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Oracle Enterprise Communications Broker and
Genesys Server in a Contact Center
Environment

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Intended Audience

This document is intended for use by Oracle personnel, third party Systems Integrators, and end users of the Oracle Enterprise Communications Broker (ECB) and the Oracle Enterprise Session Border Controller (E-SBC). It assumes that the reader is familiar with basic operations of the Oracle Enterprise Communications Broker and the Oracle Enterprise Session Border Controller. There will be steps that require navigating the Acme Packet Command Line Interface (ACLI). Understanding the basic concepts of TCP/UDP, IP/Routing, and SIP/RTP are also necessary to complete the configuration and for troubleshooting, if necessary.

Document Overview

This document provides an overview of the interoperability testing environment and tests that have been conducted to determine the recommended configuration for the ECB and the E-SBC and the Genesys Server.

Introduction

The Oracle Communications Enterprise Communications Broker (ECB) is an enterprise-class, core signaling component designed to simplify communications networks. It combines innovative approaches toward dial plan management and SIP topology-aware routing with a purpose-built, intuitive GUI interface. While at its best in signaling environments comprised of products and solutions from multiple vendors, it is useful for consolidating policy enforcement decisions, integrating third-party applications, and managing a network-wide routing topology even in homogenous architectures. The Oracle ECB is typically deployed in the core of a multi-vendor communications network where multiple UC, PBX and service provider trunk interfaces must be interconnected. It normalizes communications between disparate premise-based systems and connects them to service provider networks and hosted applications through E-SBCs.

Oracle Communication Enterprise session border controllers (E-SBCs) enable contact centers to accelerate the adoption of real-time IP communications by removing common security, interoperability, and reliability barriers. E-SBCs are fundamental network infrastructure components that enable real-time voice, video, instant messaging, and Unified Communications (UC) to be extended across network boundaries. E-SBCs make it possible for enterprises to replace legacy time division multiplexing (TDM) contact center networks with more-efficient Session Initiation Protocol (SIP)–based networks to reduce capital expenditures and operating expenses and to transform conventional brick-and-mortar call centers into virtual contact centers that incorporate remote agents and cloud-based services to increase productivity and improve business agility.

The Genesys SIP Server provides open, flexible and reliable telephony and agent monitoring functions that integrate with any SIP-enabled IP infrastructure. The Genesys SIP Server provides agent monitoring and all telephony functions needed in the contact center including customer segmentation, call queuing, call routing, reporting and call control functions.

Requirements

- Fully functioning Genesys Contact Center application. The version tested as part of this interop is 8.1.1

- Oracle Enterprise Communications Broker running PCZ210. Note: the configuration running on the ECB is backward/forward compatible with any release in the 2.1.0 stream.

- Oracle Enterprise Session Border Controller running ECZ730m1p1. Note: the configuration running on the SBC is backward/forward compatible with any release in the 7.3.0 stream.

Lab Configuration

The following diagram illustrates the lab environment created to testing between the Genesys Server, Oracle ECB and the Oracle E-SBC.
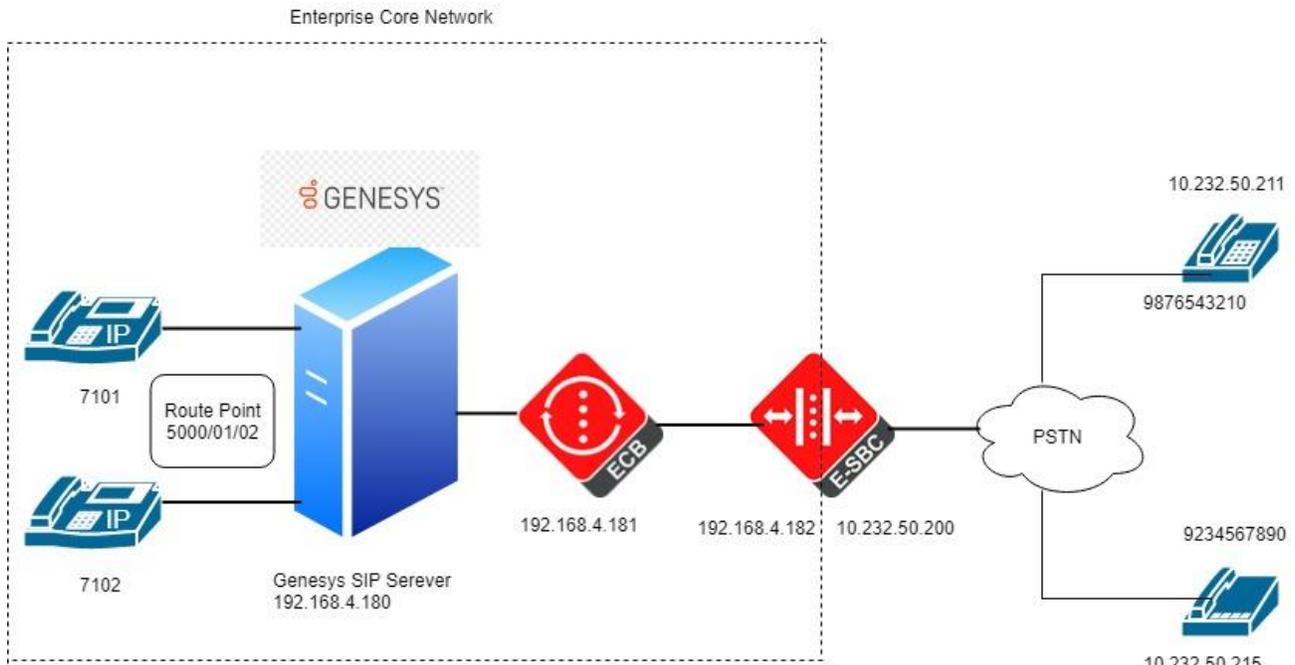
As shown above, the Genesys contact center SIP Server is connected to the ECB. Typically in deployments, the ECB will be at the Edge of the Enterprise Core connecting multiple UC platforms. The ECB connects to the Enterprise SBC which provides the Enterprise network access to the PSTN through the service provider network. In our lab setup, we have two phones connected to the SBC directly. Genesys contact center application contains Genesys SIP Server. The Route points are similar to an IVR, you can apply any treatment (eg. Music on hold) to the incoming call from the customer (9876543210 and 9234567890), and then transfer the call to an agent (7101 or 7102).

Configuring the Oracle ECB

The Oracle ECB is available either as an appliance or as an application for operation on virtual machines. When running as an appliance, the Oracle ECB software is packaged with the Netra Server X3-2 and delivered to the end customers. When running as a virtual application, the Oracle ECB software can be deployed on any third-party COTS hardware that meets the specified guidelines.

Once the ECB is deployed (in the appliance mode or the application mode) and connected, you can power on the ECB. Software installation of the ECB is required upon first startup. Although the Oracle ECB is primarily configured through the GUI, you need to perform the software installation and setup via the CLI.

Connecting to the ECB

The CLI can be accessed through the console connection. If the ECB is appliance based, you can connect to the ECB via a VGA monitor and USB keyboard.

Power the ECB on. Upon successful boot, the system prompts you to login. The default password for user mode is "acme" and super user mode is "packet".

You can now use the installation wizard to setup your ECB. Using the wizard, you can enable the Web Server, set management access as well as configure high availability and service interface addressing.

```
Password: acme
ORACLE> enable
Password: packet
```

Running Setup

The following steps detail the process of using the installation wizard to configure the base setup of the ECB

1. Start the installation wizard by entering the command **run setup** in super user mode.

```
ORACLE# run setup
```

The following displays

```
--------------------------------------------------
Thank you for purchasing the Oracle ECB. The following short wizard
will guide you through the initial set-up.
--------------------------------------------------
'?' = Help; '.' = Clear; 'q' = Exit
CONFIGURATION
WARNING: Proceeding with wizard will result in existing configuration
being erased.
Erase config and proceed (yes/no) [no] : yes
```

2. Type yes and press Enter

```
Configuration will be backed up as
bkup_setup_wizard_Apr__8_13_25_49_632.gz
'-' = Previous; '?' = Help; '.' = Clear; 'q' = Exit
HIGH AVAILABILITY
This ECB may be a standalone or part of a highly available redundant
pair.
Oracle ECB mode
1 - standalone
2 - high availability
Enter choice [1 - standalone] : 1
```

3. Our setup consists of a standalone server. Type 1 and hit Enter

4. You will then be asked to configure a unique target name, the IP address, subnet mask and gateway of the management interface of the ECB. Please note at any time during configuration if you would like to keep the default values (values mentioned in [ ]), press Enter.

```
Unique target name of this ECB [primary] : ECB-Oracle
IP address on management interface [172.30.200.111] : 172.18.255.53
Subnet mask on management interface [255.255.0.0] :
Gateway IP address on management interface [172.18.0.1] :
```

5. You will then see a prompt to configure your sip-interface. This step is required; the system does not allow you to proceed without making a setting. When prompted enter the IP address, subnet mask and gateway IP address of the sip-interface.

```
IP address on SIP interface : 192.168.4.181
Subnet mask on SIP interface [255.255.255.0] : 255.255.255.0
Gateway IP address on SIP interface : 192.168.4.1
```

6. The prompt to setup the system timezone will display

```
SETUP TIMEZONE Setup system timezone (yes/no) [yes] : yes
```

Type your response and press Enter.

7. You will then be asked to enter the number for sessions purchased for the ECB. Type your response and press Enter.

```
LICENSED SESSIONS
 Number of licensed sessions                     : 400
```

You will see the following message prompting to save the settings before proceeding to the timezone setup.

```
Enter 1-20 to modify,'d' to display summary,'s' to save,'q' to
exit.[s]:
Saving changes and quitting wizard. Are you sure? [y/n]?:
```

8. Type your response and press Enter.

```
SETUP TIMEZONE Setup system timezone (yes/no) [yes] : yes
```

The following message displays

```
Deleting configuration
Erase-Cache received, processing.
waiting 1200 for request to finish
Request to 'ERASE-CACHE' has Finished,
Erase-Cache: Completed
Running timezone setup application
Calling tzselect. Use ^D to cancel without save
Please identify a location so that time zone rules can be set
correctly.
Please select a continent or ocean.
1) Africa
2) Americas
3) Antarctica
4) Arctic Ocean
5) Asia
6) Atlantic Ocean
7) Australia
8) Europe
9) Indian Ocean
10) Pacific Ocean
11) none - I want to specify the time zone using the Posix TZ format.
#?2
```

Type your response, for example, 2 for Americas and press Enter. The system lists applicable countries in the Americas. Make your selection and press Enter. The system displays applicable timezones. Make your selection. The following message appears

```
The following information has been given:
United States
Eastern Time
Therefore TZ='America/New_York' will be used.
Local time is now: Thu Apr 11 10:13:38 EDT 2014.
Universal Time is now: Thu Apr 11 14:13:38 UTC 2014.
```

```
Is the above information OK?
1) Yes
2) No
#?
```

9. Type 1 and then hit Enter. You will be then shown a summary of your settings.

```
Saved configuration. ---------------------------
HIGH AVAILABILITY
 2 : ECB mode                                     : standalone
 3 : ECB role                                     : N/A


AUTOMATIC CONFIGURATION
 6 : Acquire config from the Primary (yes/no)     : N/A


ECB SETTINGS
 7 : Unique target name of this ECB               : ECB-Oracle
 8 : Management interface IP address              : 172.18.255.53
 9 : Management interface subnet mask             : 255.255.0.0
 10: Management interface gateway IP address      : 172.18.0.1
 11: SIP interface VLAN id                        : 0
 12: SIP interface IP address                     : 192.168.4.181
 15: SIP interface subnet mask                    : 255.255.255.0
 16: SIP interface gateway IP address             : 192.168.4.1


PEER CONFIGURATION
 18: Peer target name                             : N/A


SETUP TIMEZONE
 19: Setup system timezone (yes/no)               : yes


 LICENSED SESSIONS
 20: Number of licensed sessions                  : 400


You may access the GUI via http://172.18.255.53:80/ or continue using the
acli after reboot.
```

Logging in the ECB

You can now access the ECB through the Web GUI. Start an Internet browser and start the GUI using the URL:

http://server ip address/.

