted in Public Cloud depending upon the use-case requirement.

The configuration, validation and troubleshooting are the focus of this document and will be described in three phases

Phase 1 – Configuring Genesys PureCloud

- Phase 2 Configuring Zoom Phone
- Phase 3 Configuring Oracle Session Border Controller.

Note IP Addresses, FQDN and configuration names and details given in this document are used for reference purposes only. These same details cannot be used in customer configurations. End users of this document can use the configuration details according to their network requirements. There are some public facing IPs (externally routable IPs) that we use for our testing are masked in this document for security reasons. You can configure any publicly routable IPs for these sections as per specific network architecture needs.

# 5. Configure Genesys PureCloud

The steps outlined below is the minimum required configuration to pair your SBC with Genesys PureCloud. work with your Genesys representative to implement the correct configuration for your specific environment.

Note: The document only includes the steps required on Genesys PureCloud to communicate with Oracle SBC as an External Trunk. Additional configuration may apply which may not be covered in this document. Please work with your Genesys representative for the most optimal Pure Cloud configuration as per your requirement.

To implement PureCloud BYOC with Oracle SBC, you use the Telephony Admin UI to create SIP trunks between the PureCloud Media Tier resources in AWS and the Oracle SBC. Oracle SBC connects to the PureCloud to Zoom Phone over the based infrastructure.

The Oracle Enterprise SBC will act as an intermediary between Zoom Phone and Genesys PureCloud. The SBC is configured to broker calls as a back-to-back user agent (B2BUA) between the two systems. The Carrier DIDs are assigned to users on PureCloud System and Zoom Phone who can originate and accept the calls. These calls traverse through Oracle SBC with which we can implement several security and additional features as per our requirement.

For the purpose of this Application note, the connection between Oracle SBC and Genesys PureCloud is set over a Secure TLS 1.2 and SRTP based connection.

# 5.1 External Trunk Configuration

A trunk connects a communication service to a PureCloud telephony connection option and facilitates point-topoint communication. We will configure Oracle Enterprise SBC as an external Trunk on the PureCloud Portal. Detailed steps to configure the external trunk can be found here-

https://help.mypurecloud.com/articles/create-a-byoc-cloud-trunk/

To configure the external Trunk, Navigate to

#### Admin> Telephony>Trunks> External Trunks > Create New.

### 5.1.1 Create a new External Trunk

Type: BYOC Carrier Trunk

Protocol: TLS (TCP and UDP are also available)

# 5.1.2 Set Inbound SIP Termination Identifier

Inbound SIP Termination Identifier – is the DNS Name we will configure on the Oracle SBC and will be used to route calls towards PureCloud. Here a vanity FQDN **byoc-voxai.byoc.mypurecloud.com** is generated with the inbound sip termination identifier as byoc-voxai. This FQDN resolves to the following IP Addresses of the PureCloud AWS US Data Centers.

Inbound SIP Termination Identifier: byoc-voxai

**Ex:** INVITE <u>sip:+xxxxxxxx@byoc-voxai.byoc.mypurecloud.com</u> **Protocol:** TLS Genesys Reference - <u>https://help.mypurecloud.com/articles/tls-trunk-transport-protocol-specification/</u>

#### ### Genesys Cloud IP List

IP AddressesLoad Balancer DNS Names52.203.12.137Ib01.byoc.us-east-1.mypurecloud.com54.82.241.192Ib02.byoc.us-east-1.mypurecloud.com54.82.241.68Ib03.byoc.us-east-1.mypurecloud.com54.82.188.43Ib04.byoc.us-east-1.mypurecloud.com

blogy	External Trunk Name				
ics	Oracle BYOC POC	Status Operational			
100		Type	arrier		
ks		Metrics			
3		Inbound Calls 🛛 🗠 0			
		Outbound Calls 💆 0			
Groups		QoS Mismatches 🛛 💆 0			
is					
e Management	Trunk State 😧	Protocol 😧			
icate Authorities	In Service	TLS			
lumbers	Inbound / Termination				
sions	Inbound SIP Termination Identifier 😧	Inbound SIP Termination Header			
	byoc-voxai				
	DNIS Replacement Routing 🚱				
	Disabled				
		Inbound Request-URI Reference			
	FQDN Method	INVITE sip:+xxxxxxxx@byoc-voxai.byoc.mypurecloud.com			
	TGRP Method 😧	TGRP Method INVITE sip:+xxxxxxxxx;tgrp=byoc-voxai;trunk-context=byoc.mypurecloud.com@lb01.t east-1.mypurecloud.com			

# 5.1.3 Set Outbound SIP Servers or Proxies

Outbound SIP Termination FQDN is the Public FQDN of the Oracle SBC.

Idge Groups	Outbound	
Idaea	Outbound SIP Termination FQDN O	
	solutionslab.cgbubedford.com	
Phone Management	Outbound SIP TGRP Attribute Q	TGRP Context-ID 😣
Sertificate Authorities		
DID Numbers	Outbound SIP DNIS O	
Extensione		
	Outbound Reque	st-URI Reference
	INVITE sip:+xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	olutionslab.cgbubedford.com

# 5.1.4 Set Calling Address

Topology	Calling			
Metrics	Address 😧	c	Address Override Method 😧	
Trunks	19729132636		Always	*
Sites	Name 😡		Name Override Method 🥹	
Edge Groups			Always	v
Edges	SIP Access Control @ Allow the Following Addresses @			
Phone Management		Ê		
Certificate Authorities		<u>^</u>		
DID Numbers		8		
Extensions	Add an IP or CIDR address	+		
	External Trunk Configuration		Expand All	Collapse All
	<ul> <li>General</li> </ul>			
	<ul> <li>Transport</li> </ul>			
	<ul> <li>Identity</li> </ul>			
	<ul> <li>Media</li> </ul>			
	<ul> <li>Protocol</li> </ul>			
	<ul> <li>Diagnostics</li> </ul>			
	► Custom			
	Save External Trunk Cancel			

The Calling Address is the default number used as an outbound ANI when a call is placed on the Trunk. In case a user has assigned the optionally DID that number can be used in place of the default number.

### 5.1.5 Set SIP Access Control

Whitelist the Oracle SBC IP addresses under the SIP Access Control. (DNS name not supported)

Edge Groups		
Edges	Allow the Following Addresses ()	
Phone Management		Ê
Certificate Authorities		
DID Numbers		
Extensions	Add an IP or CIDR address	+

### 5.1.6 Enable E.164 format

By default, calls sent out of trunks do not include the "+" prefix, to enable E.164 number formatting disable omitting the "+". The settings can be found in the external trunk configuration, under the Identity Section. This setting is available for both inbound and outbound calls.

Address Digits Length 🚱	Address Omit + Prefix 🕢 🖒
0	Disabled

# 5.2 Site Configuration.

A site is a list of rules for routing calls. Objects such as phones associated with a site share the same rules. When a user makes a call from a phone, the system looks up the site and the call type in order to route the call to the best outbound phone line, or endpoint. Phones that are associated with a site are usually located in the same general area and have the same general purpose. A site is used to link trunk with Pure Cloud Edge(s).

Detailed steps to configure the Site can be found here-

https://help.mypurecloud.com/articles/create-site-genesys-cloud-voice/

### 5.2.1 Create a New Site

To Create a site, Navigate to Admin>Telephony>Sites> Create New.

Type a name into the **Site Name** box. From the **Location** list, select a location for your site. From the **Time Zone** list, select your time zone. Under **Media Model**, select **Cloud**.

Click Create Site.

Fopology	General Number Plans Outbound Routes Simulate Call	
letrics		
unks	Site Name BYOC_Oracle	Default Site O Make this site the default site
es	Description	Type     Branch Site       Media Model     Cloud
ge Groups		Phones 1 C Restart all phones assigned to this Site
es	Location	Edge Group PureCloud Voice - AWS 😧
one Management	C* Test location -	Topology Diagram 🚓 Show Topology
rtificate Authorities		
) Numbers	Media 🕢	
ensions	Geo-Lookup TURN 😧	
	Diduct	
	Automatic Updates 🕢	
	Recurrence Type T	Time Zone
	Daily	America/Chicago (-05:00)
	<b>Time</b> ○ All day	
	Range	
	Start Time End Time	
	2 : 00 AM	
	Save Site Cancel	

////

## 5.2.2 Number Plans & Classifications

PureCloud provides a set of default number plans that work for most users. We can modify this numbering Plan as per our specific need. We have created a new Numbering Plan "BYOC" where we will define the Numbers that take the route associated with this trunk. You can assign specific numbers, a range or numbers or even use Regex for routing.

≡ Telephony / Sites /	Edit Site					
Teesleer						
Topology	General Number Plans	Outbound Routes Simulate Call				
Metrics	Number Plane are evaluated fi	from top to bottom. Order can be changed by dragging and dropping number plane				
Trunks		nom top to bottom. Order can be changed by dragging and dropping number plans.				
	<ul> <li>New Number Plan</li> </ul>	🛍 Delete Number Plan				
Sites	t BYOC	Number Plan Name				
Edge Groups		BYOC				
	1 Emergency	Match Type				
Edges	‡ Extension	E 164 Number List				
Phone Management	t National					
Cartificante Authorities		Diait Lenath				
Certificate Automites	International	E.164 Number List				
DID Numbers	1 Network	Inter-Country				
Extensions		Intra-Country				
Extensions		Number List				
		Regular Expression				
		+1 203-871-0043 → +1 203-871-0043 ×				
		+1 781-443-7247 → +1 781-443-7247 ×				
		±1 888,236,2427				
		+1000-230-242/				

# 5.2.3 Configure outbound route

The Outbound route binds the numbering plans with the trunk. The classification created in numbering plan should be assigned to the Outbound Route associated with the external trunk.

■ Telephony / Sites / Edit Sit	te						
Topology	General	Number Plans	Outbound Routes	Simulate Call			
Metrics							
Trunks	+ New Ou	tbound Route				🛍 Delete Outbound Rout	e
	Default Ou	utbound Route	Outbound Ro	oute Name		Distribution Pattern	
Sites			Default Ou	tbound Route		Sequential O Random	
Edge Groups			Description			External Trunks 🥥	
Edges						↑  ♦  OracleSolutionsLabBYOCSBC	_
Phone Management			State Enabled				
Certificate Authorities			Classificatio	ns		Select External Trunks	
DID Numbers			Emergency	x National x I	nternational 😠		
Extensions			Network 😠	BYOC ×			
	Save Outbo	ound Routes	Cancel				

### 5.2.4 Phone configuration

Below is an example of a WebRTC Phone configuration which will be used for calling purpose and is assigned to the Users. The WebRTC Phone is assigned to the Oracle BYOC Site.

Telephony / Phone Manag	gement / Phones / Edit Phone		
Topology	Phone		
Metrics	Phone Name		
Trunks	WebRTC	Status Make and Model	Unmanaged Genesys Cloud WebRTC Phone
Sites	Base Settings 🕢	In Use By	(+ Log off
Edge Groups	Site	Default For	None
Edges	BYOC_Oracle •	Primary Edge	O virtual-edge-i-0e97fcbda24ea3d49
Phone Management	Person	Secondary Edge	O virtual-edge-F03e78d82475783555
Certificate Authorities	· · · · · · · · · · · · · · · · · · ·		
DID Numbers			Evened All Colleges All
Extensions	Phone Configuration		Expand All Collapse All
	<ul> <li>General</li> </ul>		
	<ul> <li>Media</li> </ul>		
	<ul> <li>Network</li> </ul>		
	► Custom		
	Save Phone Cancel		
	$\bigcirc$		

### 5.2.5 Simulate call

Genesys PureCloud provides a neat feature to test and validate the routing of calls for troubleshooting purpose. Below is an example for a call to BYOC type number classification on this Site. Success indicates a successful routing response.

	lite
Topology	General Number Plans Outbound Routes Simulate Call
Metrics	A Simulate call will use pattings from the "Constal" "Number Dispo" and "Outbound Boutes" take. You do not pool to sous before simulating a call. This allows
Trunks	you to test before applying the changes.
Sites	+12038710043 - Simulate Call
Edge Groups	✓ Success
Edges	Normalized Number 🕖 🖌 tel:+12038710043
	Number Plan 🔮 🛛 🖌 BYOC
Phone Management	Classification 🔮 🖌 🖌 BYOC
Certificate Authorities	Outbound Route 💿 🖌 🗸 Default Outbound Route
DID Numbers	External Trunks 📀
Eutopoine	OracleSolutionsLabBYOCSBC 🛛 V This Trunk is operational on all of the associated Edge interfaces.
Extensions	Preferred Edges 📀
	None
	Additional Edges
	virtual-edge-i-0561cfbbc881e3384 - Port 1 (WAN) (PureCloud Voice - AWS)
	virtual-edge-i-0290074b4eb1c255a - Port 1 (WAN) (PureCloud Voice - AWS)
	> Log

////

# 5.3 DID Assignment

### 5.3.1 Create DID Range

To create a New DID Range or Number Navigate to **Admin**.> **Telephony** > **DID Numbers**> **Create Range**. Provide the DID range and Service Provider name and Click Save

We hope you are enjoying Genesys Cloud (0 days remain in your free trial)					
Telephony / DID Numbers					
Topology	DID Assignments DID Ranges				
Metrics	Create Range			Create Range	
Trunks	DID Range	Service Provider	Comments	DID Start	
Sites	+1 203-871-0043 → +1 203-871-0043	Twilio	PurecloudtoTwilioviaOracleSBC	+1 • +12038710043	
Edge Groups	+1 415-230-2042 → +1 415-230-2042	Twilio	Ecosystem Testing	DID End	
Edges				+1 • +12078710053	
Phase Management	+1 415-895-9907 → +1 415-895-9907	Twilio		Service Provider	
	+1 415-909-3170 → +1 415-909-3170	Twilio		Twilio	
Certificate Authorities		Twilio	Chunder 2	Comments	
DID Numbers		Twilio	Chunder 1	PurecloudtoTwilioviaOracleSBC	
Extensions	+1 781-313-1033 → +1 781-313-1033	byoc			
		byoc			
	+1 928-275-4426 → +1 928-275-4426	Twilio	Andi Dev?		
	<	>	1 – 10 of 10 DID R	anges Save Cancel	

# 5.3.2 Assign DID to User.

On users' profile field, one of the DID can be assigned to PureCloud User as Other Number. The Oracle SBC is configured to send calls from external world to this DID number which will terminate to the user on PureCloud.

