



Deployment Of Oracle® Enterprise Session Router SIP Proxy in Contact Center Enterprise Solution

First Published: 2023-04-06

Last Updated: 2023-09-01

Americas Headquarters

Cisco Systems, Inc.

170 West Tasman Drive

San Jose, CA 95134-1706 USA

<http://www.cisco.com> Tel: 408 526-4000

800 553-NETS (6387) Fax: 408 527-0883

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies are considered un-Controlled copies and the original on-line version should be referred to for latest version.

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <http://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

© 2023 Cisco Systems, Inc. All rights reserved.

Contents

Preface	5
Change History.....	5
About This Guide	5
Audience	5
Related Documents.....	5
Communications, Services, and Additional Information	7
Field Notice	7
Documentation Feedback.....	7
Overview	8
Design Considerations	8
Ingress, Egress, and VVB High Availability Considerations	8
SIP Proxy Licensing and Ordering	9
System Requirement	9
Virtual Machine Requirements.....	9
Installation	9
Downloading the Oracle® Enterprise Session Router SIP Proxy Oracle Virtual Machine.....	9
Downloading the Oracle® Enterprise Session Router SIP Proxy OVA.....	11
Prerequisites	11
Procedure	11
Oracle® Enterprise Session Router SIP Proxy – Product Setup.....	12
License Provisioning and Session Capacity Configuration	13
Interface Mapping	14
Oracle® Enterprise Session Router SIP Proxy Deployment in CCE Solution	15
Oracle® Enterprise Session Router SIP Proxy configurations	15
Cisco Unified Call Manager Configurations	17
Cisco Unified Customer Voice Portal Configurations	18
Cisco Unified Border Element Configurations	20
Oracle® Enterprise Session Router Load Balancing Across ASR/TTS Servers	21
Prerequisite.....	21
Procedure	21
Configuring Oracle SIP Proxy	21

Configuring Cisco Virtualized Voice Browser	22
Configuring United CCE for Outbound Option	23
Oracle® Enterprise Session Router SIP Proxy – High Availability.....	23
Oracle® Enterprise Session Router SIP Proxy troubleshooting.....	24
Security Aspects	25
Performance and Monitoring	25

Preface

Change History

This table lists changes made to this guide. Most recent changes appear at the top.

Change	See	Date
Renamed Oracle® Communication Session Router to Oracle® Enterprise Session Router. Updates to various sections in the document.	SIP Proxy Licensing and Ordering Oracle® Enterprise Session Router SIP Proxy – Product Setup Oracle® Enterprise Session Router Load Balancing Across ASR/TTS Servers Performance and Monitoring	September 01, 2023
Removed IP address for ASR/TTS	Oracle® Enterprise Session Router Load Balancing Across ASR/TTS Servers	April 11, 2023
Initial Release of the document		April 6, 2023

About This Guide

This guide describes how to install, use, and configure the Oracle® Enterprise Session Router SIP Proxy in the Packaged CCE/Unified CCE contact center environment. Oracle® Enterprise Session Router SIP Proxy is commercialized by Oracle. For any pre-sales/sales inquiries, contact Oracle Communications team:

- NAM Region: na_cgbu_ww_grp@oracle.com
- EMEA Region: emea_cgbu_ww_grp@oracle.com
- JAPAC Region: japac_cgbu_ww_grp@oracle.com
- LAD Region: lad_cgbu_ww_grp@oracle.com

Audience

This guide is primarily intended for Packaged CCE/Unified CCE partners and service providers who will be with provisioning Oracle® Enterprise Session Router SIP proxy server.

Related Documents

Refer to the following documents for more details about the subjects discussed in this guide.

Document	Link
Oracle Enterprise Session-Router Licensing guide	Oracle® Enterprise Session Router License Document
Oracle Communications documentation ¹	Oracle® Enterprise Session Border Controller and Enterprise Session Router

¹ Note that Oracle Enterprise Session Router shares many characteristics and capabilities as Oracle Enterprise Session Border Controller, and, as such, Oracle Enterprise Session Router and Oracle Session Border Controller will have common documentation in some cases.

Oracle Communications guide to setup High Availability mode	Set Up High Availability Mode
SNMP	SNMP Configuration Overview

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you are looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions, and services, visit Cisco Marketplace.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.
- Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.
- For further assistance on Oracle Enterprise Session Router, contact Oracle Communications to the e-mail contacts provided in the [About This Guide](#) section.

Field Notice

Cisco publishes Field Notices to notify customers and partners about significant issues in Cisco products that typically require an upgrade, workaround, or other user action. For more information, see [Product Field Notice Summary](#).

You can create custom subscriptions for Cisco products, series, or software to receive email alerts or consume RSS feeds when new announcements are released for the following notices:

- Cisco Security Advisories
- Field Notices
- End-of-Sale or Support Announcements
- Software Updates
- Updates to Known Bugs

For more information on creating custom subscriptions, see [My Notifications](#).

Documentation Feedback

To provide comments about this document, send an email message to the following address: contactcenterproducts_docfeedback@cisco.com

We appreciate your comments.

Overview

This guide provides information about installation, usage, and configuration of the Oracle® Enterprise Session Router Session Initiation Protocol (SIP) Proxy in the Packaged/ Unified Contact Center Enterprise contact center environment. To use Oracle® Enterprise Session Router in your production environment, you must acquire a commercial license. Additionally, you can obtain a 30-Days Oracle Trial License Agreement, exclusive for evaluation and testing use in a non-production environment at [Oracle Software Delivery Cloud](#).

Design Considerations

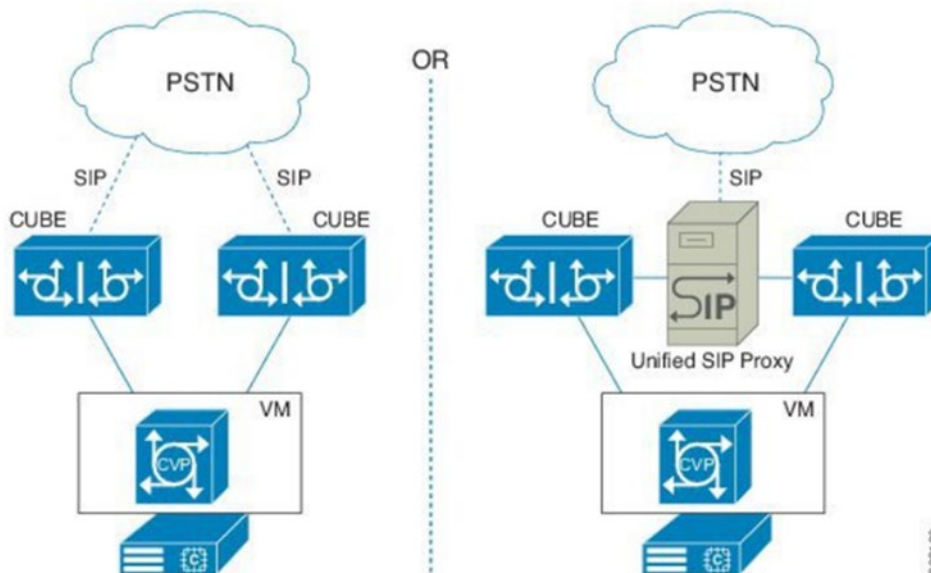
This section explains the design and deployment of Oracle® Enterprise Session Router SIP Proxy in your contact center enterprise solution.