The login screen will appear.
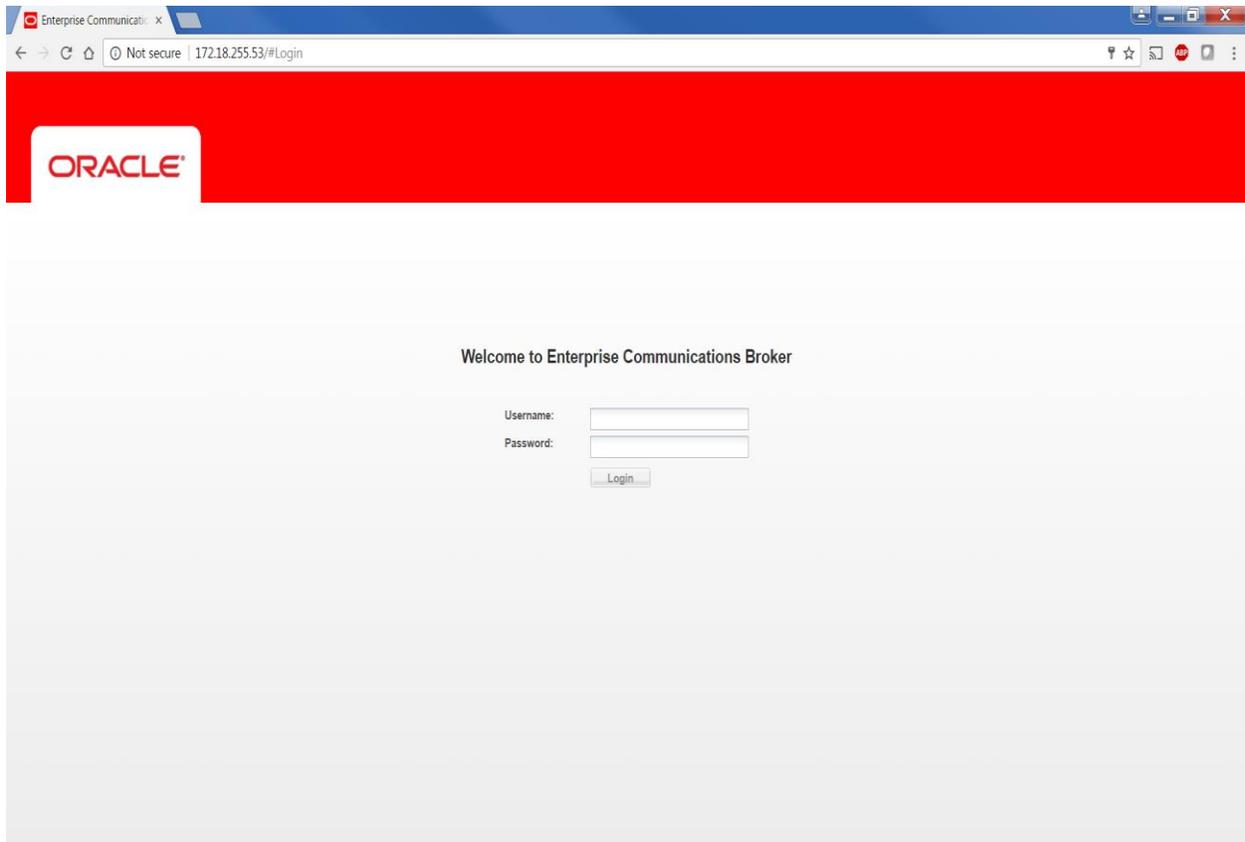
Enter your GUI username and password. The default username for the User level is "user" and the default password is "acme".

The default username for an Administrator level is "admin", and the default password is "packet".

Configuring the ECB

After logging into the ECB, the **Home** screen will be displayed. The Oracle ECB GUI has five tabs across the top – **Home, Configuration, Monitor and Trace, Widgets** and **System**.

The **Home** tab as shown below contains a configurable dashboard displaying the system statistics.
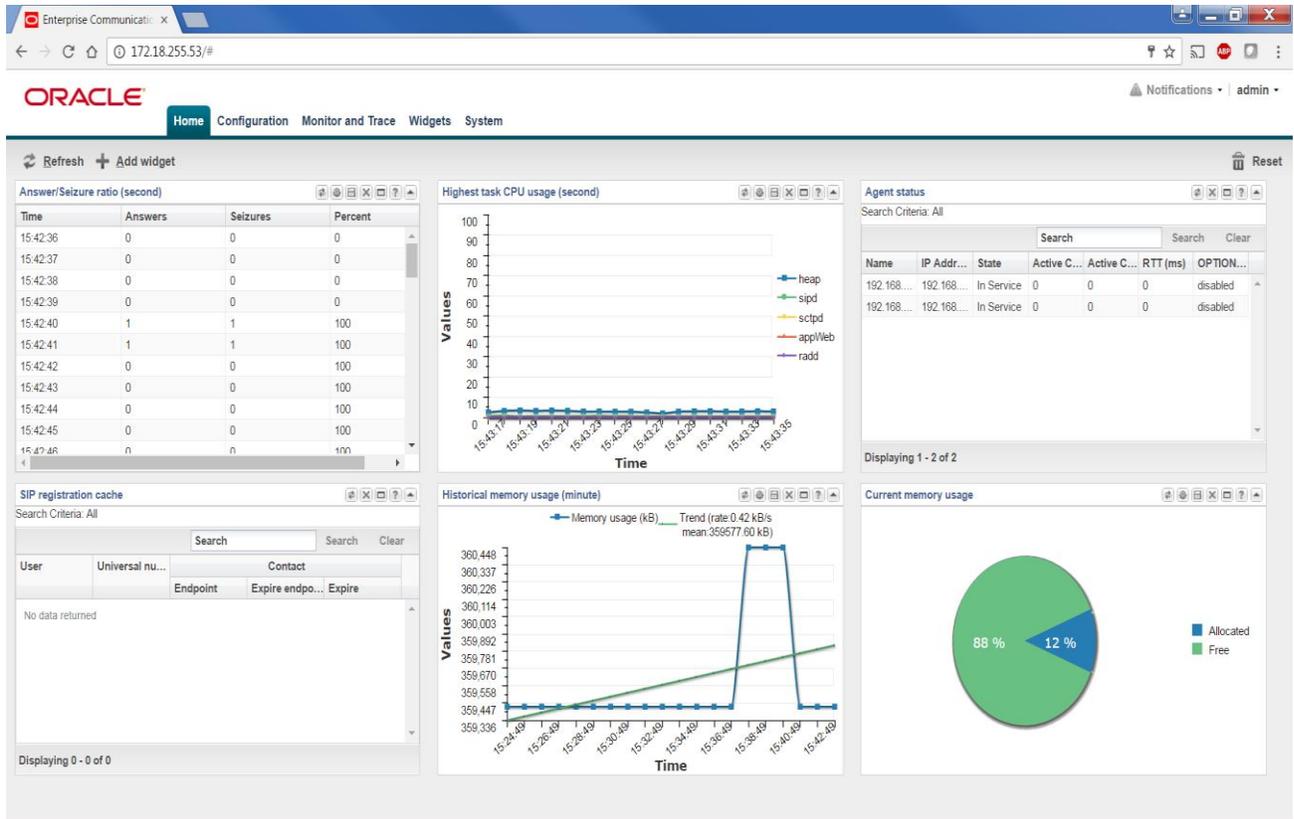
Click the **Configuration** button at the top to go to the **Configuration** tab.

You can verify the network interface settings configured through the `run setup` command by clicking on the **Network** icon under **System Administration**

Modify Network settings

VLAN id:	0	(Range: 0..4095)
Network IP address:	192.168.4.181	
Network IP subnet mask:	255.255.255.0	
Network IP gateway address:	192.168.4.1	
Preferred DNS server IP address:		
Alternate DNS server IP address:		
Alternate DNS server IP address:		
DNS domain:		
Enable ICMP:	☑	
Enable gateway hearbeat:	☑	

▼ High availability settings

Configure SIP Interfaces

Click **Configuration** button to go to the **Configuration** tab. Select the **SIP Interface icon** under **System Administration** to make changes to the SIP interface settings configured during initial setup.
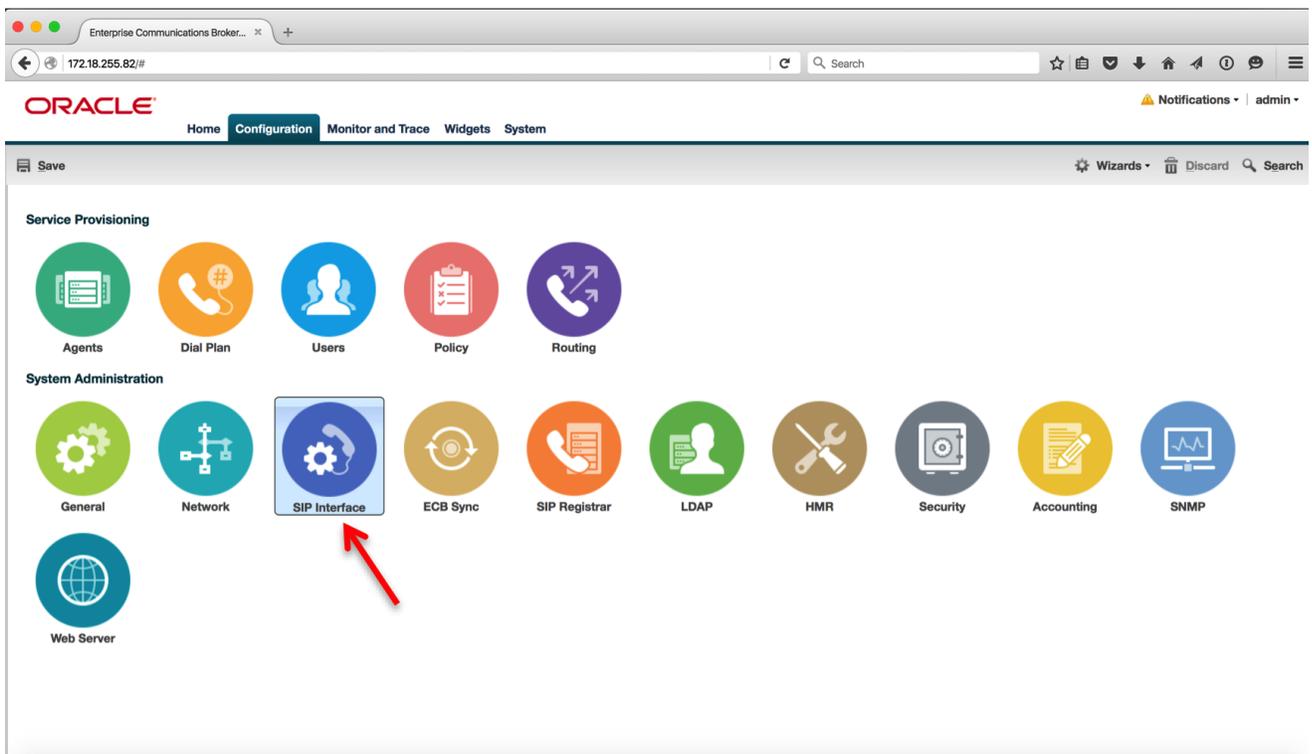
Click on the **Port** tab on the left. You will see the sip port 192.168.4.181 with protocol UDP already added. You can change the transport to TCP is required here. It is going to be UDP for the purpose of this testing.