	OracleSolutionslab			
Email	Work			
	Personal			
	ouler			
Phone	Work	• (201) 555-0123	ext.	
	Cell	• (201) 555-0123	ext.	
	Home	• (201) 555-0123	ext.	6
	Other	• (781) 349-6949	ext.	G
Links	External System	http(s)://www.external-system-url.com		

## 5.4. Architect flow for inbound welcome prompt

Below is an example for an Architect Flow for inbound Voice Prompt which will be used for inbound calls from Zoom Phone to Genesys PureCloud via Oracle SBC.

S Architect / Inbound Call Flow					
Oracle_BYOC_Welcome Home					
션) Save As 션) Version 1.0 ▲ Export ▼ ✔ Validate	Export - Validate 🙀 - 🖨 Print 🎤 Edit This flow is not currently open for edit.				
Starting Menu <	🗏 10 Main Menu 📀				
TO ■ Main Menu     I     To ■ Main Menu     I     To ■ Disconnect     Sottinge	Initial Greeting				
Actions	Menu Prompt				
<ul> <li>Actions</li> <li>Event Handling</li> </ul>	You are at the Main Menu, press 9 to disconnect				
E Menus	Default Menu Choice				
🕸 Supported Languages 🎍 Speech Recognition	None ( disconnect the interaction ) -				
Resources ~	Menu Options				
<ul> <li>Data</li> <li>Prompts</li> <li>Dependencies</li> </ul>	Speech Recognition Options				
Reusable Menus 🗸 🗸					
Reusable Tasks 🗸 🗸					

# 6. Configure Zoom Phone

This Section describes the steps to configure BYOC Phone Numbers on the Zoom Admin Portal and assign the BYOC Number to a User. For detailed assistance with setting up and configuring your Zoom Phone System, please reach out to Zoom Sales: <u>https://zoom.us/contactsales</u>

# 6.1 Create a Zoom User

#### Navigate to Admin>User Management > Users.

Click Add to create new Zoom users. Provide the necessary details about the New User and Click on Add to Add the User.

ZOOM SOLUTIONS - PLAN	S & PRICING CONTACT SAL	ES		SCHEDULE A ME
PERSONAL	Users	Add Users		
Profile	Liese Dand	Add users with th You can add users their accounts will	eir email addresses of all types to your account. If you enter the email address of account owners, all users on the added to this account	
Meetings	Users Pend	Use comma to s	enarate multiple email addresses	
Webinars	Q Search	Dat commuto a	epanate manapre eman attanciaeta.	
Recordings				
Settings	Email/Name I	User Type ()	Basic Licensed On-Prem ()	Туре
	kamlesh.vasu		Meeting Basic v	Basic
ADMIN	•	Department	e.g. Product	
<ul> <li>User Management</li> </ul>	solutionszoor	Job Title	e.g. Product Manager	Basic
Users	gmchugh100	Location	e.g. San Jose	Basic
Group Management	•	User Group	No Group ~	
> Room Management	priyesh.mehr			Basic
> Account Management			Add Cancel	
> Advanced	Zoom Rooms			Basic

Once the New User is added it will start reflecting in Admin >Users Section on the Web portal.

### 6.2 Add BYOC Number

#### Navigate to Phone Systems Management > Phone Numbers > BYOC

Select Add to add external phone numbers provided by your carrier into the Zoom portal.

Site - Choose the relevant Site on which the Number needs to be added. For Example, Main Site.

Carrier - Choose BYOC

Numbers- Put the BYOC DID Number provided by your Carrier.

SIP Group – Optional Parameter (Can be Left Blank)

Acknowledge that the Phone Number belongs to your organization.

Click Submit.

			REQUEST A DE
	LANS & PRICING CONTACT SA	Add BYOC Numbers	SCHEDULE A MEETING
PERSONAL		Site v	
Profile	Assigned Una	Carrier BYOC ~	
Meetings	Add your BYOC phone Zoom, you can assign	Numbers 7814437387	
Webinars	Add Import		
Recordings	Q Search by Number		SIP Group (All)
Settings	Number ‡	SIP Group Choose a routing path for calls to/from the numbers (Optional) Select ~	Submission Date 💲
ADMIN	(781) 443-7387		Nov 22, 2019, 2:27
Dashboard	(781) 313-1033	I acknowledge that by checking the box, I attest that the phone numbers to be imported belong to m or my organization	Aug 3, 2020, 1:12 Pt
> User Management	(781) 313-1034	, <b>c</b>	Aug 13, 2020, 3:13 F
> Room Management	(781) 443-7284	Cancel Submit	Oct 28, 2019, 4:36 F
Users & Rooms	(781) 443-7241	Ion vanied of the office of the states	Oct 28, 2019, 4:36 F

# 6.3 Assign a Calling Package to User

You may require adding a Calling package to the user before a Calling Number can be assigned to a User.

To assign a calling package

### Navigate to Users and Rooms > Package

Choose the appropriate package and assign the package to the Respective User.

Profile Meetings	oracle qa (oracleengg_qa@outlook.com)				
Webinars	Profile Policy Hi	Profile Policy History User Settings			
Phone					
Recordings	Site	Main Site			
Settings	Package	US/CA Unlimited Calling Plan (5 Available) v			
ADMIN		US/CA Unlimited Calling Plan (5 Available) Pro Features - Unlimited Domestic			
Dashboard	Extension Number	12351 Edit			
Surger Management     Device Management     Room Management	Emergency Address (3)	Default: 100 CROSBY DR, BEDFORD, Massachusetts 01730, United States (Company Address) Edit Personal Emergency Address			
Phone System Management Users & Rooms	Country	United States (+1)			
Auto Receptionists	Area Code 🕖	Set			

# 6.4 Assign the BYOC Number to a User

The BYOC Number will now be visible in the Unassigned Tab on the portal. Click on Assign to Tab to assign the Number to a User.

2///

ZOOM SOLUTIONS - P	PLANS & PRICING CONTACT SALES					SCHEDULE A MEETING JOIN A M	EETING HOST A MEETING +
PERSONAL							
Profile	Assigned Unassigned	Ported BYOC					
Meetings	_						
Webinars	Add Export						
Phone	Q, Search			Number Type (Al	) v S	tatus (All) v	Site (All) ~
Recordings	Move Site Delete						
Settings	Number \$	Area	Number Type	Capability	Status	Site	
ADMIN	(781) 349-6963	Norwood, Massachusetts, United States	Toll Number	Incoming & Outgoing	; Normal	Main Site	Delete Assim to
Dashboard	(781) 443-7387 E	United States	Toll Number	Incoming & Outgoing	Normal	Main Site	Delete Assign to
> Room Management	(781) 313-1034 🔘	United States	Toll Number	Incoming & Outgoing	; Normal	Main Site	Delete Assign to
<ul> <li>Phone System Management</li> <li>Users &amp; Rooms</li> </ul>	(781) 443-7284 E	United States	Toll Number	Incoming & Outgoing	Normal	Main Site	Delete Assig
CACID & HOURD							

	INS & PRICING CONTACT SALES				SCHEDU	LE A MEETING JOIN A MEET
PERSONAL Profile	Assigned Unassigned	Assign Number	781) 443-7387 (BYOC)			
Webinars	Add Export	Assign to	User	SPI Snipeir		14
Phone	Q Search	l	Enter Ext. or name	Select the se	v Status (All)	~ Site (
Recordings	Move Site Delete			Cancel OK		
Settings	Number 🗘				tus ee s noving	Site
ADMIN	(781) 349-6963	Norwood, Massachusetts, United States	Toll Number	Incoming & Outgoing	Normal	Main Site
Dashboard  User Management	(781) 443-7387 E	United States	Toll Number	Incoming & Outgoing	Normal	Main Site
> Room Management	(781) 313-1034 E	United States	Toll Number	Incoming & Outgoing	Normal	Main Site
<ul> <li>Phone System Management</li> <li>Users &amp; Rooms</li> </ul>	(781) 443-7284 E	United States	Toll Number	Incoming & Outgoing	Normal	Main Site

# 7. Configuring the SBC

This chapter provides systematic guidance on how to configure Oracle SBC for Genesys PureCloud and Zoom Phone.

## 7.1 New SBC configuration

If the customer is looking to setup a new SBC from scratch, please follow the section below.

### 7.1.1 Establishing a serial connection to the SBC

Note: The below method is applicable to the SBCs running on Hardware Platforms. For VME and Cloud SBCs the method of configuration will be different to as shown below. Follow the appropriate documentation or contact your Oracle representative for details about how to configure the VME and Cloud SBC platforms.

Connect one end of a straight-through Ethernet cable to the front console port (which is active by default) on the SBC and the other end to console adapter that ships with the SBC, connect the console adapter (a DB-9 adapter) to the DB-9 port on a workstation, running a terminal emulator application such as Putty. Start the terminal emulation application using the following settings:

- Baud Rate=115200
- Data Bits=8
- Parity=None
- Stop Bits=1
- Flow Control=None

Power on the SBC and confirm that you see the following output from the boot-up sequence

Starting	tLemd
Starting	tServiceHealth
Starting	tCollect
Starting	tAtcpd
Starting	tAsctpd
Starting	tMbcd
Starting	tCommMonitord
Starting	tFped
Starting	tAlgd
Starting	tRadd
Starting	tEbmd
Starting	tSipd
Starting	tH323d
Starting	tbfdd
Starting	tIPTd
Starting	tSecured
Starting	tAuthd
Starting	tCertd
Starting	tIked
Starting	tTscfd
Starting	tFcgid
Starting	tauditd
Starting	tauditpusher
Starting	tSnmpd
Starting	tIFMIBd
Start pla	atform alarm
Starting	display manager
[nitializ	zing /opt/ Cleaner
Starting	tLogCleaner task
3ringing	up shell
Starting	acliMgr
bassword	secure mode is enabled
Admin Sec	curity is disabled
Password:	

Enter the default password to log in to the SBC. Note that the default SBC password is "acme" and the default super user password is "packet".

Both passwords must be changed according to the rules shown below.

Password:
% Only alphabetic (upper or lower case), numeric and punctuation % characters are allowed in the password. % Password must be 8 - 64 characters.
and have 3 of the 4 following character classes :
<pre>% - lower case alpha % - upper case alpha % - numerals % - punctuation %</pre>
Enter New Password:
Confirm New Password:
Password is acceptable.

Now set the management IP of the SBC by setting the IP address in bootparam.

To access bootparam. Navigate to Configure terminal->bootparam.



Note: There is no management IP configured by default.

Setup product type to Enterprise Session Border Controller as shown below.

To configure product type, type in setup product in the terminal



Save the changes and reboot the SBC.

Entitlements for Enterprise Session Border Control	ler
Last Modified: Never	
1 : Session Capacity : (	)
2 : Advanced :	
3 : Admin Security :	
4 : Data Integrity (FIPS 140-2) :	
5 : Transcode Codec AMR Capacity : (	
6 : Transcode Codec AMRWB Capacity : (	
7: Transcode Codec EVRC Capacity : (	
8 : Iranscode Codec EVRCB Capacity : (	
9: ITANSCODE CODEC EVS Capacity : (	
10: Iranscode Codec OPUS Capacity : (	
II: Iranscode Codec SILK Capacity : (	
Enter 1 - 11 to modify, d' to display, 's' to save,	'q' to exit. [s]: 1
Session Capacity (0-128000) : S	500
Enter 1 - 11 to modify, d' to display, 's' to save,	'q' to exit. [s]: 3
******	****
CAUTION: Enabling this feature activates enhanced s functions. Once saved, security cannot be reverted resetting the system back to factory default state	security without 
Addith Security (enabled/disabled)	
Enter 1 - 11 to modify, d' to display, 's' to save,	'q' to exit. [s]: 5
Transcode Codec AMR Capacity (0-102375) : !	50
Enter 1 - 11 to modify, d' to display, 's' to save,	'q' to exit. [s]: 2
Advanced (enabled/disabled) : e	enabled
Enter 1 - 11 to modify, d' to display, 's' to save,	, 'q' to exit. [s]: 10
Transcode Codec OPUS Capacity (0-102375) : 8	50
Enter 1 - 11 to modify, d' to display, 's' to save,	'q' to exit. [s]: 11
Transcode Codec SILK Capacity (0-102375) :	50

The SBC comes up after reboot and is now ready for configuration.

Navigate to configure terminal->system->http-server-config.

Enable the http-server-config to access the SBC using Web GUI. Save and activate the config.

)-server	
name	webServerInstance
state	enabled
realm	
ip-address	
http-state	enabled
http-port	80
https-state	disabled
https-port	443
http-interface-list	REST,GUI
http-file-upload-size	0
tls-profile	
auth-profile	
last-modified-by	Q
last-modified-date	2021-01-25 00:16:28

## 7.2.2 Configure SBC using Web GUI

In this app note, we configure SBC using the WebGUI.

The Web GUI can be accessed through the URL <u>http://<SBC\_MGMT\_IP</u>>.

	0		
		Sign in to E-SBC	
		Enter your details below	
ORACLE Enterprise Session Border Controller		Username 	
		Password	Required
			Required
		SIGN IN	

The username and password are the same as that of CLI.



Navigate to Configuration as shown below, to configure the SBC.

