



Oracle® Intelligent Communication
Orchestration Network

Integrating On-Prem Telephony with Oracle ICON
Using Generic Sip Service (BYOD)

Application Note





Disclaimer

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2 Revision History

Document Version	Description	Revision Date
1.0	Initial Draft	11-14-2025

3 Intended Audience

This document describes how to connect your on prem telephony services to Oracle ICON as a Generic Sip Service. This paper is intended for End Users, IT or telephony professionals.

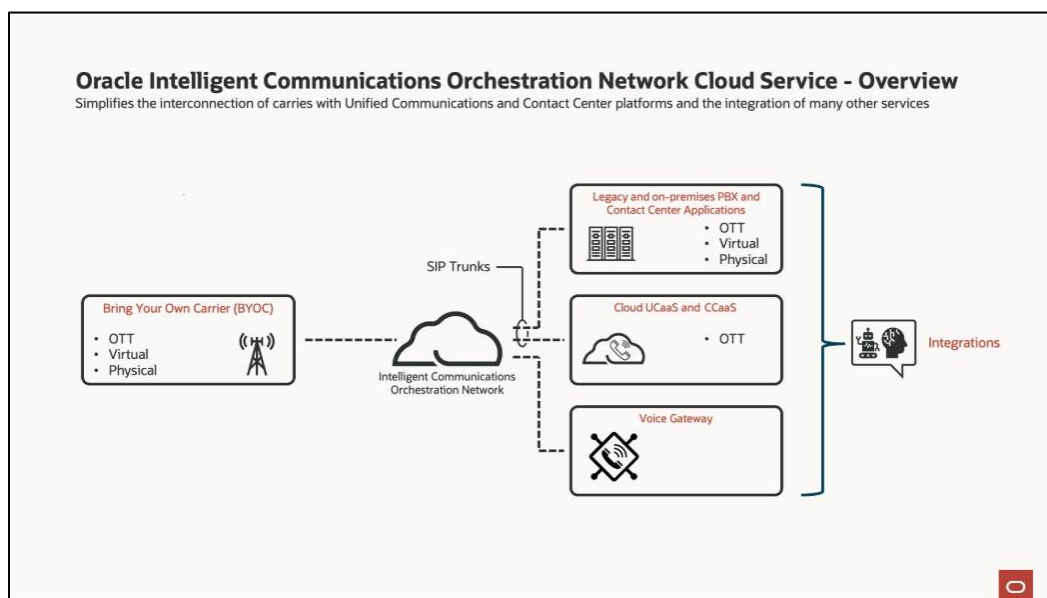
Note: To zoom in on screenshots of Web GUI configuration examples, press Ctrl and +.

4 Introduction

4.1 Oracle® Intelligent Communication Orchestration Network Overview

The Oracle® Intelligent Communication Orchestration Network enables enterprises and Managed Service Providers to connect Unified Communications (UC) and Contact Centers (CC) because the service supports connecting to both on-premises and SaaS based UC and CC solutions. The Oracle® Intelligent Communication Orchestration Network focuses on bringing voice communications services together in one place to relieve you from managing Carrier Service compatibility issues.

Oracle ICON provides numerous features to enable bringing voice communications services together with a single point of management rather than managing each of them independently. The following diagram shows how the features and services interact to provide voice services to the end customer.



Begin by connecting your PSTN services to Oracle® ICON, either virtually or physically. Once this connection is in place, integrate your on-premises telephony system as a Generic Sip Service by configuring SIP trunks within the Oracle® Intelligent Communication Orchestration Network (ICON). This enables seamless interoperability between your on-premises voice services and the ICON platform.

5 Related Documentation

5.1 Oracle Intelligent Communications Orchestration Network

- [Configuration Process](#)
- [Add Sites](#)
- [Add Number Blocks Manually](#)
- [Connect Services](#)

6 Oracle ICON Configuration

This section outlines the required steps to configure Oracle ICON for integration with on-premises telephony systems using the Generic Sip and Carrier services option. You will be guided through the configuration process, including initial setup and the essential parameters to ensure secure and reliable connectivity between your on prem telephony environment and Oracle ICON.

Note: It is assumed you have established your subscription, configured your account, and completed all required post activation tasks prior to proceeding.

6.1 Customer Account

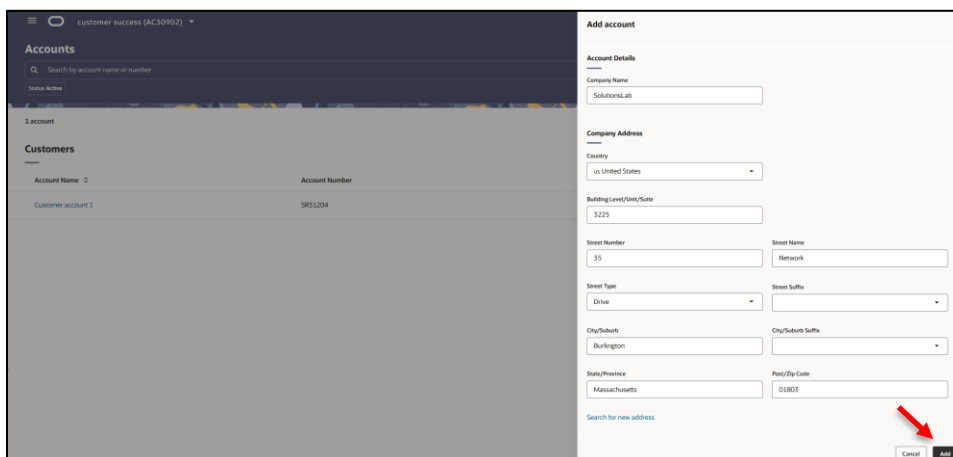
6.1.1 Add Sub Account

To begin the Oracle ICON configuration, the first step is to add a new customer account. This process establishes a secure and distinct environment for the customer's services and resources within Oracle ICON

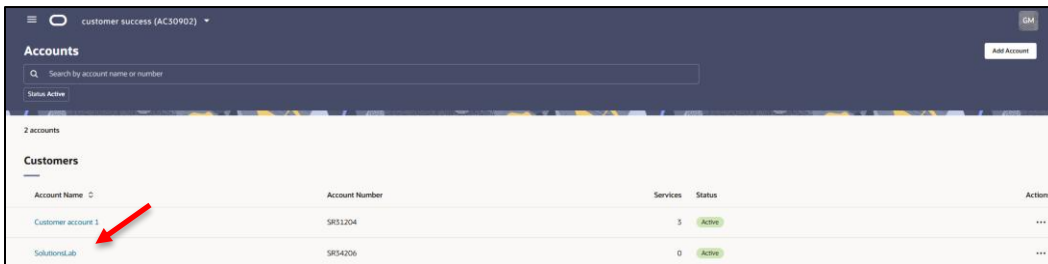


Under Add Account, enter the following:

- Company Name
- Country
- Address (search or enter manually)



- Click Add at the bottom. When provisioning of the account is completed, click *Refresh* at the bottom of the page.
- You should now see the customer account you just created in the list:

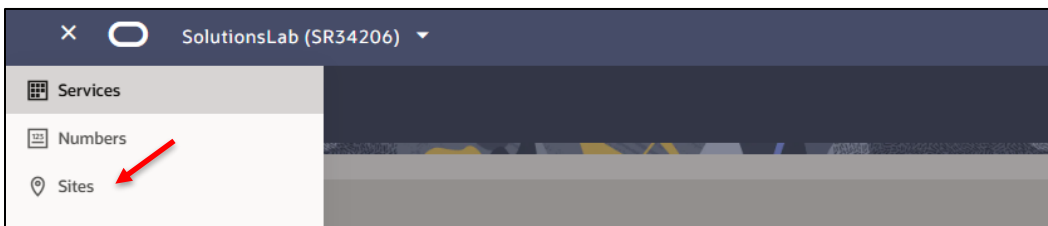


Account Name	Account Number	Services	Status	Actions
Customer account 1	SR31204	3	Active	...
SolutionsLab	SR34206	0	Active	...