SIP ports
Search Criteria: All

Add	Edit	Copy	Delete	Delete All			Search	Se
Address		**Port**		**Transport**	**TLS profile**			**Registered and session agents**
192.168.4.181		5060		UDP				disabled

Configure Header Manipulation Rules (HMR)

We will now configure header manipulation rules to hide network topology and ensure that the SIP messages sent to all agents cater to their specific signaling needs.

Click on the **HMR** icon under **System Administration** on the **Configuration** tab.
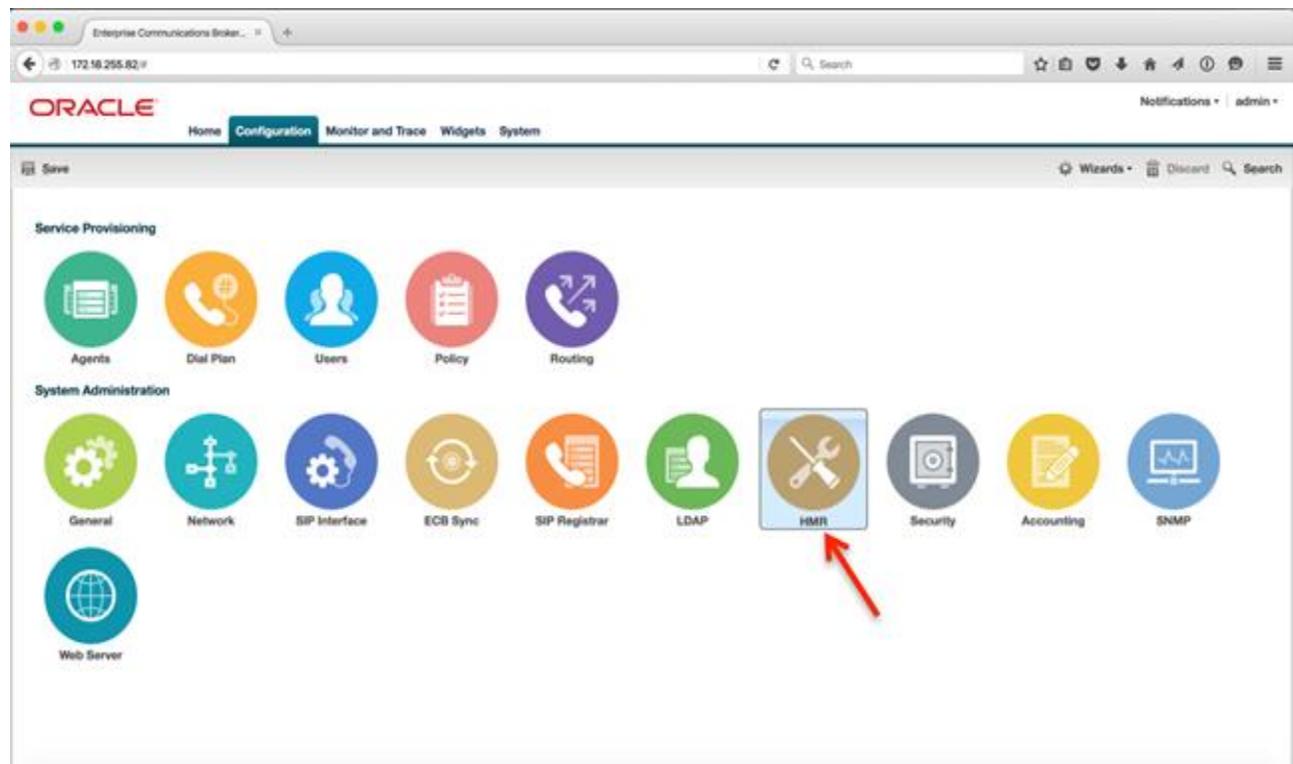
The **SIP manipulation** page is displayed. Click **Add** to add a SIP manipulation.

Type the name of the HMR rule, NATting in this case, and then click Add under CfgRules, then click header-rule. The manipulation consists of three header rules – From, To and Contact. Each of these header rules NAT the From, To and Contact headers and change them to the E-SBC IP so that the original IP's are protected.
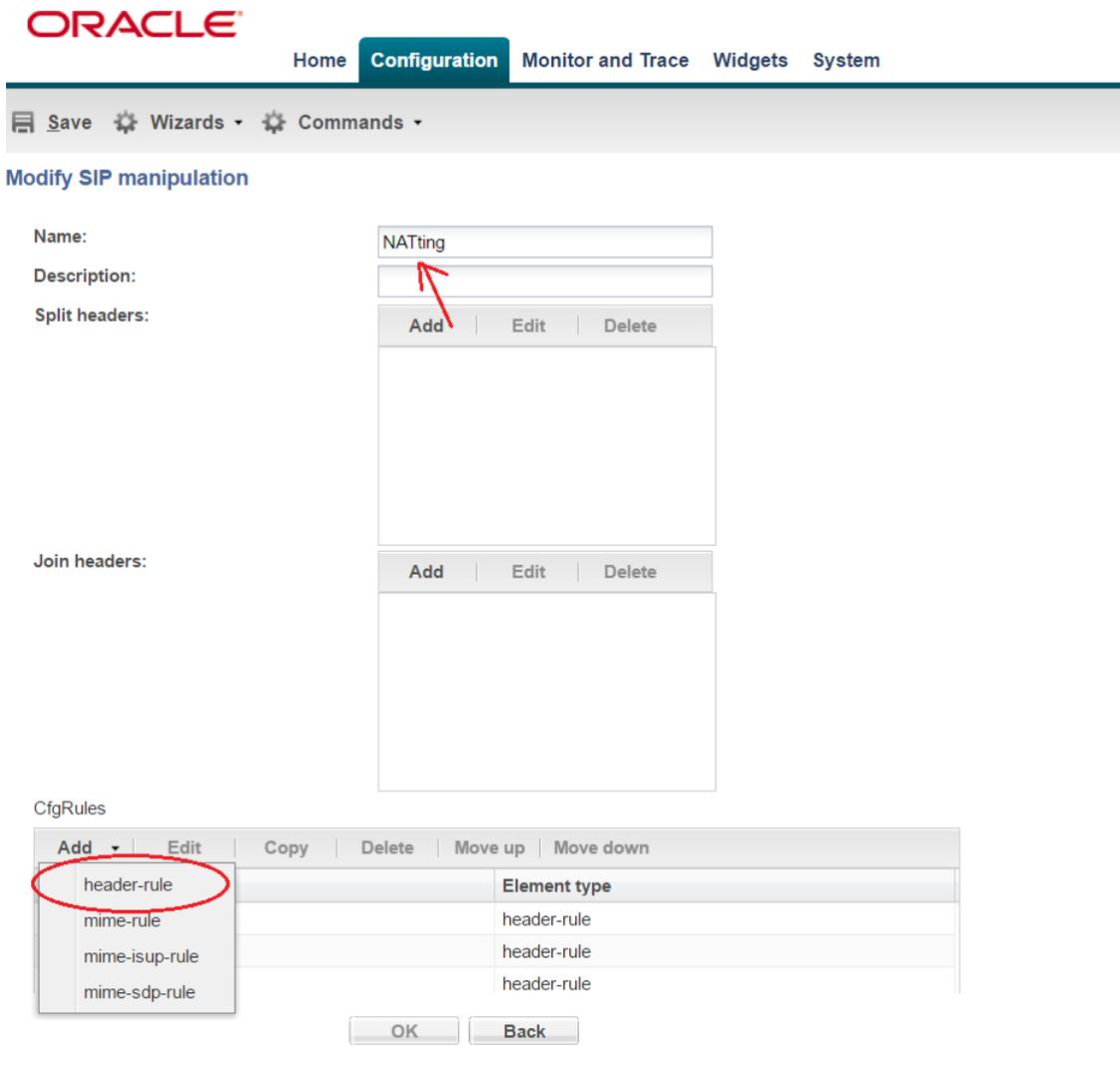
Enter the Name, Header name, and Action to match the following screenshot, then click on Add under CfgRules, then element-rule.

Then enter the following element-rule and click OK.

ORACLE

Home **Configuration** Monitor and Trace Widgets System

目 Save ⚙ Wizards ▾ ⚙ Commands ▾

Modify SIP manipulation / header rule / element rule

Name:	From_header
Parameter name:	
Type:	uri-host
Action:	replace
Match val type:	any
Comparison type:	case-sensitive
Match value:	
New value:	$LOCAL_IP

OK   Back

Add the following header-rule To.

ORACLE

Home | **Configuration** | Monitor and Trace | Widgets | System

目 Save   ⚙ Wizards ▾   ⚙ Commands ▾

Modify SIP manipulation / header rule

Name:	To
Header name:	To
Action:	manipulate ▾
Comparison type:	case-sensitive ▾
Msg type:	any ▾
Methods:	Add | Edit | Delete

Match value:	
New value:	

CfgRules

Add ▾ | Edit | Copy | Delete | Move up | Move down

Name	Element type

Add the following element-rule, then click OK.

Home   **Configuration**   Monitor and Trace   Widgets   System

💾 Save   ⚙ Wizards ▾   ⚙ Commands ▾

Modify SIP manipulation / header rule / element rule

Name:	To
Parameter name:	
Type:	uri-host ▾
Action:	replace ▾
Match val type:	any ▾
Comparison type:	case-sensitive ▾
Match value:	
New value:	$REMOTE_IP

OK   Back

Add the following header-rule Contact, then click on Add > element-rule.

ORACLE

Home | **Configuration** | Monitor and Trace | Widgets | System

Save | Wizards ▾ | Commands ▾

Modify SIP manipulation / header rule

Name:	Contact
Header name:	Contact
Action:	manipulate ▾
Comparison type:	case-sensitive ▾
Msg type:	any ▾
Methods:	Add | Edit | Delete

Match value:	
New value:	

CfgRules

Add ▾ | Edit | Copy | Delete | Move up | Move down

	Element type
element-rule	
COntact	element-rule

OK | Back

Add the following element-rule, then click OK.

