

Oracle SBC integration with Cisco Broadworks and Webex BYoPSTN

**Technical Application Note** 



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# **Revision History**

Version	Description of Changes	Date Revision Completed
1.0	Oracle SBC integration with Cisco Broadworks and Webex BYoPSTN	27 <sup>th</sup> October 2022
2.0	Added internal review comments	24 th November 2022

## **Table of Contents**

1. INTENDED AUDIENCE	4
2. DOCUMENT OVERVIEW	4
2.1. WEBEX FOR CISCO BROADWORKS SERVICE PROVIDERS BYOPSTN	4
3. INTRODUCTION	5
3.1. AUDIENCE	5
3.2. REQUIREMENTS	5
3.3. Architecture	6
4. CONFIGURING THE SBC	7
4.1. VALIDATED ORACLE SBC VERSION	7
5. NEW SBC CONFIGURATION	
5.1. ESTABLISHING A SERIAL CONNECTION TO THE SBC	
5.2. CONFIGURE SBC USING WEB GUI	
5.3. CONFIGURE SYSTEM-CONFIG	
5.4. Configure Physical Interface values	
5.5. Configure Network Interface values	14
5.6. ENABLE MEDIA MANAGER	16
5.7. ENABLE SIP-CONFIG	
5.8. CONFIGURE REALMS	
5.9. CONFIGURING A CERTIFICATE FOR SBC	
5.10. TLS-PROFILE	
5.11. CONFIGURE SIP INTERFACES.	
5.12. CONFIGURE SESSION-AGENT	
5.15. CONFIGURE LOCAL-POLICY	
5.14. CONFIGURE STEERING-FOOL	
5.16. CONFIGURE MEDIA SECURITY PROFILE	
6. EXISTING SBC CONFIGURATION	

### **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 Cisco Webex Meetings with 3<sup>rd</sup> Party Local Gateway.

### 2. Document Overview

This Oracle technical application note outlines how to configure the Oracle SBC to interwork between PSTN Trunk with Cisco Webex Meetings Solution. The solution contained within this document has been tested using Oracle Communication SBC with software version **OS840p12 (SCZ8.4.0 Patch 12)** 

Please find the related documentation links below:

- 1. Webex for Cisco BroadWorks Solution Guide <u>https://help.webex.com/en-us/article/n0h4eh4/Webex-for-Cisco-BroadWorks-Solution-Guide</u>
- 2. Configure Webex Meetings in Cisco Webex Site Administration <u>https://help.webex.com/en-us/article/6maub2/Configure-Webex-Meetings-in-Cisco-Webex-Site-Administration</u>

### 2.1. Webex for Cisco BroadWorks Service Providers BYoPSTN

The BYoPSTN solution helps customers bring their own phone numbers while using Cisco Webex interconnected with Cisco Broadworks.

#### Configure the SBC FQDN on Webex Meetings

On the Webex Portal ,Go to Settings->BroadWorksCalling->Meeting Join Config. Create a DNS SRV group with DNS SRV record as SBC FQDN. For eg: cloudsbc.cgbusolutionslab.com

Configure test subscribers using the Subscriber API's that map phone number to meeting access codes.

A custom template that maps the Cisco Phone Number Group with the DNS SRV group. A meeting UUID that is generated on Webex using a custom template on Webex Meetings .This UUID is configured on Cisco BroadWorks.

For more information refer here. <u>https://help.webex.com/en-us/article/n0h4eh4/Webex-for-Cisco-BroadWorks-Solution-Guide</u>

Please note that the 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.

### 3. Introduction

### 3.1. Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring BYoPSTN for Cisco BroadWorks Service providers using Oracle Enterprise SBC. There will be steps that require navigating the Oracle SBC GUI interface, understanding the basic concepts of TCP/UDP, IP/Routing, DNS server, SIP/RTP and TLS/SRTP are also necessary to complete the configuration and for troubleshooting, if necessary.

#### 3.2. Requirements

• Fully functioning Cisco Webex Control Hub (Provisioned Webex Control Hub with necessary Webex Meetings licenses/Subscription and also prepared Webex Meetings environment)

http://cs.co/Webex-Calling-Environment

- Oracle Enterprise Session Border Controller (hereafter Oracle SBC) running 8.4.0 version
- Cisco BroadWorks version Rel23

The below revision table explains the versions of the software used for each component: This table is Revision 1 as of now:

Software Used	SBC Version
Revision 1	8.4.0

### 3.3. Architecture



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The configuration, validation and troubleshooting of this document will be configuring the Oracle SBC only. For configuring Cisco Webex for Broadworks and Cisco Webex Meetings please refer the documents listed <u>here</u>

### 4. Configuring the SBC

This chapter provides step-by-step guidance on how to configure Oracle SBC for Cisco Webex Meetings and Cisco Broadworks. In this SBC config, Cisco Webex Meeting (TLS/SRTP) and Cisco Broadworks (UDP or TCP/RTP).

### 4.1. Validated Oracle SBC version

Oracle conducted tests with SBC 8.4 software – this software with the configuration listed below can run on any of the following products:

- AP 1100
- AP 3900
- AP 4600
- AP 6300
- AP 6350
- AP 3950 (Starting from SBC 9.0 version)
- AP 4900 (Starting from SBC 9.0 version)
- VME
- Oracle SBC on Public Cloud

### 5. New SBC configuration

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

#### 5.1. Establishing a serial connection to the SBC

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
Bringing	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 have to be changed according to the rules shown below.



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

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

```
SolutionsLab-vSBC-2(configure)# bootparam
 .' = clear field; '-' = go to previous field; q = quit
Boot File
                         : /boot/nnSCZ900p4.bz
IP Address
VLAN
Netmask
Gateway
IPv6 Address
IPv6 Gateway
Host IP
TP username
                       : vxftp
TP password
Flags<th::0x00000040</th>Target Name: SolutionsLab-vSBC-2Console Device: COM1
Console Baudrate
                       : 115200
Other
NOTE: These changed parameters will not go into effect until reboot.
Also, be aware that some boot parameters may also be changed through
PHY and Network Interface Configurations.
        ERROR
                : space in /boot
                                        (Percent Free: 18)
SolutionsLab-vSBC-2(configure)#
SolutionsLab-vSBC-2(configure)#
```

Note: There is no management IP configured by default.

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

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

SolutionsLab-vSBC-2	# setup product
WARNING: Alteration of produc changes will not be	ct alone or in conjunction with entitlement complete until system reboot
Last Modified 2022-	10-03 07:21:29
1 : Product	: Enterprise Session Border Controller
Enter 1 to modify, (	d' to display, 's' to save, 'q' to exit. [s]: 🗌

Enable the features for the ESBC using the setup entitlements command as shown

Save the changes and reboot the SBC.

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

Go to configure terminal->system->http-server-config. Enable the http-server-config to access the SBC using Web GUI. Save and activate the config.