			Dashboard	Configuration	Monitor and Trace	Widgets	System
🔯 Wizards 👻	Commands 🔻				Save Verify	Discard	Search
media-manager	•	Configuration Objects					
security	•						
session-router	•	Name	Description				
Strengthered T		access-control	Configure a static or dynamic access control list				
system	system 🕨	account-config	Configure Quality of Service accounting				
		authentication-profile	Configure authentication profile				
		certificate-record	Create, generate, and import a certificate				
		class-policy	Configure classification profile policies				
		codec-policy	Create and apply a codec policy to a realm and an agent				
		filter-config	Create a custom filter for SIP monitor and trace				
		fraud-protection	Configure fraud protection				
		host-route	Insert entries into the routing table				
		http-client	Configure an HTTP client				
		http-server	Configure an HTTP server				-
		Displaying 1 - 11 of 42					
Show All							

Kindly refer to the GUI User Guide given below for more information.

https://docs.oracle.com/en/industries/communications/enterprise-session-bordercontroller/8.4.0/webgui/esbc\_scz840\_webgui.pdf

The expert mode is used for configuration.

**Tip:** To make this configuration simpler, one can directly search the element to be configured, from the Objects tab available.

## 7.2. Configure system-config

Navigate to system->system-config

	ession Border Controller					admi
			Dashboard	Configuration	Monitor and Trace	Widgets Sy
ttp-client	Modify System Config				Save Verify	Discard Show Configura
http-server network-interface ntp-config phy-interface	Hostname Description	OracleSBC				
redundancy-config snmp-community spl-config	Location Mib System Contact Mib System Name					
system-config tdm-config trap-receiver v Show All	Mib System Location Acp TLS Profile	Delete				

Please enter the default gateway value in the system config page.

	Session Border Controller						adn
				Dashboard	Configuration	Monitor and Trace	Widgets S
🔯 Wizards 👻						Save Verify	Discard
http-client	Modify System Config						Show Configu
http-server	Displaying U - U of U Options						
network-interface	Coll Trees						
ntp-config	Call Trace	enable					
phy-interface	Default Gateway	10.138.194.129					
redundancy-config	Restart	✔ enable					
snmp-community	Telnet Timeout	0	(Range: 065535)				
spl-config	Console Timeout	0	(Range: 065535)				
system-config	Alarm Threshold	5	( Range: 020 )				
tdm-config	Alarm Threshold						
trap, receiver	Add						
v	ок	Delete					
Show All							

For VME, transcoding cores are required. Please refer the documentation here for more information

https://docs.oracle.com/en/industries/communications/enterprise-session-bordercontroller/8.4.0/releasenotes/esbc\_scz840\_releasenotes.pdf

The above step is needed only if any transcoding is used in the configuration.

If there is no transcoding involved, then the above step is not needed.

### 7.3. Configure Physical Interface values

To configure physical Interface values, Navigate to System->phy-interface.

Here we have configured, Network-interface M00 for Zoom Phone and M10 for PureCloud.

Parameter Name	Zoom Phone (M00)	PureCloud (M10)
Slot	0	1
Port	0	0
Operation Mode	Media	Media

Configure **M00** interface as per example shared below.

ORACI	LE Enterprise S	Session Border Controller							
							Dashboard	Configuration	Monitor and Trace
🚯 Wizards 🔻	Commands 🔻								Save Verify
host-route	^	Add Phy Interface							
http-client		Name	Ν	100					
http-server		Operation Type	N	ledia					
network-interfa	ace	Port	0	lean	•	(Range: 0, 5)			
ntp-config		Slot	0			(Range: 02)			
phy-interface		Virtual Mac							
redundancy-co	nfig	Admin State	~	enable					
snmp-commun	iity	Auto Negotiation	$\checkmark$	enable					
spl-config		Duplex Mode	F	ULL	•				
system-config		Speed	1	00	v				
trap-receiver	~		OK Back						

2///2

# Configure M10 interface as per example shared below -

				Dashboard	Configuration	Monitor and Trace
🔅 Wizards 🔻						Save Verify
session-router	Add Phy Interface					
system	Name	M10				
host-route	Operation Type	Media 🔻				
http-client	Port	0	( Range: 05 ) ( Range: 02 )			
http-server	Virtual Mac					
network-interface	Admin State	✓ enable				
ntp-config	Auto Negotiation	✓ enable				
phy-interface	Duplex Mode	FULL				
redundancy-config	Speed	100				
snmp-community	ОК Е	Back				
Show All						

# 7.4. Configure Network Interface values

To configure network-interface, Navigate to system->Network-Interface. Configure interface

The table below lists the parameters, to be configured for both the interfaces.

Note: The provided network IP addresses are given for example purpose only. In the real-world scenario We cannot use same networks on two network-interfaces hence make sure you use a different IP range for each Network-interface.

In this Setup we are using Google Public DNS to resolve the DNS names to IP Addresses.

Parameter Name	Zoom Phone Network Interface	PureCloud Network interface
Name	M00	M10
Host Name	Domain (if applicable)	solutionslab.cgbubedford.com
IP address		
Netmask	255.255.255.192	255.255. 255.192
Gateway		
dns-ip-primary	8.8.8.8	8.8.8.8
dns-ip-backup1	8.8.8.4	8.8.8.4
Dns-domain	Domain(if applicable)	solutionslab.cgbubedford.com

Configure network interface M00 as below

Configuration View C	onfiguration	Q				
media-manager	•	Modify Network I	nterface			
security	•					
session-router	•	Name		M00	•	
system	<b>.</b>	Sub Port Id		0		(Range: 04095)
fraud-protection		Description				
host-route						
http-client		Hostname				
http-server		IP Address				
network-interface		Pri Utility Addr				
ntp-config		Sec Utility Addr				
phy-interface		Netmask		255.255.255.192		
redundancy-config		Gateway				
snmp-community		🖌 Gw Heartbeat				
spl-config		State		enable		
system-config Show All	•		ОК	Back		



Configuration	View Configuration	Q		
media-manager	•	Modify Network Interface		
security	•			
session-router	•	Name	M10 💌	
system	· ·	Sub Port Id	0	(Range: 04095)
fraud-protection		Description		
host-route				
http-client		Hostname	solutionslab.cgbubedford.com	
http-server		IP Address		
network-interface		Pri Utility Addr		
ntp-config		Sec Utility Addr		
phy-interface		Netmask	255.255.255.192	
redundancy-config		Gateway		
snmp-community		⊿ Gw Heartbeat		-
spl-config	-	···		
Show All	$\supset$	OK	Back	

### 7.5. Enable media manager

Media-manager handles the media stack required for SIP sessions on the SBC. Enable the media manager option as below.

In addition to the above config, please set the max and min untrusted signaling values to one.

Navigate to Media-Manager->Media-Manager

ORAC	LE Enterprise	Session Border Controller						
					Dashboard	Configuration	Monitor and Trace	Widgets
🔅 Wizards 🔻	Commands 🔻						Save Verify	Discard
media-manager	٣	Modify Media Manage	er					
media-manag	er	State	v enable					
media-policy		Flow Time Limit	86400		(Range: 04294967295)			
realm config		Initial Guard Timer	300		(Range: 04294967295)			
realm-config		Subsq Guard Timer	300		(Range: 04294967295)			
steering-pool		TCP Flow Time Limit	86400		(Range: 04294967295)			
security	•	TCP Initial Guard Timer	300		(Range: 04294967295)			
session-router	•	TCP Subsq Guard Timer	300		(Range: 04294967295)			
system	•	Hnt Rtcp	enable					
		Algd Log Level	NOTICE	Ŧ				
		Mbcd Log Level	NOTICE					
		ОК	Delete					
Show All								

ORACI	_E Ent	erprise S	ession Border Controller					ac
					Dashboard	Configuration	Monitor and Trace	Widgets
🔅 Wizards 🔻	🔅 Comm	ands 🔻					Save Verify	Discard
media-manager	•	^	Modify Media Manager					
codec-policy				1000	[1001][0.0.1271101213]			
media-manage	r		Media Policing	✓ enable				
media-policy			Max Arp Rate	10	( Range: 0100 )			
			Max Signaling Packets	0	(Range: 04294967295)			
realm-config			Max Untrusted Signaling	1	(Range: 0100)			
steering-pool			Min Untrusted Signaling	1	(Range: 0.100)			
security	►		Tolerance Window	30	(Range: 04294967295)			
session-router	►		Untrusted Drop Threshold	0	( Range: 0100 )			
system			Trusted Drop Threshold	0	( Range: 0100 )			
·			Acl Monitor Window	30	(Range: 53600)			
fraud-protectio	n		Trap On Demote To Deny	enable				
host-route								
		~	ОК	Delete				
Show All								

# 7.6. Configure Realms

Navigate to media-manager > realm-config

The name of the Realm can be any relevant name according to the user convenience. Use the following table as a configuration example for the three realms used in this configuration:

Config Parameter	Zoom Realm	GenesysCloud Realm
Identifier	Zoom	GenesysCloud
Network Interface	M00	M10
Mm in realm	N	
Access Control Trust Level	High	High
Media Sec policy	sdespolicy	sdespolicy
RTCP mux	✓optional	

### Realm for Zoom Phone –

Configuration View Configur	ration	2		
media-manager	•	Modify Realm Config		
codec-policy				
media-manager		Identifier	Zoom	
media-policy		Description	Realm for Zoom Cloud Voice	
realm-config				
steering-pool		Addr Prefix	0.0.0.0	
security	•	Network Interfaces	M00:0 ×	
session-router	•	Media Realm List		
system	•			
		Mm In Realm	✓ enable	
		Mm In Network	enable	
		Mm Same Ip	enable	
		QoS Enable	enable	
		Max Bandwidth	0	(Range: 0999999999)
		Max Priority Bandwidth	0	( Bander () 000000000 )
Show All		ОК	Back	

media-manager				
media-policy		Media Sec Policy	sdesPolicy	•
		RTCP Mux		
realm-config			enable	
		Ice Profile		
steering-pool				<b>V</b>
		Teams Fqdn		
security	•			
		Teams Fqdn In Uri	enable	

///

# Realm for Genesys PureCloud

Configuration	View Configuration	Q	
media-manager	•	Modify Realm Config	
codec-policy			
media-manager		Identifier	GenesysCloud
media-policy		Description	
realm-config			
steering-pool		Addr Prefix	0.0.0.0
security	•	Network Interfaces	M10:0.4 ×
session-router	•	Media Realm List	
system	•		
		Mm In Realm	enable
		Mar I. Matural.	
realm-config		Media Policy	
steering-pool		including oney	<b>v</b>
security	•	Media Sec Policy	sdesPolicy 💌
session-router		RTCP Mux	enable
		Ice Profile	
system	•	Teams Fqdn	
		Teams Fqdn In Uri	
		SDP Inactive Only	

ORACI	_E Ent	erprise	Session Border Controller				
					Dashboard	Configuration	Monitor and Trace
🔅 Wizards 🔻	🔅 Comma	ands 🔻					Save Verify
media-manager	•	^	Add Realm Config				
codec-policy			Out Translationid				
media-manage	r		In Manipulationid				
media-policy			Out Manipulationid				
realm-config			Average Rate Limit	0	(Range: 04294967295)		
steering-pool			Access Control Trust Level	high			
security	►		Invalid Signal Threshold	0	(Range: 04294967295)		
session-router	•		Maximum Signal Threshold	0	(Range: 04294967295)		
system	•		Untrusted Signal Threshold	0	(Range: 04294967295)		
fraud-protectio	n		Nat Trust Threshold	0	(Range: 065535)		
host-route Show All		~	May Endpoints Day Nat	ack			

We have set Access Control Trust Level on the Reams to High as we have static access-control configured and this is a peering enviorment.

For more information on Access Control Trust Level, please refer to SBC Security guide link given below:

https://docs.oracle.com/en/industries/communications/session-bordercontroller/8.4.0/security/sbc\_scz840\_security.pdf

# 7.7. SIP Security Configuration

### 7.7.1 Configuring Certificates

This section describes how to configure the SBC for TLS and SRTP communication for **Zoom Phone and PureCloud**. It requires a certificate signed by one of the trusted Certificate Authorities.

The communication between the Oracle SBC with Zoom Phone and Genesys PureCloud is TLS/SRTP.

"Certificate-records" are configuration elements on Oracle SBC which captures information for a TLS certificate such as common-name, key-size, key-usage etc.

This section walks you through how to configure certificate records, create a certificate signing request, and import the necessary certificates into the SBC's configuration.

GUI Path: security/certificate-record

For the purposes of this application note, we'll create certificate records as below.

- SBC Certificates (end-entity certificate)
- DigiCert Root CA (SBC and Zoom Phone)

- DigiCert Intermidiate Cert (this is optional only required if your server certificate is signed by an intermediate)
- DigiCertEVRootCA (Genesys PureCloud)

#### Supported CAs for Zoom Phone.

https://support.zoom.us/hc/en-us/articles/360056087612-Zoom-Phone-certificate-update

#### Supported CA for Genesys PureCloud BYOC

Genesys Pure Cloud signs the BYOC Cloud endpoints with X.509 certificates issued by DigiCert, a public Certificate Authority. More specifically, the root certificate authority that signs the BYOC Cloud endpoints is the DigiCert High Assurance EV Root CA.

https://help.mypurecloud.com/articles/tls-trunk-transport-protocol-specification/

Note Genesys PureCloud uses subject name validation to ensure that the remote endpoint identifies itself as the expected target. If a server certificate does not contain the name to which the client is connected as either the common name or the subject alternate name, the connection is refused.

Below Table 1 is for reference. Modify the configuration according to the certificates in your environment.