Home **Configuration** Monitor and Trace **Widgets** **System**

🖫 **S**ave   ⚙ **Wizards** ▾   ⚙ **Commands** ▾

Modify SIP manipulation / header rule / element rule

Name:	COntact
Parameter name:	
Type:	uri-host ▾
Action:	replace ▾
Match val type:	any ▾
Comparison type:	case-sensitive ▾
Match value:	
New value:	$LOCAL_IP

OK   Back

Configure Agents

We will now configure the next hops in our routing paths – the Agents – which in our setup is the 192.168.4.180 (Genesys Server) and 192.168.4.182 (E-SBC). Click on **Agents** icon under **Service Provisioning**.
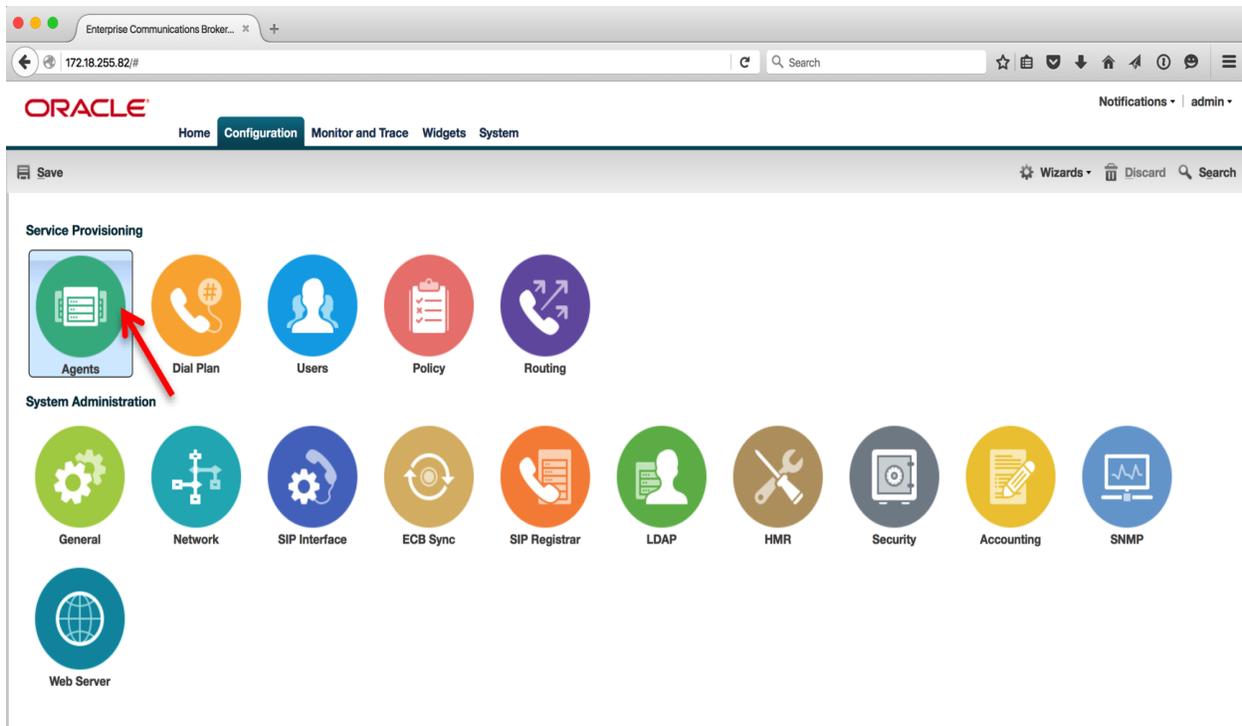
The Agents page will be displayed. Click on the **Add** button. The **Add Agent settings** page is displayed. Add the Genesys Server 192.168.4.180 by configuring the hostname, IP address, port, transport protocol, egress number translation mode and Apply outbound manipulation on as shown below. Click OK.

You will now see 192.168.4.180 listed under **Agents**. Click **Add** to add 192.168.4.182 (E-SBC) as an Agent as shown in the previous step.

Configure Routing

The ECB performs its session routing via the route configuration. The route configuration establishes hop-by-hop paths to signaling endpoints. Oracle ECB routing configuration allows the user to specify a route's cost to specify route preference. Cost may or may not be based on monetary considerations. But the reach of an enterprise's network often does allow the user to configure routes that keep session traffic within the enterprise infrastructure rather than incurring cost associated with a service provider.

The Oracle ECB allows for a range of route preference criteria to differentiate between routing paths. Criteria include source routing based on the agent or calling number. Target-oriented criteria are also available, allowing the enterprise to designate preferred paths for specific called numbers.

We have created two agent based routes for this testing. Click on the Routing icon under Service Provisioning.
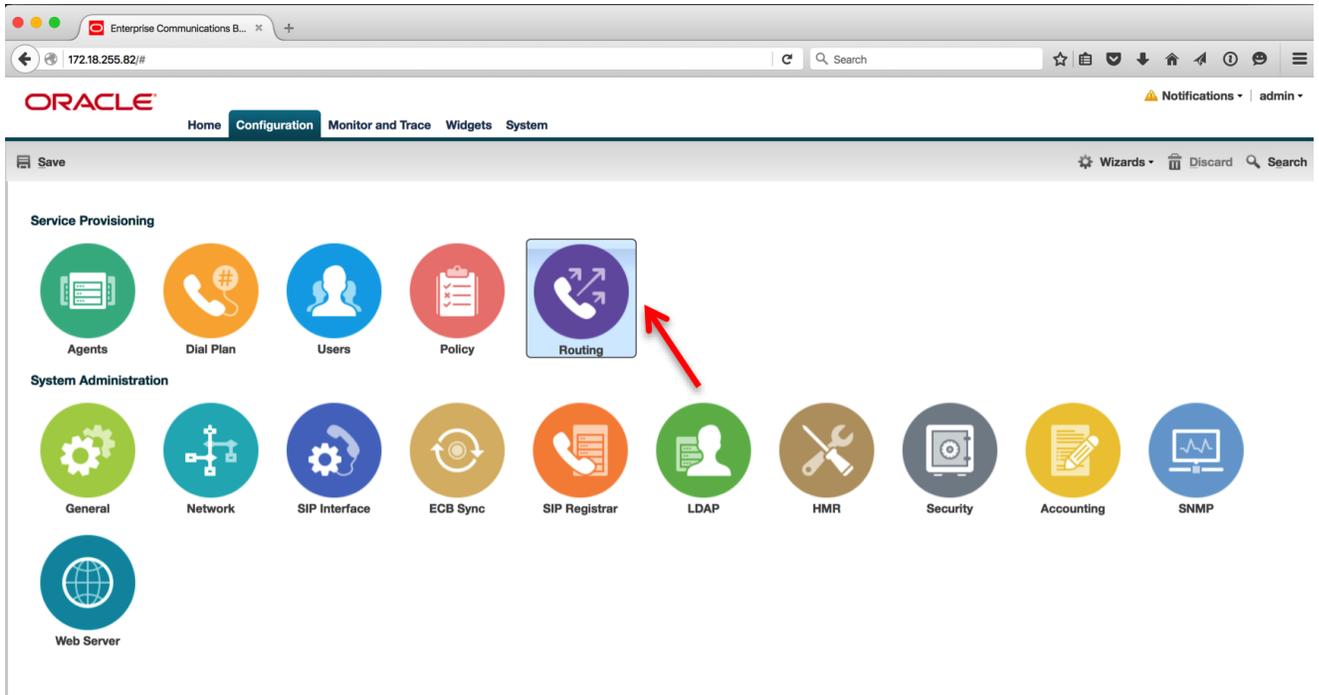
On the **Routing table** page, click **Add** to add a route.
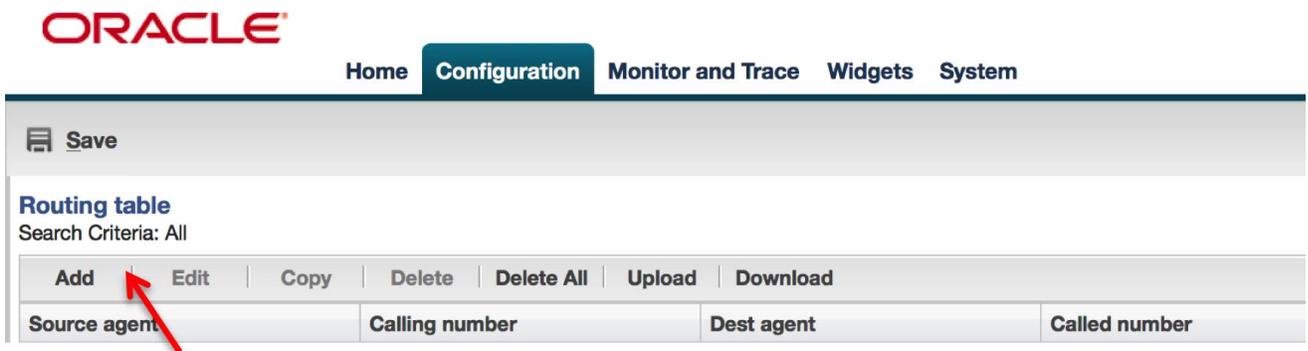
Add a routing entry for the source agent 192.168.4.180 (Genesys Server) with the **Route** set to E-SBC (192.168.4.182) with a cost of 10 and click **OK**.

When the ECB receives a call from 192.168.4.180, it looks up the user DB and finds that this agent is associated to 192.168.4.182 and routes the call to it.

Similarly, create a route from source agent 192.168.4.182 (E-SBC) to 192.168.4.180 (Genesys Server).

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Home **Configuration** Monitor and Trace Widgets System

🖫 Save   ⚙ Wizards ▾   ⚙ Commands ▾

Modify Routing entry

Source agent:	192.168.4.182 ▾
Calling number:	*
Dest agent:	* ▾
Called number:	*
Route:	192.168.4.180 ▾
Cost:	0 (Range: 0..100)
Policy:	Add | Edit | Delete
Description:	
Tags:	Add | Edit | Delete

OK   Back

Save and activate the configuration

We will now save and activate our ECB configuration. Click **Save** on the top left hand side of the **Configuration** tab.
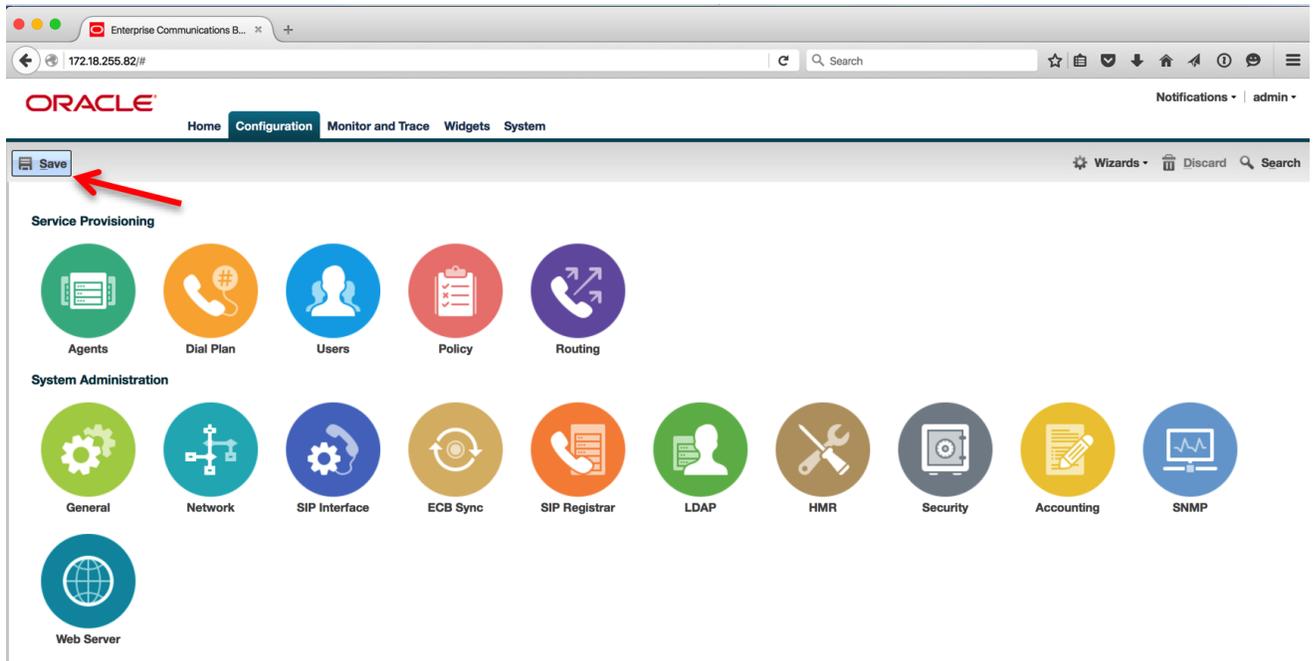
A progress dialog box will appear showing that the configuration in being saved.

