# Oracle® Communications

## Diameter Signaling Router 7.0.1

Cloud Installation Guide

**E64814 Revision 01**

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ORACLE®

Oracle Communications Diameter Signaling Router Software Installation Procedure, Release 7.0.1



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See more information on MOS in the Appendix section.

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# 1.0 INTRODUCTION

## 1.1 Purpose and Scope

This document describes the application-related installation procedures for an VMware Diameter Signaling Router 7.0.1 system.

This document assumes that platform-related configuration has already been done.

The audience for this document includes Oracle customers as well as these groups: Software System, Product Verification, Documentation, and Customer Service including Software Operations and First Office Application.

## 1.2 References

### 1.2.1 External

[1] Communication Agent Configuration Guide, E58922
[2] DSR 7.0 PCA Configuration, E58667
[3] DSR Meta Administration Feature Activation Procedure, E58661
[4] DSR Full Address Based Resolution (FABR) Feature Activation Procedure, E58664
[5] DSR Range Based Address Resolution (RBAR) Feature Activation, E58664
[6] SDS SW Installation and Configuration Guide, WI007125
[7] MAP-Diameter IWF Feature Activation Procedure. E58666
[8] Operations, Administration, and Maintenance (OAM) User's Guide, E53463
[9] Communication Agent User's Guide, E53464
[10] Policy DRA User's Guide, E53472
[11] Diameter User's Guide, E53467
[12] Mediation User's Guide, E53468
[13] Range Based Address Resolution (RBAR) User's Guide, E53469
[14] Full Address Based Resolution (FABR) User's Guide, E53470
[15] IP Front End (IPFE) User's Guide, E53473-01
[16] DSR Alarms, KPIs, and Measurements Reference, E53474
[17] Diameter Common User's Guide, E53480
[18] Diameter Administrator's Guide, E53475
[19] Map-Diameter IWF User's Guide, E53476
[20] Gateway Location Application (GLA) User's Guide, E58659

## 1.3 Acronyms

An alphabetized list of acronyms used in the document

**Table 1. Acronyms**

| Acronym | Definition |
|---|---|
| BIOS | Basic Input Output System |
| CD | Compact Disk |
| DSR | Diameter Signaling Router |
| ESXi | Elastic Sky X Integrated |
| FABR | Full Address Based Resolution |
| iDIH | Integrated Diameter Intelligence Hub |
| IPFE | IP Front End |
| IPM | Initial Product Manufacture – the process of installing TPD |
| IWF | Inter Working Function |
| NAPD | Network Architecture Planning Diagram |
| OS | Operating System (e.g. TPD) |
| OVA | Open Virtualization Appliance |
| PDRA | Policy Diameter Routing Agent |
| PCA | Policy and Charging Application |
| RBAR | Range Based Address Resolution |
| SAN | Storage Area Network |
| SFTP | Secure File Transfer Protocol |
| SNMP | Simple Network Management Protocol |
| TPD | Tekelec Platform Distribution |
| VM | Virtual Machine |

## 1.4 Terminology

Multiple server types may be involved with the procedures in this manual. Therefore, most steps in the written procedures begin with the name or type of server to which the step applies.

| | |
|---|---|
| **Site** | Applicable for various applications, a Site is type of "Place". A Place is configured object that allows servers to be associated with a physical location.<br><br>A Site place allows servers to be associated with a physical site. For example, Sites may be configured for Atlanta, Charlotte, and Chicago. Every server is associated with exactly one Site when the server is configured.<br><br>For the Policy & Charging DRA application, when configuring a Site only put DA-MPs and SBR MP servers in the site. Do not add NOAMP, SOAM or IPFE MPs to a Site |
| **Place Association** | Applicable for various applications, a "Place Association" is a configured object that allows Places to be grouped together. A Place can be a member of more than one Place Association.<br><br>The Policy & Charging DRA application defines two Place Association Types: Policy Binding Region and Policy & Charging Mated Sites. |

| | |
|---|---|
| **Two Site Redundancy** | Two Site Redundancy is a data durability configuration in which Policy and Charging data is unaffected by the loss of one site in a Policy & Charging Mated Sites Place Association containing two sites.<br><br>Two Site Redundancy is a feature provided by Server Group configuration. This feature provides geographic redundancy. Some Server Groups can be configured with servers located in two geographically separate Sites(locations). This feature will ensure that there is always a functioning Active server in a Server Group even if all the servers in a single site fail. |
| **Server Group Primary Site** | A Server Group Primary Site is a term used to represent the principle location within a SOAM or SBR Server Group. SOAM and SBR Server groups are intended to span several Sites(Places). For the Policy & Charging DRA application, these Sites(Places) are all configured within a single "Policy and Charging Mated Sites" Place Association.<br><br>The Primary Site may be in a different Site(Place) for each configured SOAM or SBR Server Group .<br><br>A Primary Site is described as the location in which the Active and Standby servers to reside, however there cannot be any Preferred Spare servers within this location. All SOAM and SBR Server Groups will have a Primary Site. |
| **Server Group Secondary Site** | A Server Group Secondary Site is a term used to represent location in addition to the Primary Site within a SOAM or SBR Server Group. SOAM and SBR Server groups are intended to span several Sites(Places). For the Policy & Charging DRA application, these Sites(Places) are all configured within a single "Policy and Charging Mated Sites" Place Association.<br><br>The Secondary Site may be in a different Site(Place) for each configured SOAM or SBR Server Group .<br><br>A Secondary Site is described as the location in which only Preferred Spare servers reside. The Active and Standby servers cannot reside within this location. If Two Site Redundancy is wanted, a Secondary Site is required for all SOAM and SBR Server Groups. |

## 2.0 GENERAL DESCRIPTION

This document defines the steps to execute the initial installation of the Diameter Signaling Router (DSR) 7.0.1 application on a VMware hypervisor.

DSR 7.0.1 installation paths are shown in the figures below. The general timeline for all processes to perform a software installation/configuration and upgrade is also included below.

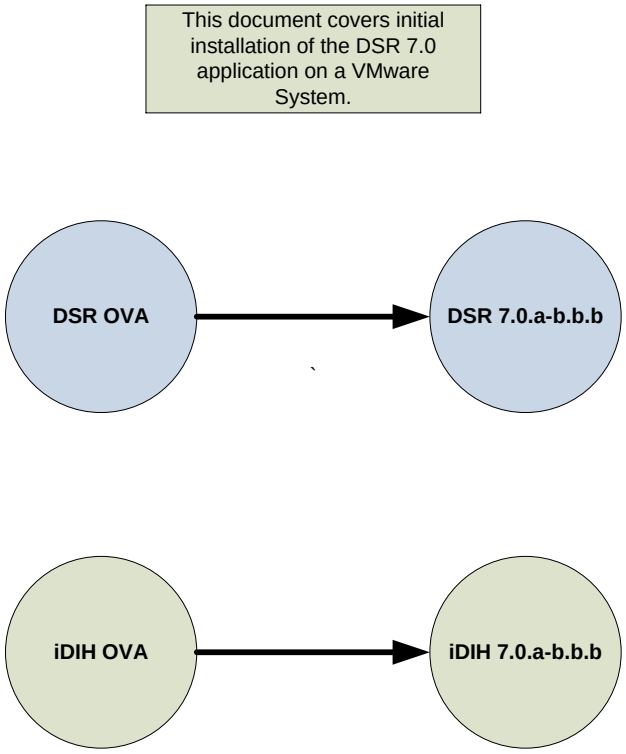



**Figure 1. Initial Application Installation Path – Example shown**

# 3.0 INSTALL OVERVIEW

This section provides a brief overview of the recommended method for installing the source release software that is installed and running on an VMware system to the Target Release software. The basic install process and approximate time required is outlined in Table 2.

## 3.1 Required Materials

1. One target release DSR OVA Media
2. One target release SDS OVA Media
3. Three (3) iDIH Mediation OVA, iDIH Application OVA, iDIH Oracle OVA (Optional iDIH)

## 3.2 Installation Overview

This section describes the overal strategy to be employed for a single or multi-site DSR 7.0.1 and iDIH 7.0.1 installation. It also lists the procedures required for installation with estimated times. Section 3.2.1 discusses the overall install strategy and includes an installation flow chart that can be used to determine exactly which procedures should be run for an installation. Section 3.2.3 lists the steps required to install a DSR 7.0.1 system. These latter sections expand on the information from the matrix and provide a general timeline for the installation.

### 3.2.1 Installation Strategy

A successful installation of DSR requires careful planning and assessment of all configuration materials and installation variables.

Figure 2. DSR Single Site Installation Procedure Map Illustrates the overall process that each DSR installation will involve. In summary:

1. An overall installation requirement is decided upon. Among the data that should be collected:
    - The total number of sites
    - The number of virtual machines at each site and their role(s)
    - What timezone should be used across the entire collection of DSR sites?
    - Will SNMP traps be viewed at the NOAM, or will an external NMS be used? (Or both?)
2. A site survey (NAPD) is conducted with the customer to determine exact networking and site details. NOTE: XMI and IMI addresses are difficult to change once configured. It is **very important that these addresses are well planned and not expected to change after a site is installed.**