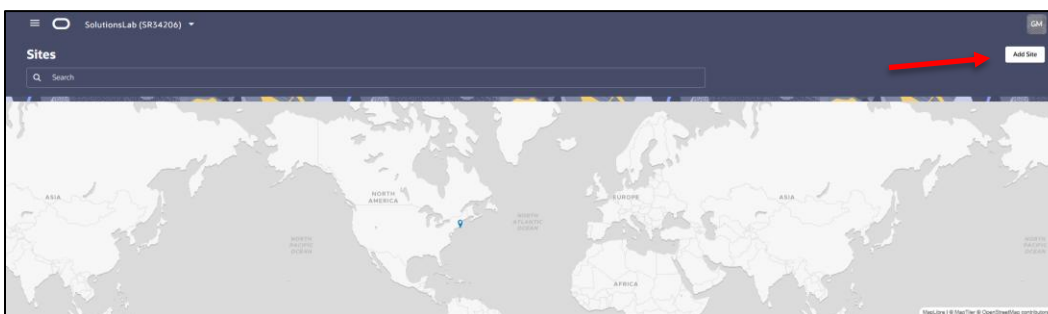
6.1.2 Add Site

A site is an object you create in Oracle Intelligent Communication Orchestration Network that contains information about the physical location using the service. The Sites page lists the sites you create and provides tools for adding and managing sites.

- Top Left Burger Menu, select sites to get to the sites page.



- Top Right, Add Site:



Enter the following information to add a Site:

- Unique Site Name
- Description for the site
- Select a County
- Address (search or enter manually)
- Contact Information

Add Site

Site Details

Site Name:

Site Description:

Country:

Building Type: Building Level/Unit/Suite:

Street Number: Street Name:

Street Type: Street Suffix:

City/Suburb: City/Suburb Suffix:

State/Province: Post/Zip Code:

Time Zone:

- Click Add at the bottom

Sites

Site Name	Numbers	Location	Services
BurlingtonLab	10	Burlington, Massachusetts, United States	None

6.1.3 Add Number Blocks

After setting up accounts and sites, you can begin adding number blocks to Oracle ICON. The Numbers Blocks page displays the **Add Number Blocks** button, a table of your number blocks, and Search capability. You can add and manage number blocks from the page.

BurlingtonLab

Address
35 Blue Sky Drive
Burlington, Massachusetts
01803
United States

Time Zone
America/New

Primary Contact
test user
6175551212
testuser@gmail.com

Starting Number Block Size Type Service

This site has no numbers.

You can add number blocks by importing a .csv file or manually. For the purposes of this example, we're adding a block of 10 numbers manually to Oracle ICON

Add Number Blocks

What site do you want to assign the number blocks?
BurlingtonLab or Add New Site

What carrier is hosting the number blocks?
Verizon - United States

How would you like to add number blocks?
☒ Add manually
☐ Import from CSV file

Add Number Blocks

Type *	SZU	Country Dial Code *	Starting Number *	Block Size *	Actions
Landline		us United States +1	7812032585	10	✓ ✕

Add Number Blocks

What site do you want to assign the number blocks?
BurlingtonLab or Add New Site

What carrier is hosting the number blocks?
Verizon - United States

How would you like to add number blocks?
☒ Add manually
☐ Import from CSV file

Add Number Blocks

Type *	SZU	Country Dial Code *	Starting Number *	Block Size *	Actions
Landline		+1	781 203 2585	10	✎ 🗑

Cancel Add

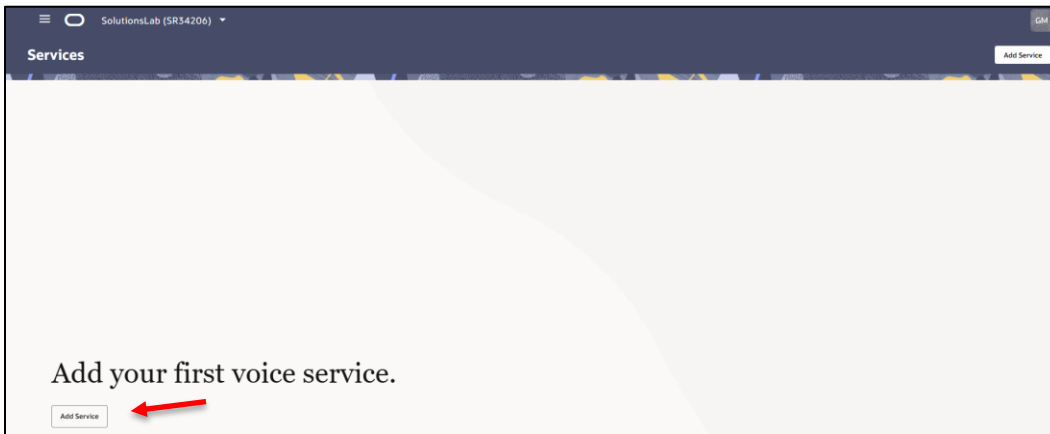
- Click add at the bottom.

6.2 Services

In Oracle ICON, you configure Services as logical objects that connect carriers to the voice, video, and media streaming services you use. The Services page provides tools to configure and manage SIP Trunk connections.

Burger Menu, top left, select Services to open the services page.

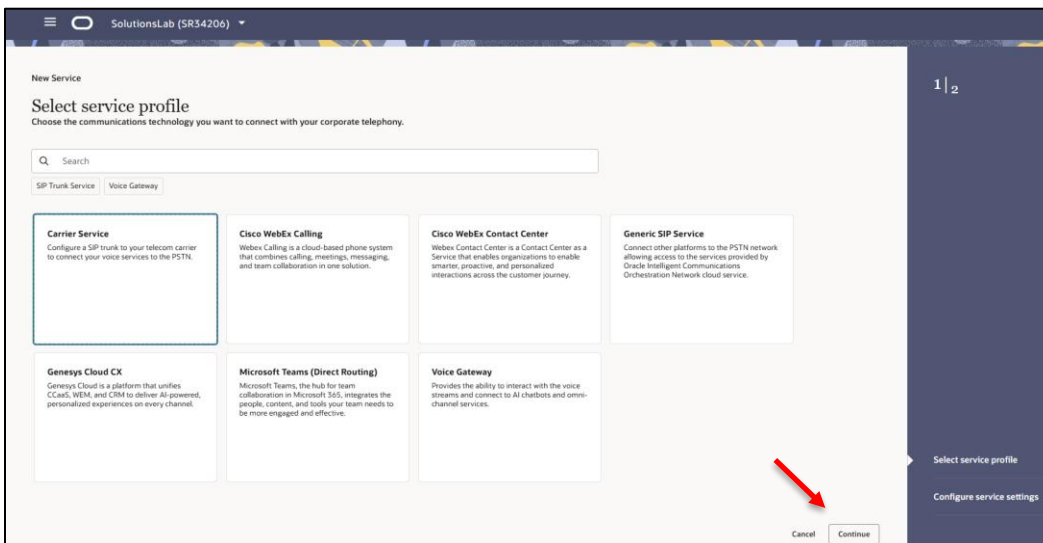




6.2.1 Connect the Carrier Service

To enable SIP trunking connectivity between your on-premises telephony system and external networks, we'll use the carrier service profile. This integration allows secure and reliable voice traffic routing through Oracle ICON to your organization's telephony infrastructure.

Follow the guided set up workflow. Complete the steps provided in the navigation pane to the right of the set-up pane. Each time you complete a step and click Continue, the workflow advances to the next step.



- Select Continue:

Under Service Settings in the Service Details section, enter the following information:

- Service Name: Assign a unique, descriptive name for your service.
- Service Region: Select the geographical region where the service will be hosted to ensure optimal performance and compliance.

SolutionsLab (SR34206)

New Service

Configure service settings

Hide Default Values

Service Details

Service Name: BurlingtonLabCarrierService

Service Region: US1 (Ashburn, United States)

Under SIP Details, provide the following information:

- SIP Signaling Transport Method: Select the protocol (such as TCP, UDP, or TLS) to be used for SIP signaling between Oracle ICON and your telephony equipment.
- SIP Termination Method: Specify how SIP sessions will be routed or terminated, such as to a specific IP address, FQDN, third party registration or authentication.

SIP Details

SIP Signalling Transport Method: TLS

SIP Termination Method: IP

For the purposes of this example, we're using TLS as the transport method to secure traffic, and IP for Sip Termination Method.

Next, you need to configure ACL's for ICON to allow traffic into the platform. Use the (+) button to set the number of ACL's to use. You should add ACL's for both signaling and media traffic.

Note: You must define the Classless Inter-Domain Routing (CIDR) using the first IP address of the network. If you use any other IP within the sub net as the base for CIDR, Oracle ICON returns an error.

Example: Use

192.168.12.0/24

instead of

192.168.12.1/24

Format the CIDR with an IP address followed by the number of network address prefix bits after the slash. For example: 192.168.1.0/32.

In this example, our signaling and media IP are in the same subnet, so we'll add it to the allow list:

Select the check box next to IP Address to add it.

1 ACL
+
Delete

☐ IP Address*

☐ 138.40.101.0/24

Inbound Server/URI

138.40.101.19

Actions
✓ ✕

Also notice the Inbound Server/URI field. This is the endpoint address for incoming calls.