Ingress, Egress, and VVB High Availability Considerations

High available contact center designs start with the network infrastructure for data, multimedia, and voice traffic. A “single point of failure” in your network infrastructure devalues any other high availability features that you design into the contact center. Begin with the Public Switched Telephone Network (PSTN) and ensure that incoming calls have multiple paths for reaching Unified Customer Voice Portal (CVP) for initial treatment and queuing.

Ideally, design at least two SIP trunks each connecting to a separate Cisco Unified Border Element (CUBE). If any CUBE or SIP trunk fails, the PSTN can route all traffic through the remaining SIP trunks. The PSTN routes either by configuring all the SIP trunks as a large trunk group or by configuring rerouting or overflow routing to the other SIP trunks. You can also connect a redundant CUBE to each SIP trunk to preserve capacity when a CUBE fails, and the SIP trunk is still functional.

In some areas, the PSTN does not provide multiple SIP trunks to a single site. In that case, you can connect the SIP trunk to an Oracle® Enterprise Session Router SIP Proxy and connect multiple CUBEs to the SIP Proxy to provide some redundancy. The CUBE passes calls to Unified CVP for initial treatment and queuing. Register each CUBE with a separate Unified CVP for load balancing. For further fault tolerance, you can register each CUBE with a different Unified CVP as a backup. If a CUBE cannot connect with a Unified CVP, you can also use Tool Command Language (TCL) scripts to provide some call processing. A TCL script can reroute the calls to another site or dialed number. The script can also play a locally stored .wav file to the caller and end the call.



SIP Proxy Licensing and Ordering

Oracle® Enterprise Session Router SIP Proxy license is currently licensed with a single SKU (Network-Wide Concurrent Session Perpetual) as detailed in the [Licensing Guide](#). The only exception is for the virtualized environment that is not using Oracle Server X9-2 Hardware Appliance, where a separate Transport Layer Security (TLS) SKU should be ordered if signaling or media encryption is required.

Oracle Enterprise Session Router list price is exclusively available for Oracle Partner Network members with Oracle Communications resell-rights. Please contact your Partner or Oracle Communications Sales Specialists, as listed in the [About This Guide](#) section, for any assistance on the sizing, licensing, and ordering process.

System Requirement

This section mentions the system requirement for the Oracle® Enterprise Session Router SIP Proxy.

Virtual Machine Requirements

If deployed as a Virtual Machine, the Oracle® Enterprise Session Router SIP Proxy requires VMware ESXI 6.5 or later.

In the Virtual Machine, you choose the computer resources required by your deployment which includes CPU core, memory, disk size, and network interfaces. The Oracle® Enterprise Session Router SIP Proxy requires 4 vCPU cores, 8GB RAM, 20 GB hard disk and 8 interfaces for the following:

- One for management (wancom0)
- Two for High Availability (HA) (wancom1 and 2)
- One spare
- Four for Signaling

Note: Cisco recommends configuring the following:

- At least one media interface,
- One management interface IP (wancom0),
- Two HA interfaces (wancom1 and wancom2).

For more information, see [Boot Loader Requirements](#).

Installation

For illustration purposes, this section provides the required steps on how to download and install Oracle Communications Session-Router from [Oracle Software Delivery Cloud](#). To obtain permanent license, required for production environment, please contact Oracle Communications at:

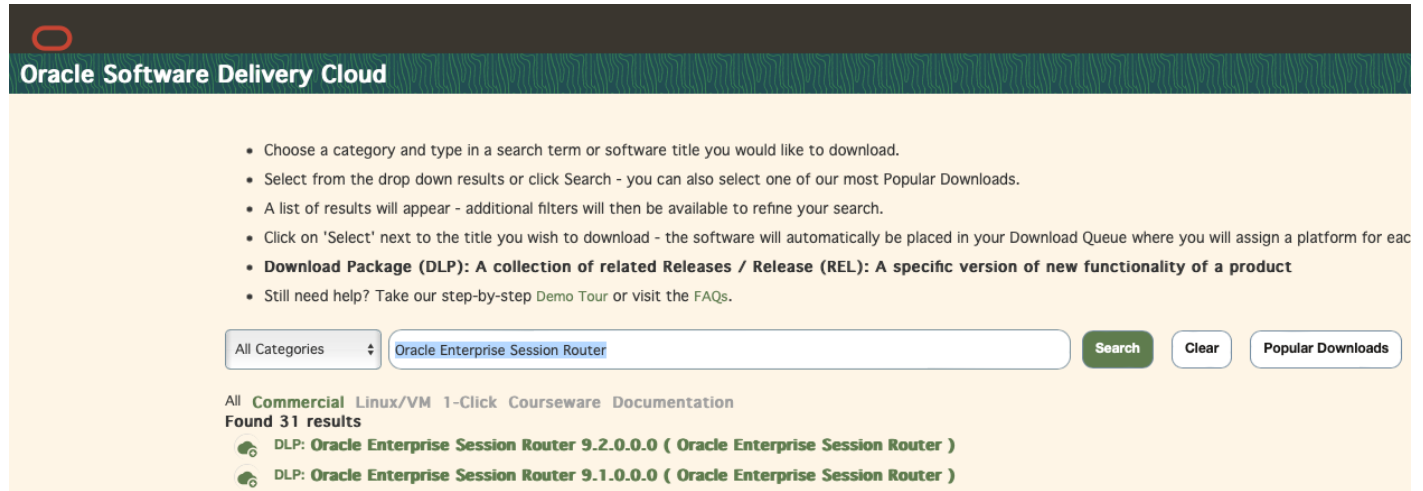
- NAM Region: na_cgbu_ww_grp@oracle.com
- EMEA Region: emea_cgbu_ww_grp@oracle.com
- JAPAC Region: japac_cgbu_ww_grp@oracle.com
- LAD Region: lad_cgbu_ww_grp@oracle.com

Downloading the Oracle® Enterprise Session Router SIP Proxy Oracle Virtual Machine

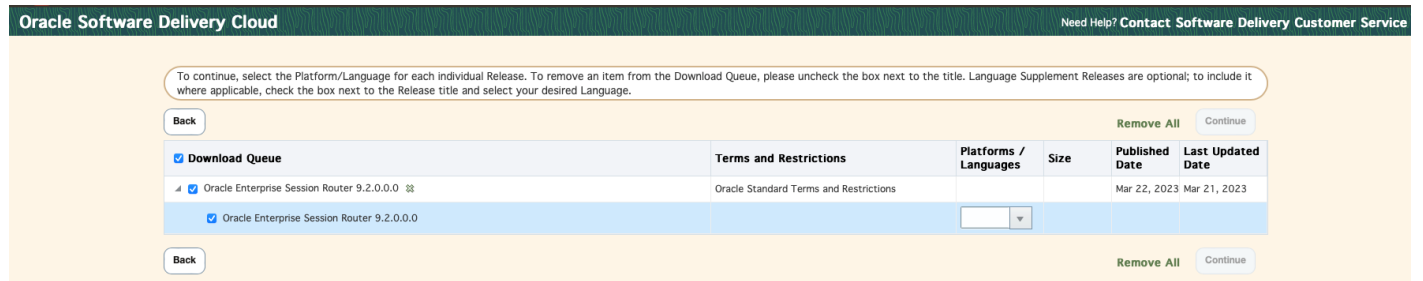
This section mentions the steps to download the Oracle® Enterprise Session Router SIP Proxy OVA (Oracle Virtual Machine) template. The steps are as follows:

Installation

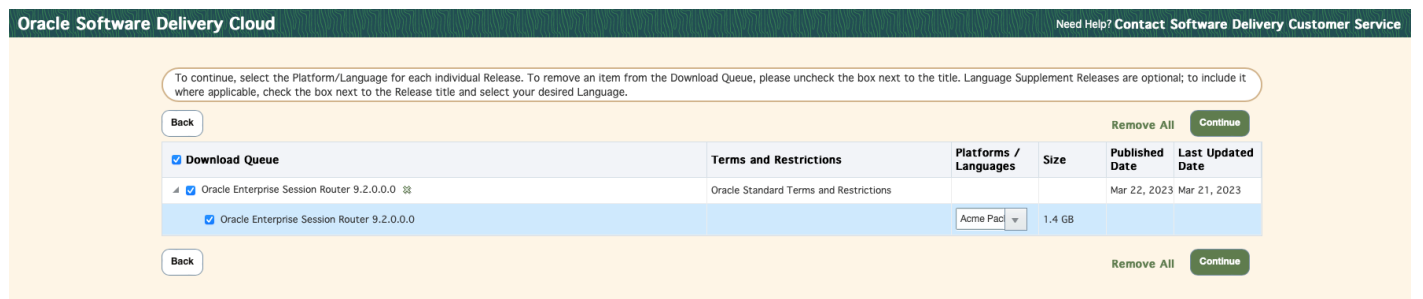
1. Open the [Oracle](https://www.oracle.com) site and login with Oracle username and password.
2. Search for “Oracle Enterprise Session Router” in the search bar. From the dropdown list, select the latest Download Package (DLP) – Oracle Enterprise Session Border Controller.



3. Click **View Items** at the top right corner and click **Continue**.



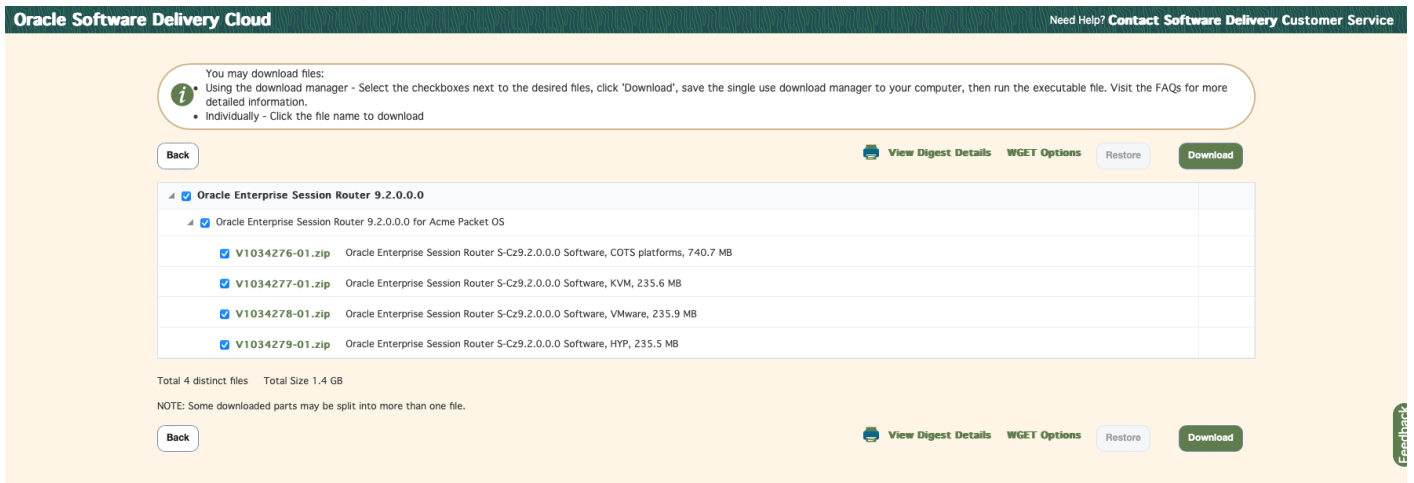
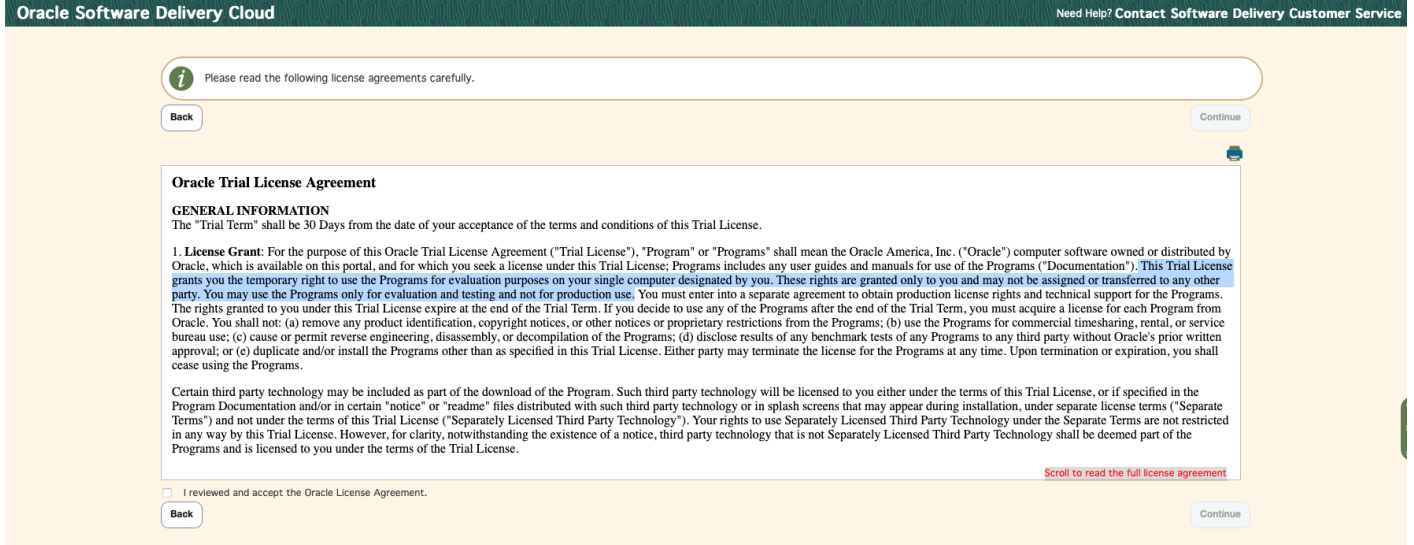
4. Select ACME Packet OS from the dropdown and click **Continue**.



5. Read and Accept all Terms and Conditions, select **VMware**, and click **Download**.

Installation

Note that you are entering into a Oracle License Agreement.



Downloading the Oracle® Enterprise Session Router SIP Proxy OVA

After downloading the Oracle® Enterprise Session Router SIP Proxy template, do the following to deploy the virtual machine template.

Prerequisites

- Oracle® Enterprise Session Router SIP Proxy OVA for installation.
- Server with VMware ESXI environment installed with all the system requirements.
- VMware vCenter vSphere Client installed and operating.

Procedure

1. In the VCenter vSphere Client GUI, select **File > Deploy OVF Template...**

The Deploy Oracle Virtual Format (OVF) Template dialog box appears.