Config Parameter	SBC Certificate1( Zoom)	SBC Certificate2( PureCloud)	DigiCertEV RootCA	DigiCert Root CA	DigiCert Intermediat e
Name	SBCCert 1	SBCCert 2	PureClo udCert	DigiCert Global Root CA	DigiCert SHA2 Secure Server CA
Common Name	custom ers.telec hat.o- test0616 1977.co m	solution slab.cgb ubedfor d.com	PureClo udCert	DigiCert Global Root CA	DigiCert SHA2 Secure Server CA
Key Size	2048	2048	2048	2048	2048
Key-Usage- Lis	digitalSig nature	digitalSig nature	digitalSig nature	digitalSig nature	digitalSig nature
t	keyEncip herment	keyEncip herment	keyEncip herment	keyEncip herment	keyEncip herment
Extended Key Usage List	serverAu th	serverAu th	serverAu th	serverAu th	serverAu th
Key algor	rsa	rsa	rsa	rsa	rsa
Digest- algor	Sha256	Sha256	Sha256	Sha256	Sha256

# 7.7.1.1 End Entity Certificate

The SBC's end entity certificate is what is presented to PureCloud and Zoom Phone signed by your CA authority, in this example we are using Digicert as our signing authority.

Here in this setup, We wil create two end entity certificates for PureCloud and Zoom Phone.

- Common name: (customers.telechat.o-test06161977.com) for Zoom Phone.
- Common name: (solutionslab.cgbubedford.com) for PureCloud.

#### Step 1 Configure SBC Certificate Record

To Configure the certificate record:

• Click Add, and configure the SBC certificate as shown below:

Configuration View Configuration	n Q		
media-manager	•	Modify Certificate Recor	rd
codec-policy			
media-manager		Name	SBCZoomCert
media-policy		Country	US
realm-config		State	California
steering-pool		Locality	Redwood City
security	•	Organization	Oracle Corporation
authentication-profile		Unit	
certificate-record		Common Name	customers.telechat.o-test06161977.com
tls-global		Key Size	2048 💌
tls-profile		Alternate Name	*.customers.telechat.o-test06161977.c
session-router	•	Trusted	✓ enable
system	•	Key Usage List	digitalSignature 🗙
			keyEncipherment 🗙
		Extended Key Usage List	serverAuth 🗙
		Key Algor	rsa 💌

Similarly repeat the step to create another certificate record to present to Genesys PureCloud signed by your CA.

Configuration View Configuration	Q		
media-manager	Modify Certificate Record	i	
security	•		
authentication-profile	Name	SBCPureCloudCert	
certificate-record	Country	US	
tis-global	State	California	
tls-profile	Locality	Redwood City	
session-router	Organization ▶	Oracle Corporation	
system	Unit 🕨		
	Common Name	solutionslab.cgbubedford.com	
	Key Size	2048 💌	
	Alternate Name		
	Trusted	🖌 enable	
	Key Usage List	digitalSignature 🗙	
		keyEncipherment 🗙	
	Extended Key Usage List	serverAuth 🗙 clientAuth 🗙	
	Key Algor	rsa 🔻	
	Digest Algor	sha25ó 💌	
	Ecdsa Key Size	p256 💌	
	Cert Status Profile List		
Show All	ОК	Back	

#### Step 2 – Generating a certificate signing request

Please note – certificate signing request is only required to be executed for SBC Certificate – not for the root/intermediate certificates.

- Select the certificate and generate certificate on clicking the "Generate" command.
- The Step must be performed for both Certificate records -SBCZoomCert and SBCPureCloudCert.
- Please copy/paste the text that is printed on the screen as shown below and upload to your CA server for signature.

Configuration	ex Configuration	Q										Datava 🔘 Verity 🚺		
media-manager		•	Certificate Record											
authentication-profi	vation-profile e-record i ter	on-profile		D	0 2 2 3 10 100 1 6 8 6								Search	
certificate-record			Action	Select	Name		Country	State	Locality	Organization	Unit	Common Name		
to-goos			1		BaltimoreRoot		US	ма	Burlington	Engineering		Baltimore CyberTrust Root		
tis-profile session-router			1		DigiCertinter		US	ма	Burlington	Engineering		DigiCert SHA2 Secure Server		
system			1		DigiCertRoot		VS	ма	Burlington	Engineering		DigiCert Global Root CA		
			÷		SBCPureCoudCert	Edit	16	California	Redwood City	Oracle Corporation		solutionalab.cgbubedford.co		
			1		TeamsEnterpriseCent	Copy		California	Redwood City	Oracle Corporation		telechat.o-test06161977.com		
						Delete Generate Import Sort	· •							

ale un			
😳 Wizards 👻		Generate certificate response x	Save Verify
media-manager	Certificate Record	Copy the following information and send to a CA authority	
security 👻		BEGIN CERTIFICATE REQUEST MIC3zCCAccCADAwfDELMAkGAIUEBhMCVVMxEzARBeNVBAgTCkNhbGlmb3Ju8WEx	
authentication-profile		FTATBgNVBACTDFJIZHdvb2QgQ2l0eTEbM8kGAIUEChMST3Jh72xllENvcn8vcmF0 aW9uMSQwlgYDVQQDExt0ZWxlY2hhdC5vLXRlc3QwNjE2MTK3Ny5jb20wggEIMA0G	
certificate-record	Add Delete	CSqGSlb3DQEBAQUAA4IBDwAwggEKAoIBAQDX+fmN6hilbPcdu26HyGu7VYwgtljq LpD2wy+3KiCLsyEJScx3PufBPxRcoeMLEJXAouG66KuZ3ISDWktM1g7fO75c/27k	search
	Name	MH6XyvuUp35sa1WevwqTLGAgK23kTlap9h6+nm4jrK4X3patqhG6gmkk9m02JTZO IUBy2uzfXn+IEXXGwJhKPu1PM3Bq23L3zXn+b4Hpv+1CoFuS3E4WD7KHL9pDTsAR	it Common Name
tis-giobai	DigiCertInter	Bl74qQztdxWJ0JFOWanAWvkLBDTeOqkvRB/xnUGB/C1gAJPYCvZ1QQ0LFLguVngk IffgHGdjKGnDdkLótSSBpY0gLnOVVCBHyGK6H2N0TbCQGyzL4ZmmAJetAgMBAAGg	DigiCert SHA2 Secure Server CA
tls-profile	DigiCertRoot	HJACBgkqhkiG9w0BCQ4xDZANMAsGA1UdDwQEAwiFoDANBgkqhkiG9w0BAQsFAAOC	DigiCert Global Root CA
session-router	GoDaddyInter	4TfzvngpNUrjsdo9FGIRQF87EbInRKJ/WhzBhGZb0GKIEJR5PGsncwNEf0kxHFwf	GoDaddy Secure Server CA
	GoDaddyRoot	xtzkrpzWmAP9E0mc+x0cAEdDsrc1/ydgPhAEcdzpUv40AvAaIqA0T9IRcTFE0h+	GoDaddy Class2 Root CA
system 👻	SBCEnterpriseCert	Sunkii+LsajcSu/VetwouonjoLrgJubriccLy-pscRxLl0ix80R0sme08+icunei FNVjS69L50x/D+M/w2kxnPlofw==	telechat.o-test06161977.com
fraud-protection		END CERTIFICATE REQUEST	
host-route			
http-client			
http-server			
network-Interface		Close	
ntp-config		~IUse	
phy-Interface	Page 1 of 1 (1-5 of 5 it	ems) $ \mathbf{k}  <  1\rangle >  \mathbf{X} $	

- copy/paste the text that gets printed on the screen as shown above and upload to your CA server for signature.
- Also note, at this point, a save and activate is required before you can import the certificates to each certificate record created above.

#### Step 3 Import Certificates to the SBC

Once certificate signing request have been completed – import the signed certificate to the SBC.

Please note – all certificates including root and intermediate certificates are required to be imported to the SBC. Once all certificates have been imported, issue **save/activate** from the WebGUI

Configuration View Configuration	Q										Discard 🖉 Verity	🖹 Save	
media-manager	•	Certific	ertificate Record										
security	•												
authentication-profile													
certificate-record		D t	1 A	, 🛃 🖾 PKCS1	/	6623					Search	Q	
		Action	Select	Name		Country	State	Locality	Organization	Unit	Common Name		
tis-global		:		BaltimoreRoot		US	MA	Burlington	Engineering		Baltimore CyberTrust Root	л	
session-router	•	:		DigiCertInter		US	MA	Burlington	Engineering		DigiCert SHA2 Secure Serv	ver CA	
system	•	:	•	DigiCert <sup>Poot</sup> Edit		US	MA	Burlington	Engineering		DigiCert Global Root CA		
		:		SBCPure Copy		US	California	Redwood City	Oracle Corporation		solutionslab.cgbubedford.e	.com	
		:		TeamsEi Generate		US	California	Redwood City	Oracle Corporation		telechat.o-test06161977.co	om	
				Import Sort	•								

🚯 Wizards 👻 🔯 Comm	ands 🔻						
media-manager	•	Certificate Record		Import certificate	×		
security	•			Format			
authentication-profile		Add Delete All	Upload		pkcs		
certificate-record		Name	Country	Import method	x509 try-all	Unit	Common
tls-global		DigiCertinter	US		Paste		DigiCert S
tls-profile		DigiCertRoot	US	Certificate file	No file chosen		DigiCert (
session-router		GoDaddyInter	US	certificate me	the file cristeri.		GoDaddy
		GoDaddyRoot	US				GoDaddy
system	•	SBCEnterpriseCert	US				telechat.c
fraud-protection							
host-route							
http-client							
http-server					Import Cancel		
network-Interface							
ntp-config							

# 7.7.1.2 Import CA Certificate

Repeat the steps provided Step 3 to import all the root and intermediate CA certificates into the SBC as mentioned in Table 1.

At this stage, all the required certificates SBC certificates have been imported to the SBC

### 7.8. TLS-Profile

A TLS profile configuration on the SBC allows specific certificates to be assigned.

Navigate to security-> TLS-profile config element and configure the tls-profile as shown below

#### TLS profile -Zoom Phone.

Zoom supports the following signalling ciphers that need to be added to the TLS profile:

- TLS-ECDHE-RSA-WITH-AES-256-CBC-SHA-384
- RSA-WITH-AES-256-CBC-SHA-256

media-manager	Þ	Modify TLS Profile		
security	•			
authentication-profile		Name	TLSZoom	
certificate-record		End Entity Certificate	SBCEnterpriseCert	
tis-global		Trusted Ca Certificates	GoDaddyinter 🗙	
tis-profile			GoDaddyRoot 🗙	
session-router	>	Cipher List	TLS_RSA_WITH_AES_256_CBC_SHA	
System			TLS_ECDHE_RSA_WITH_AES_256_CI	
		Verify Depth	10	(Range: 0.10)
		Mutual Authenticate	✓ enable	
		TLS Version	tisv12 💌	
		Options		
		Cert Status Check	enable	
		Cert Status Profile List		
		OK	Back	
Show All				

### TLS-Profile - Genesys PureCloud

PureCloud BYOC only supports endpoints using the TLS version 1.2 protocol.

Supported TLS ciphers include:

- TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA
- TLS\_RSA\_WITH\_AES\_256\_CBC\_SHA256

TLS-only listeners are available on host port 5061.

Configuration View Configuration Q				
media-manager	Modify TLS Profile			
security 👻				
authentication-profile	Name	TLSPureCloud		
certificate-record	End Entity Certificate	SBCPureCloudCert v		
tis-global	Trusted Ca Certificates	BaltimoreRoot 🗙		
tls-profile		DigiCertRoot ×		
session-router 🗸		Digiceranter X		
access-control	Cipher List	TLS_RSA_WITH_AES_256_CBC_SHA	56 X TLS_RSA_WITH_AES_256_CBC_SHA X	
account-config	Verify Depth	10	(Ranger 0.10)	8
filter-config	Mutual Authenticate	10	(miller only)	
Idaa config		✓ enable		
hap-comp	TLS Version	tlsv12 💌		
local-policy	Options			
local-routing-config				
media-profile	Cert Status Check	enable		
session-agent	Cert Status Profile List			
session-group	Ignore Dead Responder	enable		
session-recording-group	Allow Self Signed Cert	🖌 enable		
session-recording-server				
Show All	ок	Back		

# 7.9. Configure SIP Interfaces

Navigate to session-router> sip-interface and configure the sip-interface as shown below.

Please Configure sip-interface for the PureCloud as below-

- Tls-profile needs to match the name of the tls-profile previously created
- Set allow-anonymous to agents-only to ensure traffic to this sip-interface only comes from the Session agents added to the SBC.

#### Sip-Interface for Zoom Phone

Configuration View Configuration	Q								Discard	😟 Verify 🖺 Save
filter-config	Modify	SIP Ir	nterface							Show Configuration
ldap-config										
local-policy	State	tate 🖌 enable								
local-routing-config	Realm ID			Zoom		•				
media-profile	Descriptio	n								
session-agent										
session-group	SIP Ports									
session-recording-group	D	/	ā ā							
session-recording-server	Action	Sel	Address		Port		Transport Protocol	TLS Profile	Allow Anonymous	
session-translation	:				5061		TLS	TLSZoom	agents-only	
sip-config										
sip-feature										
sip-interface 👻										•
Show All			OK	Back						

Sip-interface for Genesys PureCloud

	_									
Configuration View Configuration	Q							Discard	Ø Verify	🖁 Save
account-config	Modify	SIP In	terface						Show Configu	uration
filter-config	State									
Idap-config	State Realm ID		enable							
local-policy	Descriptio	n	GenesysClo	• Du						
local-routing-config										
media-profile										
session-agent	SIP Ports									
session-group	12	<i>u</i> 4		-						
session-recording-group	Action	Select	Address	Port	Transport Protocol	TLS Profile	Allow Anonymous	Multi Home Ad	drs	
session-recording-server	:			5060	TLS	PureCloudTLS	all			
session-translation										
sip-config										
sip-feature										
sip-interface										

Once sip-interface is configured – the SBC is ready to accept traffic on the allocated IP address.

### 7.10. Configure session-agent

Session-agents are config elements, which are trusted agents who can send/receive traffic from the SBC with direct access to trusted data path. Session-agents are config elements which are trusted agents who can send/receive traffic from the SBC with direct access to trusted data path.