SolutionsLab-vSBC-2(http-server)# show	
http-server	
name	webserver
state	enabled
realm	
ip-address	
http-state	enabled
http-port	80
HTTP-strict-transport-security-policy	disabled
https-state	disabled
https-port	443
http-interface-list	REST,GUI
http-file-upload-size	0
tls-profile	
auth-profile	
last-modified-by	webHTTP-admin@196.15.23.12:33336
last-modified-date	2022-07-07 17:34:44
SolutionsLab-vSBC-2(http-server)#	
SolutionsLab-vSBC-2(http-server)#	
SolutionsLab-vSBC-2(http-server)#	

### 5.2. 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		Username	
Enterprise Session Border Controller		I	Required
		Password	. togan cu
			Descind
			Kednika
		SIGN IN	

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

Go to Configuration as shown below, to configure the SBC

Note: The screenshots are taken from Release 9.0 of SBC .

ORACLE Enterprise Session Border (	Controller					admin	•
SolutionsLab-vSBC-2 SCZ9.0.0 Patch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets System	n
Dashboard Q RESET							<b>ETS</b>
 Highest task CPU usage (second)		Current memory usage	··· His	torical memory	usage (minute)		
100 80 60 40 20 0 5555660 10 5555660 10 10 10 10 10 10 10 10 10 1	<ul> <li>fcgid01</li> <li>fgTimer</li> <li>sipd01</li> <li>heap</li> <li>sipd</li> </ul>	610%	sante/	3.1260M 3.1255M 3.1255M 3.1245M 3.1245M 3.1245M 3.1225M 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	06:55:00 06:55:00 06:55:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 06:55:00 07:00 00 00 00 00 00 00 00 00 00 00 00 00	<ul> <li>Memory usage (</li> <li>Trend (rate2.71</li> </ul>	
Alarms							

	<b>c</b>							admin —
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch	ession Border Controller 14 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration	View Configuration	Q				Discard	😟 Verify	🖹 Save
media-manager	•	Configuration Objects						
session-router		Name	Description					
		access-control	Configure a static or dynamic access cont	rol list				1
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	n 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					
Show All		http://www. Displaying 1 - 11 of 40	Configure an HTTD center					
Show All		Displaying 1 - 11 of 40						

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

https://docs.oracle.com/en/industries/communications/enterprise-session-bordercontroller/9.0.0/webgui/web-gui-guide.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.

#### 5.3. Configure system-config

Go to system->system-config

ORACLE Enterprise Session Border Controller admin 🗸								
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	tch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	ion Q					Discard	😟 Verify	🖺 Save
host-route	Modify System Config						Show Cor	nfiguration
http-client	Hostname	OracleSBC						
http-server	Description							
network-interface								
ntp-config								
phy-interface	Location							
redundancy-config	Mib System Contact							
snmp-community	Mib System Name							
spl-config	Mib System Location							
system-config	Acp TLS Profile		v					
Show All	ОК	Delete						

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

	Session Border Controller					ad
SolutionsLab-vSBC-2 SCZ9.0.0 Patc	h 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets S
Configuration View Configuration	n Q				Discard	😧 Verify
host-route						Show Config
http-client	Modify System Config					2000 COLUNE
http-server			Add			
network-interface	Options					
ntp-config	Call Trace	enable				
phy-interface	Default Gateway	0.0.0.0				
redundancy-config	Restart	✓ enable				
snmp-community	Telnet Timeout	0	(Range: 065535)			
spl-config	Console Timeout	0	(Range: 065535)			
system-config	HTTP Timeout	5	( Range: 020 )			
trap-receiver	Alarm Threshold					
Show All	ОК	Delete				

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

https://docs.oracle.com/en/industries/communications/enterprise-session-bordercontroller/9.0.0/releasenotes/esbc-release-notes.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.

#### 5.4. Configure Physical Interface values

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

Please configure s0p0 for Cisco Broadworks and s1p0 for Cisco Webex Meetings .

Parameter Name	Cisco Broadworks (s0p0)	Cisco Webex Meetings (s1p0)
Slot	0	1
Port	0	0
Operation Mode	Media	Media

Please configure s0p0 interface as below.

ORACLE Enterprise Se	ession Border Controller						1	admin 👻
SolutionsLab-vSBC-2 SCZ9.0.0 Patch	4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	Q					Discard	Ø Verify	Sav
host-route	Modify Phy Interface							
http-client	Name	s0p0						
http-server	Operation Type	Media	*					
network-interface	Port	0	( Range: 05 )					
ntp-config	Slot	0	( Range: 02 )					
phy-interface	Virtual Mac							
redundancy-config	Admin State	v enable						
snmp-community	Auto Negotiation	v enable						
spl-config	Duplex Mode	FULL	v					
system-config	Speed	100	•					
Show All	ОК	Back						

Please configure s1p0 interface as below

	se Session Border Controller								admin 🔻
SolutionsLab-vSBC-2 SCZ9.0.0 F	Patch 4 (Build 343)				Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configura	ation Q						Discard	Ø Verify	Save
host-route	Modify Phy Interface								
http-client	Name	s1p0							
http-server	Operation Type	Media	Ŧ						
network-interface	Port	0		( Range: 05 )					
ntp-config	Slot	1		( Range: 02 )					
phy-interface	Virtual Mac								
redundancy-config	Admin State	v enable							
snmp-community	Auto Negotiation	✓ enable							
spl-config	Duplex Mode	FULL	*						
system-config	Speed	100	Ŧ						
Show All	o	K Back							

### 5.5. Configure Network Interface values

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

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

Parameter Name	Cisco Broadworks Network Interface(s0p0)	Cisco Webex Meetings Network Interface(s1p0)
Name	s0p0	S1p0
Host Name		
IP Address	155.212.214.90	10.1.3.4
Net Mask	255.255.255.0	255.255.255.0
Gateway	155.212.214.65	10.1.3.1

Please configure network interface s0p0 as below

Similarly, configure network interface s1p0 as below

	ORACLE Enterprise Session Border Controller										
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	ch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets				
Configuration View Configuration	on Q					Discard	😧 Verify				
' host-route	Modify Network Interface										
http-client	Name	s1p0	7								
http-server	Sub Port Id	0	(Range: 04095)								
network-interface	Description										
ntp-config											
phy-interface											
redundancy-config	Hostname										
snmp-community	IP Address	10.1.3.4									
spl-config	Pri Utility Addr										
system-config	Sec Utility Addr										
Show All	ОК Е	Back									

ORACL	ORACLE Enterprise Session Border Controller									
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch	h 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets !			
Configuration	View Configuration	, Q				Discard	😧 Verify			
session-router	•	Modify Network Interface								
system	•	DNC ID Drimory		Add Upload						
fraud-protection			9.9.9.9							
host-route		DNS IP Backup1	8.8.8.8							
		DNS IP Backup2	8.8.4.4							
nup-client		DNS Domain	cgbusolutionslab.com							
http-server		DNS Timeout	11	(Range: 0.,4294967295)						
network-interface	2	DNS Max Ttl	86400	(Range: 302073600)						
ntp-config		Signaling Mtu	0	(Range: 0.5764096)						
phy-interface		HIP IP List								
redundancy-conf	ig	ICMD Addracc								
Show All		ОК Е	Back							