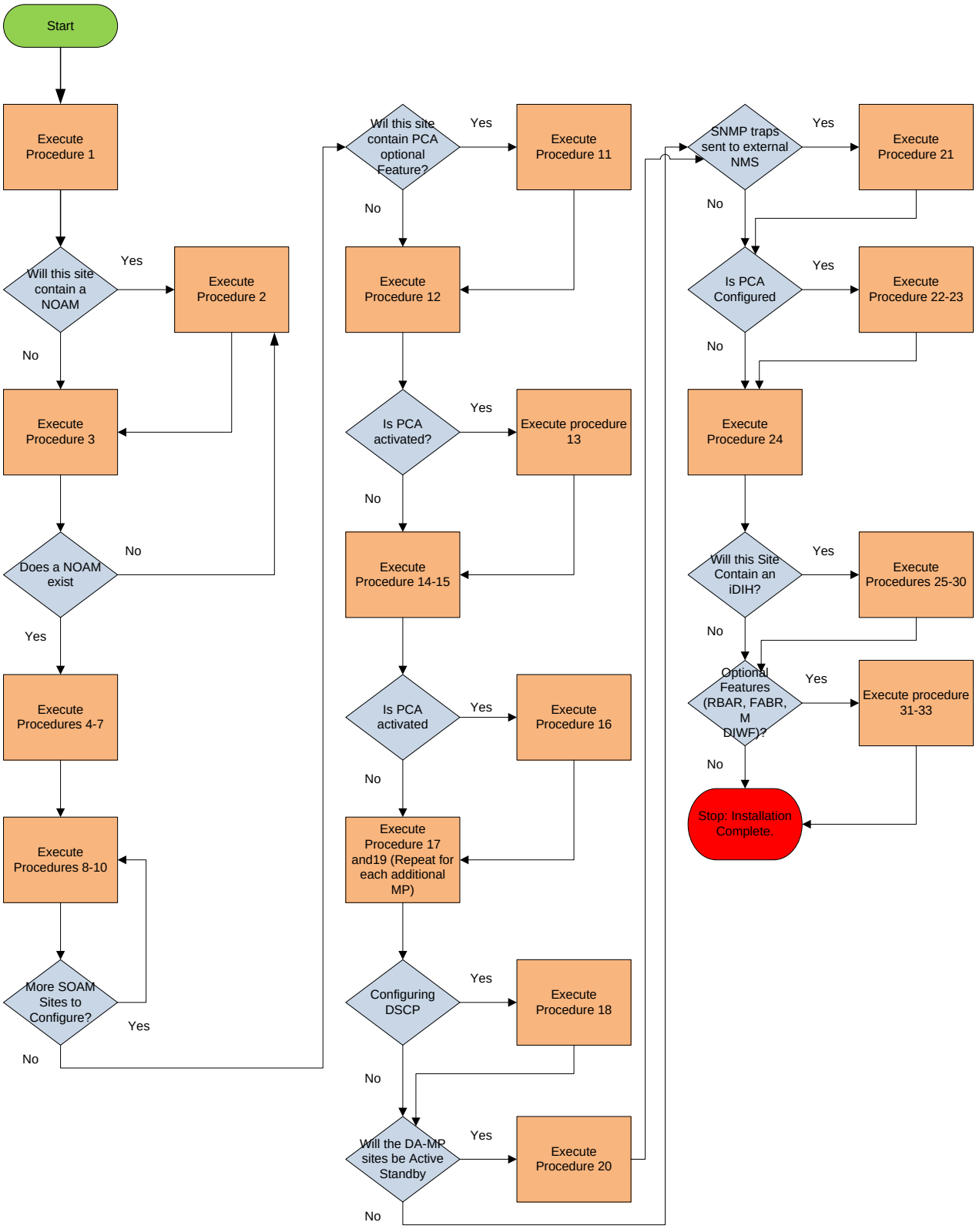



**Figure 2. DSR Single Site Installation Procedure Map**

### 3.2.2 SNMP Configuration

The network-wide plan for SNMP configuration should be decided upon before DSR installation proceeds. This section provides some recommendations for these decisions.

SNMP traps can originate from the following entities in a DSR installation:

- DSR Application Servers (NOAMP, SOAM, MPs of all types)

DSR application servers can be configured to:

1. Send all their SNMP traps to the NOAMP via merging from their local SOAM. All traps will terminate at the NOAMP and be viewable from the NOAMP GUI (entire network) and the SOAM GUI (site specific). Traps are displayed on the GUI both as alarms and logged in trap history. **This is the default configuration option and no changes are required for this to take effect.**
2. Send all their SNMP traps to an external Network Management Station (NMS). The traps will be seen at the SOAM AND/OR NOAM as alarms **AND** they will be viewable at the configured NMS(s) as traps.

Application server SNMP configuration is done from the NOAMP GUI, near the end of DSR installation. See the procedure list for details.

DSR auxillary components must have their SNMP trap destinations set explicitly. Trap destinations can be the NOAMP VIP, the SOAMP VIP, or an external (customer) NMS.

Should have their SNMP trap destinations set to:

1. The local SOAM VIP
2. The customer NMS, if available

### 3.2.3 Installation Procedures

The following table illustrates the progression of the installation process by procedure with estimated times. The estimated times and the phases that must be completed may vary due to differences in typing ability and system configuration. The phases outlined in are to be executed in the order they are listed.

**Table 2. Installation Overview**

| Procedure | Phase | Elapsed Time (Minutes) | |
|---|---|---|---|
| | | This Step | Cum. |
| **Procedure 1** | Import DSR OVA | 5 | 5 |
| **Procedure 2** | Configure DSR NOAM guest role based on resource profile | 10 | 15 |
| **Procedure 3** | Configure DSR Remaining guests role based on resource profile | 40 | 55 |
| **Procedure 4** | Configure the First NOAMP NE and Server | 25 | 80 |
| **Procedure 5** | Configure the NOAMP Server Group | 15 | 95 |
| **Procedure 6** | Configure the Second NOAMP Server | 15 | 110 |
| **Procedure 7** | Complete Configuring the NOAMP Server Group | 10 | 120 |
| **Procedure 8** | Configure the SOAM NE | 15 | 135 |
| **Procedure 9** | Configure the SOAM Servers | 10 | 145 |
| **Procedure 10** | Configure the SOAM Server Group | 10 | 155 |
| **Procedure 11 (Optional)** | Activate PCA (PCA Only) | 10 | 165 |
| **Procedure 12** | Configure the MP Virtual Machines | 5 | 170 |
| **Procedure 13 (Optional)** | Configure Places and Assign MP Servers to Places (PCA Only) | 10 | 180 |
| **Procedure 14** | Configure the MP Server Group(s) and Profiles | 10 | 190 |
| **Procedure 15** | Configure the Signaling Networks | 5 | 195 |
| **Procedure 16 (Optional)** | Addional Servers to Network Mapping (PCA Only) | 10 | 205 |
| **Procedure 17** | Configure the Signaling Devices | 10 | 215 |
| **Procedure 18(Optional)** | Configure DSCP Values for Outgoing Traffic | 10 | 225 |
| **Procedure 19** | Configure the Signaling Network Routes | 15 | 240 |
| **Procedure 20 (Optional)** | Add VIP for Signaling Networks | 5 | 245 |
| **Procedure 21 (Optional)** | Configure SNMP for Trap Receiver(s) | 5 | 250 |
| **Procedure 22 (Optional)** | PCA Resource Domain Configuration (PCA Only) | 15 | 265 |
| **Procedure 23 (Optional)** | PCA Function Enabling (PCA Only) | 15 | 280 |
| **Procedure 24** | IP Front End (IPFE) Configuration | 15 | 295 |
| **Procedure 25 (Optional)** | Create iDIH Oracle, Mediation and Application VM's | 45 | 340 |

**Table 2. Installation Overview**

| Procedure | Phase | Elapsed Time (Minutes) | |
|---|---|---|---|
| | | This Step | Cum. |
| **Procedure 26 (Optional)** | Configure iDIH VM Networks | 15 | 355 |
| **Procedure 27 (Optional)** | Run Post Installation Scripts on iDIH VM's | 60 | 415 |
| **Procedure 29 (Optional)** | Integrate iDIH into DSR | 30 | 445 |
| **Procedure 30 (Optional)** | iDIH Application Final Configuration | 10 | 455 |
| **Procedure 31 (Optional)** | Activate Optional Features | 15 | 485 |
| **Procedure 32 (Optional)** | Configure ComAgent Connections | 15 | 500 |
| **Procedure 33 (Optional)** | Complete PCA configuration | 30 | 530 |

## 3.3 Optional Features

When DSR installation is complete, further configuration and/or installation steps will need to be taken for optional features that may be present in this deployment. Please refer to these documents for the post-DSR install configuration steps needed for their components.

| Feature | Document |
|---|---|
| **Diameter Mediation** | DSR Meta Administration Feature Activation Procedure, E58661-01 |
| **Full Address Based Resolution (**FABR**)** | DSR FABR Feature Activation Procedure, E58664-01 |
| **Range Based Address Resolution (**RBAR**)** | DSR RBAR Feature Activation, Procedure, E58664-01 |
| **MAP-Diameter Interworking** (MAP-IWF) | DSR MAP-Diameter IWF Feature Activation, E58666-01 |
| **Policy and Charging Application** (PCA) | DSR 7.0 PCA Configuration, E58667-01 |

# 4.0 SOFTWARE INSTALLATION PROCEDURE

As mentioned earlier, the host configuration and virtual networks should be done before executing the procedures in this document. It is assumed that at this point, the user has access to:

- consoles of all guests and hosts at all sites
- ssh access to the guests at all sites
- GUI access to hosts at all sites
- A configuration station with a web browser , ssh client, and scp client.
- VM Manager Privilages to add OVA's to catalog

**SUDO**

As a non-root user (***admusr***), many commands (*when run as admusr*) now require the use of ***'sudo'***.

## 4.1 Create DSR Guests from OVA

**Procedure 1. Import DSR OVA**

| S T E P # | This procedure adds the DSR OVA to catalog or repository.<br>*Check off (√) each step as it is completed. Steps with shaded boxes require user input.*<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Add DSR OVA image.** | 1. Launch the VMware client of your choice.<br>2. Add the DSR OVA image to the VMware catalog or repository. Follow the instructions provided by the Cloud solutions manufacturer. |

**Procedure 2. Configure NOAM guests role based on resource profile**

| S T E P # | This procedure will configure networking on Virtual Machines.<br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Create the NO1 VM, from the OVA image.** | 1. Browse the library or repository that you placed the **OVA** image.<br>2. Deploy the **OVF Image** using **vSphere Client** or the vSphere Web Client.<br>3. Name the **NO1 VM** and select the datastore. |
| 2<br>☐ | **Configure resources for the NO1 VM.** | 1. Configure the **NO1** per the Resource Profile in **Appendix D** for the DSR NOAM using the vSphere Client or the vSphere Web Client. |
| 3<br>☐ | **Power on NO1.** | 1. Use the **vSphere client or vSphere web client** to Power on the **NO1 VM.** |
| 4<br>☐ | **Configure NO1.** | 1. Access the **NO1 VM console** via the **vSphere client or vSphere web client**.<br>2. Login as **admusr**.<br>3. Set the <ethX> device:<br>Note: Where ethX is the interface associated with the XMI network<br>`$ sudo netAdm add --device=<ethX> --address=<IP Address in External management Network> --netmask=<Netmask> --onboot=yes --bootproto=none`<br>4. Add the default route for ethX:<br>`$ sudo netAdm add --route=default -gateway=<gateway address for the External management network> --device=<ethX>` |
| 5<br>☐ | **Configure NO2 (Optional for small lab deployment)** | 1. Repeat steps 1 through 4 for the NO2 VM. |

