



ORACLE

Oracle SBC with NICE Systems
Recorder with Zoom and Genesys
Environment

Technical Application Note

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COMMUNICATIONS

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Revision History

Version	Description of Changes	Date Revision Completed
1.0	Oracle SBC with NICE Systems Recorder with Zoom and Genesys Environment	31 st August 2020
1.1	App note updated with minor changes (Removed Caveat section as the bug fix is working now)	31 st March 2021



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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 Nice Recording Server Environment.

2. Document Overview

This document is intended for use as a guide for a successful integration of both NICE Systems Recorder and Oracle Communications Session Border Controller. It outlines the architecture design, Oracle SBC configuration, as well as test cases executed as part of the interoperability testing.

This document is divided into two sections where the first section covers the interop testing of Oracle SBC with Nice recorder in Zoom Environment and the second section covers the interop testing of Oracle SBC with Nice recorder in Genesys Environment. In both these scenarios, Teams side is used as common side to call zoom and Genesys and the calls are recorded using Nice Recorder.

The SBC supports the SIP Recording (SIPREC) standard as per RFC 6341 which is used for recording the call and sending the recorded stream to the NICE recorders. The SIPREC protocol is the protocol used to interact between a Session Recording Client (SRC - the role performed by Oracle SBC) and a Session Recording Server (SRS- Nice recorder).

NICE Interaction Management can record multiple media— digital and analog—in TDM, voice over IP (VoIP), session initiation protocol (SIP)-based and hybrid environments. The Nice Interactions Center receives the call status, monitors call events, and stores them in its databases for other system functions such as queries, reports, etc. and uses them when interaction-based recordings are implemented to determine whether to record a call.

The below components are part of Nice Recording solution:

NICE VoIP Logger: A Logger was setup for Active Recording and is used in an Active VoIP Recording environment. The NICE VoIP recording solution enables customers to effectively capture, evaluate, analyze and improve multimedia interactions taking place on an IP network. Once the VoIP audio is recorded, it can be saved, archived, queried, and played back as easily as analog or digital recorded audio.

Voice Recording SIP Proxy (VRSP): The VRSP functions as a SIP Proxy. It is used to set up SIP-based calls between the SBC and the NICE VoIP Logger. It is recommended to deploy VRSP redundancy in order to guarantee recording.

Please note that the IP address, FQDN, config name and its details given in this document is used as reference purpose only. The same details cannot be used in customer config and the end users 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. The customers can configure any publicly routable IPs for these sections as per their network architecture needs.

3. Introduction

3.1. Audience

This is a technical document intended for telecommunications engineers with the purpose of configuring Oracle SBC to interop with the NICE Recorder, Zoom Server and Genesys Server for this testing. There will be steps that require navigating Oracle SBC GUI interface, understanding the basic concepts of TCP/UDP, IP/Routing, DNS server and SIP/RTP are also necessary to complete the configuration and for troubleshooting, if necessary.

3.2. Requirements

- Fully functioning Nice Recording Server.
- Oracle Enterprise Session Border Controller (hereafter Oracle SBC) running 8.3.0 version
- Genesys SIP server
- Zoom admin portal and client.

The below revision table explains the versions of the software used for each component:

This table is Revision 1 as of now:

Oracle SBC with Nice Recorder in Zoom Environment:

Software Used	Nice Version	SBC Version	Zoom Client version
Revision 1	6.15	8.3.0	5.2.0

Oracle SBC with Nice Recorder in Genesys Environment:

Software Used	Nice Version	SBC Version	Genesys SIP Server
Revision 1	6.15	8.3.0	8.1

In Scope:

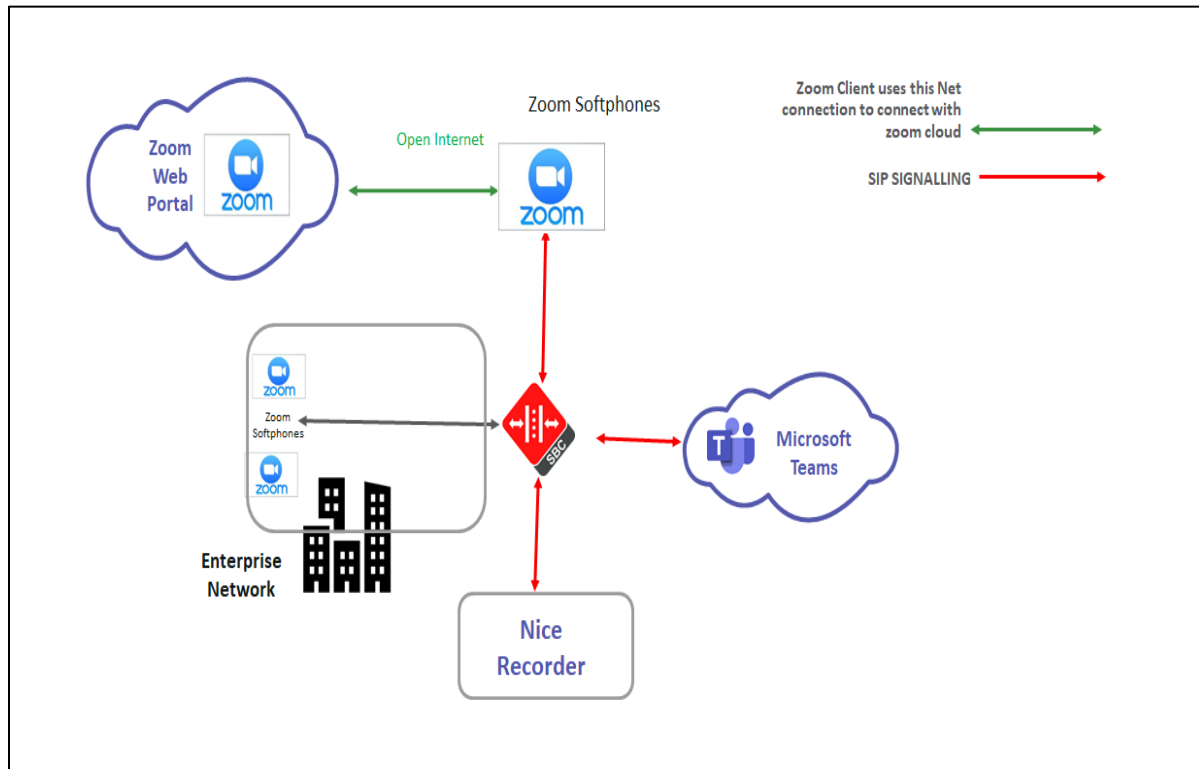
The following step-by-step guide configuring the Oracle SBC focus on the testing performed between Oracle SBC and Nice Recorder. The test cases focuses on recordings done with Zoom server and Genesys SIP server using Nice recorder.

Out of Scope:

- Configuration of Network management including SNMP and RADIUS
- Complete configuration of the Zoom side, Teams Side, Genesys Server side and the NICE recorder.

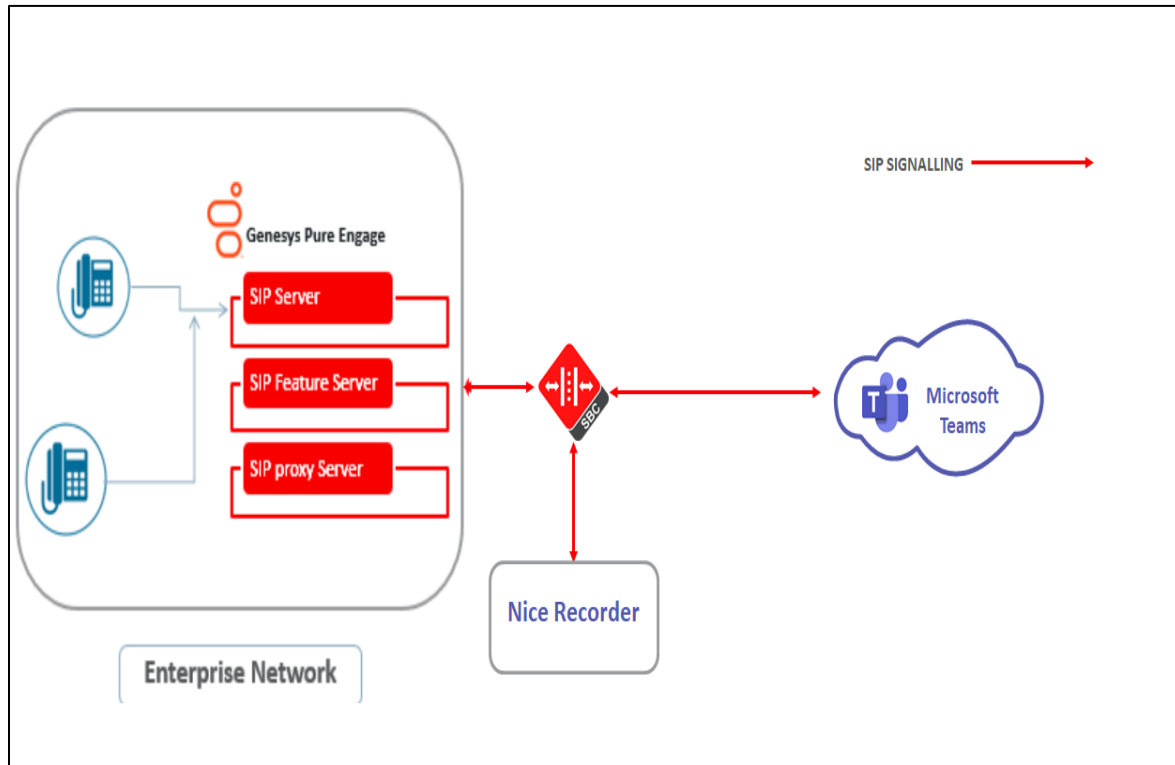
4. Configuring Oracle SBC with NICE Recorder for Zoom and Genesys Environment

4.1. Network Architecture for Zoom Side



As shown in the network diagram, the Oracle SBC is connected as an edge component in Zoom environment. For the purpose of this interop testing, the calls are made from Teams side to Zoom side and vice versa through the Oracle Communications SBC. The recording will be made in Zoom side and will be verified as part of this testing.

4.2. Network Architecture for Genesys Side



As shown in the network diagram, the SBC is connected as an edge component in a Genesys enterprise environment. The core side of the Enterprise consists of Genesys SIP server and two phones registered to it. For the purpose of this interop testing, the calls are made from Teams side to the Genesys side and vice versa through the Oracle Communications SBC. The recording will be made in Genesys side and will be verified as part of this testing.