2. Browse to the location where Oracle® Enterprise Session Router SIP Proxy OVA file is downloaded and click **Next**.
3. Review and confirm the software image details and click **Next**.
4. Accept the End User License Agreement and click **Next**.
5. Enter the name of the device in the **Name** field. The name provided determines how the device appears in the left pane of the vCenter window and click **Next**.
6. The Deploy OVF Template dialog box displays disk format options. Select any of the following provisioning format:
 - Thick Provisioning
 - Thin Provisioning

Note: If there are multiple server hosts running ESXI, select the hosts on which you want Oracle AMCE SIP Proxy to run and click **Next**.
7. Under Bootloader Parameters section, configure Network (IP address, sub netmask) for Virtual machine and click **Next**.
8. The Deploy OVF Template dialog box displays the summary of options that you have configured. Review the setting and click **Finish** to deploy the OVA file.

A dialog box indicates when the deployment is complete.

Oracle® Enterprise Session Router SIP Proxy – Product Setup

Once the Oracle® Enterprise Session Router SIP Proxy template has been deployed on the VMware ESXI machine, user can start by powering on the virtual machine and setting Admin [Superuser] and User account passwords.

Note: The default user account password is “acme” and default admin account password is “packet”

To set up the Admin and User account passwords, do the following:

1. Power up the machine.
2. The system prompts you to enter the User account password. At the prompt, type **acme** and press **ENTER**.
3. The system prompts you to change the User account password. Type the new password and press **ENTER**.
4. Type **enable**, and press **ENTER**.
The system prompts you to enter Admin account password.
5. Type **packet**, and press **ENTER**.
6. The system prompts you to change the Admin account password. Type the new password and press **ENTER**.

Note: You can use setup product command to configure the product type [Session stateful, Session stateless].

To configure the product type of your system, do the following steps:

1. Type **setup product** on the system prompt, and press **ENTER**.
2. Type **1** to modify the uninitialized product, and press **ENTER**.
3. Type **2** for configuring Session Router –Session Stateful, and press **ENTER**.
4. Type **s** to save your choice as the product type of this machine.

```
SIP_PROXY# setup product
```

```
-----
```

```

WARNING:
Alteration of product alone or in conjunction with entitlement
changes will not be complete until system reboot
Last Modified
-----
1 : Product          : Uninitialized
Enter 1 to modify, d' to display, 's' to save, 'q' to exit. [s]: 1
Product
  1 - Session Border Controller
  2 - Session Router - Session Stateful
  3 - Session Router - Transaction Stateful
  4 - Subscriber-Aware Load Balancer
  5 - Enterprise Session Border Controller
  6 - Peering Session Border Controller
Enter choice       : 3
Enter 1 to modify, d' to display, 's' to save, 'q' to exit. [s]: s
save SUCCESS

```

Note: The **run setup** command allows you to configure the system as a standalone device or as part of a Highly Available pair.

Note: The **run setup** command allows you to configure the system as a standalone device or as part of a Highly Available pair. For High Availability configuration, refer to [Oracle® Enterprise Session Router SIP Proxy – High Availability](#).

Cisco recommends configuring your system as a standalone device for SIP Proxy service.

To configure the system as a standalone system, do the following:

1. Type **run setup** on the system prompt, and press **ENTER**.
2. Type **1** for standalone SIP Proxy mode and press **ENTER**.
3. Type target name for the Proxy server, IP address, gateway, and subnet mask.
4. Enter **no** to allow Oracle Communications (OC) Session Delivery Manager (SDM) to access OC SDM.
5. Review the configuration and enter **s** to save. Enter **y** to reboot the system to save the changes and quit the post installation process. Verify that the Oracle® Enterprise Session Router SIP Proxy is properly installed by doing **ssh** with `admin@<ip-address>`.

Note: You can configure the session capacity of the system using **setup entitlement** command.

To configure session capacity, use **setup entitlements** command:

```

sbc# setup entitlements
-----
Entitlements for Session Router - Session Stateful
Last Modified: 2023-03-29 04:24:00
-----
1 : Session Capacity          : 0
2 :   Accounting              :
3 :   Load Balancing         :
4 :   Policy Server           :
5 : Admin Security            :
6 : ANSSI R226 Compliance     :
Enter 1 - 6 to modify, d' to display, 's' to save, 'q' to exit. [s]: 1
  Session Capacity (0-512000)      : 20
Enter 1 - 7 to modify, d' to display, 's' to save, 'q' to exit. [s]: s
SAVE SUCCEDED SAVE SUCCEDED

```

License Provisioning and Session Capacity Configuration

The **show entitlements** command displays all the provisioned features and licensed features in Oracle® Enterprise Session Router SIP Proxy.

```
sbc# show entitlements
Provisioned Entitlements:
-----
Session Router - Session Stateful Base : enabled
Session Capacity                       : 20
  Accounting                            :
  Load Balancing                       :
  Policy Server                         :
Admin Security                          :
ANSSI R226 Compliance                  :
Keyed (Licensed) Entitlements
-----
```

Note: The advanced license includes features such as load balancing and routing. Features such as SIP and HA are included under the basic license.

- Enable or disable any provisioned feature by typing enable/disable and pressing **ENTER**.

```
sbc# setup entitlements
-----
Entitlements for Session Router - Session Stateful
Last Modified: 2023-03-30 07:18:19
-----
1 : Session Capacity           : 20
2 : Accounting                 :
3 : Load Balancing           :
4 : Policy Server              :
5 : Admin Security             :
6 : ANSSI R226 Compliance      :

Enter 1 - 6 to modify, d' to display, 's' to save, 'q' to exit. [s]: 3

Load Balancing (enabled/disabled): enabled

Enter 1 - 6 to modify, d' to display, 's' to save, 'q' to exit. [s]: s
SAVE SUCCEEDED
```

- After setting up all self-provisioned features, use the **show features** command to check all the currently active features in the system.

```
sbc# show features
Total session capacity: 20
Enabled features:
    20 sessions, SIP, ACP, Routing, Load Balancing, High Availability, ENUM, NSEP RPH, DoS
```

Interface Mapping

Verify the network interfaces have MAC addresses (virtual machine only).

Use the **show interfaces mapping** command to verify the network interfaces have MAC addresses.

```
sbc# show interfaces mapping
Interface Mapping Info
-----
Eth-IF  MAC-Addr           Label
wancom0 00:0C:29:CD:1A:30    #generic
wancom1 00:0C:29:CD:1A:3A    #generic
wancom2 00:0C:29:CD:1A:44    #generic
spare    00:0C:29:CD:1A:4E    #generic
s0p0     00:0C:29:CD:1A:62    #generic
s1p0     00:0C:29:CD:1A:6C    #generic
s0p1     00:0C:29:CD:1A:76    #generic
s1p1     00:0C:29:CD:1A:58    #generic
```

The interface-mapping branch includes the **swap** command, which allows you to correct interface to MAC address mappings.

```
Sbc# interface-mapping
Sbc(interface-mapping)# swap wancom1 s1p0
Interface Mapping Info after swapping
-----
Eth-IF  MAC-Addr          Label
wancom0 00:0C:29:CD:1A:30    #generic
wancom1 00:0C:29:CD:1A:6C    #generic
wancom2 00:0C:29:CD:1A:44    #generic
spare   00:0C:29:CD:1A:4E    #generic
s0p0    00:0C:29:CD:1A:62    #generic
s1p0    00:0C:29:CD:1A:3A    #generic
s0p1    00:0C:29:CD:1A:76    #generic
s1p1    00:0C:29:CD:1A:58    #generic

Changes could affect service, and Requires Reboot to become effective.
Continue [y/n]?: y
WARNING: This change requires a reboot to become effective.
Sbc(interface-mapping)# exit
```

Oracle® Enterprise Session Router SIP Proxy Deployment in CCE Solution

This section outlines the necessary configurations to be done on Oracle® Enterprise Session Router SIP Proxy to deploy it on CCE solution.