You will be asked to confirm if you would like to activate the configuration. Click **Activate**.
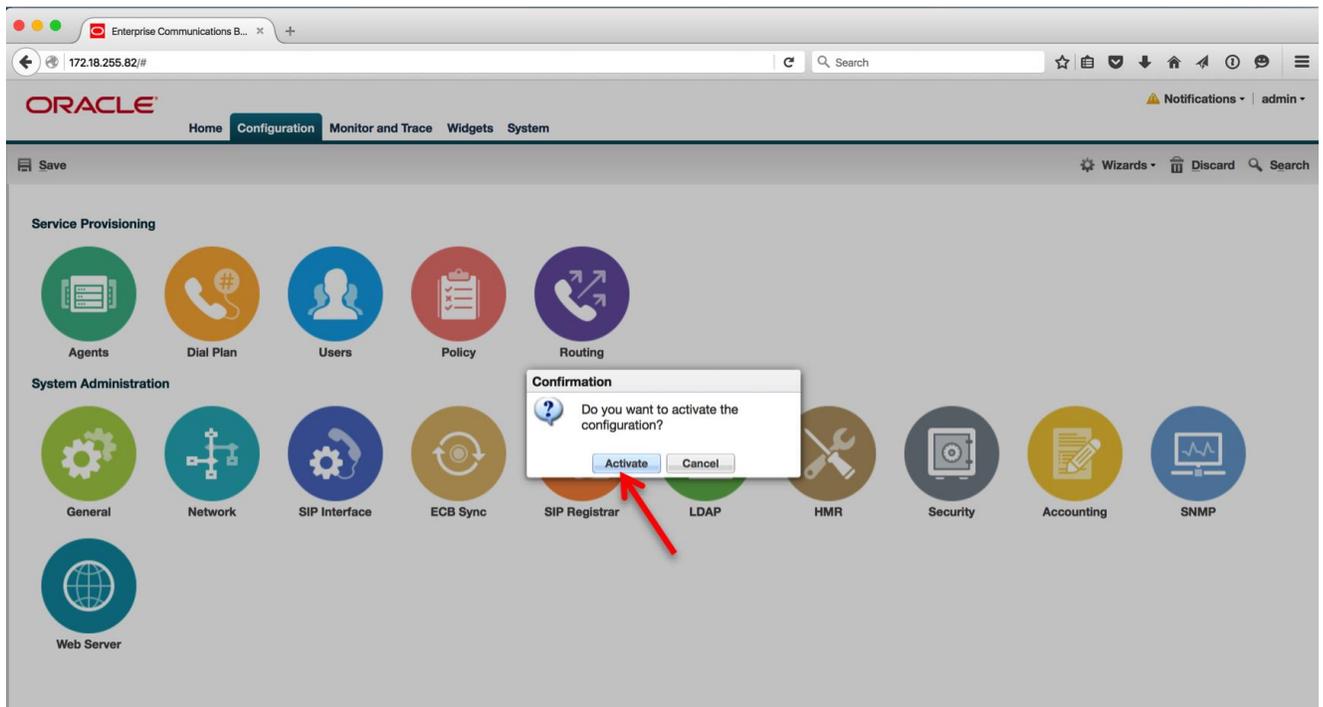
After the activation is completed, you will see the screen below
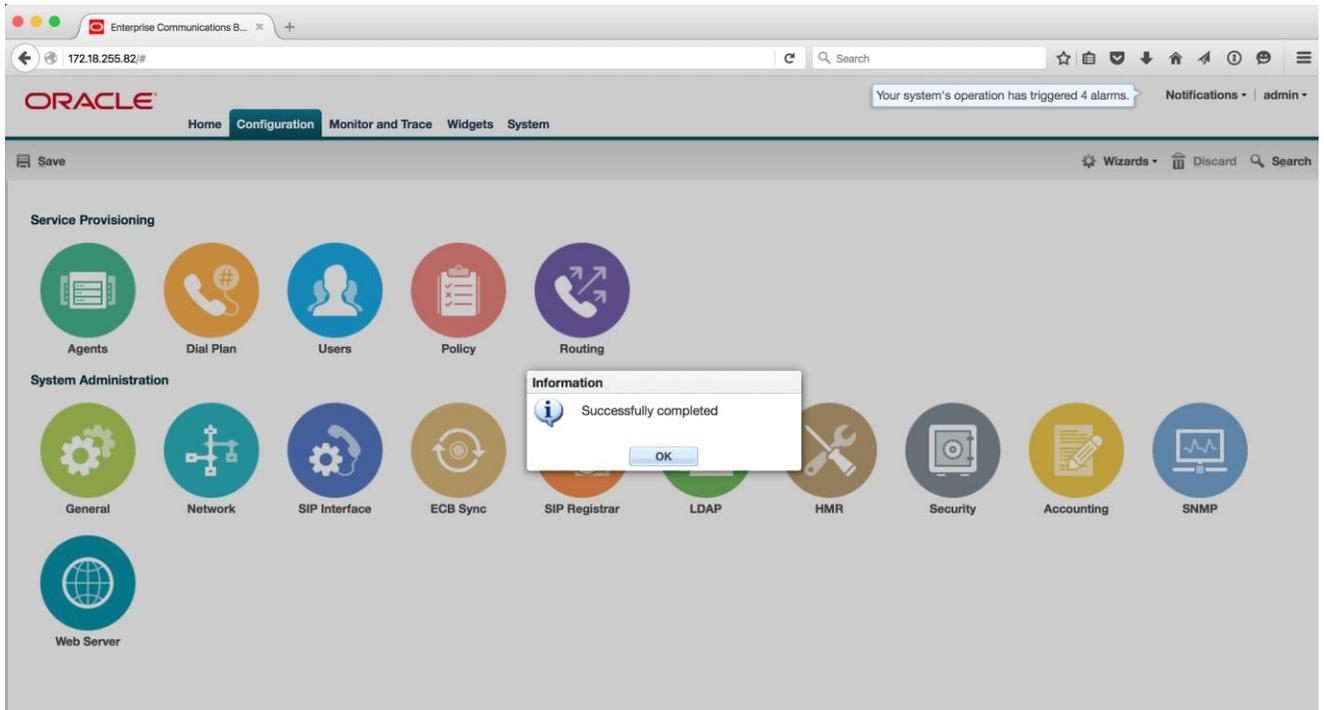
Click OK and the ECB configuration is now complete.

Configuring the Oracle Enterprise SBC

In this section we describe the steps for configuring an Oracle Enterprise SBC, formally known as an Acme Packet Net-Net Session Director ("SBC"), for use with ECB and Genesys Server.

In Scope

The following guide configuring the Oracle E-SBC assumes that this is a newly deployed device dedicated to a single customer. If a customer currently has the E-SBC deployed and is adding ECB and support for Genesys SIP Server, then please see the ACLI Configuration Guide on http://docs.oracle.com/cd/E61547_01/index.html for a better understanding of the Command Line Interface (CLI).

Out of Scope

- Configuration of Network management including SNMP and RADIUS

What will you need

- Serial Console cross over cable with RJ-45 connector

- Terminal emulation application such as PuTTY or HyperTerm

- Passwords for the User and Superuser modes on the Oracle SBC

- IP address to be assigned to management interface (Wancom0) of the SBC - the Wancom0 management interface must be connected and configured to a management network separate from the service interfaces. Otherwise the SBC is subject to ARP overlap issues, loss of system access when the network is down, and compromising DDoS protection. Oracle does not support SBC configurations with management and media/service interfaces on the same subnet.

- IP addresses of the E-SBC interface facing the ECB and the phones.

- IP addresses to be used for the SBC internal (ECB), external (phone) facing ports (Service Interfaces)

SBC Getting Started

Once the Oracle SBC is racked and the power cable connected, you are ready to set up physical network connectivity. **Note: use the console port on the front of the SBC, not the one on the back.**

Plug the slot 0 port 0 (s0p0) interface into Genesys SIP Server i.e ECB facing network, the slot 0 port 1(s0p1) into the PSTN facing network. Once connected, you are ready to power on and perform the following steps.

All commands are in bold, such as `configure terminal`; parameters in bold red such as oraclesbc1 are parameters which are specific to an individual deployment. **Note:** The ACLI is case sensitive.

Establish the serial connection and logging in the SBC

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

- Baud Rate=115200

- Data Bits=8

- Parity=None

- Stop Bits=1

- Flow Control=None

 Power on the SBC and confirm that you see the following output from the bootup sequence.
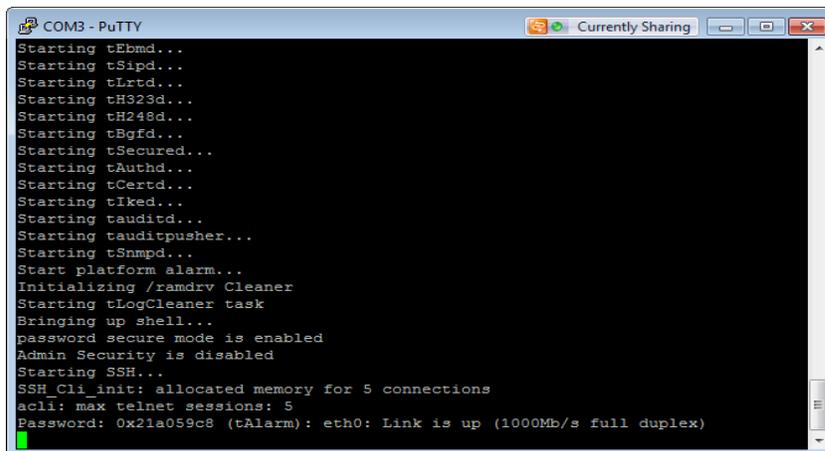
Enter the following commands to login to the SBC and move to the configuration mode. Note that the default SBC password is "**acme**" and the default super user password is "**packet**".

```
Password: acme
oraclesbc1> enable
Password: packet
oraclesbc1# configure terminal
oraclesbc1(configure)#
```

You are now in the global configuration mode.

Initial Configuration – Assigning the management Interface an IP address

To assign an IP address, one has to configure the bootparams on the SBC by going to

oraclesbc1#configure terminal --- >bootparams

- Once you type "bootparam" you have to use "carriage return" key to navigate down

- A reboot is required if changes are made to the existing bootparams

```
ACMESYSTEM(configure)# bootparam

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

Boot File            : /boot/nnECZ730m1p1.XX.bz
IP Address           : 192.65.79.44
VLAN                 :
Netmask              : 255.255.255.224
Gateway              : 192.65.79.33
IPv6 Address         :
IPv6 Gateway         :
Host IP              : 0.0.0.0
FTP username         : vxftp
FTP password         : vxftp123
Flags                :
Target Name          : oraclesbc1
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.
```

Configuring the SBC

The following section walks you through the entire configuration required on the E-SBC.