### 5.6. Enable media manager

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

Go to Media-Manager->Media-Manager

ORACL	ORACLE Enterprise Session Border Controller									
SolutionsLab-vSBC-	-2 SCZ9.0.0 Pate	ch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets			
Configuration	View Configuration	on Q				Discard	😧 Verify			
media-manager	•	Modify Media Manager								
codec-policy										
media-manager		State	🖌 enable							
media-policy		Flow Time Limit	86400	(Range: 04294967295)						
roalm config		Initial Guard Timer	300	(Range: 04294967295)						
ream-conig		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							
fraud-protection		Algd Log Level	NOTICE 💌							
host-route		Mbcd Log Level	LIGTOR							
Show All		ОК	Delete							

ORACL	E Enterpris	e Session Border Controller					i
SolutionsLab-vSBC	2 SCZ9.0.0 Pa	atch 4 (Build 343)		Dashboard Co	onfiguration	Monitor and Trace	Widgets
Configuration	View Configura	tion Q				Discard	😧 Verify
media-manager	Ŧ	Modify Media Manager					
codec-policy		Max Signaling Packets	0	(Range: 04294967295)			
media-manager		Max Untrusted Signaling	1	( Range: 0.100 )			
media-policy		Min Untrusted Signaling	1	( Range: 0.100 )			
realm-config		Dos Guard Window	5	( Range: 130 )			
i i i i i i i i i i i i i i i i i i i		Untrusted Minor Threshold	0	(Range: 0.100)			
steering-pool		Untrusted Major Threshold	0	(Range: 0.100)			
security	►	Untrusted Critical Threshold	0	(Range: 0.100)			
session-router	►	Trusted Minor Threshold	0	( Range: 0.100 )			
system	$\overline{\mathbf{v}}$	Trusted Major Threshold	0	(Range: 0.100)			
fraud-protection		Trusted Critical Threshold	0	( Range: 0.100 )			
host route		Arp Minor Threshold	0	( Range: 0.100 )			
Show All		ОК	Delete				

### 5.7. Enable sip-config

SIP config enables SIP handling in the SBC. Make sure the home realm-id, registrar-domain and registrar-host are configured.

Also add the options to the sip-config as shown below. To configure sip-config, Go to Session-Router->sip-config.

In options add max-udp-length =0.

	ORACLE Enterprise Session Border Controller									
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	ch 4 (Build 343)		Dasht	ooard Configuration	Monitor and Trace	Widgets				
Configuration View Configuration	on Q				Discard	🐼 Verify				
1 2										
local-routing-config	Modify SIP Config									
media-profile	State	🖌 enable								
session-agent	Dialog Transparency	🖌 enable								
session-group	Home Realm ID	CiscoWebexRealm	•							
session-recording-group	Egress Realm ID		~							
session-recording-server	Nat Mode	None	<b>v</b>							
session-translation	Registrar Domain	*								
sip-config	Registrar Host	*								
sip-feature	Registrar Port	5060	(Range: 0,102565535)							
sip-interface	Init Timer	500	(Range: 04294967295)							
Show All	ОК	Delete								

	Session Border Controller						a
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	ch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q					Discard	😧 Verify
local-routing-config	Modify SIP Config						
media-profile	Invite Expire	180	( Range: 02147473 )				
session-agent	Session Max Life Limit	0					
session-group	Enforcement Profile	•					
session-recording-group	Red Max Trans	10000	(Range: 050000)				
session-recording-server	Options	max-udp-length=0 🗙					
session-translation	SPL Options						
sip-config	SIP Message Len	4096	(Range: 065535)				
sip-feature	Enum Sag Match	enable					
sip-interface	Extra Method Stats	✓ enable					
Show All	ОК	Delete					

### 5.8. Configure Realms

Navigate to realm-config under media-manager and configure a realm as shown below 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 two realms used in this configuration:

Config Parameter	Cisco Broadworks	Cisco Webex Meetings
Identifier	SIPTrunk	CiscoWebexRealm
Network Interface	S0p0	s1p0
Mm in realm	$\checkmark$	
FQDN		
Media Sec policy	PSTNSide	CiscoWebexSecurity
Access Control Trust Level	High	High

In the below case, Realm name is given as SIPTrunk for Cisco Broadworks

Please set the Access Control Trust Level as high for this realm

ORACL	Enterprise Ses	ssion Border Controller					ā
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch 4	(Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configuration	Q				Discard	😧 Verify
media-manager	•	Modify Realm Config					
codec-policy media-manager		Identifier	SIPTrunk				
media-policy		Description					
realm-config							
steering-pool		Addr Prefix	0.0.0.0				
security	►	Network Interfaces	s0p0:0.4 🗙				
session-router	►	Media Realm List					
System		Mm In Realm	🗸 enable				
		Mm In Network	< enable				
		Mm Same Ip	✓ enable				
Show All		ОК	Back				

ORACL	ORACLE Enterprise Session Border Controller									
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch 4	(Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets S		
Configuration	View Configuration	Q					Discard	😧 Verify		
media-manager	Ŧ	Modify Realm Config								
codec-policy										
media-manager		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)						
cossion router		Maximum Signal Threshold	0	(Range: 04294967295)						
Session-router	P	Untrusted Signal Threshold	0	(Range: 04294967295)						
system	*	Nat Trust Threshold	0	(Range: 065535)						
fraud-protection		Max Endpoints Per Nat	0	(Range: 065535)						
host-route		Nat Invalid Message Threshold	0	(Range: 065535)						
http-client		Wait Time For Invalid Register	0	(Range: 0,4300)						
Show All		OK	Back							

Similarly, Realm name is given as **CiscoWebexRealm** for Cisco Webex Meetings side. Please set the Access Control Trust Level as high for this realm too.

ORACL	Enterprise	e Session Border Controller					а
SolutionsLab-vSBC	-2 SCZ9.0.0 Pa	tch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configurat	ion Q				Discard	😧 Verify
media-manager	•	Modify Realm Config					
codec-policy							
media-manager		Identifier	CiscoWebexRealm				
media-policy		Description					
realm-config							
steering-pool		Addr Prefix	0.0.0.0				
security	►	Network Interfaces	s1p0:0.4 🗙				
session-router	•	Media Realm List					
system	•						
		Mm In Realm	✓ enable				
		Mm In Network					
Show All		OK	Back				

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-border-controller/9.0.0/security/securityguide.pdf

#### 5.9. Configuring a certificate for SBC

This section describes how to configure the SBC for TLS and SRTP communication for Cisco Webex Meetings. Cisco Webex Meetings side allows TLS connections from SBC's for SIP traffic, and SRTP for media traffic. It requires a certificate signed by the trusted Certificate Authorities like Go Daddy Root CA and also IdenTrust Root CA certificate as Cisco Webex has moved to a new Certificate Authority, IdenTrust Commercial Root CA from March 2021.