Oracle® Enterprise Session Router SIP Proxy configurations

To configure Oracle® Enterprise Session Router SIP Proxy, do the following:

1. Configure System Config.

```
ACME # configure terminal
ACME (configure) # system
ACME (system) # system-config
ACME (system-config) # select
ACME (system-config) # done
```

2. Configure physical interface.

```
ACME # configure terminal
ACME (configure) # system
ACME (system) # phy-interface
ACME (phy-interface) # select
ACME (phy-interface) # name <interface-name>
ACME (phy-interface) # operation-type media // media for call traffic and control is for HA
ACME (phy-interface) # slot 0
ACME (phy-interface) # port 0
ACME (phy-interface) # done
```

3. Configure network interface.

```
ACME # configure terminal
ACME (configure) # system
ACME (system) # network-interface
ACME (network-interface) # select
ACME (network-interface) # name <interface-name> //This must be same name as phy-interface.
ACME (network-interface) # ip-address <ip-address>
ACME (network-interface) # netmask <netmask>
ACME (network-interface) # gateway <gateway>
ACME (network-interaface) # done
```

4. Configure realm.

```

ACME # configure terminal
ACME (configure) # media-manager
ACME (media-manager) # realm-config
ACME (realm-config) # select
ACME (realm-config) # identifier <identifier-name>
ACME (realm-config) # network-interface <network-interface-ID: subport. IPversion>
ACME (realm-config) # done

```

5. Configure Sip Config.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # sip-config
ACME (sip-config) # select
ACME (configure) # done

```

6. Configure SIP interface.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # sip-interface
ACME (sip-interface) # select
ACME (sip-interface) # realm-id <realm-ID>
ACME (sip-interface) # sip-port
ACME (sip-ports) # select
ACME (sip-ports) # address <ip-address>
ACME (sip-ports) # port 5060
ACME (sip-ports) # transport-protocol <TCP/UDP>
ACME (sip-ports) # allow-anonymous agents-only
ACME (sip-ports) # done
ACME (sip-ports) # exit
ACME (sip-interface) # done

```

7. Configure session agent.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # session-agent
ACME (session-agent) # select
ACME (session-agent) # hostname <hostname>
ACME (session-agent) # ip-address <ip-address>
ACME (session-agent) # port <port>
ACME (session-agent) # app-protocol SIP
ACME (session-agent) # transport-method <StaticTCP/UDP/UDP+TCP>
ACME (session-agent) # realm-id <realm-id>
ACME (session-agent) # max-session <max-session-count>
ACME (session-agent) # ping-method <sip message/method used for ping>
ACME (session-agent) # ping-interval <interval-in-seconds>
ACME (session-agent) # ping-send-mode <keep-alive/continuous>
ACME (session-agent) # ping-response enabled
ACME (session-agent) # done

```

8. Configure session agent group.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # session-agent-group
ACME (session-agent-group) # select
ACME (session-agent-group) # group-name <name>
ACME (session-agent-group) # app-protocol SIP
ACME (session-agent-group) # strategy <HUNT/RoundRobin>
ACME (session-agent-group) # dest <session-agent-name>
ACME (session-agent-group) # done

```


9. Configure local policy.

```
ACME # configure terminal
ACME (configure) # session-router
ACME (configure) # local-policy
ACME (local-policy) # select
ACME (local-policy) # from-address <source-IP-address>
ACME (local-policy) # to-address <destination-IP-address>
ACME (local-policy) # source-realm <realm-ID>
ACME (local-policy) # policy-attributes
ACME (policy-attributes) # select
ACME (policy-attributes) # next-hop sag:<session-agent-group-name>
ACME (policy-attributes) # done
ACME (policy-attributes) # exit
ACME (local-policy) # done
```

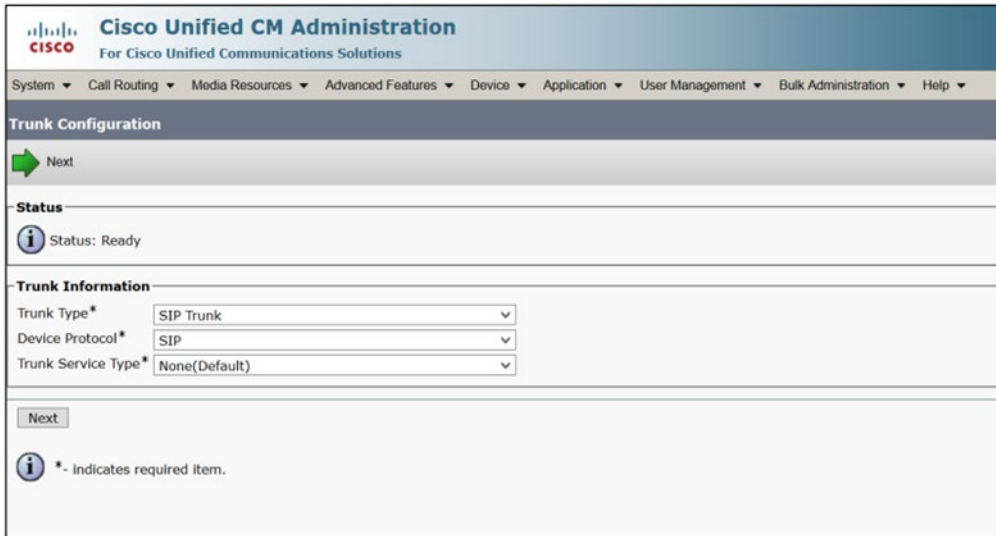
10. Save and activate the configuration.

```
ACME # save-config
ACME # reboot activate
```

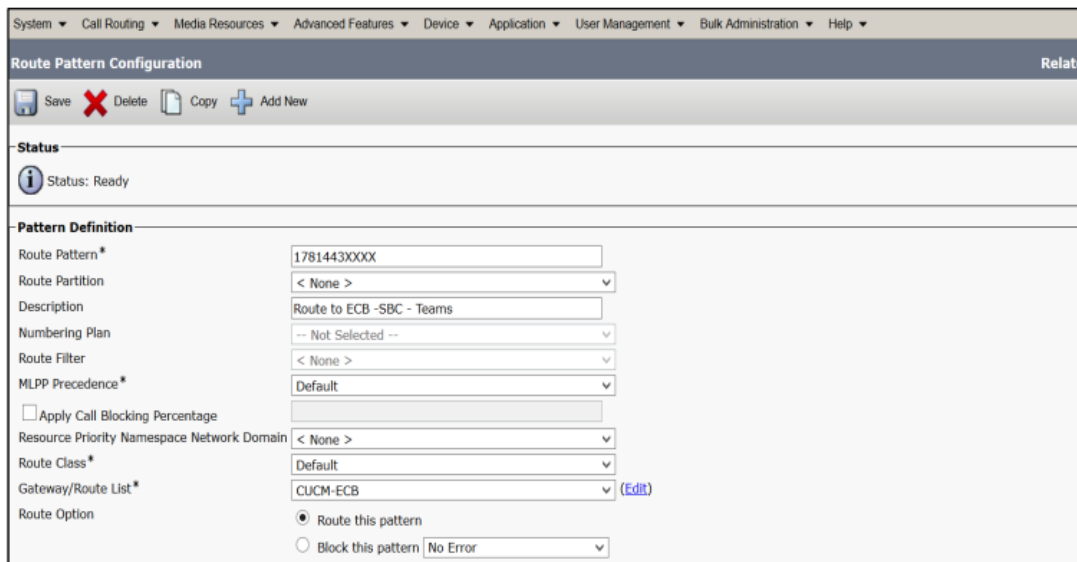
Cisco Unified Call Manager Configurations