Below are some important aspects of the configuration which are explained in detail:

- Since Genesys server supports early Media, 100rel-interworking is added as an option on the Genesys SIP interface. Also, since the phones do not send the Supported:100rel header in the INVITE, the E-SBC adds the header with the HMR Add100rel.

- The Add100rel HMR also has two more header-rules ModTo and ModFrom which essentially provide NATing and change the To and From host-uri's to E-SBC's.

- An auth-attribute with a pre-defined username and password is added to the PSTN sip-interface, as there is a test case which requires the Genesys Server to authenticate the E-SBC.

- Testing third party call control required one of the PSTN phones to register to the SIP server, hence registration caching is enabled on the PSTN SIP interface.

It is outside the scope of this document to include all the interoperability working information as it will differ in every deployment.

SBC Configuration

Following is the configuration of the SBC:

```
local-policy
        from-address                        *
        to-address                          9234567890
        source-realm                        Genesys
        policy-attribute
                next-hop                            10.232.50.211
                realm                               PSTN
local-policy
        from-address                        *
        to-address                          9876543210
        source-realm                        Genesys
        policy-attribute
                next-hop                            10.232.50.215
                realm                               PSTN
local-policy
        from-address                        *
        to-address                          *
        source-realm                        PSTN
        policy-attribute
                next-hop                            192.168.4.181
                realm                               Genesys
media-manager
network-interface
        name                                s0p0
        ip-address                          192.168.4.182
        netmask                             255.255.255.0
        hip-ip-list                         192.168.4.182
        icmp-address                        192.168.4.182
        telnet-address                      192.168.4.182
network-interface
        name                                s0p1
        ip-address                          10.232.50.200
        netmask                             255.255.255.0
        hip-ip-list                         10.232.50.200
        icmp-address                        10.232.50.200
        ssh-address                         10.232.50.210
network-interface
        name                                wancom1
        description                         HA_HEARTBEAT1
        pri-utility-addr                    169.254.1.1
        sec-utility-addr                    169.254.1.2
        netmask                             255.255.255.252
network-interface
        name                                wancom2
        description                         HA_HEARTBEAT2
        pri-utility-addr                    169.254.2.1
        sec-utility-addr                    169.254.2.2
        netmask                             255.255.255.252
phy-interface
        name                                s0p0
        operation-type                      Media
phy-interface
```

```
        name                            s0p1
        operation-type                  Media
        port                            1
phy-interface
        name                            wancom1
        port                            1
        duplex-mode
        speed
        wancom-health-score             8
phy-interface
        name                            wancom2
        port                            2
        duplex-mode
        speed
        wancom-health-score             9
realm-config
        identifier                      Genesys
        network-interfaces              s0p0:0
        mm-in-realm                     enabled
realm-config
        identifier                      PSTN
        network-interfaces              s0p1:0
        mm-in-realm                     enabled
redundancy-config
        becoming-standby-time           360000
        peer
                name                            SBC1
                type                            Primary
                destination
                        address                         169.254.1.1:9090
                        network-interface               wancom1:0
                destination
                        address                         169.254.2.1:9090
                        network-interface               wancom2:0
        peer
                name                            SBC2
                type                            Secondary
                destination
                        address                         169.254.1.2:9090
                        network-interface               wancom1:0
                destination
                        address                         169.254.2.2:9090
                        network-interface               wancom2:0
session-agent
        hostname                        10.232.50.211
        ip-address                      10.232.50.211
        realm-id                        PSTN
        auth-attributes
                auth-realm                      HOME
                username                        1234
                password                        ********
                in-dialog-methods               invite
                                                ack
                                                subscribe
                                                refer
                                                update
```

```
session-agent
        hostname                        192.168.4.180
        ip-address                      192.168.4.180
        port                            4080
        realm-id                        Genesys
session-agent
        hostname                        192.168.4.181
        ip-address                      192.168.4.181
        realm-id                        Genesys
        description                     ECB
sip-config
        home-realm-id                   Genesys
        registrar-domain                *
        registrar-host                  *
        registrar-port                  5060
sip-interface
        realm-id                        Genesys
        sip-port
                address                         192.168.4.182
        options                         100rel-interworking
        out-manipulationid              Add100rel
sip-interface
        realm-id                        PSTN
        sip-port
                address                         10.232.50.200
        nat-traversal                   always
        registration-caching            enabled
        route-to-registrar              enabled
        out-manipulationid              ACME_NAT_TO_FROM_IP
sip-manipulation
        name                            Add100rel
        header-rule
                name                            addsupported
                header-name                     Supported
                action                          add
                methods                         INVITE
                new-value                       100rel
        header-rule
                name                            ModFrom
                header-name                     From
                action                          manipulate
                element-rule
                        name                            ModFrom
                        type                            uri-host
                        action                          replace
                        new-value                       $LOCAL_IP
        header-rule
                name                            ModTo
                header-name                     To
                action                          manipulate
                element-rule
                        name                            ModTo
                        type                            uri-host
                        action                          replace
                        new-value                       $REMOTE_IP
sip-monitoring
```

```
        match-any-filter                     enabled
steering-pool
        ip-address                           10.232.50.200
        start-port                           50000
        end-port                             60000
        realm-id                             PSTN
steering-pool
        ip-address                           192.168.4.182
        start-port                           40000
        end-port                             40100
        realm-id                             Genesys
system-config
        process-log-level                    DEBUG
        comm-monitor
                state                                enabled
            monitor-collector
                    address                                  172.18.255.101
        default-gateway                      172.18.0.1
```

Configuring the Genesys Server

The following does not cover the complete installation of the Genesys SIP server, it only covers the changes to the configuration to work with the ECB.

- Configuration Manager → TSE → Switches → HOME → DNs
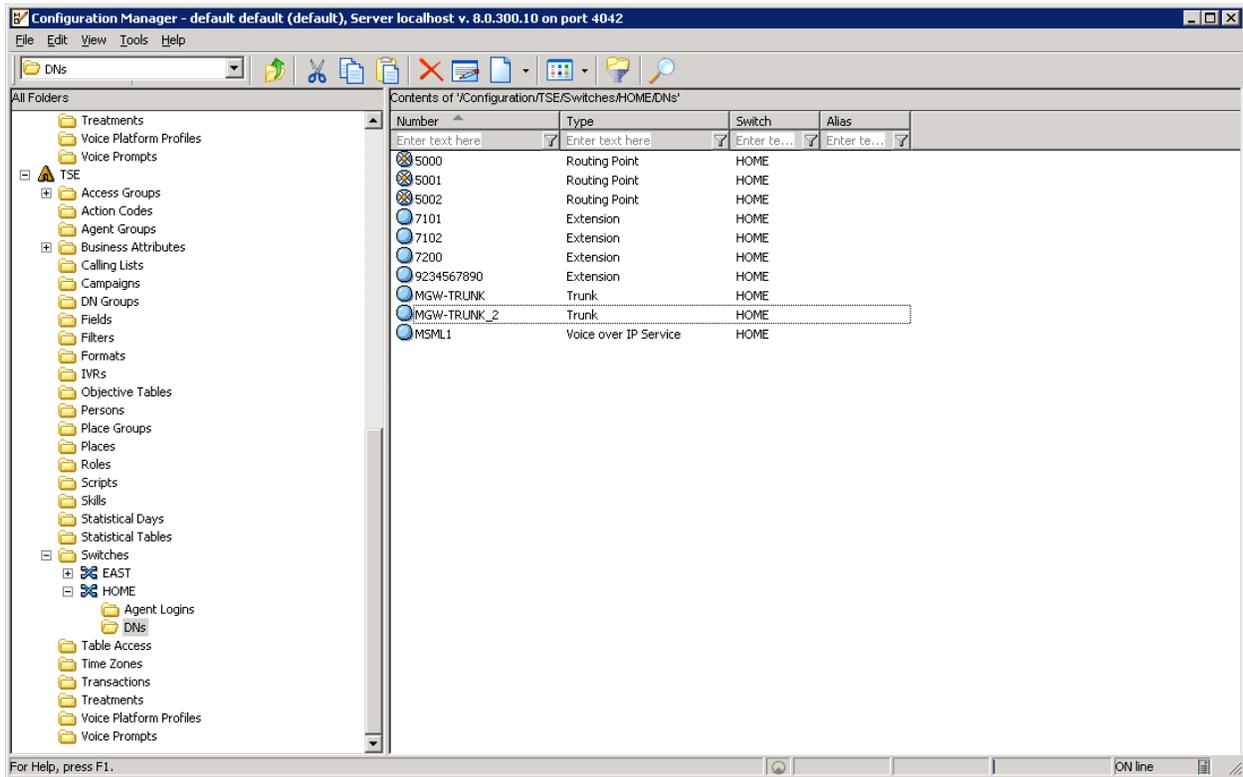
- The two DN's 7101 and 7102 have been created which represents the two agents. MGW-TRUNK_2 represents the ECB. When you click on MGW-TRUNK_2, scroll to the Annex tab and double click on TServer
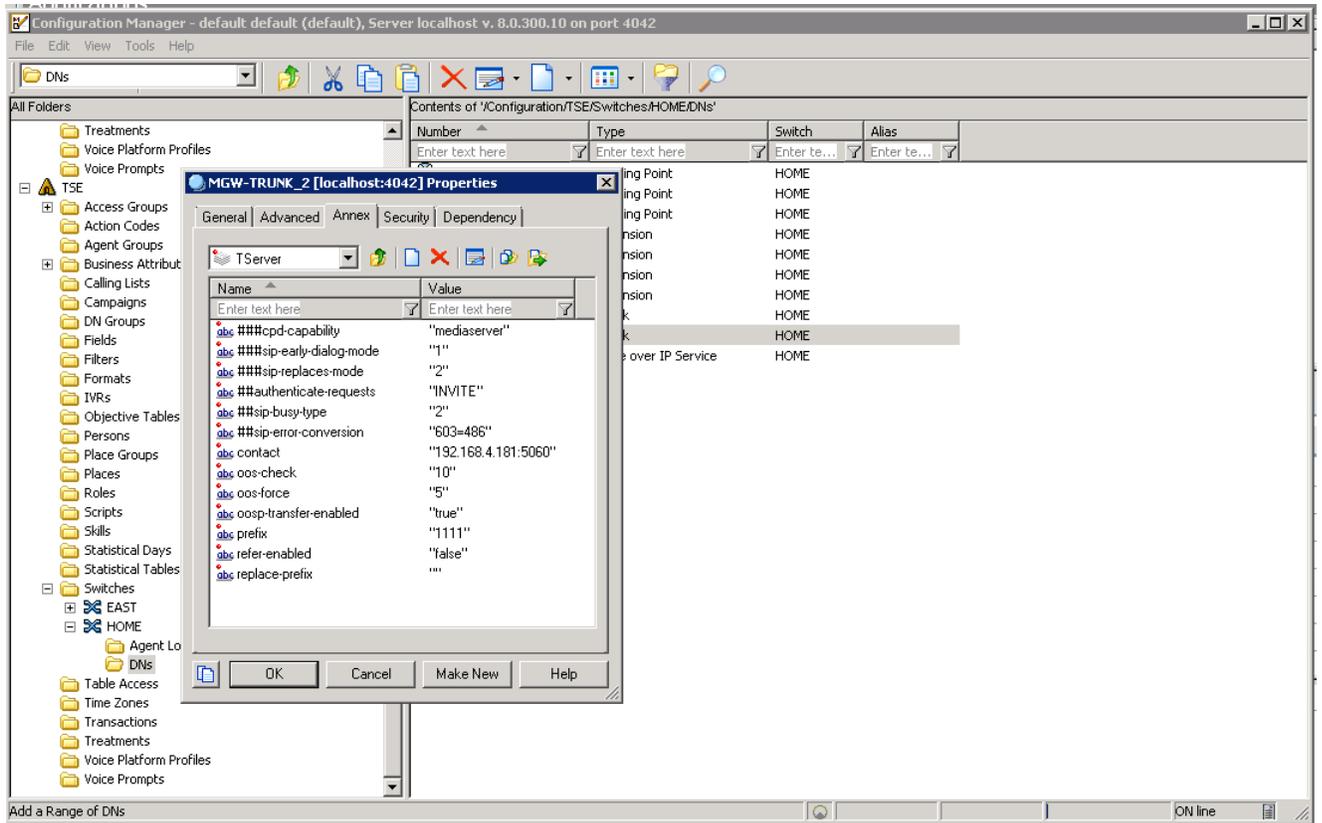
- When you click on contact, enter the ECB IP 192.168.4.181 and port 5060.
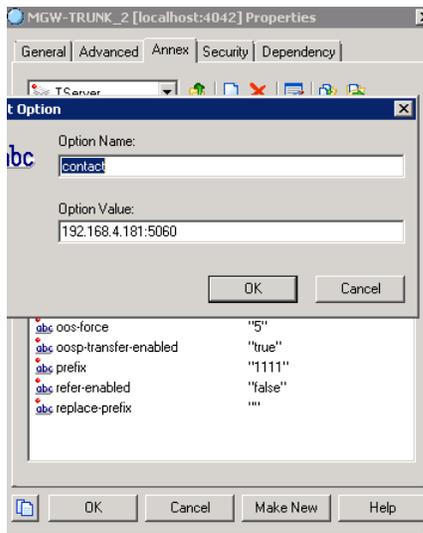
How to make calls using the Genesys test tool Epiphone:

EpiPhone is a test tool for testing Genesys SIP Server. It provides functionality of Genesys T-Library GUI client with call/parties visualization and 3rd party call control. From EpiPhone GUI it is possible to perform all 3PCC requests required for execution of current test plan. This include Treatment request and Route requests, thus we don't need to include URS in the testing environment.

The following is the screenshot of the Epiphone. The two agent phones 7101 and 7102, as well as the route points 5000/01/02 show up under the HOME directory after you have created and configured them in the Configuration Manager.
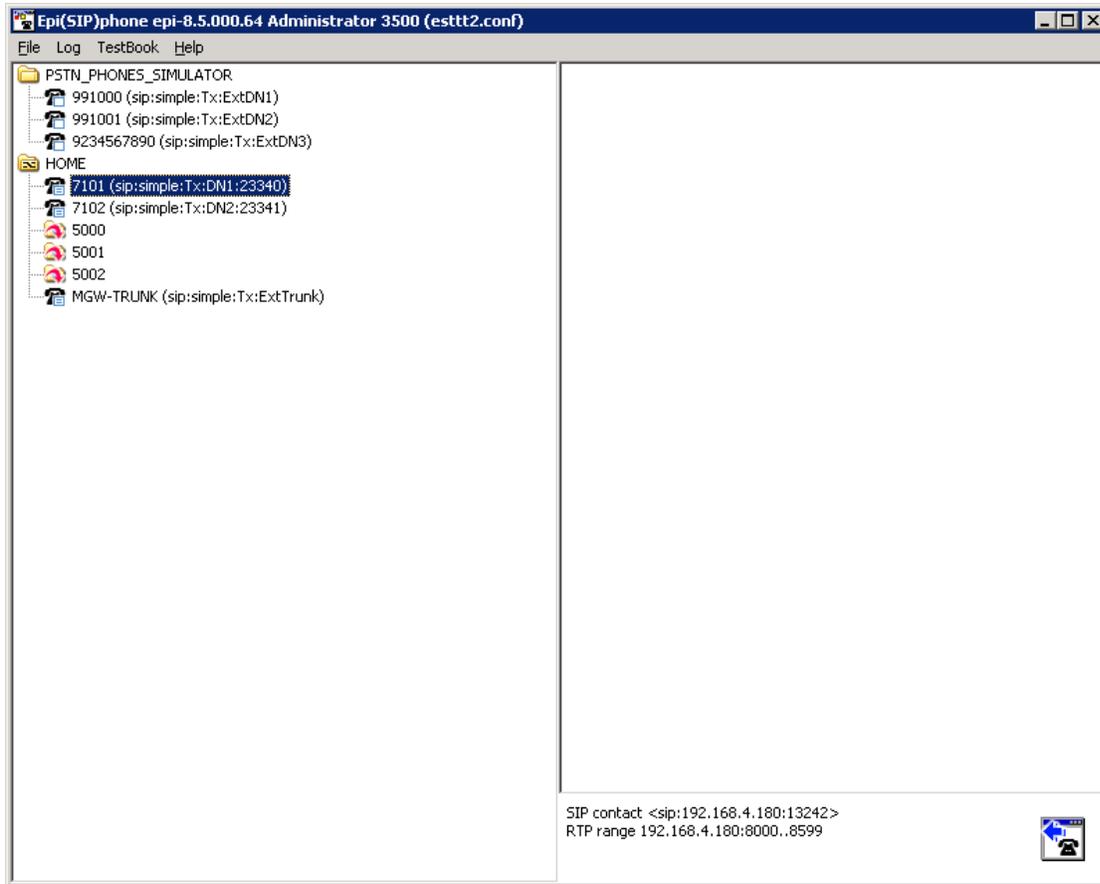
To make a call, right click on 7101, and click on MakeCall.
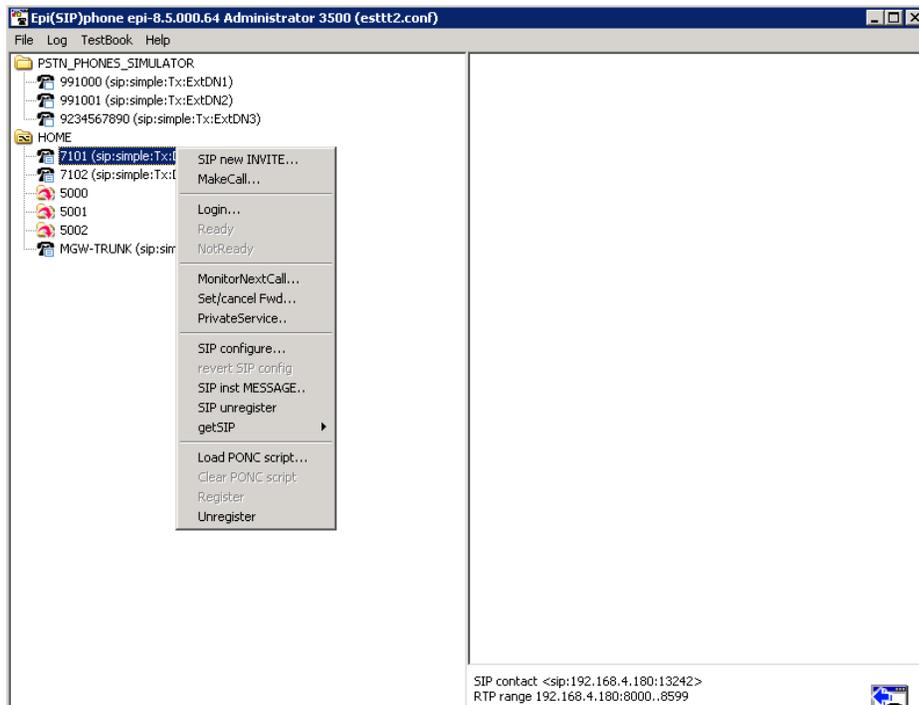
Now enter the phone number and click on ok.
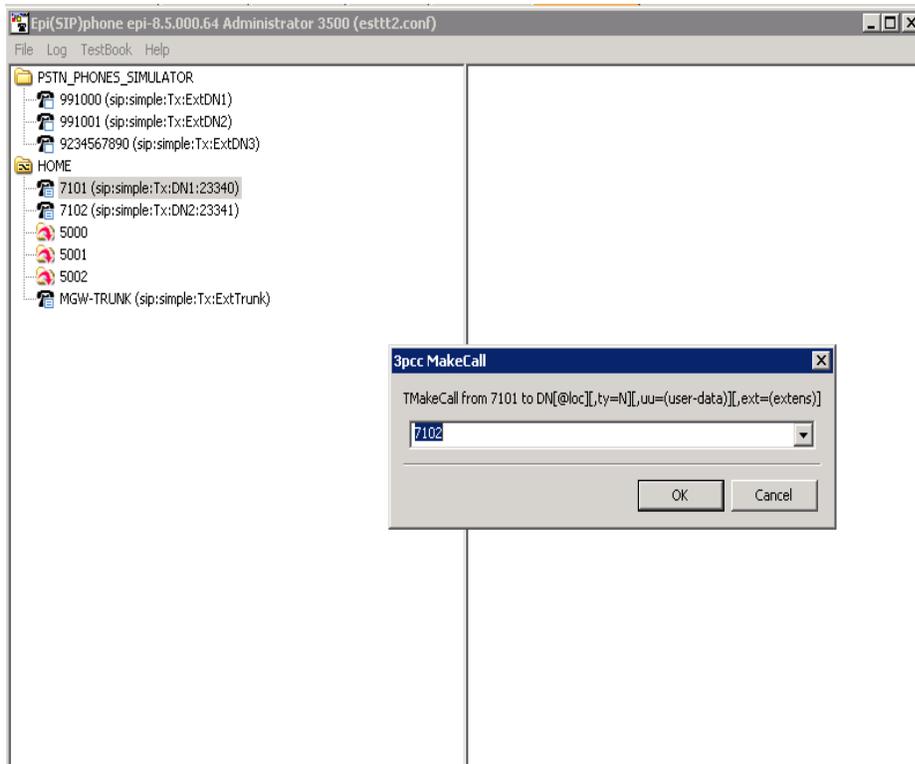
How to receive calls using Epiphone