SolutionsLab (SR14706)

New Service

Configure service settings

Service Details

Service Name

Service Region

SIP Details

SIP Signaling Transport Method

SIP Transport Method

IP Address*

Inbound Server/URI

Trunk Configuration

Number of Channels

Maximum CAPS

Cancel Submit

- Click submit at the bottom when completed.

SolutionsLab (SR34206)

Services

SIP Trunk Services

Add Service Group

Service Name	Profile	Sites	Numbers	Status
BurlingtonLabCarrierService	Carrier Service	0	0	Processing

Service added
Refresh page

Next, and this is very important:

- Click on the **Carrier Service** you just created to view its configuration details. In the **Outbound Server/URI** field, copy the provided FQDN. This needs to be provided to your Telco or PSTN Sip trunking provider, as it identifies the destination FQDN used for connecting to ICON.
- The Outbound Server URI is automatically assigned by Oracle Intelligent Communication Orchestration Network Cloud Service.

- This concludes the steps required to use the carrier service template in Oracle ICON to configure a connection to your on prem telephony services.
- Next, we'll use the Generic Sip Service Profile in ICON to connect your on prem telephony services to the carrier service we just created.

6.2.2 Generic Sip Service

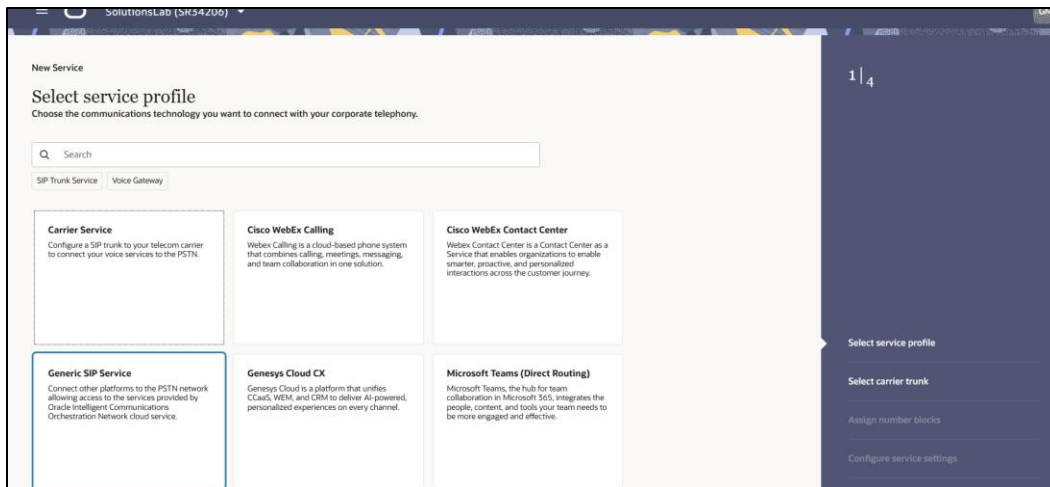
This section outlines the necessary requirements to configure your on-premises telephony system for integration with Oracle ICON. Proper configuration ensures secure and reliable SIP trunk connectivity between your organization's telephony infrastructure and the Oracle cloud service.

To connect a communications service for use with Oracle® Intelligent Communication Orchestration Network you must select the service, assign number blocks to the service, and configure the service settings.

6.2.2.1 Add Service

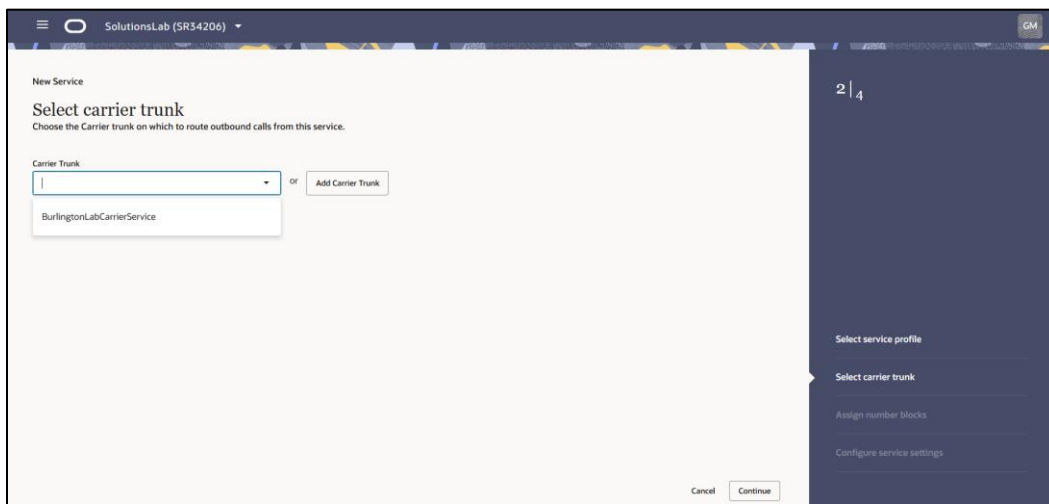
From the **Services** landing page, click the Add Service option in the top right:

Choose **Generic SIP Service** on the Select Services profile Page:



- Select Continue at the bottom.

Next, under **Select Carrier trunk**, we'll choose the Carrier Trunk we created earlier in this chapter.



- Select Continue at the bottom.

6.2.2.2 Assign Number Blocks

For this example, we will assign the number block created earlier in the guide to the Generic SIP Service.

Assign number blocks

Only number blocks not already assigned to a service are displayed

Search

Type Carrier Site Name

1 selected Add New Numbers

Starting Number	Block Size	Carrier	Type	Site Name	Status	Date Added	Action
+1 781 203 2585	10	Verizon	Landline	BurlingtonLab	Inactive	10/28/2025	

Cancel Continue

Select service profile

Select carrier trunk

Assign number blocks

Configure service settings

- Click Continue at the bottom.

6.2.2.3 Configure Service Settings

Under **Service Details**, you need to configure the following:

- Service Name: Enter the name you want for the service.
- Select a Region: Enter the geographic region where the service will operate.
- Select a Time zone: Select the time zone where the caller and callee are located, not necessarily the site time zone.

New Service

Configure service settings

Hide Default Values

Service Details

Service Name: On Prem IP-PBX

Service Region: US1 (Ashburn, United States)

Service Time Zone: America/New_York

Under **Sip Details**, you'll need to configure the following parameters:

- Sip Signaling Transport Method: Select a SIP transport method from the drop-down list.
- Sip Termination Method: Select a termination method from the drop-down list.
- ACLs: Enter the port to open for traffic coming from the service to Oracle Intelligent Communication Network Cloud Service
- IP Address: Enter the IP address of the service.

- **Inbound Server URI:** Enter the Uniform Resource Identifier (URI) to which Oracle Intelligent Communication Orchestration Network Cloud Service sends inbound calls to the platform and voice service. Typically provided by the third-party platform or voice service provider.

For the purposes of this example, we’re using TLS as the transport method to secure traffic, and IP for Sip Termination Method.

Next, you need to configure ACL’s for ICON to allow traffic into the platform. Use the (+) button to set the number of ACL’s to use. You should add ACL’s for both signaling and media traffic.

Note: You must define the Classless Inter-Domain Routing (CIDR) using the first IP address of the network. If you use any other IP within the sub net as the base for CIDR, Oracle ICON returns an error.

Example: Use

192.168.12.0/24

instead of

192.168.12.1/24

Format the CIDR with an IP address followed by the number of network address prefix bits after the slash. For example: 192.168.1.0/32.

In this example, our signaling and media IP are in the same subnet, so we’ll add it to the allow list:

Select the check box next to IP Address to add it.

SIP Details

SIP Signalling Transport Method: TLS

SIP Termination Method: IP

0 ACLs + Delete

<input checked="" type="checkbox"/> IP Address*	Actions
20.96.254.0/24	✓ ✕

Inbound Server/URI: 20.96.254.37

Next, we’ll move onto **Trunk Configuration**. For the purposes of this example, we’ll leave these at default values. For more information about each of these configurable options, please see the Oracle ICON [User Guide](#) under the Services chapter.

Trunk Configuration

Enable On-Net Calls

☒

Allows outbound calls to be routed within the platform, avoiding external carrier routing.

Enable PII Data Masking

☐

Conceals the last two digits of outbound calls in all Call Detail Records (CDRs).

Enable Bursting

☐

Allows bursting beyond the channel limit and maximum call rate for a short duration at a premium rate.

Number of channels

32

Maximum CAPS

5

Under **Number Configuration**, configure the following:

- **Default Outbound CLI:** Enter the number you want for the default outbound calling line identifier. Note: The number must be in the block you assigned to the service. When you use a number that is not in the block, the number will display unless you select Reject Invalid Number from CLI Call Handling.
- **CLI Error handling:** Select an error handling type from the drop-down list.
 - Values: Reject Invalid | Overwrite Invalid | Always.