The links for Identrust certificate is given below:

https://help.Webex.com/en-us/article/WBX9000034330/New-Root-Certificate-Authority-for-Cisco-Webex-Services-from-March-2021

https://help.Webex.com/en-us/article/WBX9000008850/What-Root-Certificate-Authorities-are-Supportedfor-Calls-to-Cisco-Webex-Audio-and-Video-Platforms?

Though the links talks about Identrust certificates used by Cisco VCS and Expressway, we can still Download the Identrust root certificate and can upload it to the Oracle SBC with the steps given below.

The process includes the following steps:

1) Create a certificate-record – "Certificate-record" 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.

- SBC 1 certificate-record assigned to SBC
- Root 1 certificate-record for root cert
- 2) Deploy the SBC and Root certificates on the SBC

#### Step 1 – Creating the certificate record

Go to security->Certificate Record and configure the SBC entity certificate for SBC as shown below.

This value cloudsbc.cgbusolutionslab.com is configured as FQDN of SBC in the Cisco Webex Admin portal, and this will be used by Cisco Webex Meetings side to reach SBC when making calls.

Please note that the FQDN created on the Webex side must be the Common Name (CN) or Subject Alternative Name (SAN) of the certificate. As Cisco does an exact match and do not support wildcard certificates, each domain must be called out in CN or SAN of the certificate for validation.

ORACLE	Enterpri	ise Session Border Controller					а
SolutionsLab-vSBC-2	SCZ9.0.0	Patch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	/iew Configur	ration Q				Discard	😒 Verify
media-manager	►	Modify Certificate Reco	rd				
security	•						
authentication-profi	le	Name	CloudSBCSolLab				
certificate-record		Country	US				
tls-global		State	MA				
tls-profile		Locality	Burlington				
session-router	•	Organization	Engineering				
system	►	Unit	SolutionsLab				
		Common Name	cloudsbc.cgbusolutionslab.com				
		Key Size	2048				
		Alternate Name					
Show All		ОК	Back				

ORACL	E Enterprise	Session Border Controller						ac
SolutionsLab-vSBC	-2 SCZ9.0.0 Pate	:h 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets S
Configuration	View Configuratio	n Q				-	Discard	😧 Verify
media-manager	►	Modify Certificate Record	I					
security	•	Common Name	cloudsbc.cgbusolutionslab.com					
authentication-p	rofile	Key Size	2048	w				
certificate-record		Alternate Name						
tls-global		Trusted	✓ enable					
tls-profile		Key Usage List	digitalSignature 🗙					
session-router	►		keyEncipherment 🗙					
system	►	Extended Key Usage List	serverAuth 🗙 clientAuth 🗙					
		Key Algor	rsa	•				
		Digest Algor	sha256	w				
Show All		ОК	Back					

Create a Certificate record for Identrust Root CA in SBC as below:

ORACL	E Enterprise S	ession Border Controller					Û 🔺
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch	4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configuration	Q				Discard	😧 Verify
media-manager	F	Modify Certificate Record					
authentication-pr	ofile	Name	WebexRootCA				
certificate-record		Country	US				
tls-global		State	MA				
tls-profile		Locality	Burlington				
session-router	►	Organization	Engineering				
system	►	Unit	Cisco Webex Calling				
		Common Name	IdenTrust Root CA certificate				
		Key Size	2048 💌				
		Alternate Name					
		Trusted	🖌 enable				
Show All		OK	Back				

The table below specifies the parameters required for certificate configuration. Modify the configuration according to the certificates in your environment.

Config Parameter	Go Daddy Root	IdenTrust Root
Common Name	Go Daddy class2 Root CA	IdenTrusrt Root CA
Key Size	2048	2048
Key-Usage-List	digitalSignature	digitalSignature
	keyEncipherment	keyEncipherment
Extended Key Usage List	serverAuth	serverAuth
Key algor	rsa	rsa
Digest-algor	Sha256	Sha256

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

(Only required for the SBC's end entity certificate, and not for root CA certs)

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.
- Please copy/paste the text that gets printed on the screen as shown below and upload to your CA server for signature.

Copy the following information and send to a CA authority	
BEGIN CERTIFICATE REQUEST	
MIICvTCCAaUCAQAwRTELMAkGA1UEBhMCVVMxCzAJBgNVBAgTAk1BMR MwEQYDVQQH	
EwpCdXJsaW5ndG9uMRQwEgYDVQQKEwtFbmdpbmVlcmluZzCCASIwDQY JKoZlhvcN	
AQEBBQADggEPADCCAQoCggEBALzMG9rclE8r+f2nK1zIMcTJaLVdh+1WR +vWmKnn	
/nvifp7sKsUvFKX0bAjZU5SA5EpdHfYLC9G7jMz7dKJ0SUC0q6GkcFBKtvhBlf hU	
Js0vaSc3UMlc+jqy9G+2Fsd44mY/KMxPFQnMXECgT7RAyhKLj0zoxqi6dQ5zb vHq	
HGJ2dAPkXqmwBwc2zx101bawk9W/sk2o2gKWl5B6rOw2lCblVyekn7SUEPB C3IPM	
43NP43mvNQWbFffc3oCAzdqgWxvDzhQbvhu76nGJPnCGqxJoHR7dTD6GX wTVRLE1	
gNFOWdLWEh00RCktAltTNeV4KdcGeYrYZlkvJZlHHpT/7mkCAwEAAaAzMD EGCSaG	+

• Also, note that a save/activate is required



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 done, issue save/activate from the WebGUI

Format:	try-all	·····
Import method:	• File O Paste	
Certificate file:		Browse

Repeat these steps to import all the root and intermediate CA certificates into the SBC: At this stage all the required certificates have been imported to the SBC for Cisco Webex Meetings.

#### 5.10. TLS-Profile

A TLS profile configuration on the SBC allows for specific certificates to be assigned. Go to security-> TLS-profile config element and configure the tls-profile as shown below The below is the TLS profile configured for the Cisco Webex Meetings side:

	Session Border Controller						
SolutionsLab-vSBC-2 SCZ9.0.0 Patch	n 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	Q					Discard	😧 Verify
media-manager 🕨	Modify TLS Profile						
security  authentication-profile certificate-record tts-global tts-profile session-router system	Name End Entity Certificate Trusted Ca Certificates Cipher List Verify Depth Mutual Authenticate TLS Version Options	TLSWebex CloudSBCSolLab  CloudSBCSolLab  GoDaddyRootCA × WebexRootCA × GoDaddyIntermediate ×  DEFAULT ×  10  enable tlsv12	(Range: 0.10)				
Show All	ок	Back					

### 5.11. Configure SIP Interfaces

Navigate to sip-interface under session-router and configure the sip-interface as shown below. Please configure the below settings under the sip-interface.