Navigate to session-router->Session-Agent

#### Configure the session-agents for the Genesys Pure Cloud

- Host name to "byoc-voxai.byoc.mypurecloud.com"
- port to 5061
- realm-id needs to match the realm created for the Genesys Pure Cloud
- transport set to "staticTLS"
- ping-method send OPTIONS message to Microsoft to check health
- ping-interval to 30 secs

Configuration View Configuration	Q			Discard	😟 Verify	🖹 Save
media-manager	Modify Session Agent				Show Con	Infiguration
security 🕨						
session-router 🗸	Hostname	byoc-voxai.byoc.mypurecloud.com				- 1
access-control	IP Address					- 8
account-config	Port	5061	(Range: 0,102565535)			
filter-config	State	✓ enable				
ldap-config	App Protocol	SIP 💌				
local-policy	Арр Туре	•				
local-routing-config	Transport Method	StaticTLS 👻				
media-profile	Realm ID	GenesysCloud 👻				
session-agent	Egress Realm ID	Ψ				
	Description					
session-group						
session-recording-group						
session-recording-server	Match Identifier					
session-translation						•

2///

# Configure the session-agents for Zoom.

Config parameter	Zoom 1	Zoom 2
Hostname	162.12.232.59	162.12.233.59
IP Address	162.12.232.59	162.12.233.59
Port	5061	5061
Transport method	StaticTLS	StaticTLS
Realm ID	Zoom	Zoom
Ping Method	OPTIONS	OPTIONS
Ping Interval	30	30
Ping Response	Enabled	Enabled

Configuration View Configuration	Q		
local-policy	Modify Session Agent		
local-routing-config	Hostname	162.12.232.59	
media-profile	IP Address	162.12.232.59	
session-agent	Port	5061	(Range: 0,102565535)
session-group	State	✓ enable	
session-recording-group	App Protocol	SIP	
session-translation	Арр Туре	▼	
sip-config	Transport Method	StaticTLS 🔹	
sip-feature	Egress Realm ID	Zoom 🔻	
sip-interface	Description	▼ SA to Zoom Cloud Voice	
sip-manipulation			
• •			

Follow above step to create 1 more session-agent for Other Zoom Session-Agent 162.12.233.59

Note: The Session-Agent Ips/FQDNs might change depending upon your location and the BYOC Ips provided to you by Zoom. Please modify the configuration according to your specific need.

### 7.11. Configure session-agent group

A session agent group allows the SBC to create a load balancing model. Go to Session-Router->Session-Group. Please configure the following group for Zoom Session Agents

Configuration View Configuration	۹		
local-policy	Modify Session Group		
local-routing-config	Group Name	ZoomGrp	
media-profile	Description		
session-agent			
session-recording-group	State	🗸 enable	
session-recording-server	App Protocol	SIP	
session-translation	Strategy	Hunt 👻	
sip-config	Dest	162.12.232.59 🗙	
sip-feature		162.12.233.59 🗙	
sip-interface	Trunk Group		
sip-manipulation	Sag Recursion	enable	
sip-monitoring	Stop Sag Recurse	401,407	
translation-rules	SIP Recursion Policy	· · · · · · · · · · · · · · · · · · ·	
Show All	ОК	Back	

### 7.12. Configure local-policy

Local policy config allows the SBC to route calls from one end of the network to the other based on routing criteria. To configure local-policy, Navigate to Session-Router->local-policy.

Please note that in the below example calls are routed to Twilio Elastic SIP Trunk. Here Twilio Elastic SIP Trunk is the BYOC Carrier. The call flow in the setup is as below –

Inbound calls from PureCloud to Zoom Phone -

Genesys PureCloud  $\rightarrow$  Oracle SBC  $\rightarrow$  Carrier Trunk  $\rightarrow$  Oracle SBC  $\rightarrow$  Zoom Phone

Inbound calls from Zoom Phone to PureCloud -

Zoom Phone  $\rightarrow$  Oracle SBC  $\rightarrow$  Carrier Trunk  $\rightarrow$  Oracle SBC  $\rightarrow$  Genesys PureCloud

We have multiple application Notes available on the Oracle TechNet Page to configure the Oracle SBC with different PBXs and Twilio Elastic SIP Trunk.

Below is the Link to Oracle TechNet Page

https://www.oracle.com/technical-resources/documentation/acme-packet.html Oracle SBC interworking with Genesys PureCloud and Twilio SIP Trunk Application Note can be found here -

https://www.oracle.com/a/otn/docs/oracle-sbc-with-genesys-pure-cloud-and-twillio-sip-trunk.pdf

Following **local-policy routes the calls from the Genesys PureCloud** to Carrier and then the calls are routed from Carrier to Zoom Phone.

Configuration View Configuration	Q								Discard	Ø Vertfy	🖹 Save
media-manager											
requirity	Modify Local Policy										
security P	From Address	• •									
session-router 🗸	To Address										
access-control	TO Address	* ×									
account-config	Source Realm	byoc-voxai 🗙									
filter-config	Description										
ldap-config											
local-policy											
local-routing-config	State	enable									- 11
media-profile	Policy Priority	none	Ŧ								
session-agent	Policy Attributes										
session-group	C: C in	Dealers	Action	Termina	to Pagura C	ant .	State	Ann Protocol	Leekue	Next Key	
session-recording-group	Action Select Next Hop	Realm	Action	Termina	ite Recurs C	ost	State	App Protocol	сокир	Next Key	, 
session-recording-server	68.68.117.67	SIPTrunk	none	disabled		)	enabled		single		
session-translation	ОК	Back									
SDOW All											
Configuration View Configuration Q									Discar	d 🖉 Verify	🖹 Save
Configuration View Configuration Q media-manager	Modify Local Policy								Discar	d 😧 Verify	Save
Configuration View Configuration Q media-manager + A security +	Modify Local Policy From Address								Discar	d 🖉 Verify	Save
Configuration View Configuration Q media-manager + security + session-router +	Modify Local Policy From Address	*x							Discar	d 🖉 Verify	Save
Configuration View Configuration Q media-manager  security  session-router  access-control accent confin	Modify Local Policy From Address To Address	* X [7814437387 X [7914437787 X]							Discar	d 🔕 Verify	Save
Configuration View Configuration Q media-manager  security  session-router  access-control account-config filter-config	Modify Local Policy From Address To Address	* X 17814437387 X 7814437387 X +17814437387 X							Discer	d 🖉 Verify	Save
Configuration View Configuration Q media-manager security session-router access-control account-config fitter-config ldap-config	Modify Local Policy From Address To Address Source Realm	* X [7814457387 X [7814457387 X +17814457387 X SIPTrunk X							Discar	d 🖉 Verify	Save
Configuration View Configuration Q, media-manager + security + session-router + access-control account-config filter-config idap-config idap-config	Modify Local Policy From Address To Address Source Realm Description	* X 17814457587 X 7814457387 X +17814457387 X SIPTrunk X SIPTrunk X							Discar	d 🖉 Verify	Save
Configuration View Configuration Q media-manager + security + session-router + access-control account-config filter-config ldap-config local-policy local-routing-config	Modify Local Policy From Address To Address Source Realm Description	* X 17814457587 X 7814457387 X +17814457387 X SIPTrunk X							Discar	d 🖉 Verify	Save
Configuration View Configuration Q media-manager + security + session-router + access-control account-config filter-config lidap-config local-policy local-routing-config media-profile	Modify Local Policy From Address To Address Source Realm Description	* X 17814437587 X 7814437387 X +17814437387 X SIPTTunk X							Discar	d 🖉 Verity	Serve )
Configuration     View Configuration     Q       media-manager <ul> <li>security</li> <li>session-router</li> <li>access-control</li> <li>account-config</li> <li>filter-config</li> <li>ldap-config</li> <li>local-policy</li> <li>local-policy</li> <li>local-policie</li> <li>session-agent</li> <li>Compared</li> <li>session-agent</li> <li>media-profile</li> <li>session-agent</li> <li>Compared</li> <li>media-profile</li> <li>session-agent</li> <li>Compared</li> <li>media-profile</li> <li>session-agent</li> <li>Compared</li> <li>Compared</li></ul>	Modify Local Policy From Address To Address Source Realm Description State Policy Priority	* ×      17814437387 ×      781437387 ×      +17814437387 ×      SIPTrunk ×      enable							Discar	d 🖉 Verify	Sove
Configuration     View Configuration     Q.       media-manager <ul> <li>security</li> <li>session-router</li> <li>access-control</li> <li>account-config</li> <li>filter-config</li> <li>ldap-config</li> <li>local-policy</li> <li>local-policy</li> <li>local-policy</li> <li>local-policy</li> <li>local-policy</li> <li>local-policy</li> <li>session-agent</li> <li>session-agent</li> <li>session-group</li> <li>local-policy</li> <li>local-policy</li></ul>	Modify Local Policy From Address To Address Source Realm Description State Policy Priority Policy Attributes	* ×      7814437387 ×      7814437387 ×      7814457387 ×      17814457387 ×      SIPTrunk ×      super nane							Discar	d 🖉 Verify	Sove
Configuration         View Configuration         Q.           media-manager         >         >           security         >         >         >           security         >         >         >           security         >         >         >           access-control         account-config          >           filter-config          >         >           local-policy         >         >         >         >           local-policy          > </td <td>Modify Local Policy From Address To Address Source Realm Description State Policy Priority Policy Attributes C</td> <td>* X 17814457387 X 7814457387 X +17814457387 X SIPTrunk X SIPTrunk X</td> <td>· · · ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Discar</td> <td>d 🖉 Verify</td> <td>Sove 1</td>	Modify Local Policy From Address To Address Source Realm Description State Policy Priority Policy Attributes C	* X 17814457387 X 7814457387 X +17814457387 X SIPTrunk X SIPTrunk X	· · · ·						Discar	d 🖉 Verify	Sove 1
Configuration         View Configuration         Q.           media-manager         *         *           security         *         *           secsion-router         *         *           access-control         accest-control         *           account-config         filter-config         *           filter-config         !         !           local-policy         !         !           local-policy         !         !           session-agent         *         *           session-recording-group         *         *           session-recording-server         *         *	Modify Local Policy From Address To Address Source Realm Description State Policy Priority Policy Attributes R Policy Attribut	* ×      7814437387 ×      7814437387 ×      17814437387 ×      SIPTTunk ×      SIPTTunk ×      ranbe      none      Realm	* Action	Terminate Recurs	Cost	State	App Protocol	L	Discar	d Q Verify	Sove
Configuration         View Configuration         Q.           media-manager         *         *           security         *         *           secsion-router         *         *           access-control         access-control         *           account-config         fitter-config         *           Idea-config         *         *           local-policy         *         *           local-policy         *         *           session-agent         *         *           session-recording-server         *         *           session-recording-server         *         *	Modify Local Policy From Address To Address Source Realm Description State Policy Attributes Policy Attributes Policy Attributes C Action Select Next Hop E E E Seg ZoomGrp	× ×      17814457387 X      7814457387 X      17814457387 X      SIPTTunk X      siPtTunk X      rane      Realm      Zoom	▼ Action none	Terminate Recurs disabled	Cost	State enabled	App Protocol	L S	Discar	d Q Verify	Save
Configuration     View Configuration     Q       media-manager     *     *       security     *     *       secontrol     access-control     *       access-control     account-config     *       filter-config     *     *       local-policy     *     *       local-policy     *     *       local-policy     *     *       session-recording-group     *     *       session-recording-server     *     *       session-recording-server     *     *	Modify Local Policy From Address To Address Source Realm Description State Policy Priority Policy Attributes           C         Image: Content of the second seco	x      T7814437387 X      781437387 X      r1781437387 X      SIPTrunk X      senable     none      Realm      Zoom	Action     none	Terminate Recurs disabled	Cost 0	State enabled	App Protocol	LL 5	Discar pokup ngje	d Q Verify	
Configuration     View Configuration     Q       media-manager     >        security     >     >       secson-router     >     >       access-control     access-control     access-control       account-config     filter-config       filter-config        ldap-config        local-policy        local-policy        local-policy        local-policy        session-recording-group     session-recording-server       session-recording-server     session-recording-server       session-recording        sip-config	Modify Local Policy From Address To Address Source Realm Description State Policy Attributes R Pol	x      T7814437387 X      781437387 X      F17814437387 X      SIPTrunk X      enable      none      Realm      Zoom      xet	* Action none	Terminate Recurs disabled	Cost	State enabled	App Protocol	5 5	Discar	d Q Verify	Sove

Following **local-policy routes the calls from the Zoom Phone** to Carrier and then the calls are routed from Carrier to Genesys PureCloud.