Number Configuration

Default Outbound CLI

+17812032585

CLI Error Handling

Reject Invalid

And we'll leave **Call Forward Handling** at default values.

Call Forward Handling

Call Forwarding Destination

Call Forwarding Rule

Cancel

Submit

- Click Submit at the bottom when finished.

You'll now be returned to the Services Display Page.

SolutionsLab (SR34206)

GA

Services

Add Service

BurlingtonLabCarrierService

Intelligent Communications Distribution Network

On Prem IP-PBX

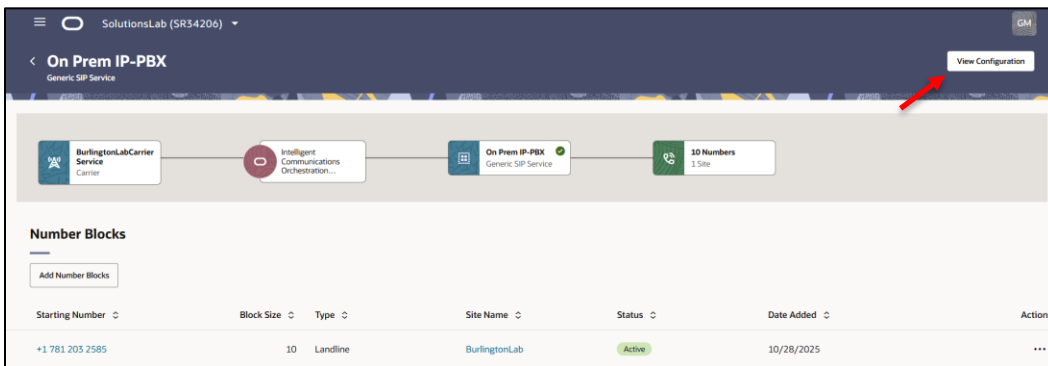
10 Numbers

SIP Trunk Services

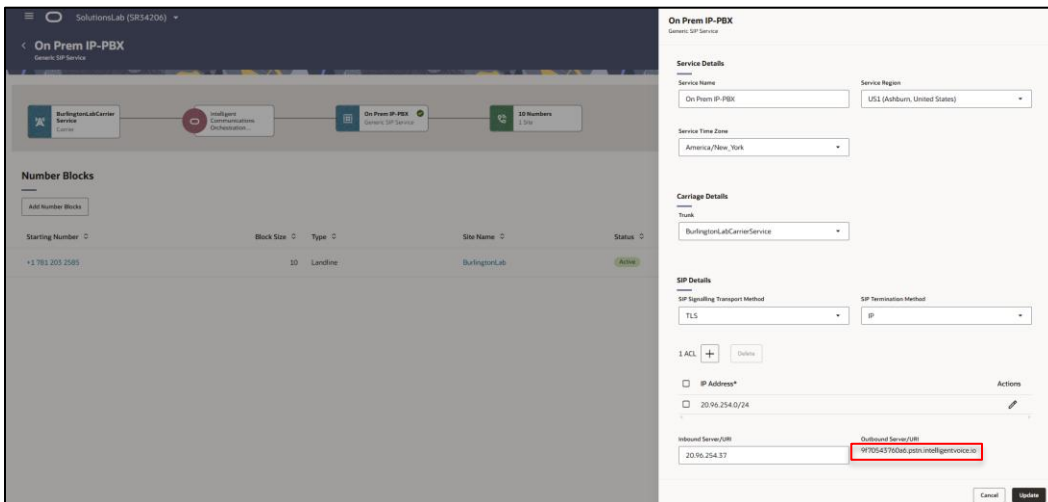
Add Service Group

Service Name	Profile	Sites	Numbers	Status	Date Added	Actions
On Prem IP-PBX	Generic SIP Service	1	10	Processing	11/12/2025	...
BurlingtonLabCarrierService	Carrier Service	0	0	Active	11/05/2025	...

Next, click on the service we just created, On Prem IP-PBX, then **View Configuration**.



This displays the settings drawer.



- This is where you obtain the **Outbound Server URI** FQDN, that you'll need for your on prem configuration.

This concludes the ICON configuration for both your Carrier Service and Generic Sip Service. As mentioned, you'll need the **Outbound Server/URI** to connect both your Carrier Service and Generic Sip Service to Oracle ICON.

6.3 Services Page Display

Initially, the **Services** page was empty since no services had been configured. After adding a carrier service and a SIP service, the page now displays a visual map and a table listing attributes for each configured service. Below is an example showing both the carrier service and SIP service. As you add additional components, such as media or other services, they will appear on the right, top, or bottom of your services map.

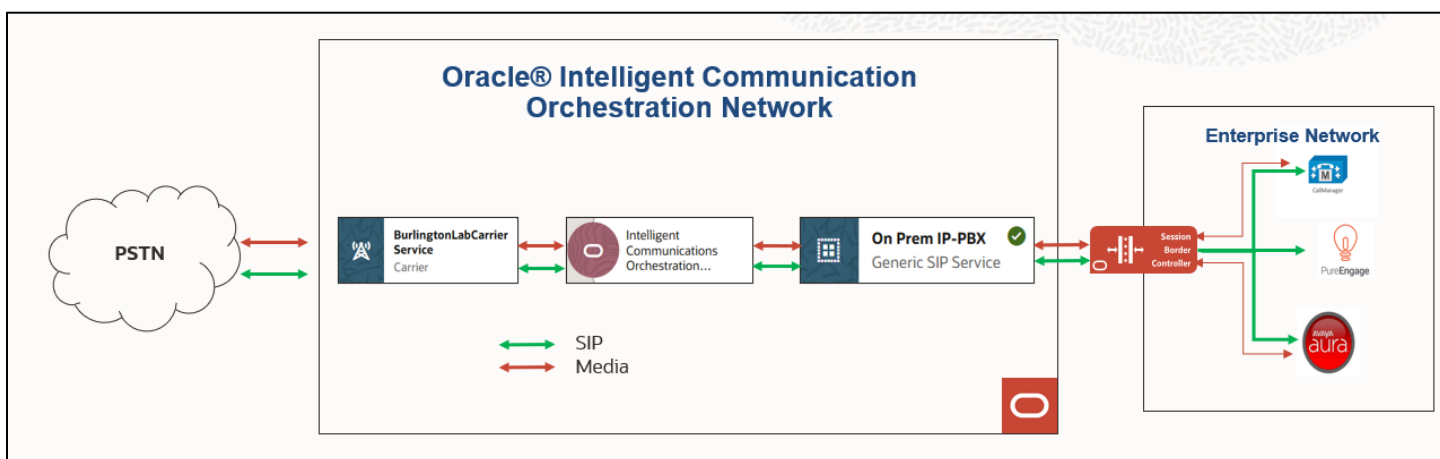
The screenshot shows the 'Services' section of the Oracle ICON SolutionsLab (SR34206) interface. At the top, there's a navigation bar with 'Services' and an 'Add Service' button. Below this, a horizontal flow diagram shows the service chain: BurlingtonLabCarrierService (Carrier) → Intelligent Communications Orchestration Network → On Prem IP-PBX (Generic SIP Service) → 10 Numbers (1 Site). Below this, the 'SIP Trunk Services' section has an 'Add Service Group' button and a table listing services.

Service Name	Profile	Sites	Numbers	Status	Date Added	Actions
On Prem IP-PBX	Generic SIP Service	1	10	Processing	11/12/2025	...
BurlingtonLabCarrierService	Carrier Service	0	0	Active	11/05/2025	...

7 On Prem Configuration

While the Oracle ICON platform is designed to be vendor agnostic and can interoperate with various telephony systems using a generic SIP profile, for the purposes of this example, we will demonstrate the configuration required to connect the ICON platform to on-premises telephony services using the Oracle Session Border Controller.

7.1 Network Diagram



7.2 Oracle SBC Configuration

There are two methods for configuring the Oracle SBC: CLI or GUI. For the purposes of this note, we'll be using the Oracle SBC GUI for all configuration examples. We will however provide the CLI path to each element.

This guide assumes the Oracle SBC has been installed, the management interface has been configured, the product has been selected, and entitlements have been assigned. Additionally, web-server-config should be enabled for GUI access. If you need more information on installing your SBC platform, please refer to the [ACLI configuration guide](#).