The calls are recorded by a NICE recorder which is added to the SBC configuration using session-recording-server and session- recording-group. The session recorders are defined in the session-recording-group. Another field with reference to call recording in the realm-config is the session-recording-required. If session-recording-required = enabled, then the calls between the two parties will not go through unless the session recorder is ready and available to record. As a pre-requisite, we also configure SBC to send OPTIONS to Nice Server and it should be responded by the NICE recorder.

4.3. Validated Oracle SBC version

Oracle conducted tests with Oracle SBC 8.3 software – this software with the configuration listed below can run on any of the following products:

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

4.4. New SBC Configuration

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

4.5. 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

```
Starting tLemd...
Starting tServiceHealth...
Starting tCollect...
Starting tAtcpd...
Starting tAsctpd...
Starting tMbcd...
Starting tCommMonitor...
Starting tFped...
Starting tAlgd...
Starting tRadd...
Starting tEbmd...
Starting tSipd...
Starting tH323d...
Starting tIPTd...
Starting tSecured...
Starting tAuthd...
Starting tCertd...
Starting tIked...
Starting tTscfd...
Starting tAppWeb...
Starting tauditd...
Starting tauditpusher...
Starting tSnmpd...
Starting tIFMIBd...
Start platform alarm...
Starting display manager...
Initializing /opt/ Cleaner
Starting tLogCleaner task
Bringing up shell...
password secure mode is enabled
Admin Security is disabled
Starting SSH...
SSH Cli init: allocated memory for 5 connections
```

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

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.

```
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 :
%   - lower case alpha
%   - upper case alpha
%   - numerals
%   - punctuation
%
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. Go to Configure terminal->bootparam.

Note: There is no management IP configured by default.

```
NN3900-101# conf t
NN3900-101(configure)# bootparam

'.' = clear field; '-' = go to previous field; q = quit

Boot File           : /boot/nnSCZ830mlp2.bz
IP Address          : 172.18.255.101
VLAN                : 0
Netmask             : 255.255.0.0
Gateway             : 172.18.0.1
IPv6 Address        :
IPv6 Gateway        :
Host IP             :
FTP username        : vxftp
FTP password        : vxftp
Flags               :
Target Name         : NN3900-101
Console 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: 20)

NN3900-101(configure)# █
```

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

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

```
NN3900-101# setup product
-----
WARNING:
Alteration of product alone or in conjunction with entitlement
changes will not be complete until system reboot

Last Modified 2019-06-04 11:51:56
-----
 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.

```
Entitlements for Enterprise Session Border Controller
Last Modified: Never
-----
 1 : Session Capacity          : 0
 2 :   Advanced                :
 3 : Admin Security            :
 4 : Data Integrity (FIPS 140-2) :
 5 : Transcode Codec AMR Capacity : 0
 6 : Transcode Codec AMRWB Capacity : 0
 7 : Transcode Codec EVRC Capacity : 0
 8 : Transcode Codec EVRCB Capacity : 0
 9 : Transcode Codec EVS Capacity : 0
10 : Transcode Codec OPUS Capacity : 0
11 : Transcode Codec SILK Capacity : 0

Enter 1 - 11 to modify, d' to display, 's' to save, 'q' to exit. [s]: 1
  Session Capacity (0-128000)          : 500

Enter 1 - 11 to modify, d' to display, 's' to save, 'q' to exit. [s]: 3
*****
CAUTION: Enabling this feature activates enhanced security
functions. Once saved, security cannot be reverted without
resetting the system back to factory default state.
*****
  Admin 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)           : enabled

Enter 1 - 11 to modify, d' to display, 's' to save, 'q' to exit. [s]: 10
  Transcode Codec OPUS Capacity (0-102375) : 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.

Go to configure terminal->system->web-server-config.

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

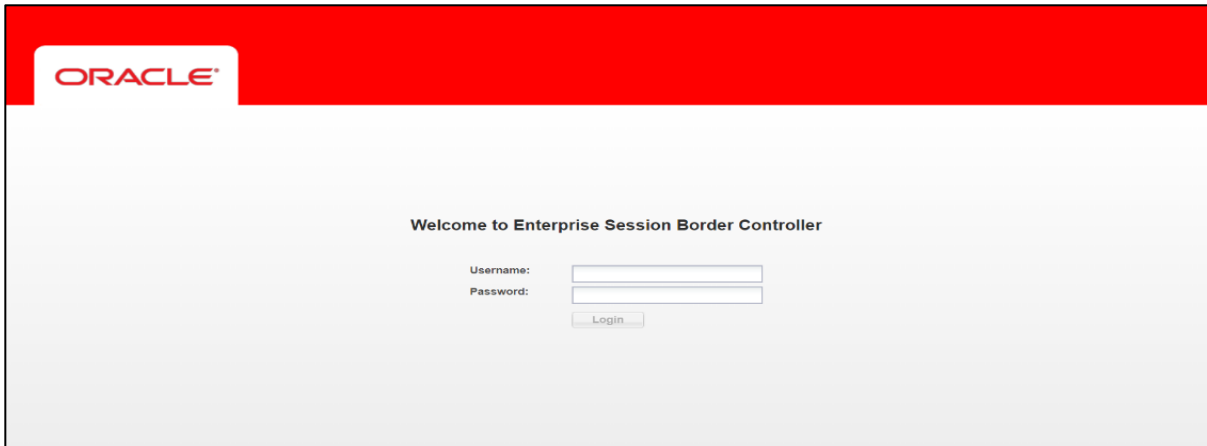
```
NN3900-101(web-server-config)# state enabled
NN3900-101(web-server-config)# done
web-server-config
  state                enabled
  inactivity-timeout   5
  http-state           enabled
  http-port            80
  https-state          disabled
  https-port           443
  http-interface-list  GUI
  tls-profile
  last-modified-by     admin@172.18.0.130
  last-modified-date   2020-02-20 02:46:51