2//10

Configuration View Configuration	Q									Discard	Ø Verify	🗄 Save
media-manager	Modify	Local F	Policy									
security 🕨												*
session-router 🗸	From Addre	ess		* ×								- 1
access-control	To Address	s		* ×								- 1
account-config	Source Rea	alm		Zoom 🗙								- 1
filter-config	Description	n										- 1
Idap-config												- 1
	State											- 1
media profile	Policy Prior	rity	~	enable								- 1
session-agent	Policy Attri	ibutes		5 NC	•							
session-group	D	/ 6	1									
session-recording-group	Action	Select	Next Hop	Realm	Action	Terminate	Recursion	Cost	State	App Protocol	Lookup	
session-recording-server	÷		68.68.117.67	SIPTrunk	none	disabled		0	enabled		single	^
session-translation Show All			OK Back	-								·
Configuration View Configuration C	٦									Discard	Ø Verify	🖹 Save
Configuration View Configuration C media-manager	ک Modify I	Local P	Policy							Discard	Ø Verify	B Save
Configuration View Configuration C media-manager	ኢ Modify I	Local P	Policy							Discard	Ø Verify	Save
Configuration View Configuration C media-manager security session-router	ک Modify I From Addre	Local P ess	Policy	x						Discard	Ø Verify	E Save
Configuration view configuration C media-manager security session-router access-control	Modify I From Addre	Local P ess	Policy	* × 7813151033 × 781511	31035 ×					Discard	⊘ Verify	Save
Configuration View Configuration C media-manager security session-router access-control account-config	Modify I From Addre To Address	Local P ess	Policy	7815151055 × 781515 17815151053 ×	51035 ×					Discard	Ø verify	Save
Configuration View configuration C media-manager security session-router access-control account-config filter-config	C Modify I From Addre To Address Source Real	Local P ess	Policy	7815131033 × 781513 17813131033 × 1 177113131033 × 1	51035 ×					Discard	(2) Verify	Save
Configuration View configuration C media-manager security session-router access-control account-config filter-config ldap-config	Modify I From Addre To Address Source Real Description	Local P ess i Im	Policy	* X 7815151055 X 781515 177815151035 X NPTrunk X	31033 X					Discard	Q Vertfy	Save
Configuration View configuration media-manager  security  session-router  access-control account-config filter-config ldap-config ldap-config ldap-config ldap-config	A Modify I From Addre To Address Source Real Description	Local P ess im	Policy	* X 7813131033 X *17813131033 X #PTrunk X	31033 ×					Discard	Ø venty	Save
Configuration View Configuration media-manager  security  session-router  access-control account-config filter-config lidap-config local-policy local-routing-config	C Modify I From Addres To Address Source Real Description	Local P ess i ilm	Policy	17813131033 X 781313 17813131033 X 781313 17813131033 X 1 18PTrunk X 1 enable	51035 ×					Discard	⊘ venty	E Save
Configuration View Configuration Configuration Security S	C Modify I From Address Source Real Description State Policy Priori	Local P ess i im i	Policy	* X 7815131053 X 17815131053 X 17815131053 X IPTrunk X enable ne	31033 X					Discard	Ø vently	Save
Configuration View configuration media-manager security session-router access-control account-config filter-config lidap-config local-policy local-policy local-policy local-porfile session-agent	C Modify I From Address To Address Source Real Description State Policy Priori	Local P ess i ilm i ty	Policy	* X 7813131033 X 17813131033 X IPTrunk X enable ne	31033 X					Discard	⊘ vently	Save
Configuration View configuration media-manager security session-router access-control account-config filter-config lidap-config lidap-config lical-policy local-routing-config media-profile session-agent session-agent	C Modify I From Addres To Address Source Real Description State Policy Priori Policy Attrib	Local P ess ; im ity butes	Policy	* X 7815151055 X 781515 *17815131035 X 31PTrunk X enable ne	31035 X					Discard	⊘ venty	Save
Configuration       View configuration         media-manager <ul> <li>security</li> <li>session-router</li> <li>access-control</li> <li>account-config</li> <li>filter-config</li> <li>lidap-config</li> <li>local-policy</li> <li>local-policy</li> <li>local-routing-config</li> <li>media-profile</li> <li>session-agent</li> <li>session-agent</li> <li>session-group</li> <li>session-recording-group</li> </ul>	Modify I     From Addres     To Address     Source Real     Description     State     Policy Priori     Policy Attrib     Delicy Attrib     C     a cation	Local P ess i i i ty butes Select N	Policy    Policy      Policy      Policy      Policy      Policy     Policy    Policy    Policy    Policy   Policy   Policy Policy  Policy Po	* X 7815151055 X 781515 *17815151035 X siPTrunk X enable ine Realm	31033 X	Terminate Recurs	Cost	State	App Protocol	Discard	Verify	Save
Configuration view configuration media-manager security session-router access-control account-config filter-config lidap-config local-policy local-routing-config media-profile session-agent session-agent session-recording-group session-recording-group	Nodify I       From Address       To Address       Source Real       Description       State       Policy Priori       Policy Attrib       Cs       Action       :	Local F ess i im n v trity butes Select N Select N Select N	Policy	* X 17813131033 X 17813131033 X 3IPTrunk X enable ne Realm byoc-voxal	31033 ×	Terminate Recurs disabled	Cost	State	App Protocol	Discard Discard	Verify     Next Key	Save

# 7.13. Configure steering-pool

Steering-pool config allows configuration to assign IP address(s), ports & a realm.

#### PureCloud Steering pool.

ORACLE Enterprise Session Border Controller								
NN4600-139 10.	138.194.139 S	CZ8.4.0 Pa	tch 5 (Build 332)			Dashboard		
Configuration	View Configu	ation	Q					
media-manager		<b>^</b>	Modify Steering Pool					
codec-policy								
media-manager			IP Address					
media-policy			Start Port	20000		(Range: 0,165535)		
realm-config			End Port	40000		(Range: 0,165535)		
aturation and		d.,	Realm ID	GenesysCloud	•			
steering-pool		ч.	Network Interface					
security	•							
session-router								

### Zoom Phone Steering Pool

Configuration View Cor	ofiguration	۹			
media-manager	•	Modify Steering Pool			
codec-policy					
media-manager		IP Address			
media-policy		Start Port	20000		(Range: 0,165535)
realm-config		End Port	40000		(Range: 0,165535)
		Realm ID	Zoom	•	
steering-pool		Network Interface			
security	- F			•	
session-router	•				
access-control					

### 7.14. Configure additional Parameters

### 7.14.1 SIP Manipulations

For calls to be presented to Zoom Phone from the Oracle SBC, the Oracle SBC requires alterations to the SIP signaling natively created. To do this, we should use the prebuilt HMR ACME\_NAT\_TO\_FROM\_IP

The following SIP manipulation is applied as the out-manipulationId to the sip-interface created for Zoom and modifies packets generated by the Oracle SBC to Zoom Phone:

The manipulation performs the following modifications to SIP packets

- 1. Changes the host portion of From address with the SBC sip-interface IP Address.
- 2. Changes the host portion of To Header with Zoom IP Address.

🚯 Wizards 🔻	🔅 Commands 🔻				Save
media-manager		•	Modify Realm Config		
codec-policy media-manage	er		Out Translationid In Manipulationid		
realm-config			Out Manipulationid	ACME_NAT_TO_FROM_IP	
steering-pool security		F	Access Control Trust Level	o high 💌	(Range: 0.4294967295)
session-router		•	Invalid Signal Threshold	0	(Range: 0.4294967295)
system		۲	Untrusted Signal Threshold	0	(Range: 0.4294967295) (Range: 0.4294967295)
			Nat Trust Threshold	0	(Range: 065535)
			Max Endpoints Per Nat	0	(Range: 065535)
			Nat Invalid Message Threshold	0	(Range: 065535)
			Wait Time For Invalid Register	0	(Range: 0,4300)
				30 Back	(Range: 0.4294967295)
Show					

## 7.14.2 Enable Ping-response

The option is found under the **Session agent** configuration element and will be enabled on all session agents configured for Zoom Phone and Genesys PureCloud .

Below is an example of the parameter **Ping response** enabled on PureCloud Session-Agent. Similarly, the parameter should be enabled for other Zoom Phone Session-Agents.

Configuration	View Configuration	Q								
media-manager		•	Modify Session Agent	Nodify Session Agent						
security		► I								
session-router		-	Hostname	byoc-voxai.byoc.mypurecloud.com						
access-control			IP Address							
account-config			Port	5061	(Range: 0,102565535)					
filter-config			State	🖌 enable						
Idap-config			App Protocol	SIP v						
local-policy			Арр Туре	<b>•</b>						
local-routing-confi	2		Transport Method	StaticTLS 👻						
media-profile	-		Realm ID	GenesysCloud 🔻						
			E							

media-manager	•	Modify Session Agent
security	•	
session-router	-	SPL Options
access-control		Media Profiles
account-config		In Translationid
filter-config		Out Translationid toPSTN v
ldap-config		Trust Me enable
local-policy	- 1	Local Response Map
local-routing-config		Ping Response
modia profile		

# 7.15. Media Security Configuration.

This section outlines how to configure support for media security between the ORACLE SBC Zoom Cloud Voice and Genesys PureCloud.

### 7.15.1 Configure sdes profile

Navigate to  $\rightarrow$ Security  $\rightarrow$  Media Security  $\rightarrow$ sdes profile and create the policy as below.

ORACLE Enter	prise Session Border Controller					a
			Dashboard	Configuration	Monitor and Trace	Widgets
🔅 Wizards 🔻 🔅 Comman	ds 💌				Save Verify	Discard
certificate-record	Add Sdes Profile					
factory-accounts						
ike 🕨 🕨	Name	SDES				
ipsec 🕨	Crypto List	AES_CM_128_HMAC_SHA1_80 ×				
local-accounts		AES_CM_128_HMAC_SHA1_32 🗙				
media-security 🔻	Srtp Auth	✓ enable				
dtls-srtp-profile	Srtp Encrypt	✓ enable				
media-sec-policy	SrTCP Encrypt	✓ enable				
sdes-profile	Mki	enable				
sipura-profile	Egress Offer Format	same-as-ingress v				
password-policy	Use Ingress Session Params					
Show All	ок	Back				

### 7.15.2. Configure Media Security Profile

Navigate to  $\rightarrow$ Security  $\rightarrow$  Media Security  $\rightarrow$ media Sec policy and create the policy as below: Create Media Sec policy with name SDES, which will have the sdes profile, created above.

Assign this media policy to both PureCloud and Zoom Phone Realm.

ORACL	E Ent	terprise	Session Border Controller						
						Dashboard	Configuration	Monitor and Trace	Widgets
Wizards 💌	🔅 Comm	ands 🔻						Save Verify	Discard
certificate-record	1	^	Add Media Sec Policy						
ike	►		Name	SDES					
ipsec	►		Pass Through	enable					
local-accounts			Options						
media-security	•		Inbound						
dtls-srtp-profil	le	11	Profile	SDES 💌					
media-sec-pol	licy		Mode	srtp	•				
sdes-profile			Protocol	sdes	•				
sipura-profile		11	Hide Egress Media Update	enable					
password-policy			Outbound						
		~	ОК	Back					
Show All	$\bigcirc$								

2///>

Note- Both Zoom Phone and Genesys PureCloud in this setup require TLS SRTP to work. If any of your network component require RTP, another Media Sec policy as show below and named **RTP**, to convert srtp to rtp can be created and applied to the appropriate realm as needed.

🔅 Wizards 🔻	nands 🔻			
admin-security	> _	Modify Media Sec Policy		
auth-params		Name	RTP	
authentication		Pass Through	enable	
authentication-profile		Options		
cert-status-profile				
certificate-record		⊿ Inbound		
factory-accounts		Profile	•	
		Mode	rtp	<b>v</b>
ike	•	Protocol	none	v
ipsec	×.	Hide Egress Media Update	enable	
local-accounts		Outbound		
media-security	*	Profile	•	
dtls-srtp-profile		Mode	rtp	v
media-sec-policy	-	ок в	ack	
Show All				

# 7.16 Access Control

To enhance the security of your Oracle Session Border Controller, we recommend configuration access controls to limit traffic to only trusted IP addresses on all public facing interfaces

GUI Path: session-router/access-control

Please use the example below to configure access controls in your environment for both PureCloud IP's, as well as SIP Trunk IP's (if applicable).

#### byoc.mypurecloud.com resolves to the following load balancer IP Addresses

52.203.12.137	lb01.byoc.us-east-1.mypurecloud.com
54.82.241.192	lb02.byoc.us-east-1.mypurecloud.com
54.82.241.68	lb03.byoc.us-east-1.mypurecloud.com
54.82.188.43	lb04.byoc.us-east-1.mypurecloud.com

Configure access-control for each IP PureCloud IP Address as shown in the below example.

Configuration View Configuration Q			
media-manager	Modify Access Control		
security 🔻			
authentication-profile	Realm ID	GenesyCloud 👻	
certificate-record	Description		
tis-global			
tls-profile	Source Address	34.211.206.63	
session-router 👻	Destination Address		
access-control	Application Protocol	SIP 🔻	
account-config	Transport Protocol	ALL 👻	
filter-config	Access	permit 💌	
ldap-config	Average Rate Limit	0	(Range: 0_4294967295)
local-policy	Trust Level	none 🔻	
local-routing-config	Minimum Reserved Bandwidth	0	(Range: 0.4294967295)
media-profile	Invalid Signal Threshold	0	(Range: 04294967295)
session-agent	Maximum Signal Threshold	0	(Range: 0.4294967295)
session-group	Untrusted Signal Threshold	0	(Range: 0_4294967295)
	Deny Period	30	(Range: 04294967295)
session-recording-group	Nat Trust Threshold	0	( Range: 0_65535 )
session-recording-server	Max Endpoints Per Nat	0	( Range: 065535 )
Show All	OK	Back	

Similarly create ACL entries for each Zoom Phone IP Addresses as shown in the below example.

Configuration View Cor	ofiguration	Q		
media-manager	•	Modify Access Control		
security	•			
session-router	•	Realm ID	Zoom	
access-control		Description		
account-config				
filter-config		Source Address	162:12.0.0/16	
ldap-config		Destination Address		
local-policy		Application Protocol	SIP	
local-routing-config		Transport Protocol	ALL	
media-profile		Access	permit 👻	
session-agent		Average Rate Limit	0	(Range: 04294967295)
session-group		Trust Level	high 🔻	
session-recording-group		Minimum Reserved Bandwidth	0	(Range: 04294967295)
session-recording-server		Invalid Signal Threshold	0	(Range: 04294967295)
session-translation	-	Maximum Signal Enreshold	-	(B 0 100101000)

Notice the trust level on this ACL is set to high. When the trust level on an ACL is set to the same value of as the access control trust level of its associated realm, this create an implicit deny, so only traffic from IP addresses configured as ACL's with the same trust level will be allowed to send traffic to the SBC. For more information about trust level on ACL's and Realms, please see the <u>SBC Security Guide, Page 3-10</u>

# 7.17 SBC Behind NAT SPL configuration

This configuration is needed when your SBC is behind a NAT device. This is configured to avoid loss in voice path and SIP signaling.

The Support for SBC Behind NAT SPL plug-in changes information in SIP messages to hide the end point located inside the private network. The specific information that the Support for SBC Behind NAT SPL plug-in changes depends on the direction of the call.