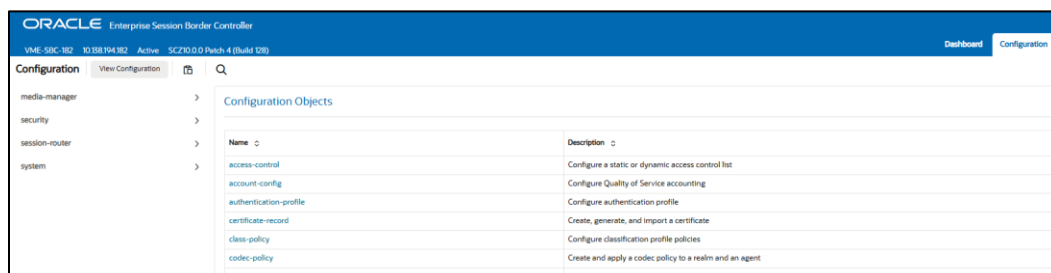
This chapter focuses exclusively on the configuration steps required to establish the Oracle ICON connection. It covers only the essential SBC elements: session agent, SIP header manipulation, local policy for routing, and the required security settings for TLS and SRTP. General SBC setup, including configuration of physical interfaces, network interfaces, realms, and other initial deployment steps is assumed to be complete and not covered in this section.

To access the Oracle SBC GUI, enter the management IP address into a web browser. When the login screen appears, enter your username and password to access the Oracle SBC.

Once you have access to the Oracle SBC GUI, click the Configuration tab at the top. This will display the Oracle SBC Configuration Objects List on the left-hand side of the screen.

Any configuration parameter not specifically listed below can remain at its Oracle SBC default value and does not require a change for the connection to Oracle ICON to function properly.

Note: The configuration examples below were captured from a system running the latest GA software, version 10.0.0.



7.2.1 Network Configuration

To connect the SBC to Oracle ICON, we must configure both a physical and network interface. The slots and ports used in this example may be different from your network setup.

7.2.1.1 Physical Interface

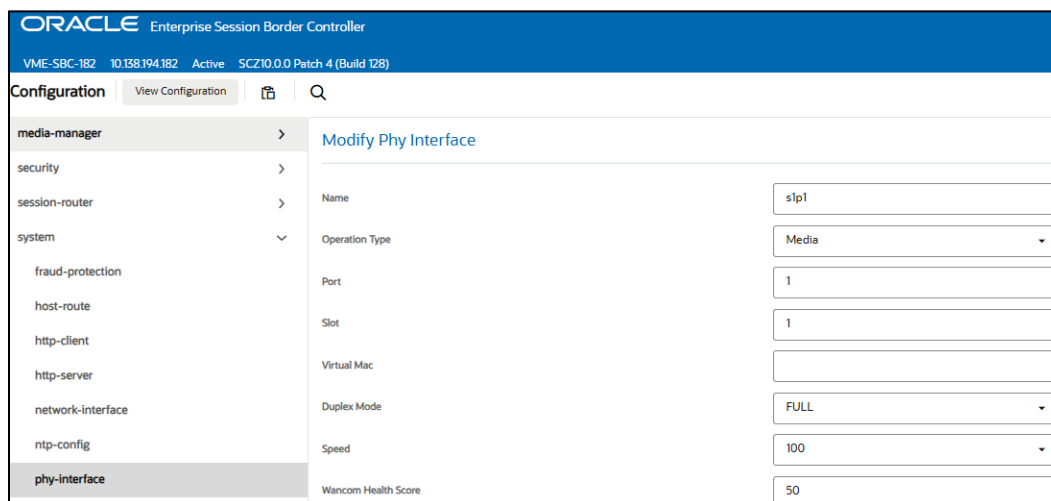
GUI Path: system/phy-interface

ACLI Path: config t→system→phy-interface

- Click Add, use the following table as a configuration example:

Config Parameter	ICON Interface
Name	s1p1
Operation Type	Media
Slot	1
Port	1

Note: Physical interface names, slot and port may vary depending on environment



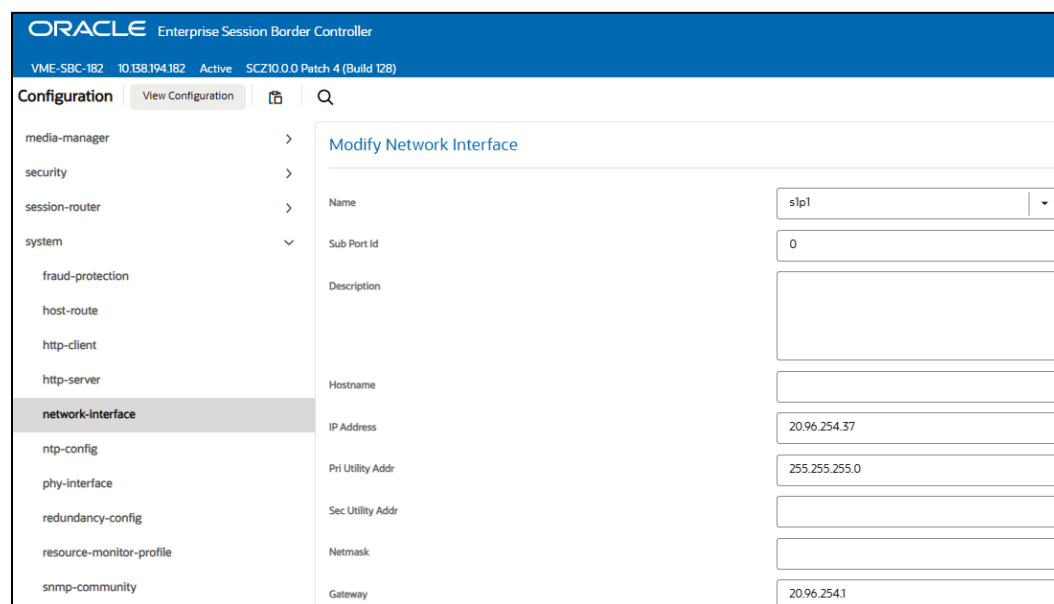
7.2.1.2 Network Interface

GUI Path: system/network-interface

ACLI Path: config t→system→network-interface

- Click Add, use the following table as a configuration example:

Config Parameter	ICON Interface
Name	s1p1
IP Address	20.96.254.37
Netmask	255.255.255.0
Gateway	20.96.254.1
DNS Primary IP	8.8.8.8
DNS Domain	Telechat.o-test06161977.com



The screenshot shows the Oracle Enterprise Session Border Controller (SBC) configuration interface. The top header displays the Oracle logo and the product name. Below the header, the configuration path is shown: VME-SBC-182, 10.138.194.182, Active, SCZ10.0.0 Patch 4 (Build 128). The left sidebar contains a list of configuration categories, with 'network-interface' selected. The main area displays the 'Modify Network Interface' form. The form includes fields for Name (s1p1), Sub Port Id (0), Description, Hostname, IP Address (20.96.254.37), Pri Utility Addr (255.255.255.0), Sec Utility Addr, Netmask, and Gateway (20.96.254.1).

- Click OK at the bottom of each after entering config information.

7.2.2 Security Configuration

This section describes how to configure the SBC for both TLS and SRTP communication. If you are not using TLS to secure your sip trunk, skip this section and move to Media Configuration.

For Session Border Controller interfaces that interconnect with Oracle® Intelligent Communication Orchestration Network service points by way of TLS, ensure to add Oracle Root CA to its trusted certificate list. The root CA "Digicert Global Root G2" can be downloaded from <https://knowledge.digicert.com/general-information/digicert-trusted-root-authority-certificates>.

7.2.2.1 Certificate Records

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

This section walks you through how to configure a certificate record and import the DigiCert Global Root G2 certificate into the SBC’s configuration.

GUI Path: security/certificate-record

ACLI Path: config t→security→certificate-record

To Configure the certificate record: Click Add and use the following example to configure the SBC certificate.

7.2.2.1.1 End Entity Certificate

The SBC's end entity certificate is the certificate the SBC presents to secure a connection. The only requirements when configuring this certificate is the common name must contain the SBC's FQDN and the extended key usage list must contain both serverAuth and clientAuth. In this example our common name will be **telechat.o-test06161977.com**. You must also give it a name. All other fields are optional and can remain at default values.

To Configure the certificate record:

Click Add and use the following example to configure the SBC certificate.

The screenshot shows the Oracle Enterprise Session Border Controller configuration interface. The top header is blue with the Oracle logo and the text 'Enterprise Session Border Controller'. Below the header, there is a status bar showing 'VME-SBC-182', '10.188.194.182', 'Active', and 'SCZ10.0.0 Patch 4 (Build 128)'. The left sidebar is titled 'Configuration' and has a search icon. It lists several configuration categories: 'media-manager', 'security', 'authentication-profile', 'certificate-record' (which is highlighted), 'global-trusted-ca', 'tls-global', 'tls-profile', 'session-router', and 'system'. The main area is titled 'Modify Certificate Record' and contains a form with the following fields: 'Name' (Telechat2025), 'Country' (US), 'State' (Texas), 'Locality' (Austin), 'Organization' (Oracle Corporation), 'Unit' (empty), 'Common Name' (telechat.o-test06161977.com), 'Key Algor' (rsa), 'Digest Algor' (sha256), and 'Ecdsa Key Size' (p256).