To configure Cisco Unified Call Manager (CUCM), do the following:

- 1.** Login to Cisco Unified CM Administration web GUI with proper credentials.
- 2.** To configure a new SIP trunk, do the following:
 - a.** Go to **Device > Trunk > Add New**.
 - b.** Select **Trunk Type – SIP Trunk** and click **Next**.
 - c.** Enter the SIP trunk name and optionally provide a description in the Device Name field.
 - d.** Select a device pool ID created already else select **Default** from the Device Pool dropdown list.
 - e.** Enter the Destination Address and Destination Port of the Oracle® Enterprise Session Router SIP Proxy under SIP information.
 - f.** Select appropriate SIP Profile and SIP trunk security profile from the dropdown menu.
 - g.** Click **Save**.



3. To configure a new Route Pattern, do the following:
 - a. Go to **Call Routing > Route/Hunt > Route Pattern** and click **Add New**.
 - b. Enter a Route Pattern according to the network requirements and calling plan.
 - c. Select the created SIP Trunk device name from the Gateway/ Route List drop-down list.
 - d. Click **Save**.

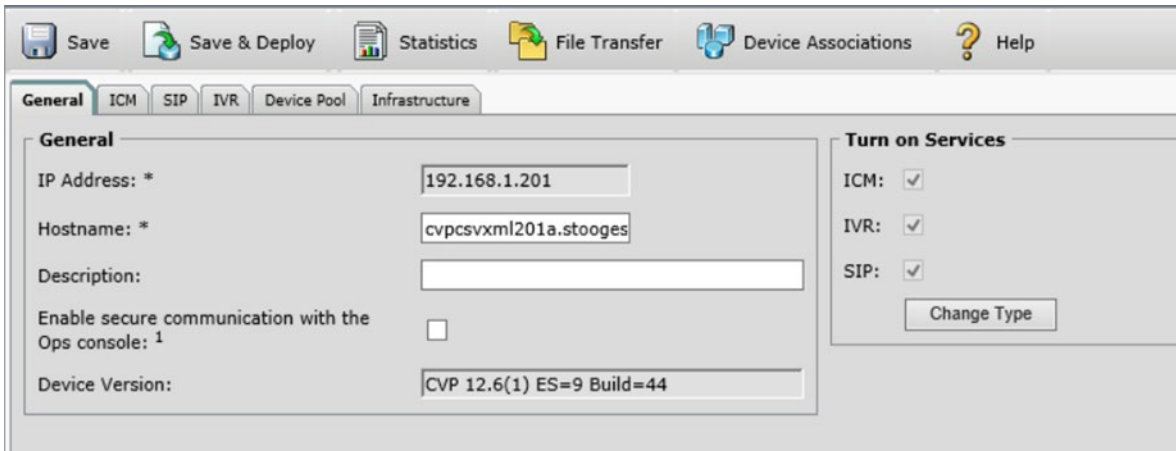


Cisco Unified Customer Voice Portal Configurations

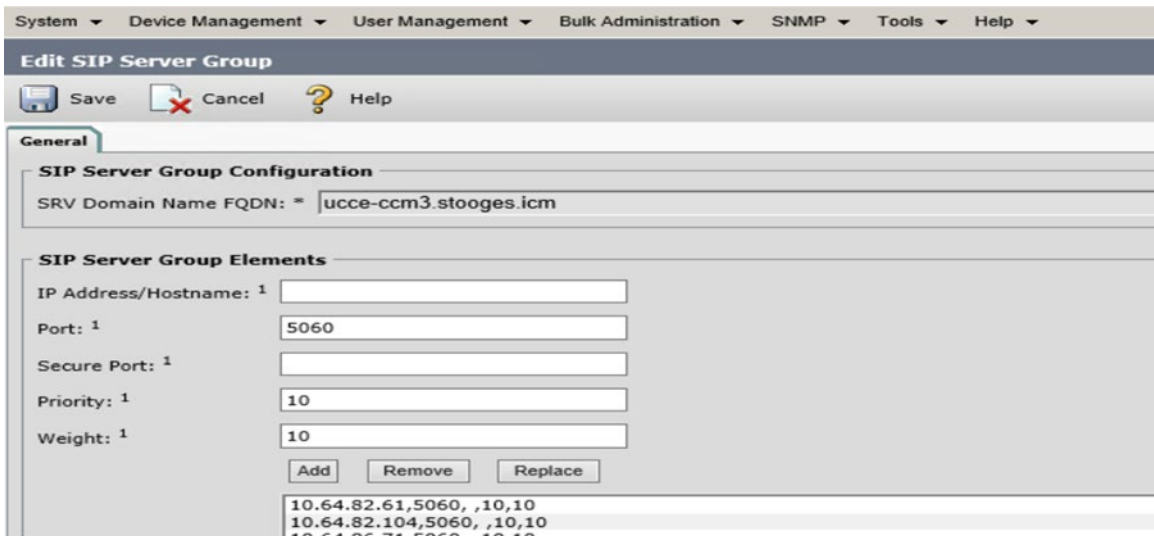
To configure CVP, do the following:

1. Login to Cisco Unified CVP admin web GUI with proper credentials.
2. To configure Unified CVP call server, do the following:
 - a. Go to **Device Management > Unified CVP call server**.

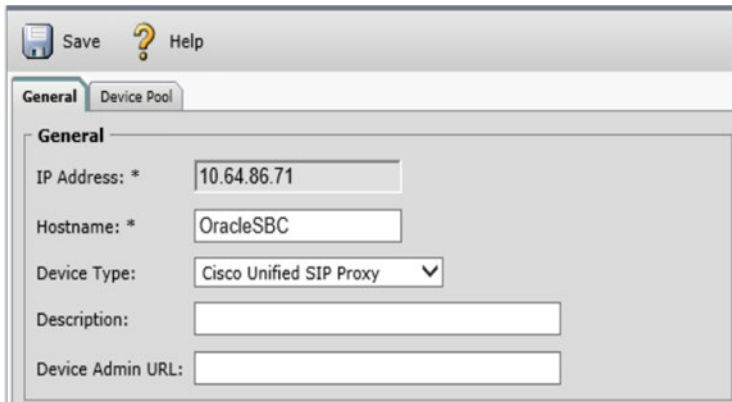
- b. Click **Add New**.
- c. Enter the IP Address and hostname.
- d. Click **Save**.