**NN3900-101(web-server-config)# exit
**NN3900-101(system)# save
**NN3900-101(system)# exit
**NN3900-101(configure)# exit
**NN3900-101# save-config
checking configuration
-----
Results of config verification:
  4 configuration warnings
Run 'verify-config' for more details
-----
Save-Config received, processing.
waiting for request to finish
Request to 'SAVE-CONFIG' has Finished,
Save complete
Currently active and saved configurations do not match!
To sync & activate, run 'activate-config' or 'reboot activate'.
*NN3900-101# activate-config
Activate-Config received, processing.
waiting for request to finish
Request to 'ACTIVATE-CONFIG' has Finished,
Activate Complete
```

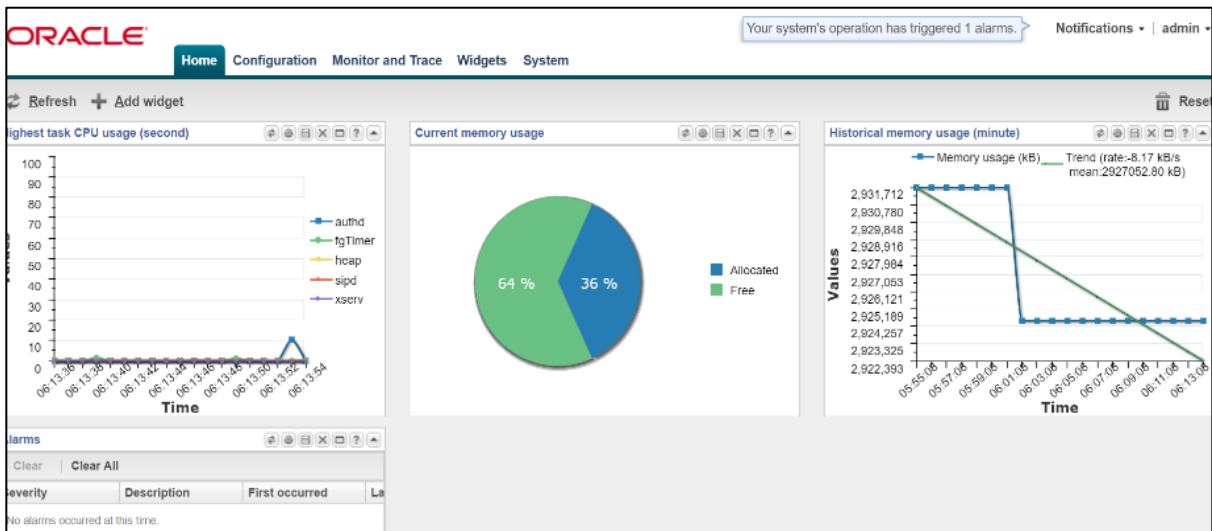
4.6. Configure SBC using Web GUI

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

The Web GUI can be accessed through the url `https://<SBC_MGMT_IP>`.

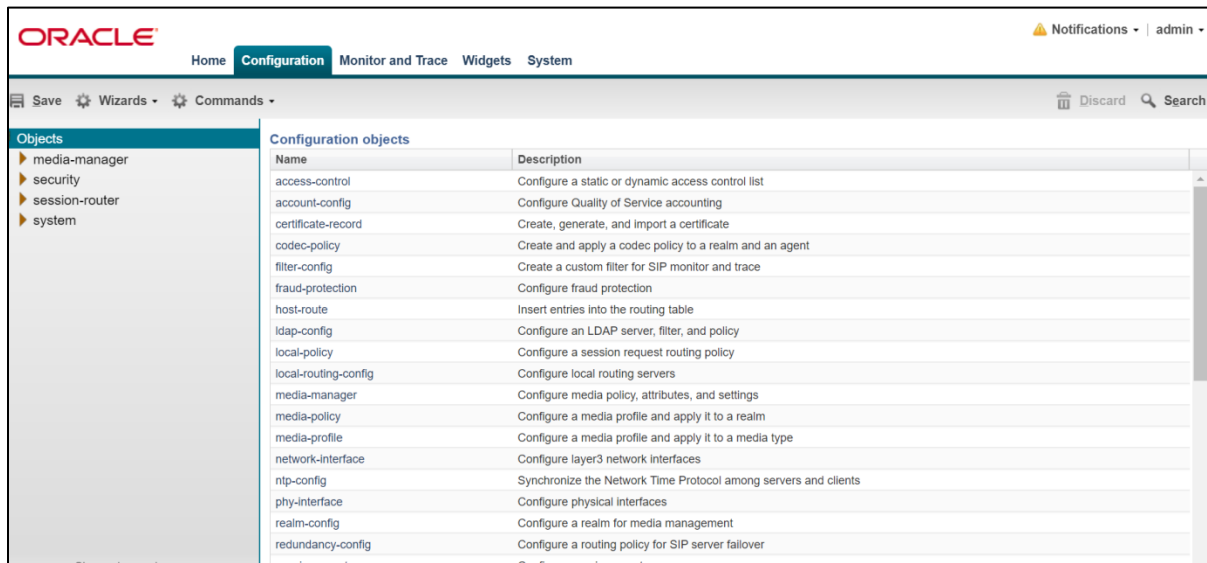


The username and password is the same as that of CLI.



Go to

Configuration as shown below, to configure the SBC.



The screenshot displays the Oracle configuration web interface. At the top, the Oracle logo is on the left, and 'Notifications' and 'admin' are on the right. Below the logo, there are navigation tabs: 'Home', 'Configuration' (which is active), 'Monitor and Trace', 'Widgets', and 'System'. A secondary navigation bar includes 'Save', 'Wizards', and 'Commands'. On the right side of this bar are 'Discard' and 'Search' buttons. The main content area is divided into two sections. On the left, under the heading 'Objects', there is a tree view with expandable folders for 'media-manager', 'security', 'session-router', and 'system'. On the right, under the heading 'Configuration objects', there is a table with two columns: 'Name' and 'Description'. The table lists various configuration objects and their purposes.

Name	Description
access-control	Configure a static or dynamic access control list
account-config	Configure Quality of Service accounting
certificate-record	Create, generate, and import a certificate
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
ldap-config	Configure an LDAP server, filter, and policy
local-policy	Configure a session request routing policy
local-routing-config	Configure local routing servers
media-manager	Configure media policy, attributes, and settings
media-policy	Configure a media profile and apply it to a realm
media-profile	Configure a media profile and apply it to a media type
network-interface	Configure layer3 network interfaces
ntp-config	Synchronize the Network Time Protocol among servers and clients
phy-interface	Configure physical interfaces
realm-config	Configure a realm for media management
redundancy-config	Configure a routing policy for SIP server failover

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

https://docs.oracle.com/cd/F13782_01/doc/esbc_scz830_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.

4.7. Configure system-config

Go to system->system-config

The screenshot shows the Oracle Configuration Assistant (OCA) interface. At the top, the Oracle logo is on the left, and navigation tabs for 'Home', 'Configuration', 'Monitor and Trace', 'Widgets', and 'System' are on the right. Below the tabs, there are icons for 'Save', 'Wizards', and 'Commands'. A left sidebar contains a list of configuration categories: capture-receiver, fraud-protection, host-route, http-client, http-server, network-interface, network-parameters, ntp-config, phy-interface, redundancy-config, snmp-address-entry, snmp-community, snmp-group-entry, snmp-user-entry, snmp-view-entry, spl-config, system-access-list, system-config (highlighted), threshold-crossing-alert-group, trap-receiver, and web-server-config. Below the list is a 'Show advanced' link. The main content area is titled 'Modify System config' and contains the following fields and options:

- Hostname: oracleSBC
- Description: (empty text box)
- Location: Burlington, MA
- Mib system contact: (empty text box)
- Mib system name: (empty text box)
- Mib system location: (empty text box)
- Acp TLS profile: (dropdown menu)
- SNMP enabled:
- Enable SNMP auth traps:
- Enable SNMP syslog notify:
- Enable SNMP monitor traps:
- Enable env monitor traps:
- Enable mblk_tracking:

At the bottom right of the main area are 'OK' and 'Delete' buttons.

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

https://docs.oracle.com/cd/F13782_01/doc/esbc_scz830_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.

4.8. Configure Physical Interface values

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

We will create the physical interface as given below for our testing.
You will first configure the slot 0, port 0 interface designated with the name M00.

We also create slot M10 and M11 after that.

The below table lists the phy-interface created.

Parameter Name	M00	M10	M11
Slot	0	0	1
Port	0	1	1
Operation Mode	Media	Media	Media

The screenshot shows the Oracle Configuration Manager interface. The top navigation bar includes 'Home', 'Configuration', 'Monitor and Trace', 'Widgets', and 'System'. The left sidebar contains a list of configuration categories, with 'phy-interface' selected. The main content area displays the 'Phy interface' configuration page, which includes a search bar and a table of configured interfaces.

Name	Operation type	Port	Slot	Virtual mac	Admin state	Auto negotiation
M00	Media	0	0		enabled	enabled
M10	Media	0	1		enabled	enabled
M11	Media	1	1		enabled	enabled

4.9. Configure Network Interface values

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

The public network interface is used for Teams and Zoom which is M00 interface.

The Genesys uses the network interface M10.

The network interface used for Nice Call Recording is M11.

Teams side and Zoom side

The screenshot shows the Oracle Configuration interface for the 'Modify Network interface' page. The left sidebar lists various configuration categories, with 'network-interface' selected. The main content area contains the following fields:

- Name: M00 (dropdown menu)
- Sub port id: 0 (text input, Range: 0..4095)
- Description: (empty text area)
- Hostname: (empty text input)
- IP address: (empty text input)
- Pri utility addr: (empty text input)
- Sec utility addr: (empty text input)
- Netmask: 255.255.255.192 (text input)
- Gateway: (empty text input)
- Gw heartbeat: (checkbox)
- State: (empty text input)
- Heartbeat: 0 (text input, Range: 0..65535)
- Retry count: 0 (text input, Range: 0..65535)

Buttons for 'OK' and 'Back' are located at the bottom right of the form.

The screenshot shows the Oracle Configuration interface for the 'Modify Network interface' page, displaying advanced settings. The left sidebar is the same as in the previous screenshot. The main content area contains the following fields:

- DNS IP backup1: (empty text input)
- DNS IP backup2: (empty text input)
- DNS domain: customers.telechat.o-test06161977.com (text input)
- DNS timeout: 11 (text input, Range: 0..4294967295)
- DNS max ttl: 86400 (text input, Range: 30..2073600)
- Signaling mtu: 0 (text input, Range: 0, 576..4096)
- HIP IP list: (table with 'Add', 'Edit', and 'Delete' buttons)
- ICMP address: (table with 'Add', 'Edit', and 'Delete' buttons)

Buttons for 'OK' and 'Back' are located at the bottom right of the form.

Genesys Side

The screenshot shows the Oracle Configuration Assistant interface for configuring a network interface. The left sidebar lists various configuration categories, with 'network-interface' selected. The main panel is titled 'Modify Network interface' and contains the following fields:

- Name: M10 (dropdown menu)
- Sub port id: 0 (text input, Range: 0..4095)
- Description: (empty text area)
- Hostname: (empty text input)
- IP address: 10.232.50.55 (text input)
- Pri utility addr: (empty text input)
- Sec utility addr: (empty text input)
- Netmask: 255.255.255.0 (text input)
- Gateway: 10.232.50.1 (text input)
- Gw heartbeat
- State:
- Heartbeat: 0 (text input, Range: 0..65535)
- Retry count: 0 (text input, Range: 0..65535)

Buttons for 'OK' and 'Back' are located at the bottom right of the configuration area.

Nice Side

The screenshot shows the Oracle Configuration Assistant interface for configuring a network interface. The left sidebar lists various configuration categories, with 'network-interface' selected. The main panel is titled 'Modify Network interface' and contains the following fields:

- Name: M11 (dropdown menu)
- Sub port id: 0 (text input, Range: 0..4095)
- Description: (empty text area)
- Hostname: (empty text input)
- IP address: 192.168.3.25 (text input)
- Pri utility addr: (empty text input)
- Sec utility addr: (empty text input)
- Netmask: 255.255.255.0 (text input)
- Gateway: 192.168.3.1 (text input)
- Gw heartbeat
- State:
- Heartbeat: 0 (text input, Range: 0..65535)
- Retry count: 0 (text input, Range: 0..65535)

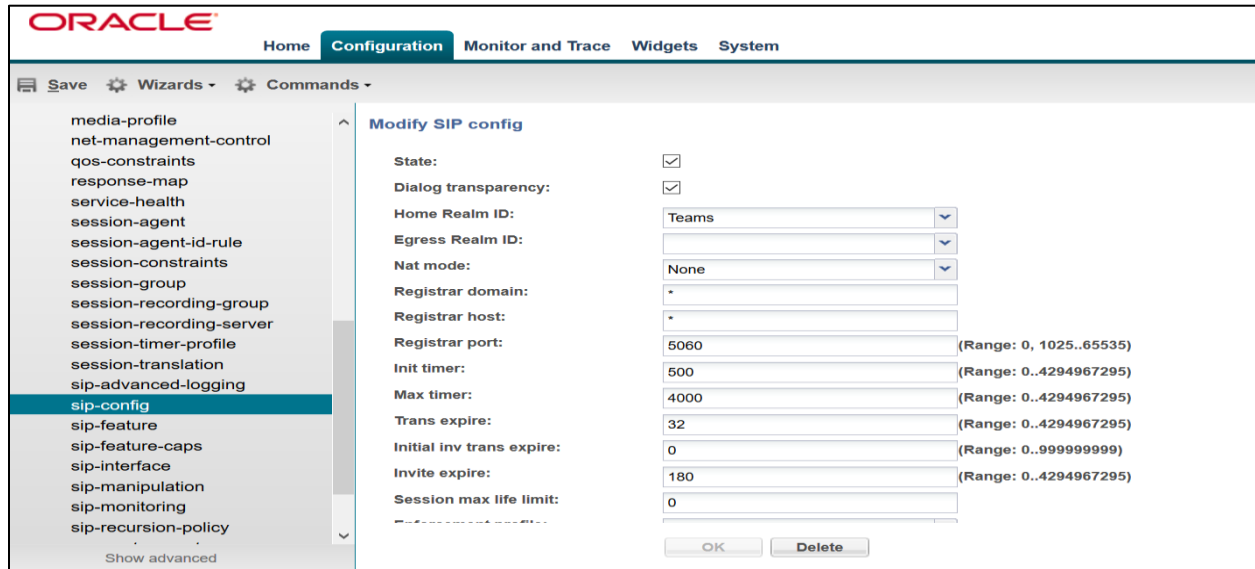
Buttons for 'OK' and 'Back' are located at the bottom right of the configuration area.

4.10. Enable media manager

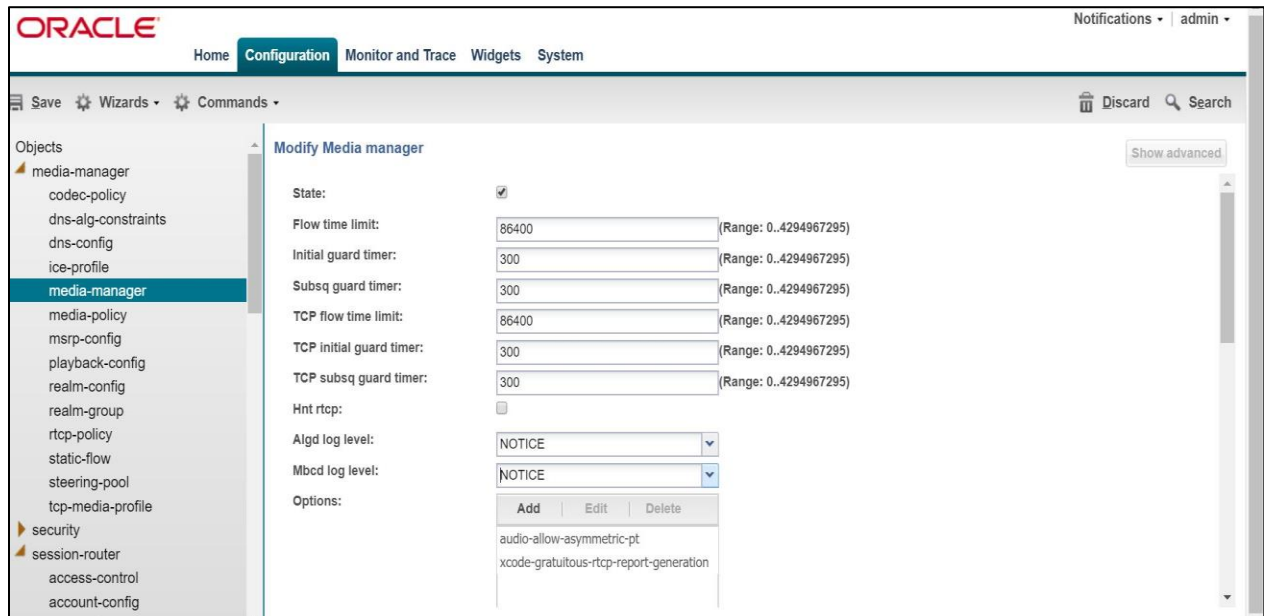
Media-manager handles the media stack required for SIP sessions on the SBC. Enable the media manager and configure the below option for generating rtcp reports.