For example, from the NAT device to the SBC or from the SBC to the NAT device.

Configure the Support for SBC Behind NAT SPL plug-in for each SIP interface that is connected to a NAT device. One public-private address pair is required for each SIP interface that uses the SPL plug-in, as follows.

- The private IP address must be the same as the SIP Interface IP address.
- The public IP address must be the public IP address of the NAT device

Here is an example configuration with SBC Behind NAT SPL config. The SPL is applied to the Zoom side SIP interface.

To configure SBC Behind NAT SPL Plug in, go to session-router->SIP-interface->spl-options and input the following value, save, and activate.

HeaderNatPublicSIPIflp=52.151.236.203,HeaderNatPrivateSIPIflp=10.0.4.4

Here HeaderNatPublicSIPIfIp is the public interface ip and HeaderNatPrivateSIPIfIp is the private ip.

media-manager	•	Modify Realm Config		
codec-policy				
media-manager		Early Media Allow		•
media-policy		Enforcement Profile		¥
realm-config		Additional Prefixes		
steering-pool		Restricted Latching	none	v
security	•	Options		
session-router	•	SPL Options	HeaderNatPublicSIPIfip=52.151.236	6.20
system	•	Delay Media Update	enable	
		Refer Call Transfer	dtsabled	¥
		Hold Refer Reinvite	enable	
		Refer Notify Provisional	none	v
		Dyn Refer Term	enable	
		Cardan Daltar		
		ок	Back	
Show All				

This configuration would be applied to each SIP Interface in the ORACLE SBC configuration that was deployed behind a Nat Device.

# 7.18 Caveat -OPUS Transcoding

Opus is an audio codec developed by the IETF that supports constant and variable bitrate encoding from 6 kbit/s to 510 kbit/s and sampling rates from 8 kHz (with 4 kHz bandwidth) to 48 kHz (with 20 kHz bandwidth, where the entire hearing range of the human auditory system can be reproduced). It incorporates technology from both Skype's speech-oriented SILK codec and Xiph.Org's low-latency CELT codec. This feature adds the Opus codec as well as support for transrating, transcoding, and pooled transcoding. Opus can be adjusted seamlessly between high and low bit rates, and transitions internally between linear predictive coding at lower bit rates and transform coding at higher bit rates (as well as a hybrid for a short overlap). Opus has a very low algorithmic delay (26.5 ms by default), which is a necessity for use as part of a low audio latency communication link, which can permit natural conversation, networked music performances, or lip sync at live events. Opus permits trading-off quality or bit rate to achieve an even smaller algorithmic delay, down to 5 ms. Its delay is very low compared to well over 100 ms for popular music formats such as MP3, Ogg Vorbis, and HE-AAC; yet Opus performs very competitively with these formats in terms of quality across bit rates.

Zoom Phone fully support the use of OPUS, but advertises a static value of 40000 for max average bit rate Although the range for maxaveragebitrate is 6000 to 51000, only bit rates of 6000 to 30000 bps are transcodable by the DSP's on the Oracle SBC. A media profile configured with a value for maxaveragebitrate greater than 30000 is not transcodable and cannot be added on egress in the codec-policy element.

The Oracle SBC will however support the entire range of of maxaveragebitrate if negotiated between the parties of each call flow.

# 8. Configuring the Oracle SBC through Config Assistant

When you first log on to the Oracle SBC, the system requires you to set the configuration parameters necessary for basic operation. To help you set the initial configuration with minimal effort, the SBC provides the Configuration Assistant.

The Configuration Assistant, which you can run from the Web GUI or the Acme Command Line Interface (ACLI), asks you questions and uses your answers to set parameters for managing and securing call traffic. You can use the Configuration Assistant for the initial set up to make to the basic configuration. Please check "Configuration Assistant Operations" in the <u>Web GUI User Guide</u> and "Configuration Assistant Workflow and Checklist" in the <u>ACLI Configuration Guide</u>

Please note, applying a configuration to the SBC via the Configuration Assistant will overwrite any existing configuration currently applied to the SBC. We highly recommend this only be used for initial setup of the SBC. This feature is not recommended to be used to make changes to existing configurations.

Configuration package is available starting in release nnSCZ840p7 and nnSCZ900p2.

#### Section Overview and Requirements

This section describes how to use our Configuration Assistant feature as a quick and simple way to configure the Oracle SBC for integration with Genesys PureCloud. We will choose a Generic SIP Trunk on the other Side for Carrier Connectivity. We also have configuration Assistant for Zoom Phone related to Zoom Phone configuration. Please follow the latest Zoom Phone Application Note to get instructions on configuring Zoom Phone via Configuration Assistant Template.

The Application notes can be found at - <u>https://www.oracle.com/technical-resources/documentation/acme-</u>packet.html

The pre-requisites are given below.

- SBC running release SCZ840p7 or later which will have this template package by default added to the SBC code.
- TLS certificate for the SBC preferably in PKCS format, or access to PureCloud supported CA to sign certificate once CSR is generated by the SBC.

The following outline assumes you have established initial access to the SBC via console and completed the following steps:

- Configured boot parameters for management access
- Setup Product
- Set Entitlements
- Configured HTTP-Server to establish access to SBC GUI

### **Initial GUI Access**

The Oracle SBC WebGui can be accessed by entering the following in your web browser. http(s)://<SBC Management IP>.

The username and password are the same as that of the CLI.

If there is no configuration on the SBC, the configuration assistant will show immediately upon login to the SBC GUI as shown below

### PureCloud Configuration Assistant

For a new SBC deployment, once access to the GUI is configured, you will see the following when logging in for the first time:

System Configuration As	14 SC28.4.0 Patch 8 (Build 485)		Dashboard	Configuration	Monitor and Trace	e Widgets Sys	item mation
File Management	Configuration Assistant - Select Deployment				×		
System Operations	Select a PBX Template	Select a SIP Trunk Template			Next >		
	Microsoft ACS	Select PBX Template to list the corresponding SIP Side template					
	Cisco						
	Avaya Session Manager						
	GenericPBX						
	GenesysPureEngage						
	PureCloud						
	Five9						
	Upload a Configuration	Upload a Template Package					
	Drag and Drop + select a file or drop one here.	Drag and Drop Select a file or drop one here.	+				
	Please click below link for additional template packages. https://www.oracle.com/technical-resources/documentation/acme-packet.html			1			

Under PBX template, we'll select PureCloud template. This brings up a list of available sip trunk templates.

	erprise session Border Controller					
SolutionsLab-vSBC-1 10.1.1.4	4 SCZ8.4.0 Patch 8 (Build 485)		Dashboard	Configuration	Monitor and Trace	Widgets System
System Configuration Ass	Configuration Assistant - Select Deployment				×	L Support Information
System Operations	Select a PBX Template	Select a SIP Trunk Template			Next >	
	Microsoft ACS ·	VerizonRetaillpTrunking				
	Cisco	TwilioSIPTrunking				
	Avaya Session Manager	GenericSipTrunk				
	GenericPBX	IntelepeerSipTrunking				
	GenesysPureEngage	ATTIPtrunking				
	PureCloud	BellCanadatrunking				
	PureCloud v [PureCloudDnlygz] Description: PureCloud template nables you to configure and connect your Session Border Controller to Generay PureCloud.	OrangeBTIP				
	Upload a Configuration	Upload a Template Package				
	Drag and Drop +	Drag and Drop Select a file or drop one here.	+			
	Flease click below link for additional template packages.     https://www.oracle.com/technical-resources/documentation/acme-packet.html					

Select a sip trunk template and click Next at the top to access the Notes page. Pay close attention to the information here, as this is a list of warnings, pre-requisites, and recommendations:



7///

Clicking "Next" on the Notes page triggers the configuration assistant to do a system check. This ensures that all of the system requirements for the platform and sip trunk you have selected have been met before proceeding to configuration pages. If they have not been met, you will be greeted by a page providing the opportunity to setup entitlements, add license keys, etc. before moving on to the configuration.

Once all requirements for your selected templates have been satisfied, you can proceed to the configuration pages.

#### Page 1- PureCloud Network

Page 1 of the template is where you will configure the network information to connect to PureCloud Network.

Next to each field is a help icon. If you hover over the icon, you will be provided with a description or definition of each filed. Also, pay close attention to which fields are listed as "required".

													admin 👻
SolutionsLab-vSBC-1 10.11	I.4 SCZ8.4.0 Patch 8 (Build	485)							Dashboard	Configuration	Monitor and Trace	Widgets	System
System Configuration Ass	Configuration Ass	istant - PureCloud	Network								×	🛃 Suppo	ort Information
File Management													
System Operations	< Back	0 —	2			5		- 7		Skip 👌			
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuratio	n			
				Let's config	ure the interface that	communicates v	ith PureCloud						
					Realm Name ®								
					Enter PureCloud Session Agent	hostname here ⑦							
					Enter the PureCloud IP here 🗇	Require					- 1.8		
					Port Number @	*							
						Require							
				:	ilot Number 🗇								
					Slot 0	Ŧ							
						Require							
					vetwork IP Address O						· ·		
		Displaying 1 - 9 of 9											

### Page 2 - Import DigiCert Trusted CA Certificate for PureCloud

Page 2 of this template is where the SBC will import the **DigiCert High Assurance EV Root Cert CA** certificate, which PureCloud uses to sign the certificates it presents to the SBC during the TLS handshake.

OR,	ACLE Ent	erprise Session Borde	r Controller										Û 🔺	admin 🔻
Solutions	iLab-vSBC-1 10.1.1.	4 SCZ8.4.0 Patch 8 (Bu	ild 485)							Dashboard	Configuration	Monitor and Trace	Widgets	System
System	Configuration Ass	Configuration A	ssistant - Root Trus	ted Certificate								×	🛃 Suppo	rt Information
File Mana	gement													
System Op	perations	< Bac	k 🕗	2			5				Next >			
			PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuration	'n			
					Let's start pr	ovisioning the root	trusted certificate	for PureCloud.						
					Do you consent to in Assurance EV Root C	istalling the DigiCert High Cert	⑦ No Yes							
					Certificate: Data: Version: 5(0x2) Serial Number: Data: Data: Data: Data: Certification Certificatio	ndb-40-06-88-06-70-12-ae-46 ms: sha1WishRSAEncryption C eart.com (figh: Assumate EV Root CA by 10 00:00:00 20:06 GMT to 00:00:00 20:01 GMT c eart.com (figh: Assumate EV Root CA stage: critical stage: critical Constraints: critical	25.77 Sign					·		
			Distant 0 at 0											
			Displaying 1 - 9 of 9											

Importing the PureCloud Root CA certs is enabled by default.

### Page 3 - SBC Certificates for PureCloud side

By default, the SBC is set to import a certificate in PKCS12 format. This is the simplest and recommended way to add a certificate to the Oracle SBC. Using this method, you will add the SBC's hostname under "FQDN or

Common Name" field, upload a certificate signed from one of the PureCloud Supported CA Vendors, and enter the certificates password.

ORACLE Ent													
SolutionsLab-vSBC-1 10.1.1.4	4 SCZ8.4.	.0 Patch 8 (Build 4	85)							Dashboard	Configuration	Monitor and Trace	Widgets System
System Configuration Ass	Config	uration Assis	tant - SBC Cortific	rate									🛃 Support Information
File Management	comp	uration Assis	Kant - SBC Certiik	cate									
System Operations		K Back	<b></b>	<b></b>	3	<b>(</b>	(5)	(e)	(7)	(8)	Skip 👌		
			PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuration	n		
					Le	t's start provisioning c	ertificates for the	SBC					
						Certificate provisioning type ③							
						PKCS12	w.						
						Fully Qualified Domain Name or	Common Name 🗇						
						L		0					
							Required						
						(t, Upload EnterpriseCert (	1).p12						
							Required						
						PKCS12 certificate password @							
		D	isplaving 1 - 9 of 9										

#### **Certificate Signing Request (CSR)**

The alternative to importing a PKCS12 certificate to the SBC is to configure a certificate and generate a certificate signing request that you will have signed by a PureCloud supported CA. Same as PKCS12, you will enter the SBC's hostname under "FQDN or Common Name" and "Country" field (required) and answer the remaining question presented on this page (optional).

ORACLE EN													admin 🔻
SolutionsLab-vSBC-1 10.1:	1.4 SC28.4.0 Patch 8 (Build 4								Dashboard	Configuration	Monitor and Trace	Widgets	System
System Configuration As	5										×	🛃 Suppor	rt information
File Management	Configuration Assis	stant - SBC Certifi	cate								×		
r ne nanogenene				•									
System Operations	< Back		<b>v</b>	•		6	0	0	(8)	skip >			
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuratio	n			
				Let	s start provisioning (	certificates for th	e SBC						
				Cert	ificate provisioning type $^{\textcircled{O}}$								
				CSI	R	The second secon							
				Fully	Qualified Domain Name or	Common Name 🔊							
							0						
						Required							
				Cou	ntry O								
				State	0								
				Stati									
				Loca	ality ®								
				Orga	anization <sup>®</sup>								
					•						•		
											_		
	0	Displaying 1 - 9 of 9											

Page 4 – PureCloud side Transcoding

Page 4 is where you will be able to configure transcoding between the SBC and PureCloud.

Once transcoding features is set to "yes", you will then have an option to select additional media codecs you want included in offers/answers toward PureCloud. If you select yes to either question regarding media codecs, you will be presented with a required drop down.

ORACLE Ent													
SolutionsLab-vSBC-1 10.1.1	.4 SCZ8.4.0 Patch 8 (Build	I 485)							Dashboard	Configuration	Monitor and Trace	Widgets	System
System Configuration Ass	Configuration Ass	sistant - Genesys Pi	urecloud Transcoding	;							×	🛃 Supp	oort Informatio
File Management													
System Operations	< Back	<b>_</b>	<b>Ø</b>	<b>e</b>	4	5		- 7	8	Skip 🖒			
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuration				
				Let's co	nfigure transcoding f	or Genesys Pure	cloud side						
				Do you w PureClou	ant to select media codecs (Si d)?	BC to ⑦ No	Yes						
				Select me	edia codecs 🕲								
				6729									
				G722									
				PCMU PCMA									
											_		
											_		
											_		
											_		
		Displaying 1 - 9 of 9											

You can select as many codecs from the list presented.