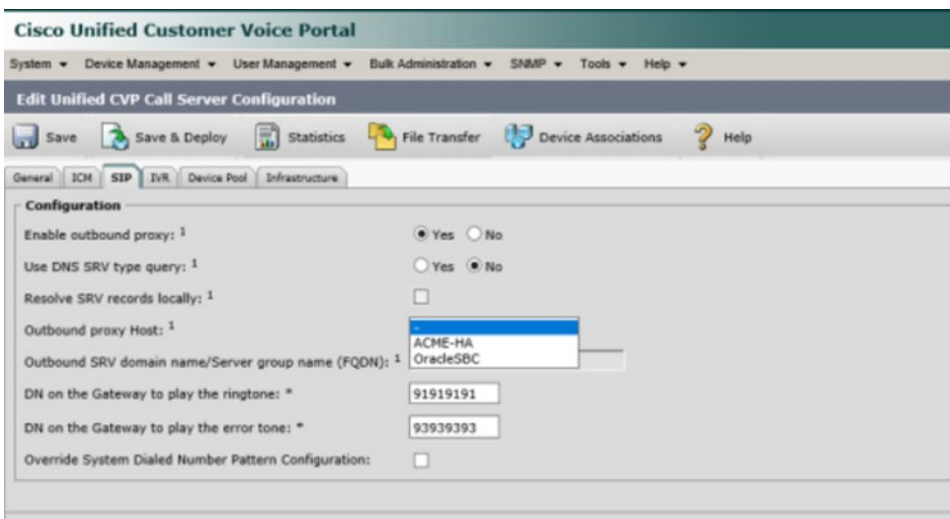
- 3. To configure a server group for Oracle® Enterprise Session Router SIP Proxy, do the following:
 - a. Go to **System > SIP server group**.
 - b. Click **Add New** for adding a new server group.
 - c. Enter the SRV Domain name FQDN and SIP Server Group elements for Oracle® Enterprise Session Router SIP Proxy.
 - d. Click **Save**.



- 4. To configure a SIP Proxy Server, do the following:
 - a. Go to **Device Management > SIP server group**.
 - b. Click **Add New**.
 - c. Enter IP Address/Hostname username, Password and Port details.
 - d. Click **Save**.



5. To configure the outbound proxy, do the following:
 - a. Go to **Device Management > Unified CVP Call Server**.
 - b. Click the configured Call server.
 - c. Go to the **SIP** tab and configure the outbound SIP Proxy.
 - d. Click **Save**.



6. Once all the configurations are done, restart the cisco CVP VoiceXML (VXML) service.

Cisco Unified Border Element Configurations

To configure CUBE, do the following:

1. Configure dial-peers for handling Inbound and outbound call leg.

```
conf t
dial-peer voice 109 voip //Inbound dial-peer
destination-pattern 8005551199
session protocol sipv2
session target ipv4:10.64.82.61 // IP of Oracle SIP Proxy
session transport udp
incoming called-number 8005551199
```

```

voice-class codec 3
voice-class sip rellxx disable
dtmf-relay rtp-nte
no vad
!
dial-peer voice 110 voip                               //Outbound dial-peer
destination-pattern 1113
session protocol sipv2
session target ipv4:10.64.82.61                       // IP of Oracle SIP Proxy
session transport udp
voice-class codec 3
voice-class sip rellxx disable
dtmf-relay rtp-nte
no vad

```

2. Configure voice service voip.

```

conf t
ipv4 10.64.82.20
ipv4 10.64.86.71

```

Oracle® Enterprise Session Router Load Balancing Across ASR/TTS Servers

This section shows the configuration in SIP Proxy and VVB to achieve load balancing across Automatic Speech Recognition (ASR)/ Text-to-Speech (TTS) servers.

Prerequisite

You need to configure physical interface, network interface, Realm and SIP Interface. The below example demonstrates the necessary configuration elements for the Oracle Sip Proxy to interface with ASR/TTS servers. Additionally, you may need to configure some or all of the following aspects for PSTN services.

Procedure

Configuring Oracle SIP Proxy

To configure Oracle SIP proxy, do the following:

1. Configure multiple ASR/ TTS servers in session agent section.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # session-agent
ACME (session-agent) # select
ACME (session-agent) # hostname ASR1
ACME (session-agent) # ip-address 10.64.82.104
ACME (session-agent) # port 5060
ACME (session-agent) # app-protocol SIP
ACME (session-agent) # transport-method StaticTCP
ACME (session-agent) # realm-id INDIA
ACME (session-agent) # max-session 2
ACME (session-agent) # max-inbound-sessions 2
ACME (session-agent) # max-outbound-sessions 2
ACME (session-agent) # ping-method OPTIONS
ACME (session-agent) # ping-interval 60
ACME (session-agent) # ping-send-mode continuous
ACME (session-agent) # ping-in-service-response-codes 200
ACME (session-agent) # out-service-response-codes 503
ACME (session-agent) # ping-response enabled

```

```

ACME (session-agent) # done
ACME (session-router) # session-agent
ACME (session-agent) # select
ACME (session-agent) # hostname ASR2
ACME (session-agent) # ip-address 10.64.82.254
ACME (session-agent) # port 5060
ACME (session-agent) # app-protocol SIP
ACME (session-agent) # transport-method StaticTCP
ACME (session-agent) # realm-id INDIA
ACME (session-agent) # max-session 2
ACME (session-agent) # max-inbound-sessions 2
ACME (session-agent) # max-outbound-sessions 2
ACME (session-agent) # ping-method OPTIONS
ACME (session-agent) # ping-interval 60
ACME (session-agent) # ping-send-mode continuous
ACME (session-agent) # ping-in-service-response-codes 200
ACME (session-agent) # out-service-response-codes 503
ACME (session-agent) # ping-response enabled
ACME (session-agent) # done

```

2. Configure session agent group for ASR/TTS server-agents.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (session-router) # session-agent-group
ACME (session-agent-group) # select
ACME (session-agent-group) # group-name ASR-GRP
ACME (session-agent-group) # app-protocol SIP
ACME (session-agent-group) # strategy RoundRobin
ACME (session-agent-group) # dest "ASR1 ASR2"
ACME (session-agent-group) # done

```

3. Configure local policy with the ASR/TTS server-agent-group.

```

ACME # configure terminal
ACME (configure) # session-router
ACME (configure) # local-policy
ACME (local-policy) # select
ACME (local-policy) # from-address *
ACME (local-policy) # to-address *
ACME (local-policy) # source-realm <realm-id>
ACME (local-policy) # policy-attributes
ACME (policy-attributes) # select
ACME (policy-attributes) # next-hop sag:ASR-GRP
ACME (policy-attributes) # done
ACME (policy-attributes) # exit
ACME (local-policy) # done

```

Configuring Cisco Virtualized Voice Browser

To configure Virtualized Voice Browser (VVB), do the following:

To add a new script application, do the following:

1. Go to **Subsystem > Speech Server > ASR Server**.
2. Click **Add New**.
3. Add SIP Proxy server name, IP address, and port.

Cisco Virtualized Voice Browser Administration
For Cisco Unified Communications Solutions

System Applications Subsystems Tools Help

Automatic Speech Recognition Server Configuration

Add New Refresh

Status

1 records found

Server Name	Port	Status
10.64.82.162	5060	REACHABLE

Add New Refresh

Configuring United CCE for Outbound Option

For more information on how to install dialer component on the PG virtual machine, see [Outbound Option Installation](#).

Oracle® Enterprise Session Router SIP Proxy – High Availability

This section describes the Oracle® Enterprise Session Router SIP Proxy configuration for High Availability. You can use **run setup** command to configure primary and secondary SIP Proxy servers.