Please Configure sip-interface for the Cisco Webex Meetings side as below:

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

	Session Bo	order Co	ntroller								admin 👻
SolutionsLab-vSBC-2 SCZ9.0.0 Pate	ch 4 (Build 3	43)					Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	on Q								Discare	😧 Verify	🖺 Save
session-group	Modify	/ SIP In	terface							Show Cor	nfiguration
session-recording-group	State			🗸 enabl	le						
session-recording-server	Realm ID			CiscoWe	bexRealm	<b>-</b>					
session-translation	Descripti	on									
sip-config											
sip-feature											
sip-interface	SIP Ports										
sip-manipulation	D:	1	6								
	Action	Select	Address		Port	Transport Protocol	TLS Prof	ile Allow An	onymous M	ulti Home Addr	s
sip-monitoring	:		10.1.3.4		5061	TLS	TLSWebe	ex agents-or	ly		
translation-rules											
Show All			ОКВ	ack							

	Session Border Controller						Û.▲ a
SolutionsLab-vSBC-2 SCZ9.0.0 Pate	ch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q					Discard	😧 Verify
session-group	Modify SIP Interface						Show Confi
session-recording-group							
cossion recording conver							
session-recording-server	Displaying 1 - 1 of 1						
session-translation	Initial Inv Trans Expire	10		(Range: 02147473)			
sip-config	Session Max Life Limit	0					
	Proxy Mode		-				
sip-feature			•				
sip-interface	Redirect Action		•				
sip-manipulation	Nat Traversal	none	•				
sin-monitoring	Nat Interval	30		(Range: 04294967295)			
sip monitoring	TCP Nat Interval	00		( Dange () 1201067205 )			
translation_rules							
Show All	OK	Васк					

	Session Border Controller						i
SolutionsLab-vSBC-2 SCZ9.0.0 Pate	ch 4 (Build 343)			Dashboa	rd Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q					Discard	😧 Verify
session-group	Modify SIP Interface						Show Conf
session-recording-group							
session-recording-server	S8hr Profile		T				
session-translation	Ringback Trigger	none					
sip-config	Ringback File						
sip-feature	Fax Continue Session	none					
sip-interface	Npli Profile		Ŧ				
sip-manipulation	Hist To Div For Cause 380	inherit	•				
sip-monitoring	User Agent	Oracle/VM/9.0.0p4					
translation-rules	Allow Diff2833 Clock Rate Mode	disabled	Ŧ				
Show All	ОК	Back					

We have some mandatory sip-manipulations that needs to be used with the Oracle SBC so that call flow between Cisco Webex and PSTN will be successful. The User can add these sip manipulations to the SBC using either GUI or CLI mode and is free to decide the way they want to add the sip manipulations. Please assign the below sip-manipulation as the out-manipulation ID in the Cisco Webex sip interface or Cisco Webex Session Agent as per customer need.

Please Configure sip-interface for the Cisco Webex Meetings as below

There are 2 sip manipulations to be configured

- 1. RPIHost : To change the SBC FQDN to Webex Meetings FQDN.
- 2. Route Del: To delete the Route header.

	ise Session Border Controller						Û 🔶	admin 🔻
NN3950-101 10.138.194.101 SC	Z9.0.0 Patch 4 (Build 339)		Da	ashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configur	ation Q					Discard	😧 Verify	🕒 Sav
media-prome								
session-agent	Modify SIP Manipu	lation					Show Cor	ifiguration
session-group	Hume	ToCiscoWebex						
8·P	Description							- 1
session-recording-group								- 1
session-recording-server								- 1
session-translation	Split Headers							- 1
sip-config	Join Headers							- 1
sin-feature	John Heuders							- 1
Sip reactive	CfgRules							- 1
sip-interface	Add 💌 🧷	□ □ ↑ ↓						
sip-manipulation	Action Select Name		E	Element Type				
sip-monitoring	: RPIHos		ł	header-rule				
translation-rules								
-	: RouteD	el	ł	header-rule				*
Show All		OK Back						

	Session Border Controller						Û 🔺	admin
NN3950-101 10.138.194.101 SCZ9.0	0.0 Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	Syste
Configuration View Configuration	Q					Discard	😧 Verify	
media-profile								
session-agent	Modify Sip manipulation /	header rule						
session-group	Name	RURI						
session-recording-group	Header Name	Request-URI						
session-recording-server	Action	manipulate						
session-translation	Comparison Type	case-sensitive	v					
sip-config	Msg Type	request	Ŧ					
sip-feature	Methods	INVITE ×						
sip-interface	Match Value							
sip-manipulation	New Value							
sip-monitoring								

				Dashboard	Configuration	Monitor and Trace	W6
IN3950-101 10.138.194.101 SCZ9	.0.0 Patch 4 (Build 339)			Dasiboard	conngulation	Monitor and frace	~~~
View Configuration	on Q					Discard	2
media-prome							
session-agent	Modify Sip manipul	lation / header rule / elem	ent rule				
session-group	Name	RURIaa					
session-recording-group	Parameter Name	Request-URI					
session-recording-server	Туре	uri-host	~				
session-translation	Action	replace	•				
sip-config	Match Val Type	any	•				
sip-feature	Comparison Type	case-sensitive	•				
sip-interface	Match Value	cloudsbc.cgbusolutionsla	b.com				
sip-manipulation	New Value	us01.sipconnect.bcld.Web	ex.com				
sip-monitoring							
translation-rules							

ORACLE Enterprise S	Session Border Controller						Û 🔺	admin 🔻
NN3950-101 10.138.194.101 SCZ9.0.	0 Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	Q					Discard	😧 Verify	Save
media-prome	Modify Sip manipulation /	header rule						
session-agent								<b>^</b>
session-group	Name	RouteDel						
session-recording-group	Header Name	Route						- 11
session-recording-server	Action	delete	Ŧ					- 11
session-translation	Comparison Type	case-sensitive	•					- 11
sip-config	Msg Type	request	*					- 11
sip-feature	Methods	INVITE ×						- 11
sip-interface	Match Value							- 11
sip-manipulation	New Value							
sip-monitoring	CfpRules							
translation-rules								

Similarly, Please Configure sip-interface for the Cisco Broadworks as below:

	sion Borde	r Contro	ller						Û 🗕	admin 👻
SolutionsLab-vSBC-2 SCZ9.0.0 Patch 4	(Build 343)					Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	Q							Discard	😧 Verify	Save
session-agent	Modify	y SIP Interface Show Co								
session-group	State									
session-recording-group	Dute		✓ e	nable						
session-recording-server	Realm ID		SIPT	runk	*					
session-translation	Descripti	on								
sip-config										
sip-feature	SIP Ports									
sip-interface	D:	1	о Ф							
sip-manipulation	Action	Select	Address	Port	Transport Protocol	TLS Profile	Allow And	nymous Mul	ti Home Addr	s
sip-monitoring	:		155.212.214.90	5060	UDP		agents-on	ly		
translation-rules	:		155.212.214.90	5060	ТСР		agents-on	ly		
system										
Show All			OK Back							