```
audio-allow-assymmetric-pt  
xcode-gratuitous-rtcp-report-generation
```

Go to Media-Manager->Media-Manager



The screenshot shows the Oracle SBC Configuration interface. The 'Configuration' tab is active. The left sidebar lists various configuration objects, with 'sip-config' selected. The main area displays the 'Modify SIP config' form. The 'State' checkbox is checked. The 'Dialog transparency' checkbox is also checked. The 'Home Realm ID' is set to 'Teams'. The 'Egress Realm ID' is empty. The 'Nat mode' is set to 'None'. The 'Registrar domain' and 'Registrar host' are both set to '*'. The 'Registrar port' is 5060 (Range: 0, 1025..65535). The 'Init timer' is 500 (Range: 0..4294967295). The 'Max timer' is 4000 (Range: 0..4294967295). The 'Trans expire' is 32 (Range: 0..4294967295). The 'Initial inv trans expire' is 0 (Range: 0..999999999). The 'Invite expire' is 180 (Range: 0..4294967295). The 'Session max life limit' is 0. There are 'OK' and 'Delete' buttons at the bottom.

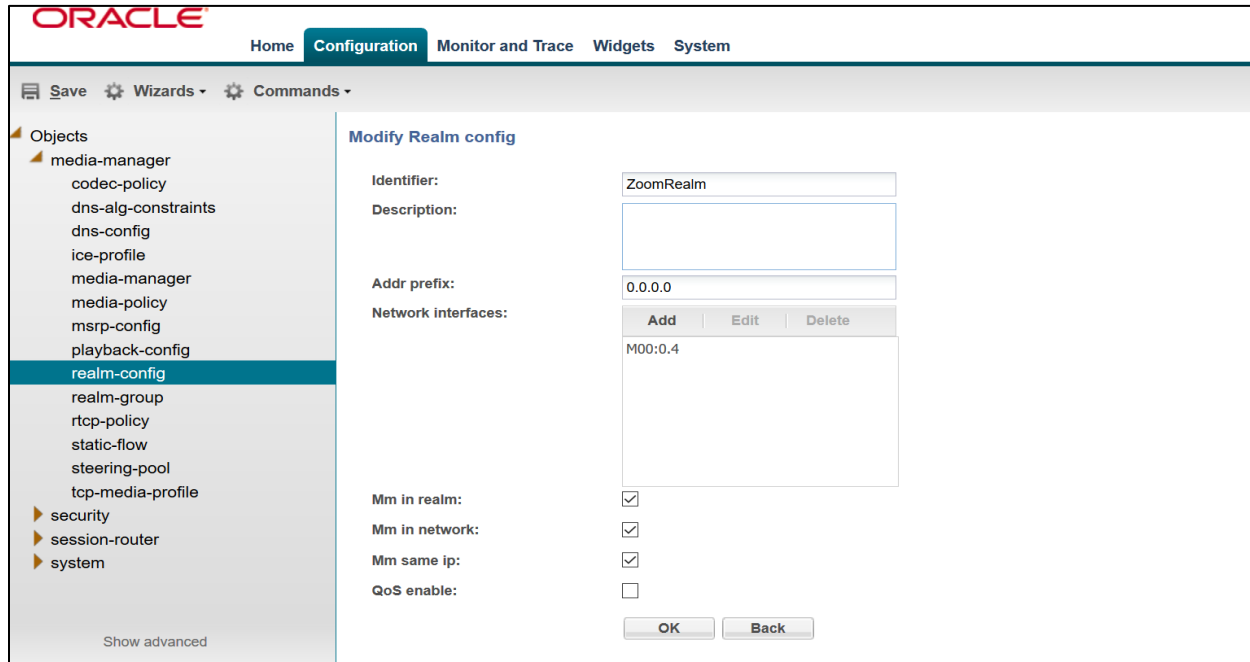


The screenshot shows the Oracle SBC Configuration interface. The 'Configuration' tab is active. The left sidebar lists various configuration objects, with 'media-manager' selected. The main area displays the 'Modify Media manager' form. The 'State' checkbox is checked. The 'Flow time limit' is 86400 (Range: 0..4294967295). The 'Initial guard timer' is 300 (Range: 0..4294967295). The 'Subsq guard timer' is 300 (Range: 0..4294967295). The 'TCP flow time limit' is 86400 (Range: 0..4294967295). The 'TCP initial guard timer' is 300 (Range: 0..4294967295). The 'TCP subsq guard timer' is 300 (Range: 0..4294967295). The 'Hnt rtcp' checkbox is unchecked. The 'Algd log level' is set to 'NOTICE'. The 'Mbcd log level' is set to 'NOTICE'. There are 'Add', 'Edit', and 'Delete' buttons for the options. The options list includes 'audio-allow-asymmetric-pt' and 'xcode-gratuitous-rtcp-report-generation'. There is a 'Show advanced' button in the top right corner.

4.11. Configure Realms

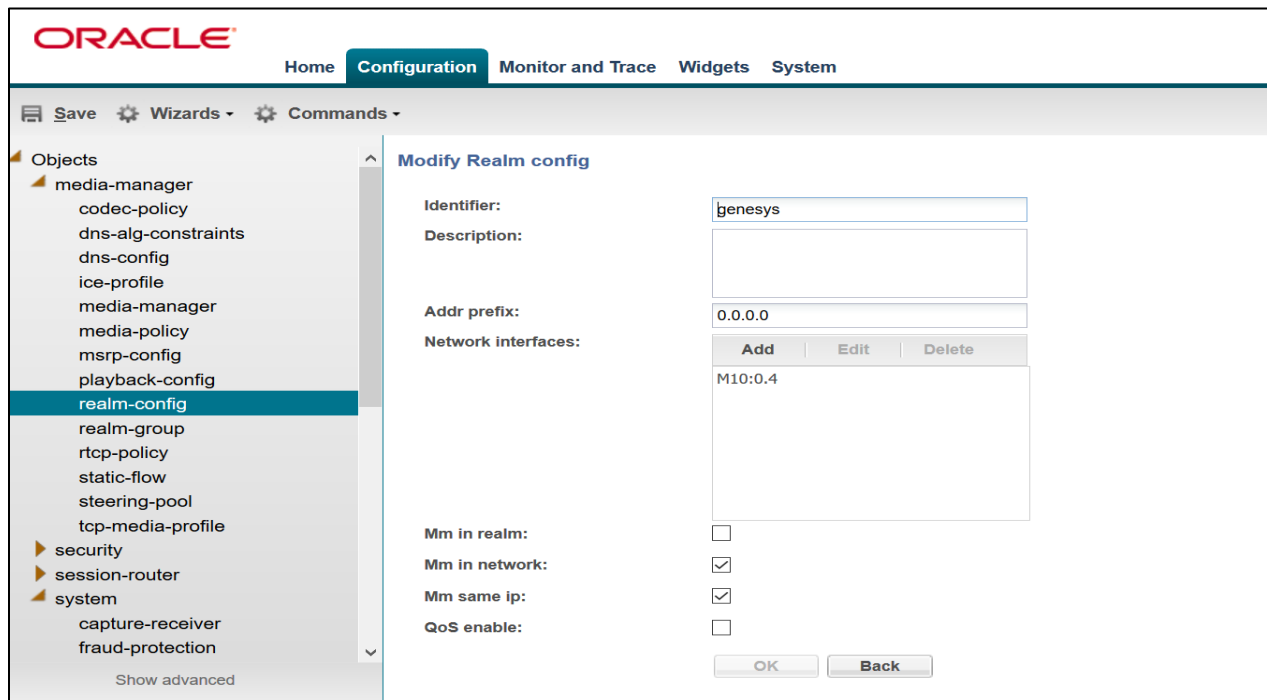
Navigate to realm-config under media-manager and configure a realm as shown below
The name of the Realm can be any relevant name according to the user convenience.

In the below scenarios, Realm name is given as ZoomRealm for Zoom side



The screenshot shows the Oracle Configuration Manager interface. The 'Configuration' tab is active. The left sidebar shows a tree view of objects, with 'realm-config' selected under 'media-manager'. The main area displays the 'Modify Realm config' dialog. The 'Identifier' field is set to 'ZoomRealm'. The 'Description' field is empty. The 'Addr prefix' is '0.0.0.0'. The 'Network interfaces' list contains 'M00:0.4'. The 'Mm in realm', 'Mm in network', and 'Mm same ip' checkboxes are checked, while 'QoS enable' is unchecked. 'OK' and 'Back' buttons are at the bottom.

Similarly, realm name is given as genesys for Genesys side



The screenshot shows the Oracle Configuration Manager interface. The 'Configuration' tab is active. The left sidebar shows a tree view of objects, with 'realm-config' selected under 'media-manager'. The main area displays the 'Modify Realm config' dialog. The 'Identifier' field is set to 'genesys'. The 'Description' field is empty. The 'Addr prefix' is '0.0.0.0'. The 'Network interfaces' list contains 'M10:0.4'. The 'Mm in network' and 'Mm same ip' checkboxes are checked, while 'Mm in realm' and 'QoS enable' are unchecked. 'OK' and 'Back' buttons are at the bottom.

The realm name is given as Teams for Teams side (used as common realm)

The screenshot shows the Oracle Configuration Manager interface. The 'Configuration' tab is active. On the left, a tree view shows the 'realm-config' object selected. The main area displays the 'Modify Realm config' form with the following fields:

- Identifier: Teams