- Click OK at the bottom.

Next, using this same procedure, configure certificate records for the Root CA certificates.

7.2.2.2 Root CA and Intermediate Certificates

7.2.2.2.1 DigiCert Global Root G2

The screenshot shows the Oracle Enterprise Session Border Controller (SBC) GUI. The top header displays 'ORACLE Enterprise Session Border Controller' and system information: 'VME-SBC-182', '10.138.194.182', 'Active', and 'SCZ10.0.0 Patch 4 (Build 128)'. The left sidebar contains a 'Configuration' menu with a search icon and a list of configuration items: 'media-manager', 'security', 'authentication-profile', 'certificate-record' (highlighted), 'global-trusted-ca', 'tls-global', 'tls-profile', 'session-router', and 'system'. The main content area is titled 'Modify Certificate Record' and contains a form with the following fields:

Field	Value
Name	DigiCertGlobalRootG2
Country	US
State	MA
Locality	Burlington
Organization	DigiCert
Unit	www.digicert.com
Common Name	DigiCert Global Root G2
Key Algor	rsa
Digest Algor	sha256
Ecdsa Key Size	p256

Go Daddy Root

The following, GoDaddyRoot, is the root CA certificate used to sign the SBC's end entity certificate. As mentioned above, your root CA and/or intermediate certificate may differ. This is for example purposes only.

The screenshot shows the Oracle Enterprise Session Border Controller (SBC) GUI, similar to the previous one, but with the 'certificate-record' configuration item selected. The main content area is titled 'Modify Certificate Record' and contains a form with the following fields:

Field	Value
Name	GoDaddyRoot
Country	US
State	MA
Locality	Burlington
Organization	Engineering
Unit	
Common Name	GoDaddy Class2 Root CA

- Save and activate your configuration.

7.2.2.3 Generate Certificate Signing Request

Now that the SBC's certificate has been configured, create a certificate signing request for the SBC's end entity only. This is not required for any of the Root CA or intermediate certificates that have been created.

On the certificate record page in the Oracle SBC GUI, select the SBC's end entity certificate that was created above, and click the "generate" tab at the top:

ORACLE Enterprise Session Border Controller

VME-SBC-182 10.138.194.182 Active SCZ10.0.0 Patch 4 (Build 128)

Configuration View Configuration

- media-manager
- security
 - authentication-profile
 - certificate-record**
 - global-trusted-ca
 - tls-global

Certificate Record

Search : telechat

PKCS12

Action	Name	Country
<input checked="" type="checkbox"/>	Telechat2025	US

Generate certificate response

Copy the following information and send to a CA authority.

```
-----BEGIN CERTIFICATE REQUEST-----
MIICOTCCAbkCAQAwWTElMAkGA1UEBhMCVVMxHzANBgNVBAgTAkI1BMRMwEQYDVQQH
EwpCdXJsaW5ndG9uMRQwEgYDVQQKEwtFbmdpbmVlcmluZzESMBAGAIUEAxMJaGVs
bG8uY29tMIIIBjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAy9NyJra4K7jW
JbY6+OAsfa7gBcZFWYFANIhZQAN8xyGo2tCkDoYae4UtzeE9iL/4E0xgwXcXdyTG
D4jEPKAA2KQfh/S3ykSkMGZFUYEHdyxrSlexa5QWYGHl+LMs+ZmRXEdiyPCbNCgC
p3RuFgU9cO8yikwJnekxBSrXc7M8Jm0TUzgMsVhJBXs/DqopZNxk9ny0k1mleSqX
9atbRI2tr79Q8LccBxgn7iXsmldVdat4EH8Hg4jKrmOag/ION/WzjnGHB4VPjekw
+9llycDyFealF786FBjPQlDbmxcclbU79xsU4/Nde8kzqFlh8w2hP+6dRqH6xVsP
P0yPY7oN7QIDAQABoDMwMQYJKoZIhvcNAQkOMSQwIjALBgNVHQ8EBAMCBaAwEwYD
VR0IbAwwCgYIKwYBBQUHAWAwEwDQYJKoZIhvcNAQELBQADggEBAFxlUP0a/x7dROz0X
eSqsehcj07YheH96yQj75zN9NEM4G8+SVylQK5MVGPCWiuGi/TyOo633C3ianxM
Ne+2mdlhI9A7rwqiRcWrVtCeW4H321TqahUe64+MSU9xfoTvwk7czJSVz0Cs2L+y
InKrbt2pWG+51MjcCEmwayVQVv31JwQGcrskFleRsvdTLIAdSVFJuQ9YdnpXsy
R759gX3TXeoYDk+e9cUWny/uZnYOke77GRWPTK3R6Rh1GmGYb9lw6oEpdVn81uWo
U034Flssg2Ur2bd4d9KIIMA4U8948tQ5WMOmR4Tbg6NKMkl+Zi8bsyOuZ0oQODoT
WW6q5sY=
-----END CERTIFICATE REQUEST-----
```

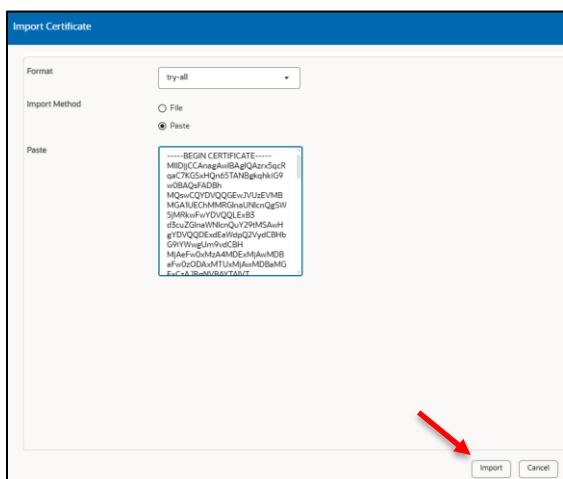
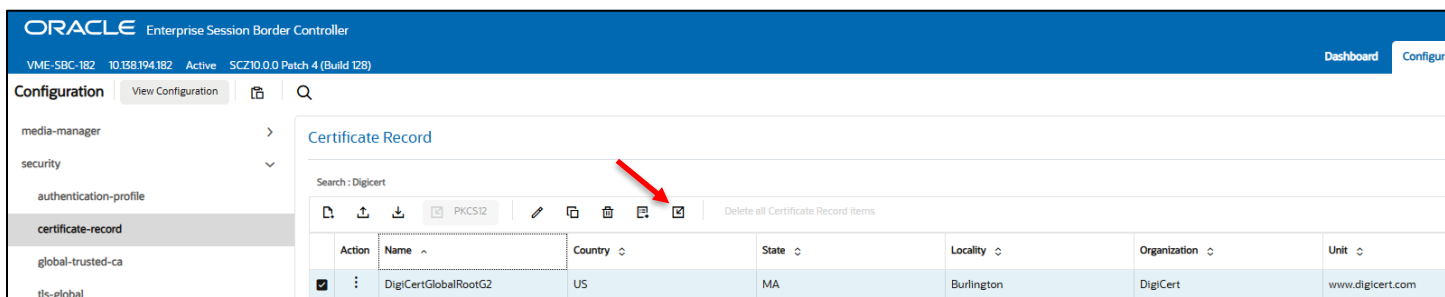
Copy/paste the text that gets printed on the screen as shown above and upload to your CA server for signature. Also note, **another save and activate is required** before you can import the certificates to each certificate record created above.

Once you have received the signed certificate back from your signing authority, we can now import all certificates to the SBC configuration.

7.2.2.4 Import Certificates to SBC

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

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



- Once pasted in the text box, select Import at the bottom, then save and activate your configuration.