## 4.2 Configure DSR guests

**Procedure 3. Configure remaining DSR guests based on resource profile**

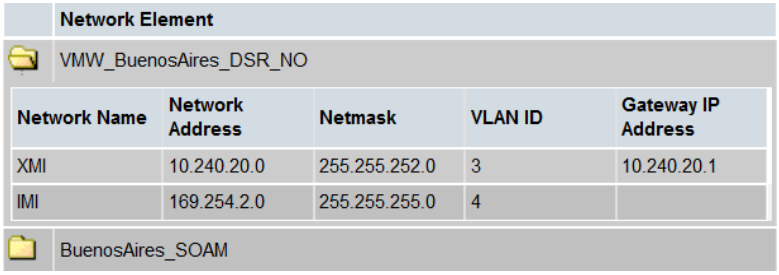
| S T E P | This procedure adds network addresses for all Virtual Machines.<br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |
|---|---|

**Procedure 3. Configure remaining DSR guests based on resource profile**

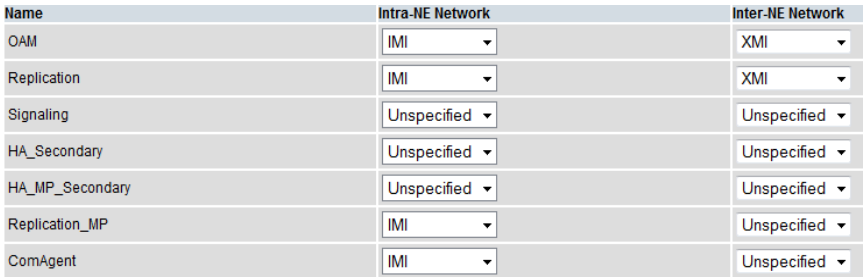
| | | |
|---|---|---|
| 1 ☐ | **Create the SO1 VM from the OVA image.** | 1. Browse the library or repository that you placed the **OVA** image.<br>2. Deploy the **OVA** image using **vSphere Client** or the **vSphere Web Client**.<br>3. Name the **SO1 VM** and select the datastore. |
| 2 ☐ | **Configure resources for the SO1 VM.** | 1. Configure the **SO1 VM** per the Resource Profile in **Appendix D** for the **DSR SO** using the vSphere Client or the vSphere Web Client. |
| 3 ☐ | **Power on SO1 VM.** | 1. Power on the **DSR SO1 VM** with the **vSphere client** or **vSphere web client**.<br>2. Monitor the vApps screen's Virtual Machines tab until the DSR VM reports "**Powered On**" in the Status column. |
| 4 ☐ | **Configure XMI interface…** | 1. Access the **VM console** via the **vSphere client or vSphere web client**.<br>2. Login as admusr.<br>3. Set the ethX device:<br>Note: Where ethX is the interface associated with the XMI network<br>`$ sudo netAdm add --device=<ethX> --address=<IP Address in External Management Network> --netmask=<Netmask> --onboot=yes --bootproto=none`<br>4. Add the default route for ethX:<br>`$ sudo netAdm add --route=default --gateway=<gateway address for the External management network> --device=<ethX>` |
| 5 ☐ | **Verify Network connectivity.** | 1. Access the **SO1 VM console** via the vSphere client or vSphere web client.<br>2. Login as **admusr**.<br>3. Ping the NO1.<br>`$ ping -c3 <IP Address in External Management Network>` |
| 6 ☐ | **Procedure overview.** | 1. Repeat Steps 1 through 5 for the following VMs. Use Unique labels for the VM Names:<br>MP(s)<br>MP(s) SS7 (optional components )<br>IPFE(s)<br>NO(s)<br>SO(s)<br>SBR s, SBR b (Optional Components ) |

## 4.3 Application Configuration

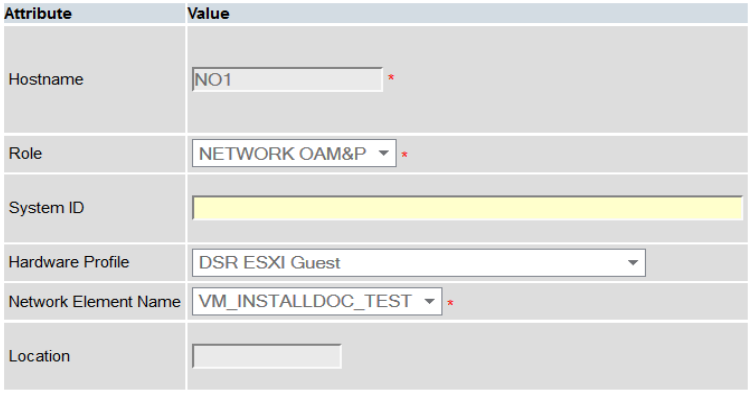
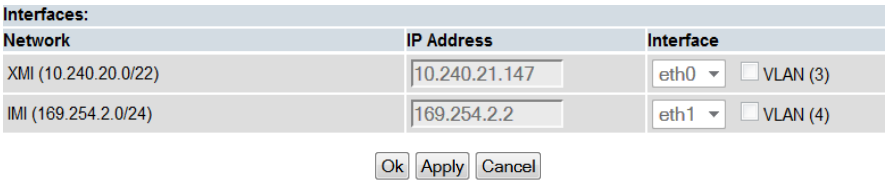
**Procedure 4. Configure the First NOAMP NE and Server**

| S T E P | | |
|---|---|---|
| | This procedure will provide the steps to configure the First NOAMP virtual machine.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **NOAMP GUI:**<br>Login | Login to the NOAMP GUI as the ***guiadmin*** user. |
| 2<br>☐ | **Create the NOAMP Network Element using the XML File** | Navigate to **Main Menu->Configuration->Network Elements**<br><br>Select the **Browse** button, and enter the pathname of the NOAMP network XML file.<br><br>Select the **Upload File** button to upload the XML file see the examples in SAMPLE NETWORK ELEMENT and HARDWARE PROFILES and configure the NOAMP Network Element.<br><br>Once the data has been uploaded, you should see a folder appear with the name of your network element. Click on this folder and you will get a drop-down which describes the individual networks that are now configured:<br><br>  <br>Network Element<br>VMW_BuenosAires_DSR_NO<br>Network Name / Network Address / Netmask / VLAN ID / Gateway IP Address<br>XMI / 10.240.20.0 / 255.255.252.0 / 3 / 10.240.20.1<br>IMI / 169.254.2.0 / 255.255.255.0 / 4 /<br>BuenosAires_SOAM |

**Procedure 4. Configure the First NOAMP NE and Server**

| | | |
|---|---|---|
| 3 ☐ | **Map Services to Networks** | Navigate to **Main Menu ->Configuration-> Services.**<br><br>Select the **Edit** button and set the Services as shown in the table below:<br><br>**Name** / **Intra-NE Network** / **Inter-NE Network**<br>OAM — ***<IMI Network>*** — ***<XMI Network>***<br>Replication — ***<IMI Network>*** — ***<XMI Network>***<br>Signaling — Unspecified — Unspecified<br>HA_Secondary — Unspecified — Unspecified<br>HA_MP_Secondary — Unspecified — Unspecified<br>Replication_MP — ***<IMI Network>*** — Unspecified<br>ComAgent — ***<IMI Network>*** — Unspecified<br><br>For example, if your IMI network is named ***"IMI"*** and your XMI network is named ***"XMI",*** then your services should config should look like the following:<br><br>.<br>  <br>Name / Intra-NE Network / Inter-NE Network<br>OAM — IMI — XMI<br>Replication — IMI — XMI<br>Signaling — Unspecified — Unspecified<br>HA_Secondary — Unspecified — Unspecified<br>HA_MP_Secondary — Unspecified — Unspecified<br>Replication_MP — IMI — Unspecified<br>ComAgent — IMI — Unspecified<br><br>Select the **Ok** button to apply the Service-to-Network selections. |

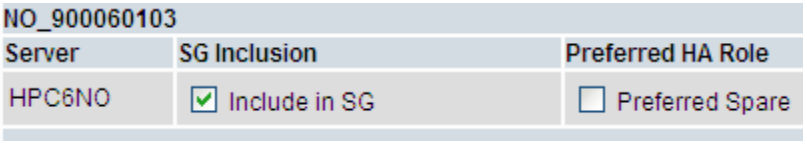
**Procedure 4. Configure the First NOAMP NE and Server**

| | | |
|---|---|---|
| 4 ☐ | **Insert the 1st NOAMP VM** | Navigate to **Main Menu -> Configuration -> Servers.**<br><br>Select the **Insert** button to insert the new NOAMP server into servers table (*the first or server*).<br><br>  <br><br><br>Fill in the fields as follows:<br><br>**Hostname:** `<Hostname>`<br>**Role:** `NETWORK OAM&P`<br>**System ID:** `<Site System ID>`<br>**Hardware Profile:** `DSR ESXI Guest`<br>**Network Element Name:** `[Choose NE from Drop Down Box]`<br><br>The network interface fields will now become available with selection choices based on the chosen hardware profile and network element<br><br>  <br><br><br>Fill in the server IP addresses for the XMI network. Select **ethX** for the interface. **Leave the "VLAN" checkbox unchecked**.<br><br>Fill in the server IP addresses for the IMI network. Select **ethX** for the interface. **Leave the "VLAN" checkbox unchecked**.<br><br>Next, add the following NTP servers:<br><br>**NTP Server** / **Preferred?**<br>***Virtual Host*** — Yes<br>***Valid Ntp Server*** — No<br>***Valid Ntp Server*** — No<br><br>Select the **Ok** button when you have completed entering all the server data. |