- Description: carrier tenant telechat.o-test06161977.com
- Addr prefix: 0.0.0.0
- Network interfaces: M00:0.4
- Mm in realm:
- Mm in network:
- Mm same ip:
- QoS enable:

Buttons for 'OK' and 'Back' are visible at the bottom right.

Similarly, Realm name is given as NiceRealm for Nice Recording Realm

The screenshot shows the Oracle Configuration Manager interface. The 'Configuration' tab is active. On the left, a tree view shows the 'realm-config' object selected. The main area displays the 'Modify Realm config' form with the following fields:

- Identifier: NiceRealm
- Description: (empty)
- Addr prefix: 0.0.0.0
- Network interfaces: M11:0.4
- Mm in realm:
- Mm in network:
- Mm same ip:
- QoS enable:

Buttons for 'OK' and 'Back' are visible at the bottom right.

4.12. Enable sip-config

SIP config enables SIP handling in the SBC.
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.
inmanip-before-validate

The screenshot shows the Oracle Configuration interface for the 'Modify SIP config' page. The interface includes a navigation menu on the left with 'sip-config' selected. The main area contains several configuration fields with their respective values and ranges:

Field	Value	Range
Registrar host	*	
Registrar port	5060	(Range: 0, 1025..65535)
Init timer	500	(Range: 0..4294967295)
Max timer	4000	(Range: 0..4294967295)
Trans expire	32	(Range: 0..4294967295)
Initial inv trans expire	0	(Range: 0..999999999)
Invite expire	180	(Range: 0..4294967295)
Session max life limit	0	
Enforcement profile		
Red max trans	10000	(Range: 0..50000)

The 'Options' section contains a list of configuration options with 'Add', 'Edit', and 'Delete' buttons above them:

- inmanip-before-validate
- max-udp-length=0

At the bottom of the options list are 'OK' and 'Delete' buttons.

4.13. Enable Session recording server in SBC

We need to add the Nice recording servers on the SBC so that we can enable the recording leg from the SBC to the Nice server. If we want Nice recorder to work in TLS mode, please select port as 5061 and Transport method to Static or Dynamic TLS while adding the recording server to the SBC.

To add the Nice servers, Go to Session Router ---->Session recording Server

The screenshot shows the Oracle SBC configuration interface. The 'Configuration' tab is active. In the left sidebar, 'session-recording-server' is selected. The main area is titled 'Add Session recording server' and contains the following fields:

- Name: NiceAir1
- Description: (empty)
- Realm: NiceRealm
- Mode: selective
- Destination: 192.168.3.212
- Port: 5060 (Range: 1024..65535)
- Transport method: UDP
- Force parity:
- Ping method: OPTIONS
- Ping interval: 60 (Range: 0..4294967295)
- Refresh interval: 0 (Range: 0..60)

Buttons for 'OK' and 'Back' are at the bottom.

The screenshot shows the Oracle SBC configuration interface. The 'Configuration' tab is active. In the left sidebar, 'session-recording-server' is selected. The main area is titled 'Add Session recording server' and contains the following fields:

- Name: NiceAir3
- Description: (empty)
- Realm: NiceRealam
- Mode: selective
- Destination: 192.168.3.214
- Port: 5061 (Range: 1024..65535)
- Transport method: StaticTLS
- Force parity:
- Ping method: OPTIONS
- Ping interval: 60 (Range: 0..4294967295)
- Refresh interval: 0 (Range: 0..60)

Buttons for 'OK' and 'Back' are at the bottom.

If we have more than one servers, we can add the same way like above. After adding recording server to SBC, Please assign the exact server to the zoom and genesys realm where the calls needs to be recorded as part of our testing. Session recording required is enabled to make sure session recorder is ready and available to record. We can also select the recorder based on whether we need normal or secure recording.