#### Page 5 – PSTN Sip Trunk Network

Page 5 of the template is where you will configure the network information to connect to PSTN SIP trunk Network. Please fill the required fields and Press Next.

ORA														
SolutionsLa	b-vSBC-1 10.1.1	.4 SCZ8.4.0 Patch	8 (Build 48								Dashboard	Configuration	Monitor and Trace	Widgets
System	Configuration Ass	Configuratio	on Assist	tant - PSTN Netw	vork								×	🛃 Support Inf
File Manager	ment			_		_			_	_	_			
System Oper	rations	<	Back	<b>~</b>	<b></b>	- <b>O</b>	<b></b>		(•)	(7)	(8)	Skip )		
				PureCloud Network	Root Trusted Certificate	SBC Certificat	e Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additiona Configuration	n		
						Let's cor	nfigure the interface tha	t communicates v	with the PSTN					
							Realm Name 🗇						<u> </u>	
									D					
							Port Number ⑦	Required						
							Port 1	Ŧ						
								Required						
							Slot Number @							
								Required						
							Network IP address 🗇							
								Required	<b>D</b>					
							Network IP subnet mask ⑦							
								1.	•				· ·	
		-												
			Dis	splaying 1 - 9 of 9										

#### Page 6 – PSTN Session Agent

Page 6 of the template is where you will configure the PSTN Session Agent details where you will enter the next hop IP address and port for sip signaling to and from your PSTN SIP trunk.

ORACLE Ent	erprise Session Border Co	ntroller										£ ▼	admin 🔻
SolutionsLab-vSBC-1 10.13.	4 SCZ8.4.0 Patch 8 (Build 4								Dashboard	Configuration	Monitor and Trace	Widgets	System
System Configuration Ass	Configuration Assis	tant - PSTN Sess	ion Agent								×	🛃 Supp	ort Information
File Management								1000 March 100					
System Operations	< Back	0	0	0	0	0	0	- 7	8	Skip >			
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuratio	on.			
				Le	t's configure the Sess	ion Agent for P	STN						
				PSTN Ses	sion Agent hostname 🗇								
						Required							
				PSTN Ses	sion Agent IP Address 🕲								
				PSTN Ses	sion Agent Port 🗇								
						Required							
				Does you Hostnam	r service provider have a secon e/IP address for Sip Signailing?	d Ø No (	Yes						
						_			_	_			
	D	isplaying 1 - 9 of 9											

Please fill the required fields and click Next.

#### Page 7 - PSTN side Transcoding

Page 7 is where you will be able to configure transcoding between the SBC and PSTN Trunk.

Once transcoding features is set to "yes", you will then have an option to select additional media codecs you want included in offers/answers towards PSTN trunk. If you select yes to either question regarding media codecs, you will be presented with a required drop down. You can select as many codecs from the list presented.

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SolutionsLab-vSBC-1 10.1.1		luild 485)							Dashboard	Configuration	Monitor and Trace	Widgets Sy
System Configuration Ass	Configuration	Assistant - Transcodir	ıg								×	🛃 Support Info
File Management												
System Operations	К В	ack 🗸	<b>O</b>	<b>•</b>	<b></b>	•	<b></b>	- 7		Next >		
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuratio	in		
					Let's configure	transcoding						
				Do you wa	ant to enable transcoding on	the SBC? @ No 🤇	Yes					
				Do you wa PSTN)?	ant to select media codecs (S	BC to 💿 No	Yes Ves					
				Select me	dia codecs (SBC to PSTN) 🗇							
				G729		_						
				PCMU								
				PCMA								
		Displaying 1 - 9 of 9										

Page 8 – Additional Configuration

Page 8 of this template is where you perform additional optional configuration. Hover over to the ? to know more about each Option.

	erprise Session Border Co	ntroller									🖓 🕶 admin 👻
SolutionsLab-vSBC-1 10.1.1.4	4 SCZ8.4.0 Patch 8 (Build 4	85)							Dashboard Configu	ration Monitor and Trace	Widgets System
System Configuration Ass	Configuration Assis	tant - Additional C	Configuration							×	La Support Information
File Management	1				-						
System Operations	< Back	<b>O</b>	<b>O</b>	0	<b>O</b>	0	0	0	- 3	Review	
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuration		
				Le	ts configure Session	Agent Capabiliti	es				
				Do you war	nt to enable OPTIONS toward	SPSTN? @ No	Yes				
				Do you war PSTN?	nt SBC to handle call transfer	from @ No (	Yes				
				Do you war toward you	nt to enable session translatio r PSTN provider?	n on Ø No 🤇	Yes				
	D	isplaying 1 - 9 of 9									

#### Review

At the end of the template, you will notice in the top right, a "*Review*" tab. If all 8 pages presented across the top are showing green, indicting there are no errors with the information entered, click on the "Review" tab.

ORACLE Ent													admin 🔻
SolutionsLab-vSBC-1 10.11	4 SCZ8.4.0 Patch 8 (Build	485)							Dashboard	Configuration	Monitor and Trace	Widgets	System
System Contiguration Ass	Configuration Ass	istant - Additional (	Configuration								×	🛃 Suppo	rt information
File Management													
System Operations	< Bac		<b></b>	<b></b>	<b></b>	<b></b>	<b></b>	<b></b>	- 8	Review			
		PureCloud Network	Root Trusted Certificate	SBC Certificate	Genesys Purecloud Transcoding	PSTN Network	PSTN Session Agent	Transcoding	Additional Configuration	n			
				Le	ts configure Session	Agent Capabiliti	es				- 1		
				Do you war	nt to enable OPTIONS toward	s PSTN? @ No	Yes						
				Do you war	nt SBC to handle call transfer	from @ No (	Yes						
				PSTN?									
				Do you war toward you	nt to enable session translatio Ir PSTN provider?	n on ⑦ No	Yes						
		Displaying 1 - 9 of 9											

The screen looks like below after clicking the Review Tab. The left side of the review page contains all of the entries added on each page and allows for editing each page individually if necessary.

The right side displays the entire configuration created and when applicable, will also have a CSR tab that contains a certificate that can be signed by a CA authority.

: Session Border Controller 28.4.0 Patch 8 (Build 485)					
28.4.0 Patch 8 (Build 485)					ji ↓ aumin
			Dashboard (	Configuration Monitor and Tra	ce Widgets Syste
figuration Assistant - Summary				×	t 🛃 Support Informa
				Download - Apply	
PureCloud Network           Realm Name         Enter PureCloud See           PureCloud         purecloud.com           Enter the PureCloud IP here         Port 10           Slot Number         Port 0           Slot Number         Network IP subnet mask           Network IP subnet mask         Network Cateway IP           255: 255: 252         14146-36.05           Primary DNS server IP Address         DNS Domain	Ion Agent hodmane here	Certificate-record name certificate-record name certificate-record name state locality locality locality unit comon-name code-policy	Configuration DigiCertHighAssurancetVRoot DigiCertHighAssurancetVRoot California Resource California Resource California Oracle California Oracle California Social California Resource California Oracle California Social California Resource California Social California Resource California Social California Resource California Social Soci	C copy	
Root Trusted Certificate Do you consent to installing the DigiCert High Assurance EV Root t enabled  SRC Certificate  Displaying 1-0 of 9	ert	<pre>https://docs. https://docs. new local-policy incadorss source-reals policy-attribute next-hop rom-address local-policy from-address loc-address</pre>			
	PureCloud Network           Realm Name         Enter PureCloud See           PureCloud         pureCloud com           Enter the PureCloud IP here         Port 0           Stot Number         Network P Address           Stot O         14114-05.065           Primer DKS server IP Address         DHS Domain	PureCloud Network <pre>             Enter PureCloud Session Agent hotname here             PureCloud Development</pre>	PureCloud Network         Readm Name       Enter PureCloud Season Agent hostname here         PureCloud       purecloud.com         Enter the PureCloud       Port 0         Sint Number       Port 0         Sint Number       Port 0         Sint Number       Network P Address         Six Number       Network P Address         Six Number       Network Cateway P Address         Six	PureCloud Network       Image: Configuration         Readm Name       Enter PureCloud Season Agent hostname here       Image: Configuration         PureCloud       purecloud.com       Enter the PureCloud Phere       Purt 1         Bink Number       Network P Address       Diglecr High Assurance PM Isod         Stort Number       Network P Address       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       Diglecr High Assurance PM Isod         Stort Number       Network S Padores       *         Notacle Catificate       *       Notacle Catificate         Root Trusted Cartificate       *       *         Do you consent to Installing the Diglecr High Assurance EV Not Cat       *       *         Notacle Catificate       *       *       *         Policy * attribute       *       *       *         Displaying 1-9 of 9       Displaying 1-9 of 9       *       *	PureCould Network       Edit         Readm Name       Enter PureCould Season Agent hostname here         PureCould De Nee       Durational Configuration         Both Name       Enter PureCould Configuration         Both Name       Network P Address         Stort Namber       Port 0         Stort Name       Port 0         Port O       Configuration         Optic Construction       Optic Configuration         Port O       Configuration         Port Cond Configuration       Optic Configuration         Port Cond Configuration       Optic Configuration         Port Cond Configuration       Optic Configuration         Port Cond Configuration       Port Configurati

On the left side of the review contains the entries for each page. Each page has an "*Edit*" tab that can be used to make changes to the information entered on that specific page without having to go through the entire template again.

On the right side of the review page, under the "*Configuration*" tab is the ACLI output from the SBC. This is the complete configuration of the SBC based on the information entered throughout the template. Also on the right side of the review page you may see another tab, "*CSR*".

On Page 3 of the template, if you chose CSR from the drop-down menu instead of PKCS, the SBC configures a certificate record and generates a certificate signing request for you.

	erprise Session Border Controller							ă 💌	admin 🔻
SolutionsLab-vSBC-1 10.11	4 SC28.4.0 Patch 8 (Build 485)				Dashboard	Configuration	Monitor and Trace	Widgets	System
System Configuration Ass	Configuration Assistant - Sum	mary					×××	🛓 Supp	ort information
File Management									
System Operations						Download v	Apply		
	PureCloud Network Realm Name Enter PureCloud Session Age	Enter PureCloud Session Agent hostname here	/ Edit	Configuration	PureCloudCS	RCSR			
	PureLoad Enter the PureCloud IP here Slot Number Slot 0 Network IP subnet mask 255 255 255 192 Primary DNS server IP Address	pureforual.com Port Number Port D Network IP Address 141146-36-69 Network Casteway IP Address 141146-36-65 DNS Domain		BEGIN CERTIFICATE REQUEST MITLOTCCALECAQAN/LENAGALUEBMOCVMs/CLABBQOM Expected 31-andreming 40° (VOC)4111111111111111111111111111111111111	AgTAL18H9HE(YYVQQH 2F948G21115.4/KGG0h 57/19G2115.4/KG0h 57/19G21290 HIRTERSCAMPACHING HIRTERSCAMPACHI		opy		
	Root Trusted Certificate Do you consert to installing the DigiCertHigh Assurance EV Root Cert enabled		P Edit	79ed7yUSHLS9649028HkoHsmf081LH713yOLBHCBS5 MPC/Nem79LIABBeveYH01gpC7A3kkaggCuc- END CERTIFICATE REQUEST	r JWpBIML3FS48hpqPug				
	SRC Cartificata		· · · · · · · · · · · · · · · · · · ·	·					
	Displaying 1 - 9 of	Ŷ							

Click the copy button under the CSR and paste the output into a text file. Next, provide the txt file to your CA for signature. Once the certificate is signed by the CA, you will need to import that certificate into the SBC manually, either via ACLI or through the GUI.

Note: if you chose to import a certificate in PKCS12 format on page 3, the CSR tab will not be present under review.

### Download and/or Apply

The template provides you with the ability to "Download" the config by clicking the "*Download*" tab on the top right. Next, click the "*Apply*" button on the top right, and you will see the following pop-up box appear.

Now you can click "*Confirm*" to confirm you want to apply the configuration to the SBC. The SBC will reboot. When it comes back up, the SBC will have a basic configuration in place for PureCloudPhone with Generic PSTN Sip Trunk.

#### **Configuration Assistant Access**

Upon initial login, if the Configuration Assistant Template does not immediately appear on the screen, you can access by clicking on the "SYSTEM" tab, top right of your screen. After that, click on the "Configuration Assistant" tab, top left. This allows end users to access the Configuration Assistance at any time through the SBC GUI.

# 9. Test Plan Executed

We have executed the following test plan to validate the interworking between Genesys PureCloud and Twilio SIP Trunk via Oracle SBC.

Test	Description	Pas	Fail
		S	
Outbound Local	Place an outbound call to a local number	YES	
Outbound Long- Distance	Place an outbound call to a long-distance number	YES	
Outbound International	Place an outbound call to an international number (if applicable)	YES	
Outbound Toll- Free	Place an outbound call to a toll-free number	YES	
Inbound	Place an inbound call to the range of numbers pointed to your system	YES	
Hold	Place an outbound call to any number, place call on hold for 1 minute, take call off hold	YES	
Transfer Call	Place a call, transfer the call, ensure both parties connect successfully	YES	
Call Forward	Enable call forward on phone, place call to phone, confirm call forwards successfully	YES	
Conference	Create a conference call with 3 or more people on the same call	YES	
DTMF	Call 1-800-COMCAST, confirm DTMF is received	YES	
Outbound Duration	Place outbound call, keep it connected for 10+ minutes	YES	
Inbound Duration	Place inbound call, keep it connected for 10+ minutes	YES	



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#### Integrated Cloud Applications & Platform Services

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