For receiving an incoming call on the Epiphone, right click on the phone number and click on talk (answer)
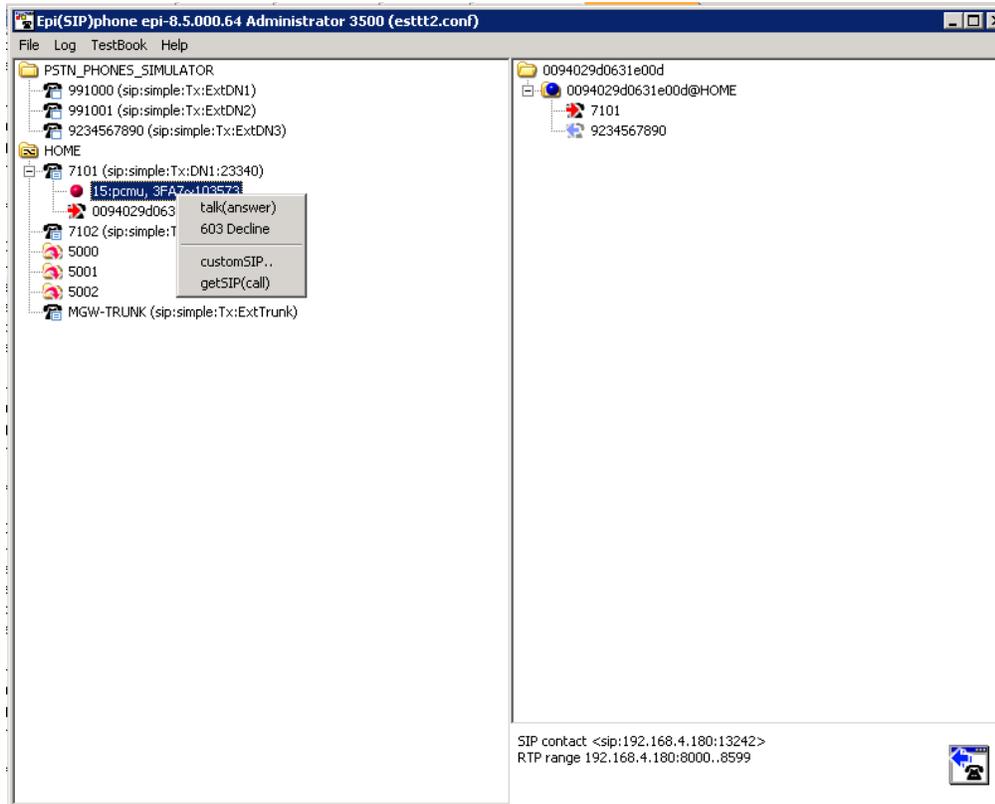
How to pause, transfer and conference using EpiPhone

After answering the call, when you right click on the phone number, you will see call options like SIP hold, blindXfer and startXfer (attended transfer).
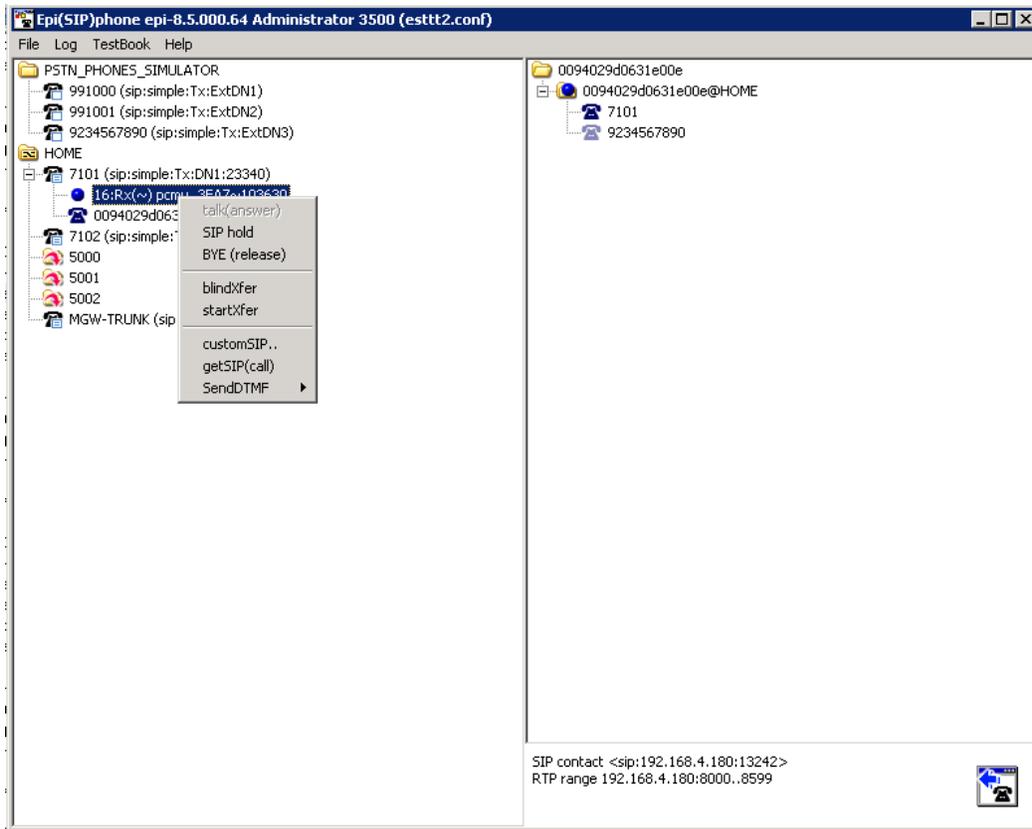
For third party call control

For tests which require third party call hold, transfer and conference, right click on the second icon below the phone number which is a unique internal Genesys ID and there are options for hold, release, Call transfer and conference.
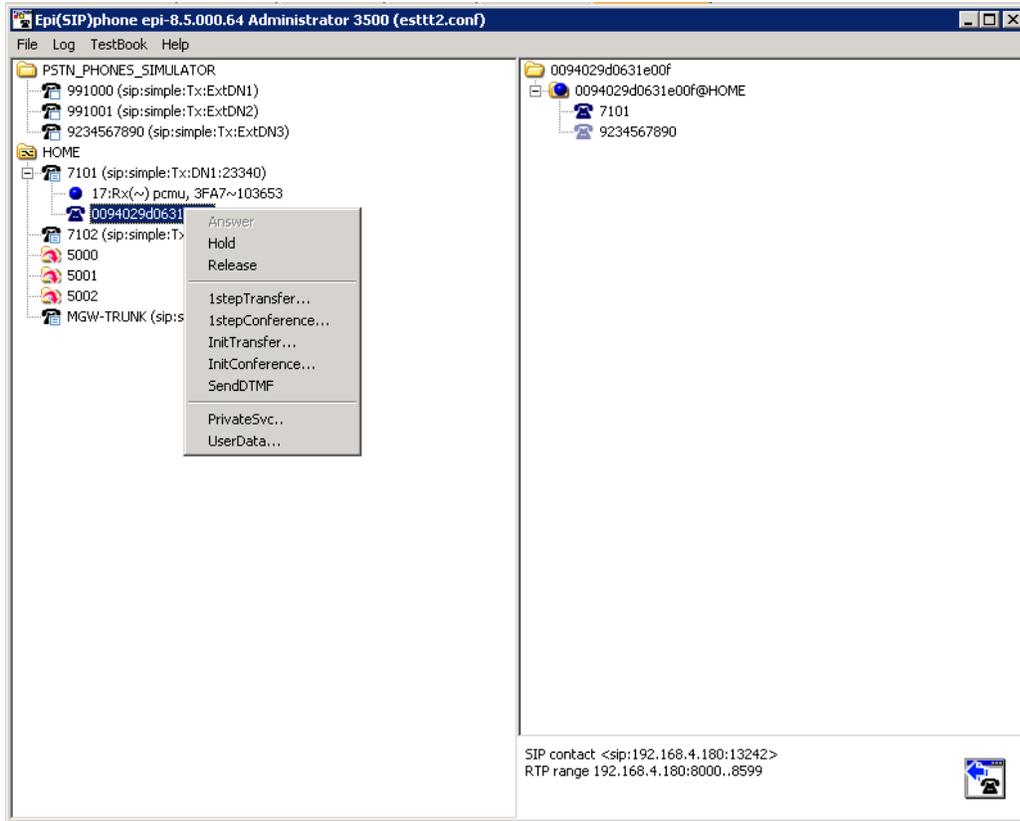
Test Plan

Following is the test plan executed against this setup and results have been documented below.

#	Scenario Description	Result
center Functional Test Cases		
1	Inbound Call to Agent released by caller	Pass
2	Inbound Call to Agent released by agent	Pass
3	Inbound Calls rejected	Pass
4	Inbound Call abandoned	Pass
5	Inbound Call to Route Point with Treatment	Pass
6	Interruptible Treatment	Pass
7	IVR (Collect Digit) Treatment	Pass
8	Inbound Call routed by using 302 out of SIP Server signaling path	Pass
9	1PCC Outbound Call from SIP Endpoint to external destination	Pass
10	3PCC Outbound Call to external destination	Pass
11	1PCC Outbound Call Abandoned	Pass
12	Caller is put on hold and retrieved by using RFC 2543 method	Pass
13	T-Lib-Initiated Hold/Retrieve Call with MOH using RFC 3264 method	Pass
14	3PCC 2 Step Transfer to internal destination by using re-INVITE method	Pass
15	3PCC Alternate from consult call to main call	Pass
16	1PCC Unattended (Blind) transfer using REFER	Pass
18	3PCC Two Step Conference to external party	Pass
19	3PCC (same as 1PCC) Single-Step Transfer to another agent	Pass
20	3PCC Single Step Transfer to external destination using REFER	Pass
21	3PCC Single Step Transfer to internal busy destination using REFER	Pass
24	Inbound call routed outbound (Remote Agent) using INVITE without SDP	Pass
25	Call Progress Detection	Pass
26	Out of Service detection; checking MGW live status	Pass
27	SIP Authentication for outbound calls	Pass
28	SIP Authentication for incoming calls	Pass
29	T-Lib-Initiated Answer/Hold/Retrieve Call for Remote SIP endpoint which supports the BroadSoft SIP Extension Event Package.	Pass
30	3PCC Outbound Call from Remote SIP endpoint to external destination	Pass
31	3PCC 2 Step Transfer from Remote SIP endpoint to internal destination	Pass
32	1PCC Attended Transfer from Remote SIP endpoint to external destination	Pass

Troubleshooting Tools

On the Oracle ECB and E-SBC

The Oracle SBC provides a rich set of statistical counters available from the ACLI, as well as log file output with configurable detail. The follow sections detail enabling, adjusting and accessing those interfaces.

Resetting the statistical counters, enabling logging and restarting the log files.

At the SBC Console:

```
oraclesbc1# reset sipd
oraclesbc1# notify sipd debug
oraclesbc1#
enabled SIP Debugging
oraclesbc1# notify all rotate-logs
```

Examining the log files

Note: You will FTP to the management interface of the SBC with the username user and user mode password (the default is "**acme**").

```
C:\Documents and Settings\user>ftp 192.168.5.24
Connected to 192.168.85.55.
220 oraclesbc1FTP server (VxWorks 6.4) ready.
User (192.168.85.55:(none)): user
331 Password required for user.
Password: acme
230 User user logged in.
ftp> cd /ramdrv/logs
250 CWD command successful.
ftp> get sipmsg.log
200 PORT command successful.
150 Opening ASCII mode data connection for '/ramdrv/logs/sipmsg.log' (3353
bytes).
226 Transfer complete.
ftp: 3447 bytes received in 0.00Seconds 3447000.00Kbytes/sec.
ftp> get log.sipd
200 PORT command successful.
150 Opening ASCII mode data connection for '/ramdrv/logs/log.sipd' (204681
bytes).
226 Transfer complete.
ftp: 206823 bytes received in 0.11Seconds 1897.46Kbytes/sec.
ftp> bye
221 Goodbye.
```

You may now examine the log files with the text editor of your choice.

Through the Web GUI

You can also check the display results of filtered SIP session data from the Oracle Enterprise Session Border Controller, and provides traces in a common log format for local viewing or for exporting to your PC. Please check the "Monitor and Trace" section (page 145) of the Web GUI User Guide available at http://docs.oracle.com/cd/E56581_01/index.htm