Please assign the below sip-manipulation as the out-manipulation ID in the PSTN sip interface. It consists of 2 sip-manipulations

- 1. RPIModify: To replace the Remote-Party-ID user part to the Access code (for the meeting) that is generated as a apart of using Broadworks Subscriber API's on the Webex for a particular phone number and a SRV group.
- 2. RPIHost: To change the host part of uri from private fqdn to the Webex session-agent FQDN.

	e Session Border Controller					Û 🔺	admin 🔫
NN3950-101 10.138.194.101 SCZ9	2.0.0 Patch 4 (Build 339)		Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	on Q				Discard	😟 Verify	🖹 Save
session-agent	Modify SIP Manipulation					Show Cor	nfiguration
session-group	Name	ToBroadworks					<u>^</u>
session-recording-group	Description						
session-recording-server							
session-translation							
sip-config	Split Headers						- 1
sip-feature	Join Headers						- 81
sip-interface	CfgRules						
sip-manipulation	Add 💌 🧷 🗅	$farger \uparrow \downarrow$					
sip-monitoring	Action Select Name		Element Ty	pe			
translation-rules	: RPIModify		header-rule				-
. •							

	rise Session Border Controller						Û 🔺	
NN3950-101 10.138.194.101 S	CZ9.0.0 Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	System
View Configu	uration Q					Discard	😧 Verify	🖹 Sav
accession agent	Modify SIP Manipul	ation					Show Co	nfiguration
session-agent								
session-group								
session-recording-group	Split Headers							
session-recording-server								
session-translation	Join Headers							
sip-config	CfgRules							
sip-feature	Add 💌 🧷	□						
sip-interface	Action Select Name			Element Type	e			
sip-manipulation	: RPIMod	lify		header-rule				
sin-monitoring								
translation-rules	E RPIHost			header-rule				
translation-rules	ise Session Border Controller			header-rule	Configuration	Monitor and Trace	Û ▲	admin
translation-rules  DRACLE Enterpr N3950-101 10.138.194.101 SC:  Infiguration View Configure	ise Session Border Controller 29.0.0 Patch 4 (Build 339)			header-rule Dashboard	Configuration	Monitor and Trace	<ul> <li>↓</li> <li>Widgets</li> <li>♦ Verify</li> </ul>	admin Syste
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q			header-rule	Configuration	Monitor and Trace	Q ▼ Widgets	admin Syste
translation-rules  DRACLE Enterpr V3950-101 10.138.194.101 SC: figuration View Configure session-agent	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula	ation / header rule		header-rule	Configuration	Monitor and Trace Discard	<ul> <li>↓</li> <li>Widgets</li> <li>Ø Verify</li> </ul>	admin Syste
translation-rules DRACLE Enterpr 13950-101 10.138.194.101 SCC figuration View Configure wession-agent session-agent session-agroup	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name	ation / header rule		header-rule	Configuration	Monitor and Trace Discard	Q ▼ Widgets	admin Syste
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name Header Name	ation / header rule RPIModify Remote-Party-ID		Dashboard	Configuration	Monitor and Trace Discard	Q ▼ Widgets	admin Syster
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name Header Name Action	ation / header rule RPIModify Remote-Party-ID manipulate	•	Dashboard	Configuration	Monitor and Trace Discard	Q ▼ Widgets & Verify	admin System
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name Header Name Action Comparison Type	ation / header rule RPIModify Remote-Party-ID manipulate case-sensitive	▼ ▼	Dashboard	Configuration	Monitor and Trace Discard	Q ▼ Widgets	admin System
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name Header Name Action Comparison Type Msg Type	ation / header rule RPIModify Remote-Party-ID manipulate case-sensitive request	▼ ▼ ▼	Dashboard	Configuration	Monitor and Trace Discard	Q ▼ Widgets ⊘ Verify	admin Syster
translation-rules DRACLE Enterpr N3950-101 10.138.194.101 SCC ffguration View Configura Session-agent session-agent session-recording-group session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server session-recording-server	RPIHost      Reversion Border Controller      Z9.0.0 Patch 4 (Build 339)      ation     Q      Modify Sip manipula      Name      Header Name      Action      Comparison Type      Msg Type      Methods	ation / header rule RPIModify Remote-Party-ID manipulate case-sensitive request	▼ ▼ ▼	Dashboard	Configuration	Monitor and Trace Discard	Q ▼ Widgets ⊘ Verify	admin Syster
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula Name Header Name Action Comparison Type Msg Type Methods Match Value	ation / header rule RPIModify Remote-Party-ID manipulate case-sensitive request	▼ ▼ ▼	Dashboard	Configuration	Monitor and Trace Discard	只     ▼       Widgets     ②       Q     Verify	admin Syster
translation-rules DRACLE Enterpr NS950-101 10.158.194.101 SCI Infiguration View Configuration Session-agent session-group session-recording-group session-translation sip-config sip-feature sip-interface sip-manipulation	RPIHost      Reversion Border Controller      Z9.0.0 Patch 4 (Build 339)      ation     Q      Modify Sip manipula      Name      Header Name      Action      Comparison Type      Msg Type      Methods      Match Value      New Value	ation / header rule          RPIModify         Remote-Party-ID         manipulate         case-sensitive         request	▼ ▼	Dashboard	Configuration	Monitor and Trace Discard	⊖ ▼ Widgets	admin Syster
translation-rules	ise Session Border Controller 29.0.0 Patch 4 (Build 339) ation Q Modify Sip manipula rvame Header Name Action Comparison Type Msg Type Methods Match Value New Value CfgRules	ation / header rule RPIModify Remote-Party-ID manipulate case-sensitive request		Dashboard	Configuration	Monitor and Trace Discard	↓     ▼       Widgets        ② Verify	admin Syster

ORACLE Enterprise Se	ession Border Controller						Û 🗕	adm
NN3950-101 10.138.194.101 SCZ9.0.0	Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	Sy
Configuration View Configuration	Q					Discard	😧 Verify	
session-agent	Modify Sip manipulation /	header rule / element	rule					
session-group	Name	RPIModify						
session-recording-group	Parameter Name	Remote-Party-ID						
session-recording-server	Туре	uri-user	Ŧ					
session-translation	Action	replace	Ŧ					
sip-config	Match Val Type	any						
sip-feature	Comparison Type	case-sensitive						
sip-interface	Match Value							
sip-manipulation	New Value	9958 3983932217342401						
sip-monitoring								
translation-rules								
ek AB	OK B	lack						