Repeat these steps to import all the root and intermediate CA certificates into the SBC:

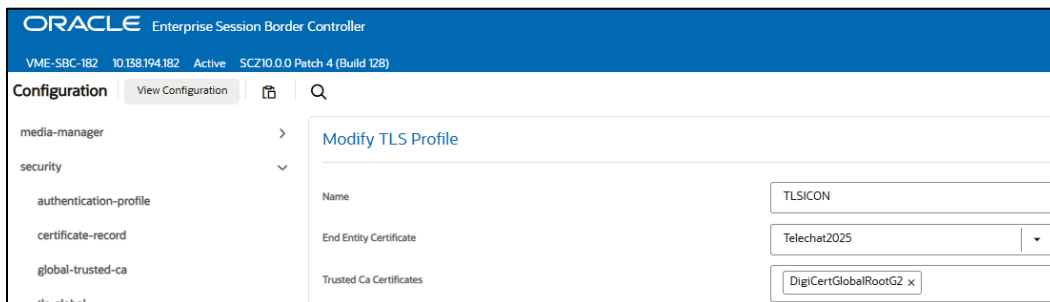
7.2.2.5 TLS Profile

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

GUI Path: security/tls-profile

ACLI Path: config t→security→tls-profile

- Click Add, use the example below to add the DigiCert Root CA G2 to the trusted CA list.



- Select OK at the bottom

Next, we'll move to securing media between the SBC and Oracle ICON.

7.2.3 Media Security

This section outlines how to configure support for media security between the OCSBC and Oracle ICON.

7.2.3.1 SDES Profile

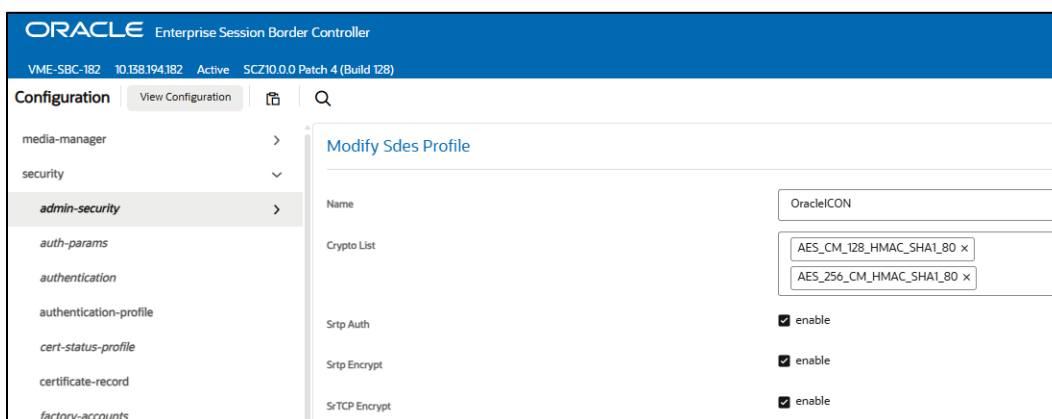
This is the first element to be configured for media security, where the algorithm and the crypto's to be used are configured. The only crypto-suite option supported by Oracle ICON is AES_CM_128_HMAC_SHA1_80 and must be included in the crypto list.

In the SBC's GUI, on the bottom left, you will need to enable the switch "Show All" to access the media security configuration elements.

GUI Path: security/media-security/sdes-profile

ACLI Path: config t→security→media-security→sdes-profile

- Click Add, and use the example below to configure



The screenshot displays the Oracle Enterprise Session Border Controller (SBC) GUI. The top header shows the system status: VME-SBC-182, 10.138.194.182, Active, SCZ10.0.0 Patch 4 (Build 128). The left sidebar contains a 'Configuration' menu with various options, including 'media-manager', 'security', 'admin-security', 'auth-params', 'authentication', 'authentication-profile', 'cert-status-profile', 'certificate-record', and 'factory-accounts'. The 'admin-security' option is selected, and the 'Modify Sdes Profile' page is displayed. The page includes a search bar and a list of configuration items. The 'Name' field is set to 'OracleICON'. The 'Crypto List' field contains two entries: 'AES_CM_128_HMAC_SHA1_80' and 'AES_256_CM_HMAC_SHA1_80'. The 'Srtcp Auth' checkbox is checked and labeled 'enable'. The 'Srtcp Encrypt' checkbox is checked and labeled 'enable'. The 'Srtcp Encrypt' checkbox is checked and labeled 'enable'.

- Select OK at the bottom

7.2.3.2 Media Security Policy

Media-sec-policy instructs the SBC how to handle the SDP received/sent under a realm (RTP, SRTP or any) and, if SRTP needs to be used, the sdes-profile that needs to be used.

GUI Path: security/media-security/media-sec-policy

ACLI Path: config t→security→media-security→media-sec-policy

- Click Add, use the examples below to configure

- Select OK at the bottom when finished.

This concludes the security configuration portion of this application note. We'll now move on to configuring sip manipulations.

7.2.4 Media Configuration

This section will guide you through the configuration of realms and steering pools, both of which are required for the SBC to handle signaling and media flows toward Oracle ICON.

7.2.4.1 Realm Config

Realms are a logical distinction representing routes (or groups of routes) reachable by the Oracle® Session Border Controller and what kinds of resources and special functions apply to those routes. Realms are used as a basis for determining ingress and egress associations to network interfaces.

GUI Path; media-manger/realm-config

ACLI Path: config t→media-manger→realm-config

- Click Add and use the following table as a configuration example for the realms. The following parameters are all required unless mentioned as optional below.

Config Parameter	ICON Realm
Identifier	OracleICON
Network Interface	S1p1:0
Mm in realm	<input checked="" type="checkbox"/>
Media Security Policy	OracleICON
Access control Trust Level	High

Also notice the realm configuration is where we assign some of the elements configured earlier in this document. IE...

- Network Interface
- Media Security Policy

The screenshot shows the Oracle Enterprise Session Border Controller configuration interface. The top header displays 'ORACLE Enterprise Session Border Controller' and system information: 'VME-SBC-182 10.138.194.182 Active SCZ10.0.0 Patch 4 (Build 128)'. The left sidebar shows a configuration tree with 'realm-config' selected. The main panel is titled 'Add Realm Config' and contains the following fields:

Field	Value
Identifier	OracleICON
Description	Realm facing Oracle ICON
Addr Prefix	0.0.0.0
Network Interfaces	s1p1:0.4 x
Media Realm List	
Mm In Realm	<input checked="" type="checkbox"/> enable

- Select OK at the bottom.

7.2.4.2 Steering Pool

Steering pools define sets of ports that are used for steering media flows through the OCSBC.

These selected ports are used to modify the SDP to cause receiving session agents to direct their media toward this system.

GUI Path: media-manger/steering-pool

ACLI Path: config t→media-manger→steering-pool

- Click Add, and use the below examples to configure.

The screenshot shows the Oracle Enterprise Session Border Controller configuration interface. The top header displays 'ORACLE Enterprise Session Border Controller' and system information: 'VME-SBC-182 10.138.194.182 Active SCZ10.0.0 Patch 4 (Build 128)'. The left sidebar shows a configuration tree with 'steering-pool' selected. The main panel is titled 'Add Steering Pool' and contains the following fields:

Field	Value
IP Address	20.96.254.37
Start Port	10000
End Port	10999
Realm ID	OracleICON
Network Interface	
Port Allocation Strategy	mixed

- Select OK at the bottom.

We will now work through configuring what is needed for the SBC to handle SIP signaling.

7.2.5 Sip Configuration

This section outlines the configuration parameters required for processing, modifying and securing sip signaling traffic.

7.2.5.1 Sip Manipulation

To ensure the SBC generates sip messages that include the Outbound Server/URI in the TO headers toward ICON, we'll configure the following sip-manipulation rule.

GUI Path: session router/sip manipulation

ACL Path: config t→session-router→sip-manipulation

Click Add, and use the following example to configure:

The screenshot shows the Oracle Enterprise Session Border Controller GUI. The top bar indicates the device is VME-SBC-182, IP 10.158.194.182, Active, running SC210.0.0 Patch 4 (Build 128). The left sidebar lists various configuration categories, with 'session-recording-server' selected. The main panel is titled 'Modify SIP Manipulation'. It contains fields for Name (ICON_OUT), Description (Sip Manipulation to modify the TO URI HOST toward ICON), Split Headers, and Join Headers. Below these is a 'CfgRules' section with an 'Add' button and a table. The table has columns for Action, Name, and Element Type. A single rule is listed with Action ':', Name 'ToHost', and Element Type 'header-rule'.

Action	Name	Element Type
:	ToHost	header-rule

The screenshot shows the Oracle Enterprise Session Border Controller GUI. The top bar indicates the device is VME-SBC-182, IP 10.158.194.182, Active, running SC210.0.0 Patch 4 (Build 128). The left sidebar lists various configuration categories, with 'sip-feature' selected. The main panel is titled 'Modify Sip manipulation / header rule'. It contains fields for Name (ToHost), Header Name (TO), Action (manipulate), Comparison Type (case-sensitive), Msg Type (any), Methods (INVITE x), Match Value, and New Value. Below these is a 'CfgRules' section with an 'Add' button and a table. The table has columns for Action, Name, and Element Type. A single rule is listed with Action ':', Name 'modifyhost', and Element Type 'element-rule'.