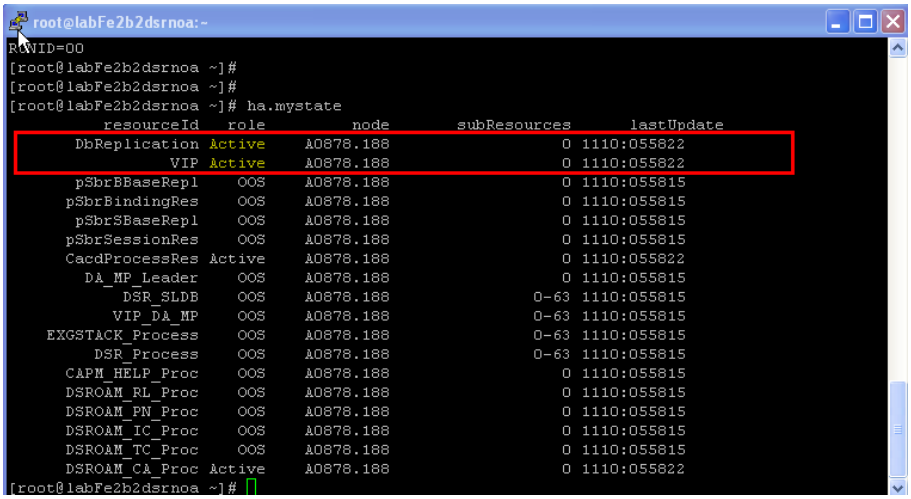
**Procedure 4. Configure the First NOAMP NE and Server**

| | | |
|---|---|---|
| 5 ☐ | **Export the Initial Configuration** | Navigate to **Main Menu -> Configuration -> Servers.**<br><br>From the GUI screen, select the NOAMP server and then select **Export** action button to generate the initial configuration data for that server. |
| 6 ☐ | **Copy Configuration File to 1st NOAMP Server** | Obtain a terminal window to the 1st NOAMP server, logging in as the **admusr** user.<br><br>Copy the configuration file created in the previous step from the `/var/TKLC/db/filemgmt` directory on the 1st NOAMP to the /var/tmp directory. The configuration file will have a filename like `TKLCConfigData.<hostname>.sh`. The following is an example:<br><br>`$ sudo cp /var/TKLC/db/filemgmt/TKLCConfigData.<hostname>.sh /var/tmp/TKLCConfigData.sh` |
| 7 ☐ | **Wait for Configuration to Complete** | The automatic configuration daemon will look for the file named ***"TKLCConfigData.sh"*** in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server.<br><br>If you are on the console wait to be prompted to reboot the server, but **DO NOT** reboot the server, it will be rebooted later on in this procedure.<br><br>Verify script completed successfully by checking the following file.<br><br>`$ sudo cat /var/TKLC/appw/logs/Process/install.log`<br><br>**Note**: Ignore the warning about removing the USB key, since no USB key is present. |
| 8 ☐ | **Set the timezone and Reboot the Server** | From the command line prompt, execute ***set_ini_tz.pl***. This will set the system time zone The following command example uses the America/New_York time zone. Replace as appropriate with the time zone you have selected for this installation. For a full list of valid timezones, see **Appendix B**.<br><br>`$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl "America/New_York" >/dev/null 2>&1`<br><br>`$ sudo init 6`<br><br>Wait for server to reboot. |
| 9 ☐ | **1st NO Server:** Verify Server Health | Login into the NO1 as admusr.<br><br>Execute the following command as admusr on the 1st NO server and make sure that no errors are returned:<br><br>`$ sudo syscheck`<br>`Running modules in class hardware...`<br>`OK`<br>`Running modules in class disk...`<br>`OK`<br>`Running modules in class net...`<br>`OK`<br>`Running modules in class system...`<br>`OK`<br>`Running modules in class proc...`<br>`OK`<br>`LOG LOCATION: /var/TKLC/log/syscheck/fail_log` |

**Procedure 5. Configure the NOAMP Server Group**

| S T E P | | |
|---|---|---|
| | This procedure will provide the steps to configure the NOAMP server group.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **NOAMP GUI:**<br>Login | Establish a GUI session on the first NOAMP server by using the XMI IP address of the first NOAMP server. Open the web browser and enter a URL of:<br>`http://<NO1_XMI_IP_Address>`<br><br>Login as the ***guiadmin*** user. If prompted by a security warming, select **Continue to this Website** to proceed. |
| 2<br>☐ | **Enter NOAMP Server Group Data** | Using the GUI session on the first NOAMP server, go to the GUI **Main Menu** -> **Configuration** -> **Server Groups**, select **Insert** and fill the following fields:<br>• **Server Group Name:** `[ Enter Server Group Name]`<br>• **Level:** `A`<br>• **Parent :** `None`<br>• **Function:** `DSR (Active/Standby Pair)`<br>• **WAN Replication Connection Count:** `Use Default Value`<br><br>Select **OK** when all fields are filled in. |
| 3<br>☐ | **Edit the NOAMP Server Group** | From the GUI **Main Menu -> Configuration -> Server Groups**, select the new server group, and then select **Edit**<br>Select the Network Element that represents the NOAMP.<br><br>  <br><br><br>In the portion of the screen that lists the servers for the server group, find the NOAMP server being configured. Click the **Include in SG** checkbox.<br><br>Leave other boxes blank.<br><br>Press **OK** |

**Procedure 5. Configure the NOAMP Server Group**

| | | |
|---|---|---|
| 4 ☐ | **Verify NOAMP virtual machine role** | From console window of the first NOAMP virtual machine, execute the **`ha.mystate`** command to verify that the ***"DbReplication"*** and ***"VIP"*** item under the **resourceId** column has a value of **"Active"** under the ***"role"*** column.<br><br>You might have to wait a few minutes for it to be in that state.<br><br>Press **`Ctrl+C`** to exit<br><br>Example:<br>  |
| 5 ☐ | **Restart 1st NOAMP virtual machine** | From the NOAMP GUI, select the **Main menu** -> **Status & Manage** -> **Server** menu.<br><br>Select the first NOAMP server. Select the **Restart** button. Answer **OK** to the confirmation popup. Wait for restart to complete. |

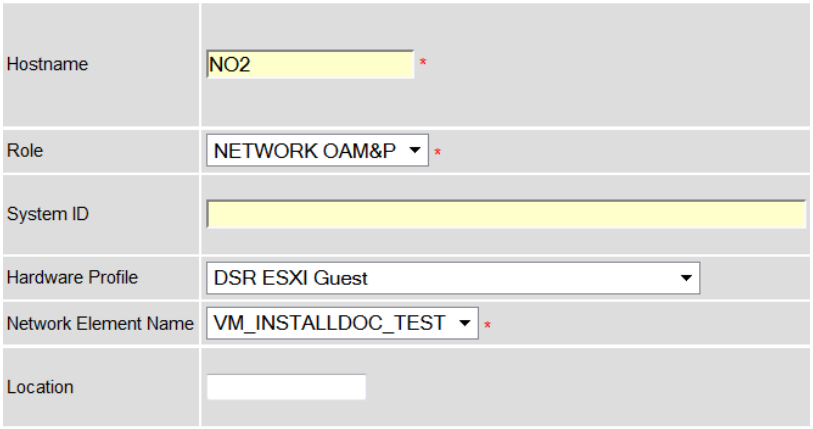
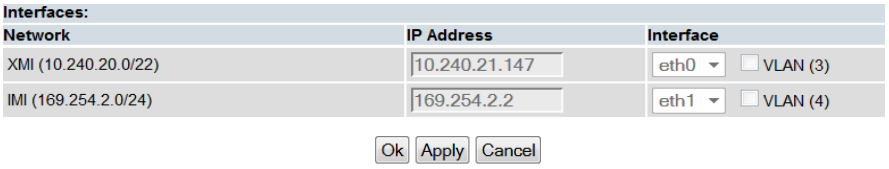
**Procedure 5. Configure the NOAMP Server Group**

| | | |
|---|---|---|
| 6 ☐ | **Set Sysmetric Threholds for ESXI Virtual Machines**<br><br>**Note: These commands disable the Message rate threshold alarms.** | From console window of the first NOAMP virtual machine, execute the iset commands as admusr.<br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RoutingMsgRate' and function='DIAM'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxMsgRateMp' and function='DIAM'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxRbarMsgRate' and function='RBAR'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxFabrMsgRate' and function='FABR'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxCpaMsgRate' and function='CPA'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxDmiwfMsgRate' and function='DM-IWF'"`<br><br>`$ sudo iset -feventNumber='-1' SysMetricThreshold where "metricId='RxMdIwfIngressMsgRate' and function='MD-IWF'"` |

**Procedure 6. Configure the Second NOAMP Server**

| S T E P | | |
|---|---|---|
| | This procedure will provide the steps to configure the Second NOAMP server. Optional for small lab deployment.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **NOAMP GUI:**<br>Login | If not already done, establish a GUI session on the first NOAMP server by using the XMI IP address of the first NOAMP server. Open the web browser and enter a URL of: `http://<NO1_XMI_IP_Address>`<br><br>Login as the ***guiadmin*** user. |

**Procedure 6. Configure the Second NOAMP Server**

| | | |
|---|---|---|
| 2 ☐ | **Insert the 2nd NOAMP VM** | Navigate to **Main Menu -> Configuration -> Servers.**<br><br>Select the **Insert** button to insert the new NOAMP server into servers table (*the first or server*).<br><br>  <br><br>Fill in the fields as follows:<br><br>**Hostname:** `<Hostname>`<br>**Role:** `NETWORK OAM&P`<br>**System ID:** `<Site System ID>`<br>**Hardware Profile:** `DSR ESXI Guest`<br>**Network Element Name:** `[Choose NE from Drop Down Box]`<br><br>The network interface fields will now become available with selection choices based on the chosen hardware profile and network element<br><br>  <br><br>Fill in the server IP addresses for the XMI network. Select **ethX** for the interface. **Leave the "VLAN" checkbox unchecked**.<br><br>Fill in the server IP addresses for the IMI network. Select **ethX** for the interface. **Leave the "VLAN" checkbox unchecked**.<br><br>Next, add the following NTP servers:<br><br>**NTP Server** / **Preferred?**<br>***Virtual Host*** — Yes<br>***Valid Ntp Server*** — No<br>***Valid Ntp Server*** — No<br><br>Select the **Ok** button when you have completed entering all the server data. |