	Session Border Controller						Û 🗕	admin 🔫
NN3950-101 10.138.194.101 SCZ9.0.	0 Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	Q					Discard	😧 Verify	🖹 Save
session-agent	Modify Sip manipulation /	header rule						
session-group	Name	RPIHost						Â
session-recording-group	Header Name	Remote-Party-ID						- 1
session-recording-server	Action	manipulate	•					- 1
session-translation	Comparison Type	case-sensitive	•		•			- 1
sip-config	Msg Type	request	•					- 1
sip-feature	Methods							
sip-interface	Match Value							
sip-manipulation	New Value							
sip-monitoring	CfgRules							
translation-rules	Add 🔻 🧷 🗋	i ↑ ↓						*
Show All	OK	Back						

	ise Session Border Controller						Û 🔺	admin
NN3950-101 10.138.194.101 SC	Z9.0.0 Patch 4 (Build 339)			Dashboard	Configuration	Monitor and Trace	Widgets	Systen
Configuration View Configura	ation Q					Discard	😧 Verify	🕒 s
session-agent	Modify Sip manipul	ation / header rule / elem	ent rule					
session-group	Name	RPIModify						
session-recording-group	Parameter Name	Remote-Party-ID						
session-recording-server	Туре	uri-host	~					
session-translation	Action	replace	v					
sip-config	Match Val Type	any	▼					
sip-feature	Comparison Type	case-sensitive	<b>•</b>					
sip-interface	Match Value	us01.prv.bcld.Webex.com						
sip-manipulation	New Value	us01.sipconnect.bcld.Web	bex.com					
sip-monitoring								
translation-rules								

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

#### 5.12. 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.

Go to session-router->Session-Agent and Configure the session-agents for the Cisco Webex Meetings

- Host name to "us01.sipconnect.bcld.Webex.com", which is SRV based SA.
- When Using SRV as session agent, please make **port as 0** so that SRV will work properly.
- realm-id needs to match the realm created for the Cisco Webex Meetings.
- transport set to "staticTLS"
- Please enable the parameters **ping all addresses, ping-response**,
- Please enable hidden option load-balance-dns-query and recurse-on-all-

#### failures and set out-service-response-codes parameter to 408,503

- Please set ping method to OPTIONS and ping-interval duration in secs.

	ise Session Border Controller					
SolutionsLab-vSBC-2 SCZ9.0.0	Patch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configu	ration Q				Discard	😧 Verify
local-policy	Modify Session Agent					Show Cont
local-routing-config						
media-profile	Hostname	us01.sipconnect.bcld.webex.com				
session-agent	IP Address					
session-group	Port	0	(Range: 0,102565535)			
session-recording-group	State	✓ enable				
	App Protocol	SIP	·			
session-recording-server	Арр Туре					
session-translation	Transport Mathad					
sip-config	Transport Method	StaticTLS	r			
sin fanture	Realm ID	CiscoWebexRealm	7			
sip-reature	Egress Realm ID		,			
sip-interface						
Show All	OK	Back				

	Session Border Controller					<u>⊢</u> – a
SolutionsLab-vSBC-2 SCZ9.0.0 Pate	ch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q				Discard	😧 Verify
local-policy	Modify Session Agent					Show Confi
local-routing-config	Ding Interval					
media-profile	Ping Interval	30	(Range: 04294967295)			
session agent	Ping Send Mode	keep-alive 💌				
Session-agent	Ping All Addresses	✓ enable				
session-group	Ping In Service Response Codes					
session-recording-group	Options					
session-recording-server		recurse-on-all-failures 🗙				
corrigon translation	SPL Options					
Session-mansiation	Media Profiles					
sip-config						
sip-feature	In Translationid					
Show All	ОК	Back				

Add the auth-attributes (username and password )as configured on Cisco Broadworks Authentication config.This config is only on the Webex Meetings session-agent.

Configuration	View Configuration	Q						Discard	🐼 Verify 🖺 Save
media-manager	•	Modify	/ Sessi	on Agent					Show Configuration
security	•	Preceden		•					
session-router	Ŧ	Monitorin	ng Filters						
access-control		Auth Attri	ibute						
account-config		D:	0 G	ù 🗇					
filter-config		Action	Select	Auth Realm	Username	Password		In Dialog Methods	
ldap-config	- 84	:		oraclesbc.com	vmvoicexml	******		INVITE	
local-policy									
local-routing-cor	fig								
media-profile									
session-agent									

Similarly, configure the session-agents for the Cisco Broadworks as below:

Configure the hostname as the FQDN and IP Address as IP of Cisco Broadworks as shown below. Protocol should be UDP+TCP.

	e Session Border Controller						•	admin 🔻
VMESBC1 10.138.194.185 SCZ8.4	.0 Patch 13 (WS Build 649)			Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration	ion Q					Discard	😧 Verify	🖹 Save
media-manager	Modify Session Agent						Show Cor	nfiguration
security								
session-router 🔻	Hostname	broadworks.bcld.Webex.com						
access-control	IP Address	68.68.117.67						
account-config	Port	5060	(Range: 0,102565535)					
filter-config	State	✓ enable						
lden config	App Protocol	SIP	r					
luap-coning	Арр Туре		,					
local-policy	Transport Method							
local-routing-config	Transport Method	UDP+TCP	*					
media-profile	Realm ID	PSTNRealm	7					
	Egress Realm ID		r					
session-agent	Description							
session-group								*
Show All	OK E	lack						

	e Session Border Controller					â
SolutionsLab-vSBC-2 SCZ9.0.0 Pa	atch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configurat	tion Q			-	Discard	😟 Verify
local-policy	Modify Session Agent					Show Conf
local-routing-config			Y			
media-profile	Redirect Action		•			
session-agent	Loose Routing	🗹 enable				
session-group	Response Map		v			
session-recording-group	Ping Method	OPTIONS				
session-recording-server	Ping Interval	30	(Range: 04294967295)			
session-translation	Ping Send Mode	keep-alive	•			
sip-config	Ping All Addresses	🗸 enable				
	Ping In Service Response Codes					
sip-teature	Options					
sip-interface 🔹						
Show All	OK	Back				

### 5.13. Configure local-policy

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

To route the calls from Cisco Webex Meetings to Cisco Broadworks, Use the below local –policy

	Session Border Controller					Û 🔸
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	tch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q				Discard	😧 Verify
local-policy	Modify Local Policy					
local-routing-config						
media-profile	From Address	* ×				
session-agent	To Address	*×				
session-group	Source Realm	CiscoWebexRealm 🗙				
session-recording-group	Description					
session-recording-server						
session-translation						
sip-config	State	✓ enable				
sip-feature	Policy Priority	none 💌				
sip-interface Show All	ОК	Back				

NN3950-101 10.138.194.101 SCZ9.0.0 Configuration View Configuration media-manager security session-router View Configuration	Patch 4 (Build 339) Q Modify Local Po	olicy	* X				Dashboard	Configuration	Monitor and Trace	Widgets	System
Configuration View Configuration media-manager security session-router	Q Modify Local Po	olicy	* ×						Discard	😧 Verify	🖹 Save
media-manager	Modify Local Po	olicy	۰x								
security	Source Realm		* X								
session-router 🗸	Source Realm										-
	Source Reality		CiscoWebex	Realm 🗙							
access-control	Description										- 1
account-config	Description										- 1
filter-config											- 1
ldap-config	State		<ul> <li>enable</li> </ul>								- 1
local-policy	Policy Priority		none		T						- 1
	Policy Attributor										
local-routing-config											
media-profile											
session-agent	Action Select Ne	ext Hop	Realm	Action	Terminate R	Cost	State	App Protocol	Lookup N	ext Key	Auth
	: Dr	roadworks	SIPTrunk	none	disabled	0	enabled		single		