Action	Name	Element Type
:	modifyhost	element-rule

Notice the new value matches the [Outbound Server/URI](#) in the Oracle ICON **Generic Sip Service** Config.

7.2.5.2 Sip Interface

The SIP interface defines the transport addresses (IP address and port) upon which the Oracle SBC receives and sends SIP messages.

GUI Path: session-router/sip-interface

ACL Path: config t→session-router→sip-interface

Click Add, and use the table below as an example to configure:

Config Parameter	Oracle ICON
Realm ID	OracleICON
Sip Port Config Parmeter	Teams
Address	20.96.254.37
Port	5061
Transport protocol	TLS
TLS profile	TLSICON
Allow anonymous	Agents only
Out Manipulationid	ICON_OUT

Notice this is where we assign the TLS profile configured under the [Security](#) section of this guide and the sip-manipulation which ensures the SBC replaced the TO Host with the [Outbound Server/URI](#) on sip messages toward Oracle ICON.

7.2.5.3 Session Agent

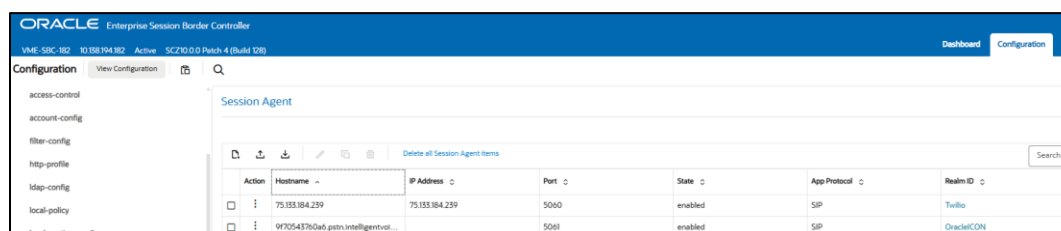
Session Agents are configuration elements which are trusted agents that can both send and receive traffic from the Oracle SBC with direct access to the trusted data path.

GUI Path: session-router/session-agent

ACL Path: config t→session-router→session-agent

Click Add and use the following table below to configure your session agent for ICON. Please note, the hostname of this session agent must contain the [Outbound Server/URI](#) automatically generated by Oracle ICON under Generic Sip Service.

Config Parameter	Session Agent Value
Hostname	9f70543760a6.pstn.intelligentvoice.io
Port	5061
Transport Method	StaticTLS
Realm ID	OracleICON
Ping Method	OPTIONS
Ping Interval	30
Ping Response	<input checked="" type="checkbox"/>



The screenshot shows the Oracle Enterprise Session Border Controller (SBC) Configuration page. The left sidebar lists various configuration sections: access-control, account-config, filter-config, http-profile, ldap-config, local-policy, and local-routing-config. The main content area is titled 'Session Agent' and displays a table with columns: Action, Hostname, IP Address, Port, State, App Protocol, and Realm ID. Two entries are listed:

Action	Hostname	IP Address	Port	State	App Protocol	Realm ID
<input type="checkbox"/>	75.155.184.239	75.155.184.239	5060	enabled	SIP	Tvilio
<input type="checkbox"/>	9f70543760a6.pstn.intelligentvoice.io		5061	enabled	SIP	OracleICON

- Select OK at the bottom when finished.

7.2.6 Routing Config

Now that most signaling, security, and media configurations are complete, you can configure the SBC to route calls to Oracle ICON. For the purposes of this example, we'll demonstrate how to set up local policies to route calls from your network environment to Oracle ICON.

Routing calls inbound from Oracle ICON to a destination within your on-premises telephony environment (such as PBXs, phones, or other systems) is outside the scope of this example. Configuration of inbound routing is the customer's responsibility and should align with your network and security standards.

GUI Path: session-router/local-policy

ACL Path: config t→session-router→local-policy

The screenshot shows the Oracle Enterprise Session Border Controller configuration page. The left sidebar lists various configuration sections, with 'local-policy' selected. The main area displays the 'Modify Local Policy Entries' form. The form includes fields for 'From Address', 'To Address', 'Source Realm' (set to 'Generic_ContactCenter_Platform'), and 'Description'. The 'Policy Priority' is set to 'none'. The 'Policy Attributes' section shows a message: 'No policy attribute to display. Please add.' with an 'Add' button below it.

After entering values for to and from address and source realm, click Add under policy attribute to configure the next hop destination.

The screenshot shows the 'Add Local policy / policy attribute' form in the Oracle Enterprise Session Border Controller configuration page. The form includes fields for 'Next Hop' (set to '9f70543760a6.pstn.intelligentvoice.io'), 'Realm' (set to 'OracleICON'), and 'Action' (set to 'replace-uri').

Notice in the policy attributes that the next hop value is set to the [session agent](#) configured with the hostname of the [outbound Server/URI](#). You must set the **action** to **replace-uri**, which ensures the SBC replaces the host portion of the Request URI with the hostname of this session agent for all requests sent to the Oracle ICON platform.

- Click OK at the bottom.

This concludes the example setup of the Oracle Session Border Controller for integration with Oracle ICON.

8 Syntax Requirements for SIP Invite and Sip Options

Oracle Intelligent Communication Orchestration Network has requirements for the syntax of SIP messages. This section covers high-level requirements to SIP syntax of Invite and Options messages. The information can be used as a first step during troubleshooting when calls don't go through. From our experience most of the issues are related to the wrong syntax of SIP messages.

8.1 Requirements for Invite and Options

Picture 1 Example of INVITE

```
INVITE sip:17815551345@9f70543760a6.pstn.intelligentvoice.io:5061;user=phone;transport=tls SIP/2.0
Via: SIP/2.0/TLS 10.1.3.4:5061;branch=z9hG4bKcm87o2205o1rkbb1vnp0.1
Max-Forwards: 65
From: "Test" <sip:+17815551212@telechat.o-test06161977.com:5060;user=phone>;tag=19fc69fc0a020100
To: <sip:+17815551345@9f70543760a6.pstn.intelligentvoice.io:5061;user=phone>
Call-ID: 1-19fc69fc0a020100.318f0133@68.68.117.67
CSeq: 2 INVITE
Contact: <sip:+17815551212@telechat.o-test06161977.com:5061;user=phone;transport=tls>;sip.ice
Allow: ACK, BYE, CANCEL, INVITE, OPTIONS, PRACK, REFER
User-Agent: T7100/3.0
Supported: 100rel
Content-Type: application/sdp
Content-Length: 550
```

Picture 2 Example of OPTIONS

```
OPTIONS sip:9f70543760a6.pstn.intelligentvoice.io:5061;transport=tls SIP/2.0
Via: SIP/2.0/TLS 10.1.3.4:5061;branch=z9hG4bKumatcr30fod0o13gi060
Call-ID: 4cf0181d4d07a995bcc46b8cd42f9240020000sg52@10.1.3.4
To: sip:ping@9f70543760a6.pstn.intelligentvoice.io
From: <sip:ping@telechat.o-test06161977.com>;tag=0b8d8daa0f6b1665b420aa417f5f4b18000sg52
Max-Forwards: 70
CSeq: 3723 OPTIONS
Content-Length: 0
```

9 Appendix A

9.1 Oracle ICON Source IP Addresses by Region

9.1.1 Sip Addresses


We send SIP traffic from the following IP addresses depending on the region.

Sip Addresses	United States	United Kingdom	Europe
Elastic SIP Trunking	<ul style="list-style-type: none">141.148.94.123141.148.19.91141.148.19.207	<ul style="list-style-type: none">132.226.133.10141.147.102.157130.162.174.170	<ul style="list-style-type: none">158.180.40.2379.76.125.22692.5.45.176
BYOC SIP Trunks	<ul style="list-style-type: none">157.151.185.240129.80.163.26129.80.237.143	<ul style="list-style-type: none">141.147.93.13779.72.90.13479.72.74.167	<ul style="list-style-type: none">141.144.252.12152.70.25.13292.5.21.254


9.1.2 RTP Address


We use the following IPv4 addresses to anchor media in each Oracle ICON Region:


RTP Addresses	United States	United Kingdom	Europe
RTP Addresses	<ul style="list-style-type: none">152.70.194.115129.158.41.18129.80.0.17141.148.65.154129.80.168.72129.153.11.4	<ul style="list-style-type: none">145.241.255.210145.241.215.174141.147.86.5141.147.72.109193.123.190.92141.147.108.181	<ul style="list-style-type: none">92.5.74.5192.5.81.14889.168.85.24489.168.101.27129.159.31.17138.2.190.141




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