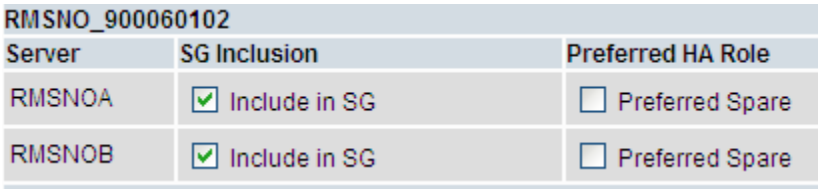
**Procedure 6. Configure the Second NOAMP Server**

| | | |
|---|---|---|
| 3 ☐ | **Export the initial configuration** | From the GUI screen, select the second server and then select **Export** action button to generate the initial configuration data for that server. |
| 4 ☐ | **Copy Configuration File to 2nd NOAMP Server** | Obtain a terminal session to the 1st NOAMP as the ***admusr*** user.<br>Log in as admusr to the NO1 shell, and issue the following commands:<br>`$ sudo scp /var/TKLC/db/filemgmt/TKLCConfiguData.<hostname>.sh admusr@<ipaddr>:/var/tmp/TKLCConfigData.sh`<br>**Note:** ipaddr is the IP address of NO2 assigned to its ethx interface associated with the xmi network. |
| 5 ☐ | **Wait for Configuration to Complete** | Obtain a terminal session to the **2nd** NOAMP as the ***admusr*** user.<br>The automatic configuration daemon will look for the file named ***"TKLCConfigData.sh"*** in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server.<br>If you are on the console wait to be prompted to reboot the server, but **DO NOT** reboot the server, it will be rebooted later on in this procedure.<br>Verify script completed successfully by checking the following file.<br>`$ sudo cat /var/TKLC/appw/logs/Process/install.log`<br>**Note**: Ignore the warning about removing the USB key, since no USB key is present. |
| 6 ☐ | **Set the timezone and Reboot the Server** | From the command line prompt, execute ***set_ini_tz.pl***. This will set the system time zone The following command example uses the America/New_York time zone. Replace as appropriate with the time zone you have selected for this installation. For a full list of valid timezones, see **Appendix B**.<br>`$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl "America/New_York" >/dev/null 2>&1`<br>`$ sudo init 6`<br>Wait for server to reboot. |

**Procedure 6. Configure the Second NOAMP Server**

| | | |
|---|---|---|
| 7 ☐ | **2nd NO Server:** Verify Server Health | Login into the NO2 as admusr and wait.<br><br>Execute the following command as super-user on the 2ndt NO server and make sure that no errors are returned:<br><br>`$ sudo syscheck`<br>`Running modules in class hardware...`<br>`OK`<br>`Running modules in class disk...`<br>`OK`<br>`Running modules in class net...`<br>`OK`<br>`Running modules in class system...`<br>`OK`<br>`Running modules in class proc...`<br>`OK`<br>`LOG LOCATION: /var/TKLC/log/syscheck/fail_log` |

**Procedure 7. Complete Configuring the NOAMP Server Group**

| **STEP #** | This procedure will provide the steps to finish configuring th NOAMP Server Group.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |
|---|---|
| 1 ☐ | **Edit the NOAMP Server Group Data** | From the GUI session on the first NOAMP server, go to the GUI **Main Menu->Configuration->Server Groups.**<br><br>Select the NOAMP Server group and click on **Edit** and add the second NOAMP server to the Server Group by clicking the ***"Include in SG"*** checkbox for the second NOAMP server. Click **Apply.**<br><br>  <br><br><br>Add a NOAMP VIP by click on **Add.** Fill in the VIP Address and press **Ok** as shown below<br><br>  <br> |

**Procedure 7. Complete Configuring the NOAMP Server Group**

| | | |
|---|---|---|
| 2 ☐ | **Wait for Replication** | After replication, which will initially take up to ***5 minutes***, the HA status should be active (**Main menu->Status & Manage->HA**). **Note**: This may take up to ***5 minutes*** while the NOAMP servers figure out master/slave relationship.<br><br>Log out of GUI from the first NOAMP XMI address. |
| 3 ☐ | **Establish GUI Session on the NOAMP VIP** | Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin*.** |
| 4 ☐ | **Wait for Remote Database Alarm to Clear** | Wait for the alarm "Remote Database re-initialization in progress" to be cleared before proceeding. (**Main menu->Alarms & Events->View Active**) |
| 5 ☐ | **Restart 2nd NOAMP virtual machine** | In the **Main menu->Status & Manage->Server** menu, select the second NOAMP server.<br><br>Select the **Restart** button. Answer **OK** to the confirmation popup. Wait approximately 3-5 minutes before proceeding to allow the system to stabilize indicated by having the ***"Appl State"*** as **"Enabled"**. |
| 6 ☐ | **SDS can now be installed (Optional)** | If this deployement contains SDS, SDS can now be installed. Refer to document referenced in [6]. |

**Procedure 8. Configure the SOAM NE**

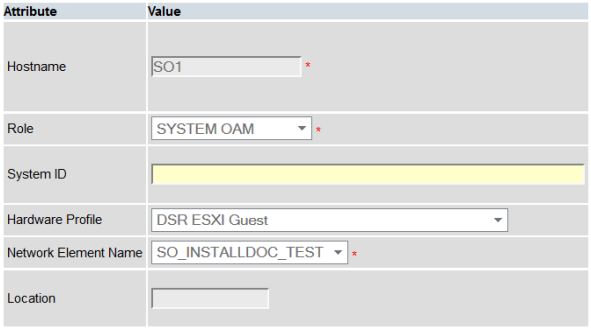
| **STEP #** | This procedure will provide the steps to configure the SOAM Network Element<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1 ☐ | **Establish GUI Session on the NOAMP VIP** | If needed, establish a GUI session on the NOAMP by using the NOAM VIP address. Login as user ***guiadmin***. |

**Procedure 8. Configure the SOAM NE**

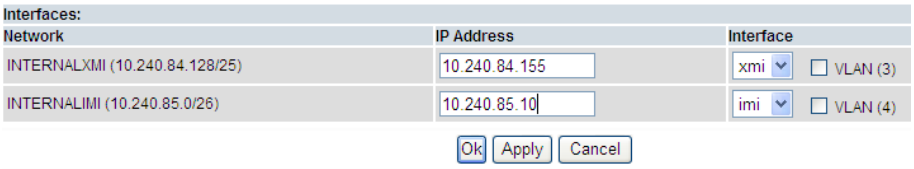
| | | |
|---|---|---|
| 2 ☐ | **Create the SOAM Network Element using an XML File** | Make sure to have an SOAM Network Element XML file available on the PC that is running the web browser. The SOAM Network Element XML file is similar to what was created and used in Procedure 9 , but defines the SOAM "Network Element".<br><br>Refer to **Appendix A** for a sample Network Element xml file<br><br>Navigate to **Main Menu->Configuration->Network Elements**<br><br>Select the **Browse** button, and enter the path and name of the SOAM network XML file.<br><br>Select the **Upload** File button to upload the XML file and configure the SOAM Network Element. |

**Procedure 9. Configure the SOAM Servers**

| **S T E P #** | This procedure will provide the steps to configure the SOAM Servers<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS),** and ask for assistance. |
|---|---|

| | | |
|---|---|---|
| 1 ☐ | **Establish GUI Session on the NOAMP VIP** | If needed, establish a GUI session on the NOAMP by using the NOAM VIP address. Login as user ***guiadmin***. |
| 2 ☐ | **Insert the 1st SOAM server** | Navigate to **Main Menu->Configuration->Servers**<br><br>Select the **Insert** button to insert the new SOAM server into servers table.<br>  <br>Fill in the fields as follows:<br><br>**Hostname:** `<SO1-Hostname>`<br>**Role:** `SYSTEM OAM`<br>**System ID:** `<Site System ID>`<br>**Hardware Profile:** `DSR ESXI Guest`<br>**Network Element Name:** `[Choose NE from Drop Down Box]`<br><br>The network interface fields will now become available with selection choices based |

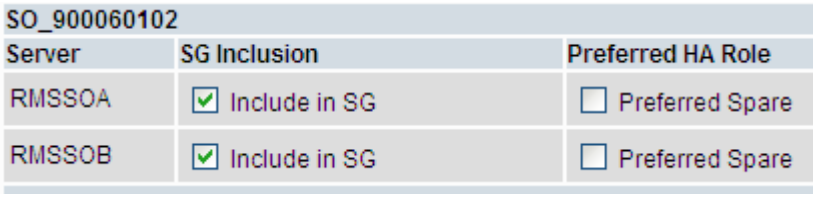
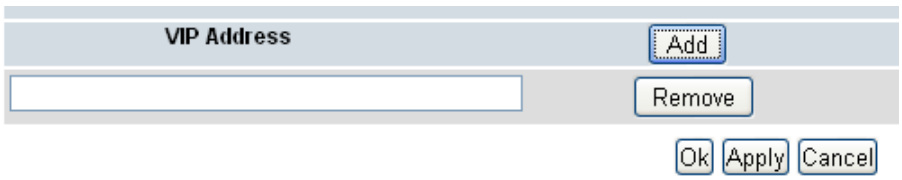
**Procedure 9. Configure the SOAM Servers**

<table>
<tr><td></td><td></td><td>on the chosen hardware profile and network element<br> 
<br>Fill in the server IP addresses for the XMI network. Select ethX for the interface. Leave the "VLAN" checkbox unchecked.<br>Fill in the server IP addresses for the IMI network. Select ethX for the interface. Leave the "VLAN" checkbox unchecked.<br>Next, add the following NTP servers:<br><table><tr><th>NTP Server</th><th>Preferred?</th></tr><tr><td>Virtual Host</td><td>Yes</td></tr><tr><td>Valid NTP Server</td><td>No</td></tr><tr><td>Valid NTP Server</td><td>No</td></tr></table><br>Select the Ok button when you have completed entering the server data.</td></tr>
<tr><td>3<br>☐</td><td>Export the initial configuration</td><td>From the GUI screen, select the desired server and then select Export action button to generate the initial configuration data for that server.</td></tr>
<tr><td>4<br>☐</td><td>Copy Configuration File to the 1st SOAM server</td><td>Instead of using awpushcfg, log in as root to the NO1 shell and issue the commands:<br>$ sudo scp /var/TKLC/db/filemgmt/TKLCConfigData.<hostname>.sh \<br>admusr@<ipaddr>:/var/tmp/TKLCConfigData.sh<br>Note: ipaddr is the internal IP address of SO1 (SO2 the second time through procedure 17).</td></tr>
<tr><td>5<br>☐</td><td>Wait for Configuration to Complete</td><td>Obtain a terminal session on the 1st SOAM as the admusr user.<br>The automatic configuration daemon will look for the file named “TKLCConfigData.sh” in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server.<br>If you are on the console wait to be prompted to reboot the server, but DO NOT reboot the server, it will be rebooted later on in this procedure.<br>Verify script completed successfully by checking the following file.<br>$ sudo cat /var/TKLC/appw/logs/Process/install.log<br>Note: Ignore the warning about removing the USB key, since no USB key is present.</td></tr>
</table>