The screenshot shows the Oracle SBC Configuration interface. The 'Configuration' tab is active, and the 'Modify Realm config' page is displayed. The left sidebar shows a tree view of configuration objects, with 'realm-config' selected. The main area contains the following configuration fields:

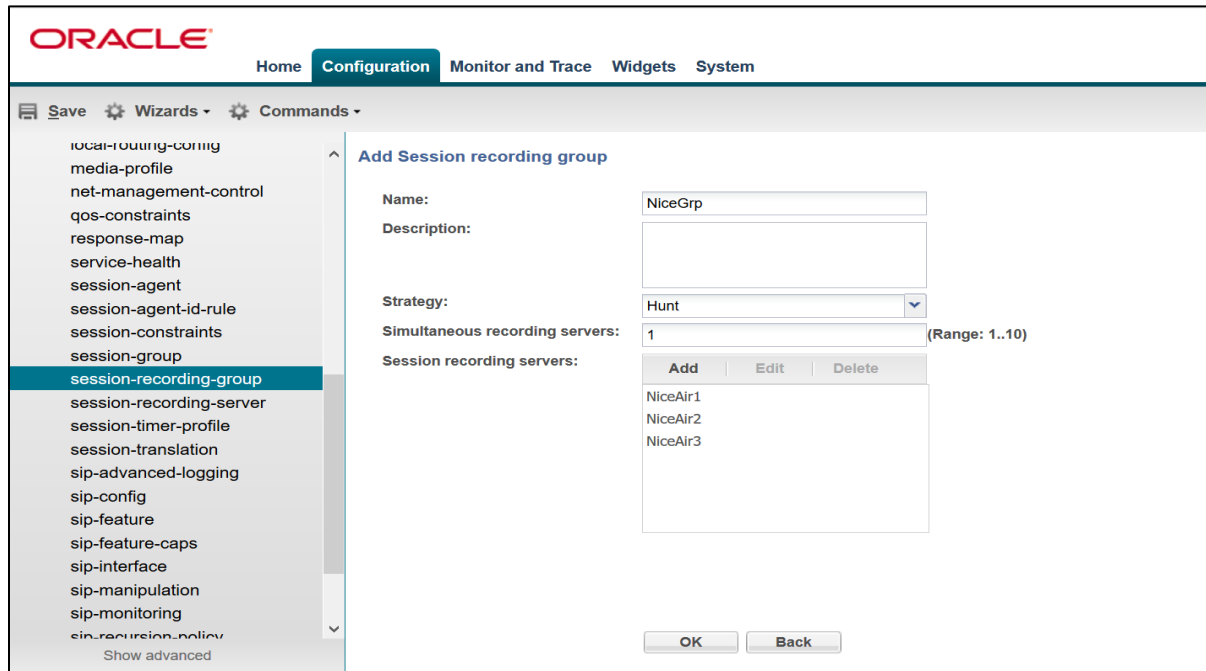
Field	Value
Codec policy:	audiotest
Codec manIP in realm:	<input type="checkbox"/>
Codec manIP in network:	<input checked="" type="checkbox"/>
RTCP policy:	[Dropdown]
Constraint name:	[Dropdown]
Session recording server:	NiceAir1
Session recording required:	<input checked="" type="checkbox"/>
Flow time limit:	-1 (Range: -1..2147483647)
Initial guard timer:	-1 (Range: -1..2147483647)
Subsq guard timer:	-1 (Range: -1..2147483647)
TCP flow time limit:	-1 (Range: -1..2147483647)
TCP initial guard timer:	-1 (Range: -1..2147483647)
TCP subsq guard timer:	-1 (Range: -1..2147483647)
QoS constraint:	[Dropdown]
TCP media profile:	[Dropdown]

Red arrows point to the 'Session recording server' dropdown (set to 'NiceAir1') and the 'Session recording required' checkbox (checked). 'OK' and 'Back' buttons are at the bottom.

4.14. Enable Session recording group in SBC

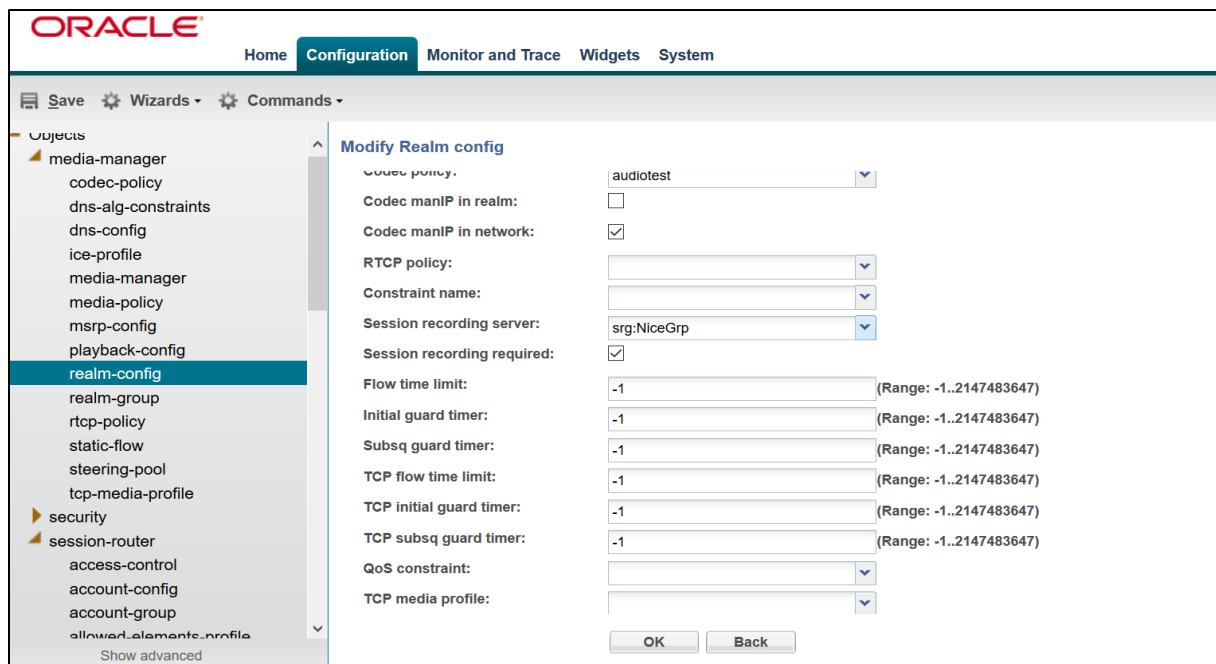
We can also add session recording group in the SBC and assign the group to the realm. The advantage of having recording group is that even one recorder of the group fails, we still have other servers to take care of the recording.

Go to Session Router ---->Session recording group



The screenshot shows the Oracle SBC Configuration interface. The 'Configuration' tab is active. In the left sidebar, 'session-recording-group' is selected. The main area displays the 'Add Session recording group' dialog. The 'Name' field is 'NiceGrp'. The 'Strategy' dropdown is set to 'Hunt'. The 'Simultaneous recording servers' field is '1'. The 'Session recording servers' list contains 'NiceAir1', 'NiceAir2', and 'NiceAir3'. There are 'Add', 'Edit', and 'Delete' buttons for the list. 'OK' and 'Back' buttons are at the bottom.

We can assign this group to the exact realm where the calls needs to be recorded for our testing.



The screenshot shows the Oracle SBC Configuration interface. The 'Configuration' tab is active. In the left sidebar, 'realm-config' is selected. The main area displays the 'Modify Realm config' dialog. The 'Codec policy' dropdown is 'audiotest'. 'Codec manIP in network' is checked. 'Session recording server' is 'srg:NiceGrp'. 'Session recording required' is checked. The 'Flow time limit', 'Initial guard timer', 'Subsq guard timer', 'TCP flow time limit', 'TCP initial guard timer', and 'TCP subsq guard timer' fields are all set to '-1'. There are 'OK' and 'Back' buttons at the bottom.

4.15. Configuring a certificate for SBC

Nice Recording server also works in TLS/SRTP mode and it allows TLS connections from SBCs for SIP traffic with a self-signed certificate. We need to exchange the SBC certificate and Nice certificate so that we can use secure recording.

The step below describes how to import the Nice certificate to the SBC:

- 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.
- 2) Import the Nice certificates on the SBC

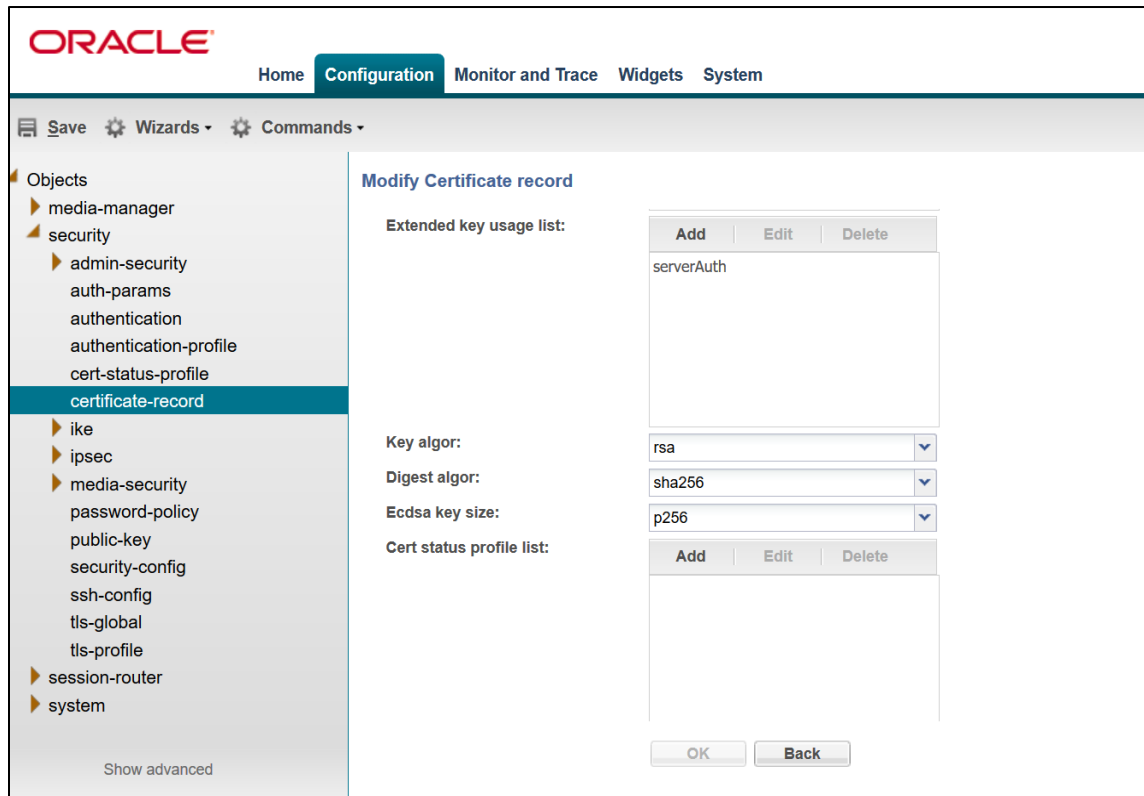
Step 1 – Creating the certificate record

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

The screenshot displays the Oracle SBC Configuration web interface. The top navigation bar includes 'Home', 'Configuration', 'Monitor and Trace', 'Widgets', and 'System'. The 'Configuration' tab is active. Below the navigation bar, there are icons for 'Save', 'Wizards', and 'Commands'. On the left side, a tree view shows the configuration hierarchy under 'Objects', with 'security' > 'certificate-record' selected. The main area is titled 'Modify Certificate record' and contains the following fields:

- Name: NiceAir3Certificate
- Country: US
- State: MA
- Locality: Burlington
- Organization: Engineering