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To route the calls from the Cisco Broadworks to Cisco Webex Meetings , Use the below local-policy

	Session Border Controller					Ģ <b>→</b> a
SolutionsLab-vSBC-2 SCZ9.0.0 Pat	tch 4 (Build 343)		Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View Configuration	on Q				Discard	😧 Verify
local-policy	Modify Local Policy					
local-routing-config						
media-profile	From Address	* ×				
session-agent	To Address	* ×				
session-group	Source Realm	SIPTrunk 🗙				
session-recording-group	Description					
session-recording-server						
session-translation						
sip-config	State	✓ enable				
sip-feature	Policy Priority	none 🔻				
sip-interface	ОК	Back				

ORACL	Ent	terprise S	ession Bo	rder Co	ntroller								Û 🗸	admin 🔫
NN3950-101 10.1	38.194.101	SCZ9.0.0	) Patch 4 (E	Build 339	)					Dashboard	Configuration	Monitor and Tra	ce Widgets	System
Configuration	View Con	nfiguration	Q									Disca	rd 😟 Verify	🖹 Save
media-manager	Þ	*	Modify	Local	Policy									
security	►					SIPTrunk 🗶	I							•
session-router	$\overline{\mathbf{v}}$		Descriptio	n										
access-control														- 1
account-config														- 1
filter-config			State			🖌 enable								- 1
Idap-config			Policy Price	ority		none		v						- 1
local-policy			Policy Attr	ributes										
	6		Ľ;	/	ā 🖞									- 1
local-routing-col	nng		Action	Select	Next Hop	Realm	Action	Terminate R	Cost	State	App Protocol	Lookup	Next Key	Auth
media-profile			:		us01.sipconn	CiscoWebex	none	disabled	0	enabled		single		
session-agent														
session-group		-												-

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### 5.14. Configure steering-pool

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

Cisco Webex Meetings steering pool.

ORACL	Enterprise	Session Border Controller						i
SolutionsLab-vSBC	C-2 SCZ9.0.0 Pat	ch 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configurati	on Q					Discard	😧 Verify
media-manager	•	Modify Steering Pool						
media-manager		IP Address	10.1.3.4					
media-policy		Start Port	10000	(Range: 0,165535)				
realm-config		End Port	20000	(Range: 0,165535)				
steering-pool		Realifitio	CiscoWebexRealm 🔻					
		Network Interface	•					
security	•							
session-router	►							
system	•							
Show All		ОКВ	ack					

Cisco Broadworks steering pool.

	_							
ORACL	E Enterprise S	Session Border Controller						ē
SolutionsLab-vSBC	-2 SCZ9.0.0 Patc	h 4 (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configuration	n Q					Discard	😧 Verify
media-manager	▼	Modify Steering Pool						
codec-policy								
media-manager		IP Address	155.212.214.90					
media-policy		Start Port	10000	(Range: 0,165535)				
realm config		End Port	20000	(Range: 0,165535)				
Tealini-coning		Realm ID	SIPTrunk	*				
steering-pool		Network Interface						
security	•							
session-router	Þ							
system	•							
Show All		ОКВ	lack					

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## 5.15. Configure sdes profile

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

	ession Border Controller					Û 🔺	admin 🔫
NN4600-139 10.138.194.139 SCZ9.0.	0 Patch 5 (Build 385)		Dashboard	Configuration	Monitor and Trace	Widgets	System
View Configuration	Q				Discard	😧 Verify	B Save
authentication	Modify Sdes Profile						
authentication-profile							
cert-status-profile	Name	SDES					
certificate-record	Crypto List	AES_CM_128_HMAC_SHA1_32 ×					
factory-accounts		AES_CM_128_HMAC_SHA1_80 🗙					
ike 🕨	Srtp Auth	🗸 enable					- 1
ipsec	Srtp Encrypt	✓ enable					- 1
local-accounts	SrTCP Encrypt	🖌 enable					- 1
media-security 👻	Mki	enable					- 1
dtls-srtp-profile	Egress Offer Format	same-as-ingress 🔻					
media-sec-policy	Use Ingress Session Params						
sdes-profile	Options						•

### 5.16. Configure Media Security Profile

Please go to  $\rightarrow$ Security  $\rightarrow$  Media Security  $\rightarrow$ media Sec policy and create the policy as below: Create Media Sec policy with name CiscoWebexSecurity which will have the sdes profile created above. Assign this media policy to the Cisco Webex Realm

	Enterprise Se	ssion Border Controller						a
SolutionsLab-vSBC-2 SC	CZ9.0.0 Patch 4	l (Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration View	Configuration	Q					Discard	😧 Verify
certificate-record								
factory-accounts		Modify Media Sec Policy						
ike	•	Name	CiscoWebexSecurity					
local-accounts		Pass Through	enable					
media-security	Ψ.	Options						
dtls-srtp-profile								
media-sec-policy		Inbound						
media-sec-poincy		Profile	CiscoSRTP 👻					
sdes-profile		Mode	srtp	v				
sipura-profile		Protocol	sdes	<b>v</b>				
password-policy		Hide Egress Media Update	enable					
security-config		Outbound						
ssh-config		Profile	CiscoSRTP 👻					
cch_kou								
Show All		OK	ack					

Similarly, Create Media Sec policy with name PSTNSide to convert srtp to rtp for the Cisco Broadworks which

will use only TCP/UDP as transport protocol. Assign this media policy to the PSTN Realm.

ORACL	E Enterprise Ses	ssion Border Controller						a
SolutionsLab-vSBC	-2 SCZ9.0.0 Patch 4	(Build 343)			Dashboard	Configuration	Monitor and Trace	Widgets
Configuration	View Configuration	Q					Discard	😧 Verify
certificate-record								
factory-accounts		Modify Media Sec Policy						
ike	<b>&gt;</b>	Name	PSTNSide					
local-accounts		Pass Through	enable					
media-security	Ŧ	Options						
dtls-srtp-profil	?							
media-sec-pol	cy							
sdes-profile		Mode	v					
sipura-profile		Protocol	np	<b>*</b>				
password-policy		Hide Egress Media Update	enable					
security-config		Outbound						
ssh-config		Profile	v					
Show All		ОК В	łack					

## 6. Existing SBC configuration

If the SBC being used is an existing SBC with functional configuration, following configuration elements are required:

- New realm-config
- Configuring a certificate for SBC Interface
- TLS-Profile
- <u>New sip-interface</u>
- New session-agent
- New steering-pools
- New local-policy
- SDES Profile
- Media-sec-Policy



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