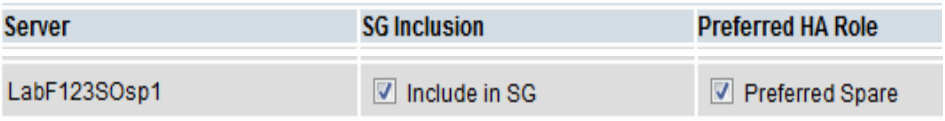
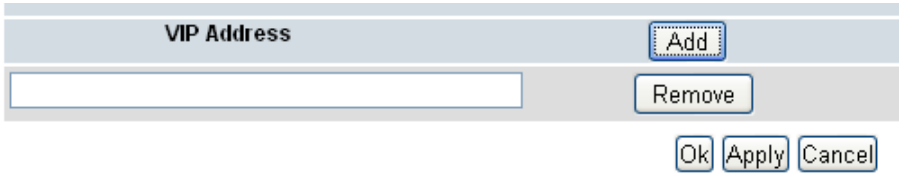
**Procedure 9. Configure the SOAM Servers**

<table>
<tr>
<td>6<br>☐</td>
<td>Set the timezone and Reboot the Server</td>
<td>From the command line prompt, execute set_ini_tz.pl. This will set the system time zone The following command example uses the America/New_York time zone. Replace as appropriate with the time zone you have selected for this installation. For a full list of valid timezones, see Appendix B.<br><br>$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl "America/New_York" >/dev/null 2>&1<br><br>$ sudo init 6<br><br>Wait for server to reboot.</td>
</tr>
<tr>
<td>6<br>☐</td>
<td>1st SOAM Server: Verify Server Health</td>
<td>After the system reboots, login again as admusr.<br><br>Execute the following command and make sure that no errors are returned:<br><br># sudo syscheck<br>Running modules in class hardware...<br>OK<br>Running modules in class disk...<br>OK<br>Running modules in class net...<br>OK<br>Running modules in class system...<br>OK<br>Running modules in class proc...<br>OK<br>LOG LOCATION: /var/TKLC/log/syscheck/fail_log</td>
</tr>
<tr>
<td>7<br>☐</td>
<td>Insert and Configure the 2nd SOAM server, repeat steps 1 thourgh 6 for 2nd SOAM.<br><br>Note: Optional for Non-HA Configuration</td>
<td>Repeat this procedure to insert and configure the 2nd SOAM server, with the exception of the NTP server, which should be configured as so:<br><br>
<table>
<tr><th>NTP Server</th><th>Preferred?</th></tr>
<tr><td>Virtual Host</td><td>Yes</td></tr>
<tr><td>Any valid NTP server address</td><td>No</td></tr>
<tr><td>Any valid NTP server address</td><td>No</td></tr>
</table>
<br>Insert the network data for the 2nd SOAM server, transfer the TKLCConfigData file to the 2nd SOAM server, and reboot the 2nd SOAM server when prompted at a terminal window.<br><br>Note: For DSR mated sites, repeat this step for additional/spare SOAM server for mated site.</td>
</tr>
</table>

**Procedure 10. Configure the SOAM Server Group**

| S T E P # | | |
|---|---|---|
| | This procedure will provide the steps to configure the SOAM Server Group<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **Enter SOAM Server Group Data** | Wait approximately ***5 minutes*** for the SOAM ***"B"*** server to reboot, from the GUI session on the **NOAMP VIP** address, go to the GUI **Main Menu->Configuration->Server Groups**, select **Insert** and add the SOAM Server Group name along with the values for the following fields:<br>• **Name:** `[Enter Server Group Name]`<br>• **Level:** `B`<br>• **Parent** `[Select the NOAMP Server Group]`<br>• **Function:** `DSR (Active/Standby Pair)`<br>• **WAN Replication Connection Count:** `Use Default Value`<br><br>Select **OK** when all fields are filled.<br><br>**Note:** For DSR mated sites, repeat this step for additional SOAM server groups where the preferred SOAM spares may be entered prior to the active/Standby SOAMs. |
| 2<br>☐ | **Edit the SOAM Server Group and add VIP** | From the GUI **Main Menu->Configuration->Server Groups**, select the new SOAM server group, and then select **Edit.**<br>  <br>SO_900060102<br>Server / SG Inclusion / Preferred HA Role<br>RMSSOA — Include in SG — Preferred Spare<br>RMSSOB — Include in SG — Preferred Spare<br><br>Add both SOAM servers to the Server Group Primary Site by clicking the ***"Include in SG"*** checkbox .<br><br>Click **Apply.**<br><br>Add a SOAM VIP by click on **Add**. Fill in the "***VIP Address"*** and press **Ok** as shown below:<br>  <br>VIP Address<br>Add<br>Remove<br>Ok Apply Cancel |
| 3<br>☐ | **Prepare Feature Activation where Preferred Spares are Already Present (OPTIONAL)** | In mated DSR configurations, where a preferred spare is already present upon entering the Active and Standby SOAM servers. Execute ***Steps 1-4*** from **Appendix C.** Otherwise, skip this step. |

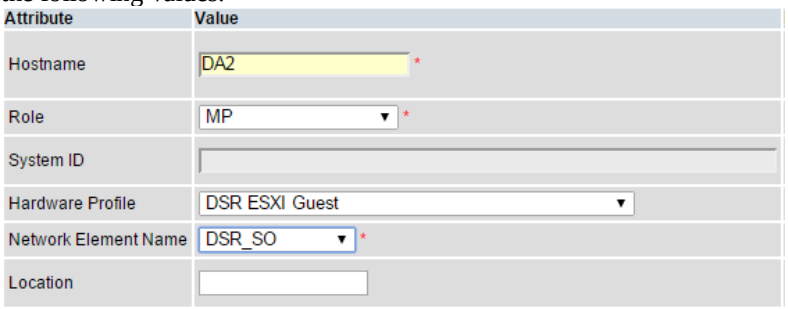
**Procedure 10. Configure the SOAM Server Group**

| | | |
|---|---|---|
| 4 ☐ | **(OPTIONAL) Edit the SOAM Server Group and add Preferred Spares for Site Redundancy** | If the Two Site Redundancy feature is wanted for the SOAM Server Group, add a SOAM server that is located in its Server Group Secondary Site by clicking the ***"Include in SG"*** checkbox. Also check the ***"Preferred Spare"*** checkbox.<br>  <br>For more information about Server Group Secondary Site or Site Redundancy, see the **Terminology** section. |
| 5 ☐ | **(OPTIONAL) Edit the SOAM Server Group and add addional SOAM VIPs** | Add additional SOAM VIPs by click on **Add**. Fill in the **"*VIP Address"*** and press **Ok** as shown below.<br>**Note:** Additional SOAM VIPs only apply to SOAM Server Groups with Preferred Spare SOAMs.<br>  |
| 6 ☐ | **Wait for Replication** | After replication, the server status should be active (**Main menu->Status & Manage->HA**).<br>**Note**: This may take up to ***5 minutes*** while the servers figure out master/slave relationship.<br>Look for the alarm ***"Remote Database re-initialization in progress"*** to be cleared before proceeding. (**Main menu->Alarms->View Active**) |
| 7 ☐ | **Restart 1st SOAM server** | From the NOAMP GUI, select **Main menu->Status & Manage->Server**. Select the ***1st*** SOAM server.<br>Select the **Restart** button. Answer **OK** to the confirmation popup. Wait for restart to complete. |
| 8 ☐ | **Restart 2nd SOAM server** | Continuing in the **Main menu->Status & Manage->Server** menu, now select the ***2nd*** SOAM server.<br>Select the **Restart** button. Answer **OK** to the confirmation popup. |
| 9 ☐ | **(OPTIONAL) Restart all Preferred Spare SOAM Servers** | If additional Preferred Spare servers are not configured for *Secondary Sites*, this step can be skipped.<br>If additional Preferred Spare servers are configured for *Secondary Sites*, continuing in the **Main menu->Status & Manage->Server** menu, now select the all ***"Preferred Spare"*** SOAM servers.<br>Select the **Restart** button. Answer **OK** to the confirmation popup. |

**Procedure 11. Activate PCA (PCA Only)**

| S T E P # | This procedure will provide the steps to activate PCA<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1 ☐ | **(PCA Only) Activate PCA Feature** | If you are installing PCA, execute the applicable procedures (Added SOAM site activation or complete system activation) within **Appendix A** of [2].<br><br>**Note:** If not all SOAM sites are ready at this point, then you should repeat activation for each *new* SOAM site that comes online. |

**Procedure 12. Configure the MP Virtual machines**

| S T E P # | | |
|---|---|---|
| | This procedure will provide the steps to configure an MP Virtual machines *(IPFE, SBR, SS7-MP, DA-MP)*<br><br>Prerequisite: **Procedures 7** and **8** have been executed<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **Establish GUI Session on the NOAMP VIP** | If needed, establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin***. |
| 2<br>☐ | **Insert the MP or IPFE server - Part 1** | Navigate to **Main Menu->Configuration->Servers**<br><br>Select the **Insert** button to add the new MP or IPFE server into servers table. Fill out the following values:<br>  <br><br>Fill in the fields as follows:<br><br>**Hostname:** `<Hostname>`<br>**Role:** `MP`<br>**System ID:** `<Site System ID>`<br>**Hardware Profile:** `DSR ESXI Guest`<br>**Network Element Name:** `[Choose NE from Drop Down Box]`<br><br>  <br><br><br>For the XMI network, enter the MP's XMI IP address. Select the correct interface. **Leave the "VLAN" checkbox unchecked**.<br><br>For the IMI network, enter the MP's IMI IP address. Select the correct interface**.** **Leave the "VLAN" checkbox unchecked**.<br><br>**Optional:** If dedicated network for SBR replication was defined in **Procedure 15**, assign the interface for that network here. Do not assign to IPFE. |