- Unit: (empty)
- Common name: Nice Cert
- Key size: 2048 (dropdown menu)
- Alternate name: (empty)
- Trusted:
- Key usage list: A table with buttons 'Add', 'Edit', and 'Delete' above it, containing the entries 'digitalSignature' and 'keyEncipherment'.

At the bottom of the form are 'OK' and 'Back' buttons. A 'Show advanced' link is located at the bottom left of the configuration area.

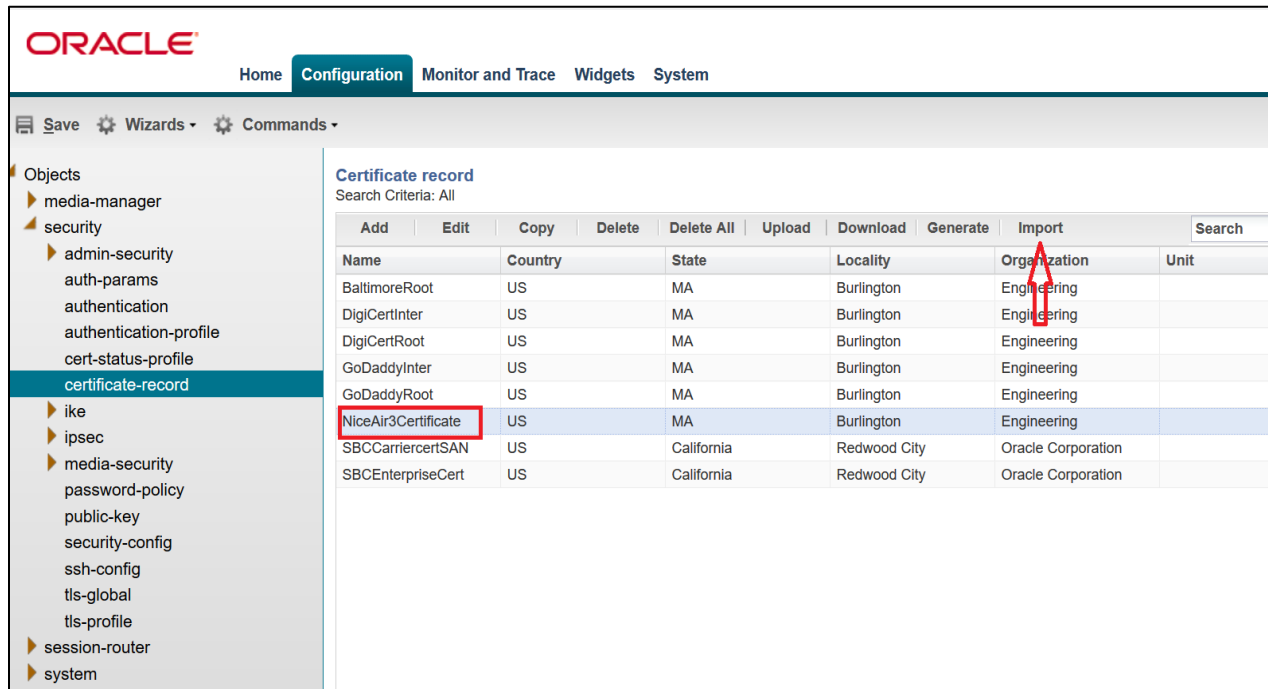


The table below specifies the parameters required for certificate configuration. Modify the configuration according to the certificates in your environment.

Parameter	BaltimoreRoot	DigiCertRoot
Common-name	Baltimore CyberTrust Root	DigiCert Global Root CA
Key-size	2048	2048
Key-usage-list	digitalSignature keyEncipherment	digitalSignature keyEncipherment
Extended-key-usage-list	serverAuth	serverAuth
key-algor	rsa	rsa
digest-algor	sha256	sha256

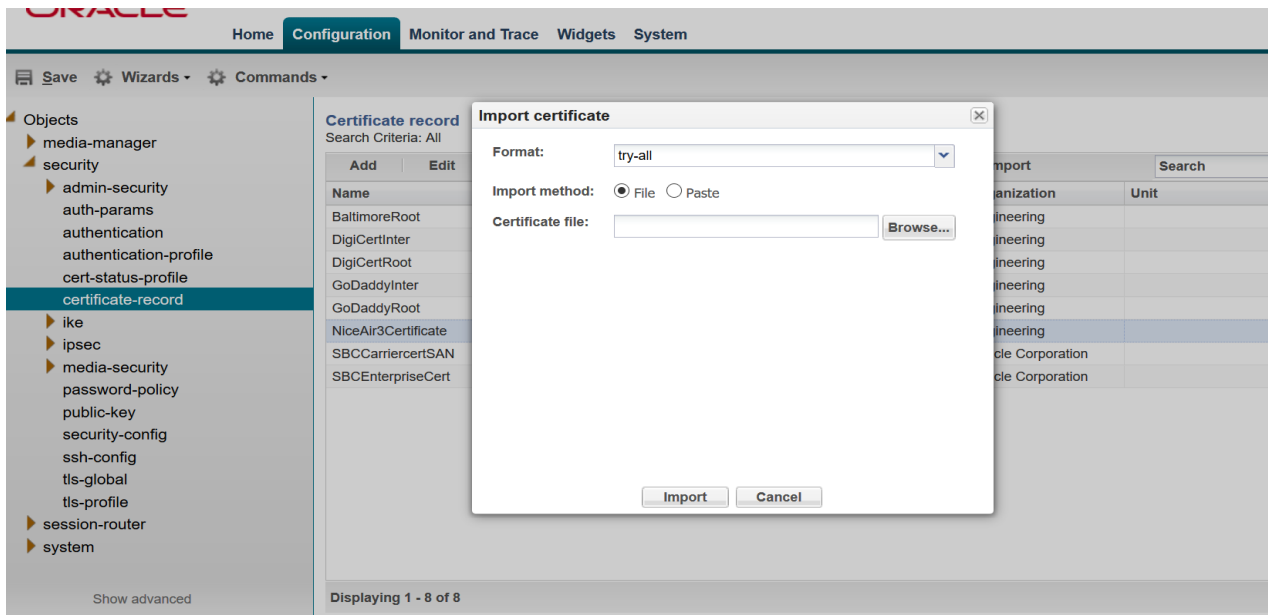
Step 2 – Import Nice certificates

Once certificate record has been created – import the signed Nice certificate to the SBC.
Once done, issue save/activate from the WebGUI



The screenshot shows the Oracle WebGUI Configuration page. The 'Certificate record' table is displayed with the following data:

Name	Country	State	Locality	Organization	Unit
BaltimoreRoot	US	MA	Burlington	Engineering	
DigiCertInter	US	MA	Burlington	Engineering	
DigiCertRoot	US	MA	Burlington	Engineering	
GoDaddyInter	US	MA	Burlington	Engineering	
GoDaddyRoot	US	MA	Burlington	Engineering	
NiceAir3Certificate	US	MA	Burlington	Engineering	
SBCCarriercertSAN	US	California	Redwood City	Oracle Corporation	
SBCEnterpriseCert	US	California	Redwood City	Oracle Corporation	



The screenshot shows the Oracle WebGUI Configuration page with the 'Import certificate' dialog box open. The dialog box contains the following fields and options:

- Format: try-all
- Import method: File Paste
- Certificate file: Browse...

The 'Import' button is highlighted in the dialog box.

4.16. 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. In our config, we have already TLS profile created as TLSTeamsCarrier. So, we just need to add our certificate record to it which is shown below

The screenshot displays the Oracle SBC configuration interface. The top navigation bar includes 'ORACLE', 'Home', 'Configuration', 'Monitor and Trace', 'Widgets', and 'System'. Below this is a toolbar with 'Save', 'Wizards', and 'Commands'. A left-hand navigation pane shows a tree structure of objects, with 'tls-profile' selected and highlighted in blue. The main content area is titled 'Add TLS profile' and contains the following fields and controls:

- Name:** A text input field containing 'TLSTeamsCarrier'.
- End entity certificate:** A text input field containing 'SBCCarriercertSAN'.
- Trusted ca certificates:** A list box containing 'NiceAir3Certificate'. Above the list are 'Add', 'Edit', and 'Delete' buttons.
- Cipher list:** A list box containing 'DEFAULT'. Above the list are 'Add', 'Edit', and 'Delete' buttons.

At the bottom of the configuration area are 'OK' and 'Back' buttons. A 'Show advanced' link is located at the bottom of the left navigation pane.

4.17. Configure SIP Interfaces.

Navigate to sip-interface under session-router and configure the sip-interface as shown below. This interface will be used by SBC to connect to Nice Server for recording. We have added interface for UDP, TCP and TLS in the SBC. The other sip-interface that are created for calling purpose is out of our scope.

The screenshot shows the Oracle configuration interface for a SIP interface. The top navigation bar includes 'Home', 'Configuration', 'Monitor and Trace', 'Widgets', and 'System'. The 'Configuration' tab is active. Below the navigation bar, there are icons for 'Save', 'Wizards', and 'Commands'. A left-hand sidebar lists various configuration categories, with 'sip-interface' selected and highlighted in blue. The main content area is titled 'Modify SIP interface' and contains the following fields and table:

State:

Realm ID:

Description:

SIP ports

Add Edit Copy Delete				
Address	Port	Transport protocol	TLS profile	Allow anonymous
192.168.3.25	5060	UDP		all
192.168.3.25	5060	TCP		all
192.168.3.25	5061	TLS	TLSTeamsCarrier	all

Initial inv trans expire: (Range: 0..999999999)

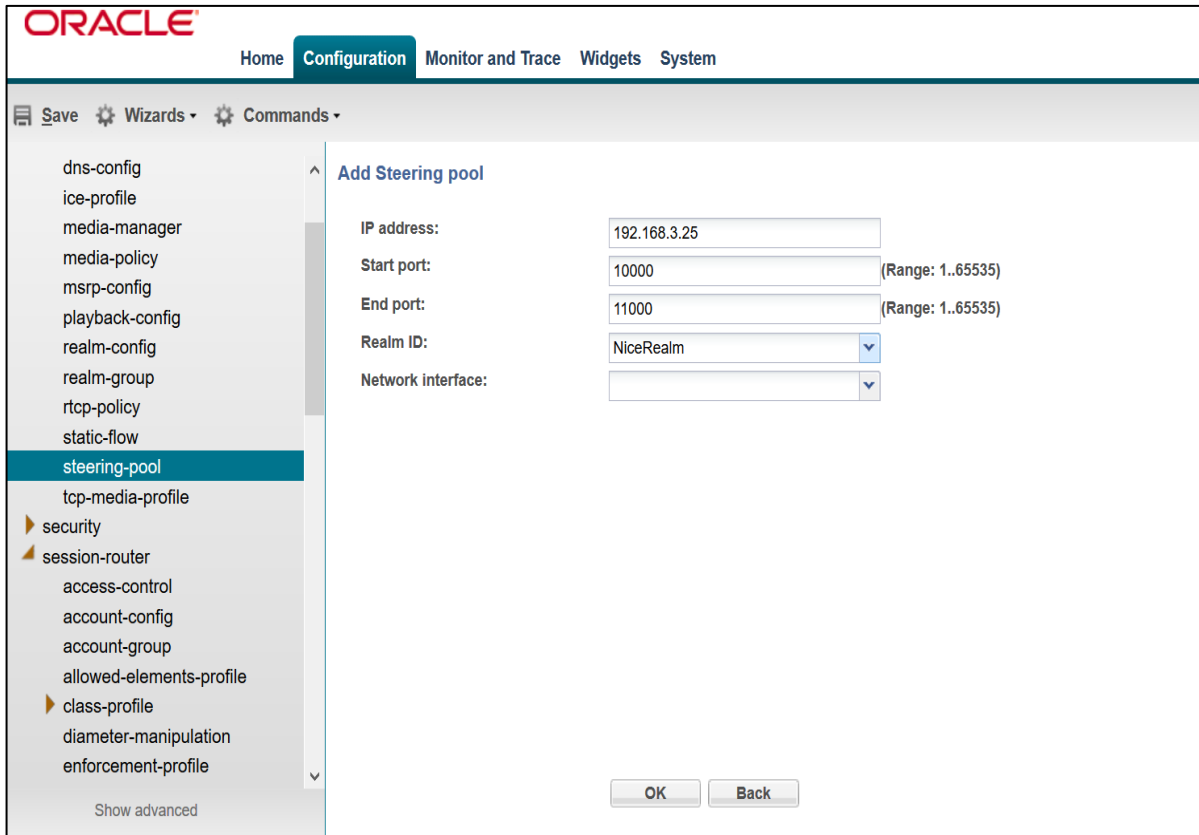
Session max life limit:

Proxy mode:

OK Back

4.18. Configure steering-pool

Steering-pool config allows configuration to assign IP address(es), ports & a realm. This steering pool is exclusively created for Nice recording leg. The other steering pools that are created for calling purpose is out of our scope.



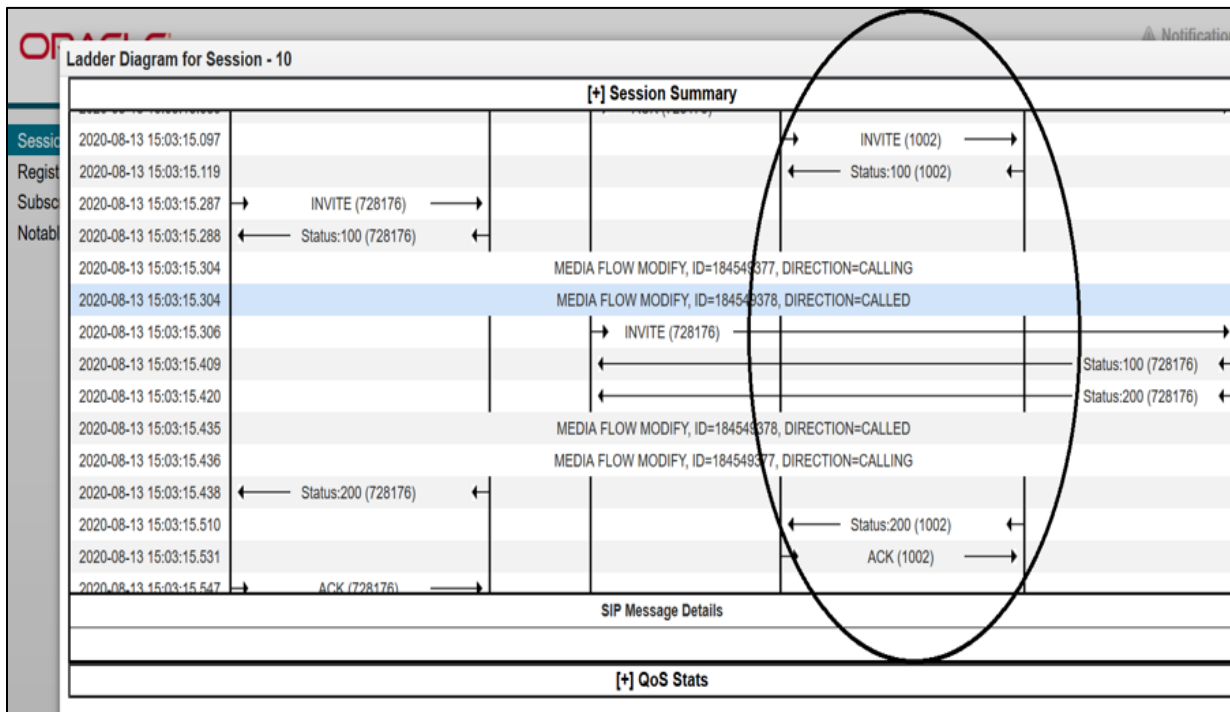
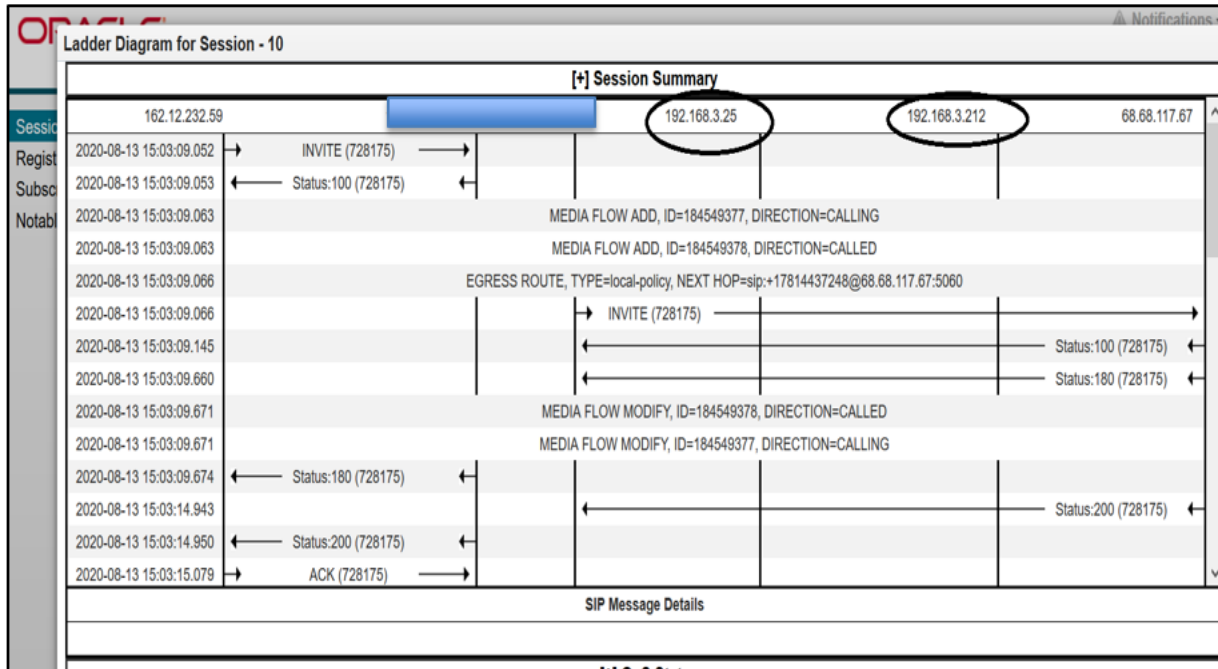
The screenshot shows the Oracle configuration interface. At the top, there is a navigation bar with the Oracle logo and tabs for Home, Configuration, Monitor and Trace, Widgets, and System. Below the navigation bar, there is a toolbar with icons for Save, Wizards, and Commands. A left-hand sidebar contains a list of configuration categories, with 'steering-pool' selected and highlighted in blue. The main content area is titled 'Add Steering pool' and contains the following fields:

- IP address:
- Start port: (Range: 1..65535)
- End port: (Range: 1..65535)
- Realm ID: (dropdown menu)
- Network interface: (dropdown menu)

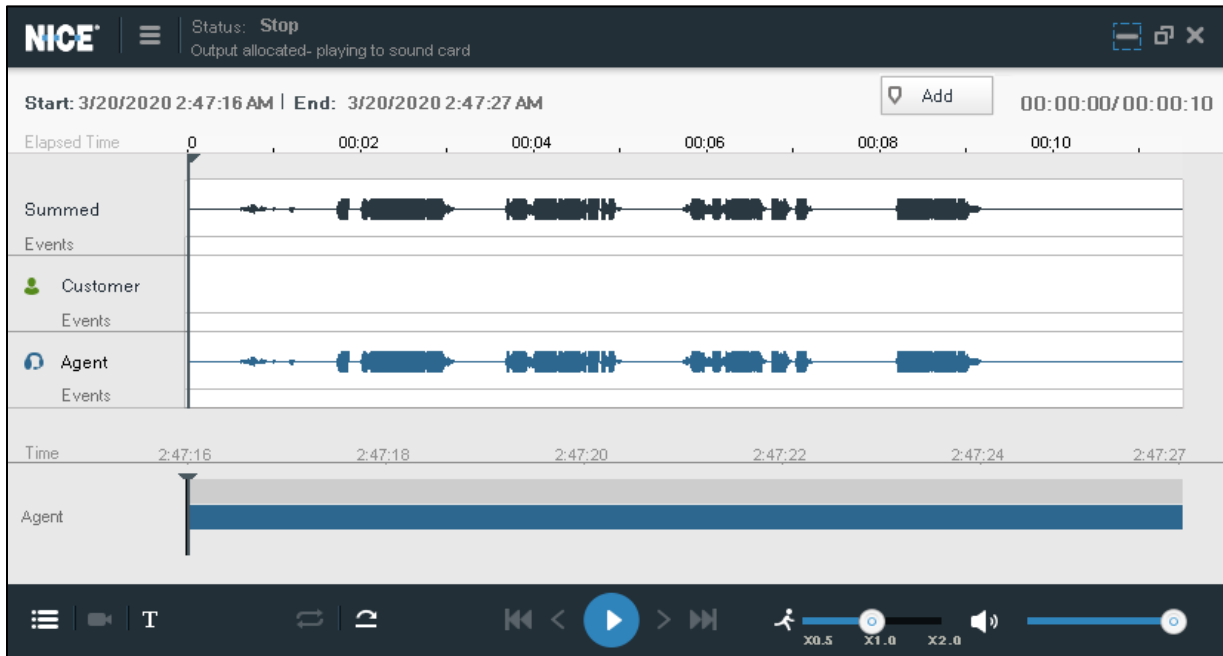
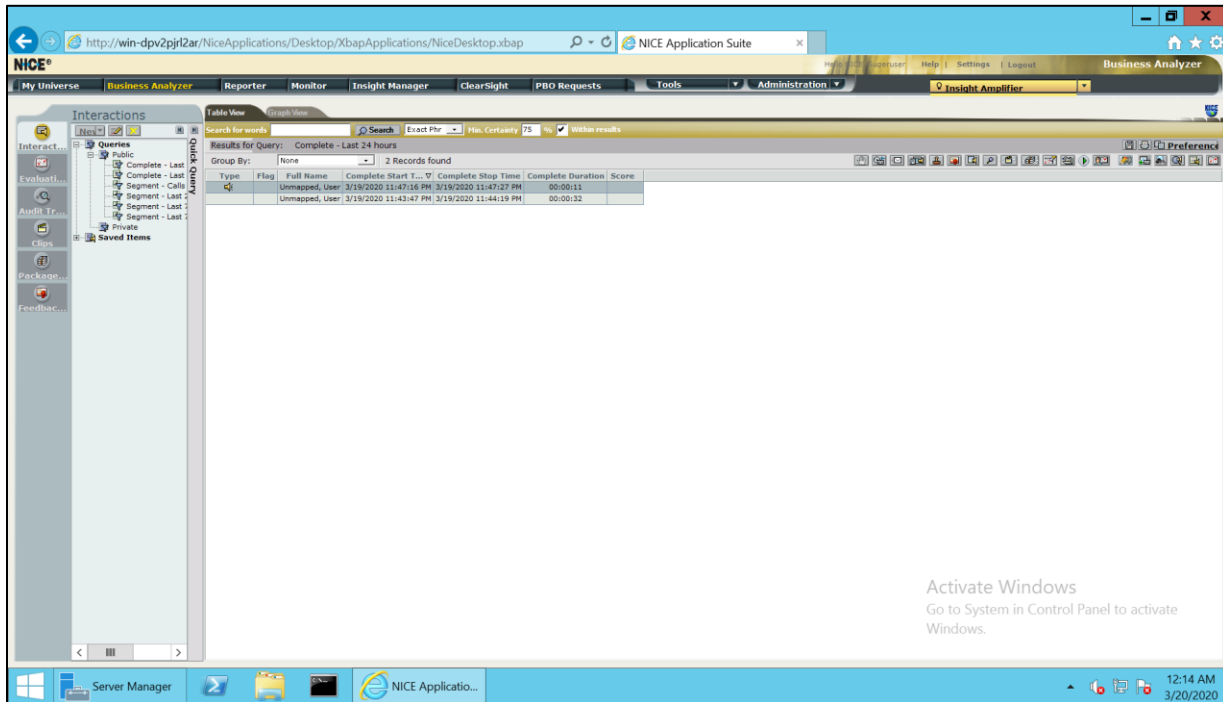
At the bottom of the form, there are two buttons: 'OK' and 'Back'. A 'Show advanced' link is located at the bottom left of the sidebar.

4.19. Verifying recorded Calls

We will make calls now and verify the recording happening between SBC and Nice. Open the SBC ladder diagram to see the recording flow (192.168.3.25 to 192.168.3.212). We can see the recording flow for both normal and secure recording.



We can also check the actual recording (Both Secure and normal) with playback from Nice side
 Open the Nice GUI and select Business Analyzer → Queries → Public → Complete → Last 24 hrs
 You can see the recordings happened with the speaker icon to it.
 You can click the speaker icon to hear the actual playback of recording from the Nice recorder Player.



5. Existing SBC configuration

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

- [New realm-config](#)
- [Enable Session recording server in SBC](#)
- [Enable Session recording group in SBC](#)
- [Configuring a certificate for SBC Interface](#)
- [TLS-Profile](#)
- [Configure SIP Interfaces](#)
- [Configure steering-pool](#)

Please follow the steps mentioned in the above chapters to configure these elements.

Appendix A

Following are the test cases that are executed as part of Nice Recording with Zoom and Genesys side:

Here A1 and A2 Phone refers to Zoom side and Genesys side based on our testing scenario (Core Side)
Here C phone is common which always refers to Teams side (Access side)

Serial Number	Test Cases Executed (Incoming Calls)	Result (With Zoom)	Result (With Genesys)
1	C calls A1 (Short time and longtime Calls)	Pass	Pass
2	C calls A1 & A1 Blind Transfer A2	Pass	Pass
3	C calls A1 & A1 Consult Transfer A2	Pass	Pass
4	C calls A1 & A1 Blind Conference A2	Pass	Pass
5	C calls A1 & A1 Consult Conference A2	Pass	Pass
6	C calls A1, puts hold and resume	Pass	Pass

Serial Number	Test Cases Executed (Outgoing Calls)	Result (With Zoom)	Result (With Genesys)
1	A1 calls C (Short time and longtime Calls)	Pass	Pass
2	A1 calls C & A1 Blind Transfer A2	Pass	Pass
3	A1 calls C & A1 Consult Transfer A2	Pass	Pass
4	A1 calls C & A1 Blind Conference A2	Pass	Pass
5	A1 calls C & A1 Consult Conference A2	Pass	Pass
6	A1 calls C, puts hold and resume	Pass	Pass



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