In the following procedure, enter **y** to discard any changes and quit the installation wizard. A warning message is then displayed at the root prompt whether to overwrite (erase) the existing running configuration or not. Type **y** to overwrite and press **Enter** to proceed further as shown in the following example:

```
-----  
----  
ACME# run setup  
-----  
Thank you for purchasing the Oracle Enterprise Session Border Controller.  
The following short wizard will guide you through the initial set-up.  
A reboot will be required to save changes.  
-----  
'?' = Help; '.' = Clear; 'q' = Exit  
CONFIGURATION  
WARNING: Proceeding with wizard will result in existing configuration being erased.  
Erase config and proceed (yes/no) [no] : y  
Configuration will be backed up as bkup_setup_wizard_Mar_30_18_13_21_371.gz  
'-' = Previous; '?' = Help; '.' = Clear; 'q' = Exit  
HIGH AVAILABILITY  
This SBC may be a standalone or part of a highly available redundant pair.  
SBC mode  
1 - standalone  
2 - high availability  
Enter choice [1 - standalone] : 2  
If this SBC is the primary, enter the configuration.  
If it is secondary, you can import settings from the primary  
SBC role  
1 - primary
```

```

    2 - secondary
    Enter choice [1 - primary] : 1
Specify the IP address to set on interface connected for redundancy
  Redundancy interface address [169.254.1.1] :
  Redundancy subnet mask [255.255.255.252] :
SBC SETTINGS
  Unique target name of this SBC [ACME] :
  IP address on management interface [10.64.86.161] :
  Subnet mask [255.255.255.0] :
  Management interface VLAN (0 - 4095) [0] :
  Gateway IP address [10.64.86.1] :
PEER CONFIGURATION
  Peer IP address [169.254.1.2] :
  Peer target name [sbc02] :
OC SDM ACCESS SETTINGS
Configure SBC to allow OC Session Delivery Manager to access it
  OC SDM access (yes/no) [yes] : no
-- Summary view -----
GUI ACCESS
  1: Enable Web GUI with HTTP Connection (yes/no) : N/A
HIGH AVAILABILITY
  2 : SBC mode : high availability
  3 : SBC role : primary
  4 : Redundancy interface address : 169.254.1.1
  5 : Redundancy subnet mask : 255.255.255.252
  6 : Redundancy interface VLAN : N/A
SBC SETTINGS
  7 : Unique target name of this SBC : ACME
  8 : IP address on management interface : 10.64.86.161
  9 : Subnet mask : 255.255.255.0
 10: Management interface VLAN : 0
 11: Gateway IP address : 10.64.86.1
AUTOMATIC CONFIGURATION
 12: Acquire config from the Primary (yes/no) : N/A
PEER CONFIGURATION
 13: Peer IP address : 169.254.1.2
 14: Peer target name : sbc02
OC SDM ACCESS SETTINGS
 15: OC SDM access (yes/no) : no
 16: SNMP community string : N/A
 17: OC SDM IP address : N/A
Enter 1 - 17 to modify, 'd' to display summary, 's' to save, 'q' to exit. [s]: s
Saving changes and quitting wizard. System will reboot. Are you sure? [y/n]?y
-----
----

```

Finally, run the same set of commands on the secondary peer of the HA pair.

For more information, see [Setup High Availability mode](#).

Oracle® Enterprise Session Router SIP Proxy troubleshooting

This section describes the commands and advanced SIP logging in Oracle AMCE SIP Proxy which could help in troubleshooting.

To view SIP agent statistics, use the following commands:

- **show sipd <arguments>**

Arguments:

status - Display information about sip transactions.

errors - Display statistics for SIP media event errors.

Security Aspects

sessions - Display the number of sessions and dialogs in various states.

agents - Display activity for all the session agents.

groups - Display information for all session agent groups.

all - Display all the show sipd statistics listed in show sipd.

For more information on show sipd arguments, see [show sipd](#).

To view system information, use the following commands:

- **show uptime**
- **show system-state**
- **show processes**
- **show memory usage**
- **show running-config**
- **verify-config**
- **display-alarms**

For more details on system information CLIs, see [System Fault Statistics](#).

There are multiple log files which can help in troubleshooting the issue on the device. The **display-logfiles** command displays list of log files present in the device:

- From GUI, you can access the log files under **System > File Management>Log**
- From CLI, you can check the logs using command **show logfile <logfile name>**

Example: SIP message logs can be obtained in sipmsg.log* <if enabled by ACLI command “notify sipd siplog”>.

For more information on log files, see [Log Files](#).

Security Aspects

The Oracle® Enterprise Session Router SIP Proxy supports the transport of SIP over TLS, with full control of TLS cipher selection, which can be used to protect user and network privacy by providing authentication and encryption.

Configure the list of ciphers that you want to use from the cipher-list element in the tls-profile configuration. Press **Tab** to display the list of supported ciphers. You can add as many ciphers as per your deployment requirements.

For more information on TLS configuration and adding ciphers in Oracle® Enterprise Session Router SIP Proxy, see [Configure a TLS Profile](#).

The Oracle® Enterprise Session Router SIP Proxy supports cryptographic capabilities and algorithms compliant with FIPS 140-2 standards.

For more information on FIPS compliance, see [FIPS Compliance](#).

Performance and Monitoring

The Oracle AMCE SIP Proxy has a feature to increase the session capacity that could be helpful to scale the solution.

```
ACME# setup entitlements
-----
Entitlements for Session Router - Session Stateful
Last Modified: 2023-05-17 07:14:33
```

```

-----
1 : Session Capacity           : 20
2 : Accounting                 :
3 : Load Balancing            : enabled
4 : Policy Server              :
5 : STIR/SHAKEN Client        :
6 : Admin Security             :
7 : ANSSI R226 Compliance     :

Enter 1 - 7 to modify, d' to display, 's' to save, 'q' to exit. [s]: 1
  Session Capacity (0-512000)      : 100
Enter 1 - 7 to modify, d' to display, 's' to save, 'q' to exit. [s]: s
SAVE SUCCEEDED
ACME# show features
Total session capacity: 100

```

Under **System > System Operations > Set Entitlements**, you can change the session capacity value according to your choice.

Oracle® Enterprise Session Router supports SNMP configuration for monitoring. To configure SNMPv2, do the following:

1. Configure `snmp-agent-mode`.

```

ACME# configure terminal
ACME (configure) # system
ACME (system) # system-config
ACME (system-config) # select
ACME (system-config) # select snmp-agent-mode v1v2
ACME (system-config) # done

```

2. Set community name and IP address of SNMP server. By default, the access mode is READ-ONLY.

```

ACME# configure terminal
ACME (configure) # system
ACME (system) # system-community
ACME (system) # select
ACME (snmp-community) # community name <name>
ACME (snmp-community) # ip-addresses <ip-address>
ACME (snmp-community) # done

```

3. Enable SNMP traps. List of traps that you can enable in the Oracle® Enterprise Session Router SIP Proxy are as follows:

- **enable-snmp-auth-traps** - To enable authentication traps.
- **enable-snmp-syslog-notify** - To enable SNMP syslog notifications.
- **enable-snmp-monitor-traps** - To enable SNMP monitor traps.
- **enable-snmp-tls-srtp-traps** - To enable SNMP security traps for TLS/SRTP encryption/decryption failures.
- **enable-snmp-monitor-traps** - To enable SNMP environment monitor traps.

```

ACME# configure terminal
ACME (configure) # system
ACME (system) # system-config
ACME (system-config) # select
ACME (system-config) # enable-snmp-auth-traps enabled
ACME (system-config) # enable-snmp-tls-srtp-traps enabled
ACME (system-config) # done

```

For more information on SNMP, see [SNMP Configuration Overview](#).