**Procedure 12. Configure the MP Virtual machines**

<table>
<tr><td>3<br>☐</td><td>Insert the MP server - Part 2</td><td>Next, add the following NTP servers:<br><table><tr><th>NTP Server</th><th>Preferred?</th></tr><tr><td>Virtual Host</td><td>Yes</td></tr><tr><td>Valid NTP server</td><td>No</td></tr><tr><td>Valid NTP server</td><td>No</td></tr></table><br>Select OK when all fields are filled in to finish MP server insertion.</td></tr>
<tr><td>4<br>☐</td><td>Export the initial configuration</td><td>From the GUI screen, select the server that was just inserted and then select Export action button to generate the initial configuration data for that server.</td></tr>
<tr><td>5<br>☐</td><td>Log onto the MP</td><td>Obtain a terminal window connection on the MP or IPFE server.</td></tr>
<tr><td>6<br>☐</td><td>Copy Configuration File to MP or IPFE server</td><td>From the active NO console login as admusr.<br><br>$ sudo scp /var/TKLC/db/filemgmt/TKLCConfigData.<hostname>.sh admusr@<ipaddr>:/var/tmp/TKLCConfigData.sh<br><br>Note: ipaddr is the XMI IP address of the MP or IPFE.</td></tr>
<tr><td>7<br>☐</td><td>Wait for Configuration to Complete</td><td>Obtain a terminal session on the MP or IPFE as the admusr user.<br><br>The automatic configuration daemon will look for the file named “TKLCConfigData.sh” in the /var/tmp directory, implement the configuration in the file, and then prompt the user to reboot the server.<br><br>If you are on the console wait to be prompted to reboot the server, but DO NOT reboot the server, it will be rebooted later on in this procedure.<br><br>Verify script completed successfully by checking the following file.<br><br>$ sudo cat /var/TKLC/appw/logs/Process/install.log<br><br>Note: Ignore the warning about removing the USB key, since no USB key is present.</td></tr>
<tr><td>8<br>☐</td><td>Set the timezone and Reboot the Server</td><td>From the command line prompt, execute set_ini_tz.pl. This will set the system time zone The following command example uses the America/New_York time zone. Replace as appropriate with the time zone you have selected for this installation. For a full list of valid timezones, see Appendix B.<br><br>$ sudo /usr/TKLC/appworks/bin/set_ini_tz.pl "America/New_York" >/dev/null 2>&1<br><br>$ sudo init 6<br><br>Wait for server to reboot.</td></tr>
</table>

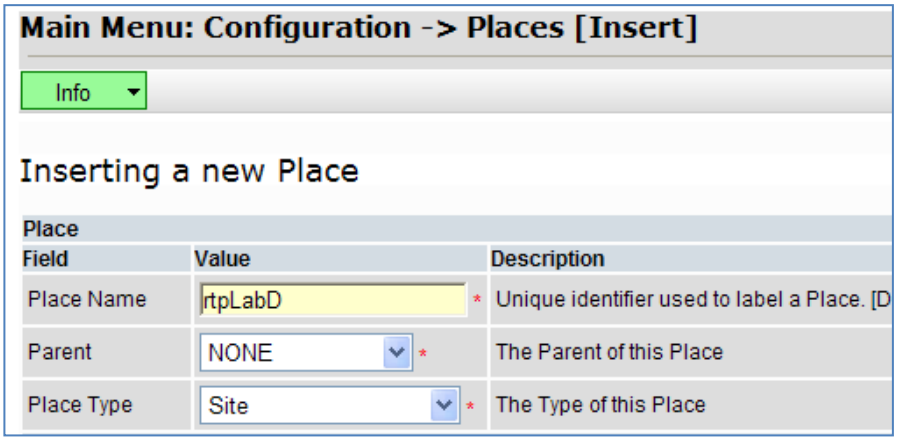
**Procedure 12. Configure the MP Virtual machines**

| | | |
|---|---|---|
| 8 ☐ | **MP or IPFE Server:** Verify Server Health | After the reboot, login as ***admusr.***<br><br>Execute the following command as super-user on the server and make sure that no errors are returned:<br><br>`$ sudo syscheck`<br>`Running modules in class hardware...`<br>`OK`<br>`Running modules in class disk...`<br>`OK`<br>`Running modules in class net...`<br>`OK`<br>`Running modules in class system...`<br>`OK`<br>`Running modules in class proc...`<br>`OK`<br>`LOG LOCATION: /var/TKLC/log/syscheck/fail_log` |
| 9 ☐ | **(OPTIONAL) Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network** | **Note:** THIS STEP IS **OPTIONAL** AND SHOULD ONLY BE EXECTUED IF YOU PLAN TO CONFIGURE A **DEFAULT ROUTE** ON YOUR MP THAT USES A SIGNALING (XSI) NETWORK INSTEAD OF THE XMI NETWORK. (*Not executing this step will mean that a default route will not be configurable on this MP and you will have to create separate network routes for each signaling network destination.)*<br><br>**Log into the MP** as the ***admusr*** user. (*Alternatively, you can log into virtual machines console.)*<br><br>Determine <XMI_Gateway_IP> from your SO site network element info.<br><br>Gather the following items:<br>• <NO_XMI_Network_Address><br>• <NO_XMI_Network_Netmask><br><br>**Note**: You can either consult the XML files you imported earlier, or go to the NO GUI and view these values from the **Main Menu -> Configuration -> Network Elements** screen.<br><br>**[MP console] Create network routes to the NO's XMI(OAM) network:**<br>`$ sudo /usr/TKLC/plat/bin/netAdm add --route=net`<br>`--address=<NO_Site_Network_ID>`<br>`--netmask=<NO_Site_Network_Netmask>`<br>`--gateway=<MP_XMI_Gateway_IP_Address>`<br>`--device=<MP_XMI_Interface>`<br>`Route to <MP_XMI_Interface> added.`<br><br>**(Optional) [MP console] If Sending SNMP traps from individual servers, create host routes to customer SNMP trap destinations on the XMI network:**<br>`$ sudo /usr/TKLC/plat/bin/netAdm add --route=host`<br>`--address=<Customer_NMS_IP>`<br>`--gateway=<MP_XMI_Gateway_IP_Address>`<br>`--device=<MP_XMI_Interface>`<br>`Route to <MP_XMI_Interface> added.`<br><br>(Repeat for any existing cusomter NMS stations)<br><br>**Delete the existing default route:**<br>`$ sudo /usr/TKLC/plat/bin/netAdm delete --route=default --`<br>`gateway=<MP_XMI_Gateway_IP> --device=<MP_XMI_Interface>` |

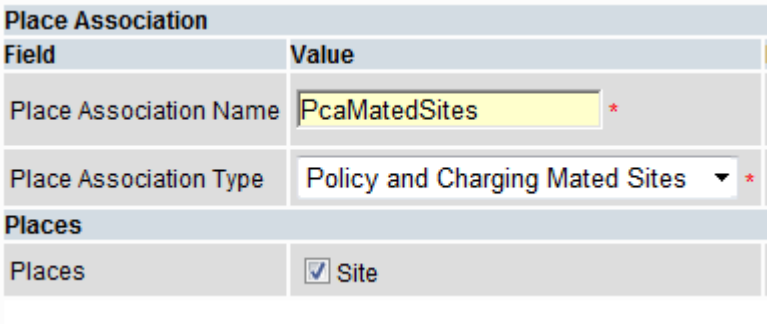
**Procedure 12. Configure the MP Virtual machines**

| | | |
|---|---|---|
| | | Route to <MP_XMI_Interface> removed. |
| 10 ☐ | **(OPTIONAL, Continued from Previous Step) Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network** | **[MP Console] Ping active NO XMI IP address to verify connectivity:**<br><br>$ **ping <ACTIVE_NO_XMI_IP_Address>**<br><br>PING 10.240.108.6 (10.240.108.6) 56(84) bytes of data.<br>64 bytes from 10.240.108.6: icmp_seq=1 ttl=64 time=0.342 ms<br>64 bytes from 10.240.108.6: icmp_seq=2 ttl=64 time=0.247 ms<br><br>**(Optional) [MP Console] Ping Customer NMS Station(s):**<br><br>$ **ping <Customer_NMS_IP>**<br><br>PING 172.4.116.8 (172.4.118.8) 56(84) bytes of data.<br>64 bytes from 172.4.116.8: icmp_seq=1 ttl=64 time=0.342 ms<br>64 bytes from 172.4.116.8: icmp_seq=2 ttl=64 time=0.247 ms<br><br>If you do not get a response, then verify your network configuration. If you continue to get failures then halt the installation and contact Oracle customer support. |
| 11 ☐ | **Add the signaling interfaces to the MP's and IPFE's** | **Use the netAdm command to add XSI interfaces. Repeat this step for each signaling interface.**<br><br>$ **netAdm add –device=ethX –address=<XSI_IP_ADDRESS> \ --netmask=<XSI_NETMASK> --onboot=yes –bootproto=none**<br><br>**Note: ethX is the defined signaling device. I.E. eth0/eth1/eth2/eth3** |
| 12 ☐ | **Repeat for remaining MP's and IPFE's** | **Repeat** this entire procedure for all remaining MP's and IPFE's. |

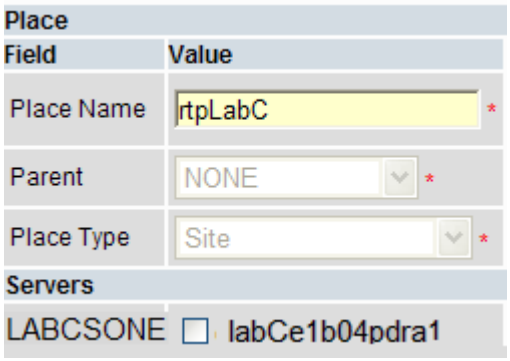
**Procedure 13. Configure Places and Assign MP Servers to Places (PCA ONLY)**

| S T E P # | This procedure will provide the steps/reference to add "Places" in the PCA Network.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **(PCA Only) Configure Places** | Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin***.<br><br>Navigate to **Main Menu -> Configuration -> Places**<br><br>  <br><br><br>**Place Name:** `[Site NAME]`<br>**Parent:** `NONE`<br>**Place Type:** `Site`<br><br>Repeat this step for each of the *PCA Places(Sites)* in the network.<br><br>See the ***Termonology*** section for more information on *Sites & Places*. |

**Procedure 13. Configure Places and Assign MP Servers to Places (PCA ONLY)**

| | | |
|---|---|---|
| 2 ☐ | **(PCA Only) Configure Place Associations** | Click on **Insert** in the lower left corner and enter the information to create the place association for mated pairs, click **Ok**.<br>  <br>**NOTE:** .<br>**Place Association Name:** `[Association Name]`<br>**Place Association Type:** `Policy & Charging Mated Sites`<br>**Places:** `[List of Places you wish to define under this Place Association]`<br><br>Repeat this step for all place associations you wish to define.<br><br>Note: At least one ***"Policy & Charging Mated Sites"*** Place Association must be configured.<br><br>If configuring the Policy DRA function, a ***"Policy & Charging Binding Region***" Place Association must also be configured.<br><br>See the ***Termonology*** section for more information on *Place Associations*, *Policy & Charging Binding Region*, & *Policy & Charging Mated Sites*. |

**Procedure 13. Configure Places and Assign MP Servers to Places (PCA ONLY)**

| | | |
|---|---|---|
| 3 ☐ | **(PCA Only) Assign MP Servers To Places** | From the **Places -> Edit** screen, for each place you have defined, choose the set of MP servers that will be assigned to those places.<br>  <br>Check all the check boxes for **PCA DA-MP** and **SBR** servers that will be assigned to this place.<br><br>Repeat this step for all other DA-MP or SBR servers you wish to assign to places.<br>**Note**: All **PCA DA-MPs** and all **SBR MPs** must be added to the *Site Place* that corresponds to the physical location of the server.<br>See the **Terminology** section for more information on *Sites*. |

**Procedure 14. Configure the MP Server Group(s) and Profiles**

| | |
|---|---|
| **S T E P #** | This procedure will provide the steps to configure MP Server Groups<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |

**Procedure 14. Configure the MP Server Group(s) and Profiles**

<table>
<tr>
<td>1<br>☐</td>
<td>Enter MP or IPFE Server Group Data</td>
<td>From the GUI session on the NOAMP VIP address, go to the GUI Main Menu ->Configuration ->Server Groups, select Insert and fill out the following fields:<br><br>Server Group Name: <code>[Server Group Name]</code><br>Level: <code>C</code><br>Parent: <code>[SOAMP Server Group That is Parent To this MP]</code><br>Function: <code>Select the Proper Function for this MP Server Group:</code><br><br>
<table>
<tr><th>Server Group Function</th><th>MPs Will Run</th><th>Redundancy Model</th></tr>
<tr><td>DSR (multi-active cluster)</td><td>Diameter Relay and Application Services</td><td>Multiple MPs active Per SG</td></tr>
<tr><td>DSR (active-standby pair)</td><td>Diameter Relay and Application Services</td><td>1 Active MP and 1 Standby MP / Per SG</td></tr>
<tr><td>Session Binding Repository</td><td>Session Binding Repository Function</td><td>1 Active MP and 1 Standby MP / Per SG</td></tr>
<tr><td>IP Front End</td><td>IPFE application</td><td>1 Active MP Per SG</td></tr>
<tr><td>Policy & Charging SBR</td><td>Policy and Charging Session/or Policy Binding Function</td><td>1 Active MP Per SG</td></tr>
<tr><td>SS7-IWF</td><td>MAP IWF Application</td><td>1 Active MP Per SG</td></tr>
</table>
<br>For PCA application:<br>- Online Charging function(only)<br>o At least one MP Server Group with the “Policy and Charging SBR” function must be configured<br>o At least one MP Server Group with the “DSR (multi-active cluster)” function must be configured<br>- Policy DRA function<br>o At least two MP Server Groups with the “Policy and Charging SBR” function must be configured. One will store Session data and one will store Binding data.<br>o At least one MP Server Group with the “DSR (multi-active cluster)” function must be configured<br><br>WAN Replication Connection Count:<br>• For non-Policy and Charging SBR Server Groups: <code>Default Value.</code><br>• For Policy and Charging Server Groups: <code>8</code><br><br>For the PCA application, the following types of MP Server Groups must be configured:<br>- DA-MP ( Function: <code>DSR (multi-active cluster))</code><br>- SBR ( Function: <code>Policy and Charging SBR)</code><br>- IPFE ( Function: IP Front End)<br><br>Select OK when all fields are filled in.</td>
</tr>
<tr>
<td>2<br>☐</td>
<td>Repeat For Addional Server Groups</td>
<td>Repeat Step 1 for any remaining MP and IPFE server groups you wish to create. For instance, when installing an IPFE, you will need to create an IP Front End server group for each IPFE server.</td>
</tr>
</table>

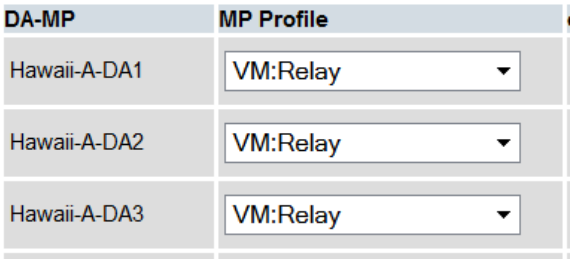
**Procedure 14. Configure the MP Server Group(s) and Profiles**

| | | |
|---|---|---|
| 3 ☐ | **Edit the MP Server Groups to include MPs.** | From the GUI **Main Menu**->**Configuration**->**Server Groups**, select a server group that you just created and then select **Edit.**<br><br>Select the Network Element that represents the MP server group you wish to edit.<br><br>Click the ***"Include in SG"*** box for every MP server that you wish to include in *this* server group. Leave other checkboxes blank.<br><br>**HPC6_90006**<br>**Server** \| **SG Inclusion** \| **Preferred HA Role**<br>MP-1 \| ☑ Include in SG \| ☐ Preferred Spare<br>MP-2 \| ☑ Include in SG \| ☐ Preferred Spare<br><br>Note: Each **IPFE and SS7-MP** server should be in it's own server group.<br><br>Select **OK.** |
| 4 ☐ | **(OPTIONAL) (PCA ONLY) Edit the MP Server Group and add Preferred Spares for Site Redundancy** | If Two Site Redundancy for the *Policy and Charging SBR Server* Group is wanted, add a MP server that is physically located in a separate site(location) to the Server Group by clicking the ***"Include in SG"*** checkbox and also check the ***"Preferred Spare"*** checkbox.<br><br>**Server** \| **SG Inclusion** \| **Preferred HA Role**<br>LabF123SBRsp1 \| ☑ Include in SG \| ☑ Preferred Spare<br><br>For more information about Site Redundancy for Policy and Charging SBR Server Groups, see the **Terminology** section.<br><br>Select **OK** to save |
| 5 ☐ | **Repeat For Addional Server Groups** | **Repeat Steps 1 - 4** for any remaining MP and IPFE server groups you need to create. |

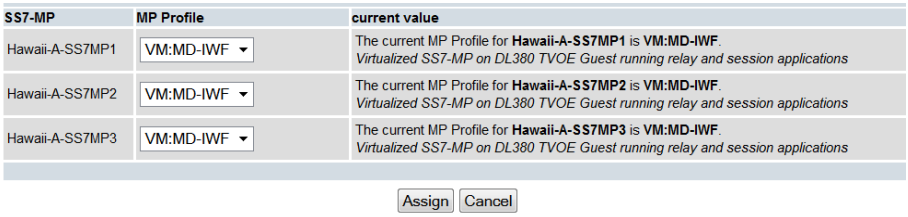
**Procedure 14. Configure the MP Server Group(s) and Profiles**

<table>
<tr>
<td>6<br>☐</td>
<td>Wait for Replication to complete on all MPs</td>
<td>Browse to Main menu->Status&Manage->Server.<br><br>Identify all the MP servers in the “Server Hostname” column . Now, wait for the corresponding DB and “Reporting Status” columns of those MPs to say “Norm”. This may take up to 5 or 10 minutes.<br><br>
<table>
<tr><th></th><th>Server Hostname</th><th>Appl State</th><th>Alm</th><th>DB</th><th>Reporting Status</th></tr>
<tr><td></td><td>HPC6-NO</td><td>Enabled</td><td>Norm</td><td>Norm</td><td>Norm</td></tr>
<tr><td></td><td>HPC6-SO</td><td>Enabled</td><td>Warn</td><td>Norm</td><td>Norm</td></tr>
<tr><td></td><td>HPC6-MP2</td><td>Enabled</td><td>Warn</td><td>Norm</td><td>Norm</td></tr>
<tr><td></td><td>HPC6-MP1</td><td>Enabled</td><td>Warn</td><td>Norm</td><td>Norm</td></tr>
</table>
<br>If only Relay traffic will be run, Engineering suggests using the VM:Relay profile<br><br>for all DA-MPs in a ESXi-deployed DSR.<br><br>For DSR Applications, following are the recommended DA-MP profiles:<br><br>
<table>
<tr><th>Profile Name</th><th>Description</th></tr>
<tr><td>VM:Relay</td><td>VMs running relay application</td></tr>
<tr><td>VM:Database</td><td>VMs running a database application (e.g. - FABR, RBAR)</td></tr>
<tr><td>VM:Session</td><td>VMs running a session application (e.g. - PDRA)</td></tr>
</table>
</td>
</tr>
<tr>
<td>7<br>☐</td>
<td>Wait for Remote Database Alarm to Clear</td>
<td>Wait for the alarm "10200: Remote Database re-initialization in progress" to be cleared. (Main menu->Alarms & Events->Active Alarms)<br><br>This should happen shortly after you have verified the “Norm” DB status in the previous step.</td>
</tr>
</table>

**Procedure 14. Configure the MP Server Group(s) and Profiles**

| | | |
|---|---|---|
| 8<br>☐ | **Assign Profiles to DA-MPs from SOAM GUI.** | Log onto the GUI of the active SOAM server as ***guiadmin*** user<br><br>From the SO GUI, select **MainMenu -> Diameter Common ->MPs -> Profiles Assignments**<br><br>Refer to the **DA-MP** section. (If the site has both DSR and MAP-IWF server groups, you will see both a DA-MP section and an SS7-MP section)<br><br>  <br><br><br>For each MP, select the proper profile assignment based on the MP's type and the function it will serve:<br><br>**Profile Name** / **Description**<br>**VM:Relay** — VM DA-MP ESXI VM running relay application<br>**VM:Database** — VM DA-MP ESXI VM running a database application (e.g. - FABR, RBAR)<br>**VM:Session** — VM DA-MP ESXI VM running a session application (e.g. - PCA)<br><br>**Note:** If the DA-MPs at this site are configured for *Active/Standby* then there will be a single selection box visible that assigns profiles for all MPs.<br><br>When finished, press the **Assign** button |

**Procedure 14. Configure the MP Server Group(s) and Profiles**

<table>
<tr>
<td>9<br>☐</td>
<td>Assign Profiles to SS7-MPs from SOAM GUI.</td>
<td>Log onto the GUI of the active SOAM server as guiadmin user<br><br>From the SO GUI, select MainMenu->Diameter->Configuration->DA-MPs->Profiles Assignments<br><br>Refer to the SS7-MP section. (If the site has both DSR and MAP-IWF server groups, you will see both a DA-MP section and an SS7-MP section)<br><br> 

<br><br>For each SS7 MP, select the proper profile assignment based on the SS7 MP's type and the function it will serve:<br><br>
<table>
<tr><th>Profile Name</th><th>Description</th></tr>
<tr><td>VM:MD-IWF</td><td>ESXI VM Running MAP-IWF fucntions</td></tr>
</table>
<br>When finished, press the Assign button</td>
</tr>
<tr>
<td>10<br>☐</td>
<td>Restart MP virtual machines</td>
<td>From the NOAMP GUI, select the Main menu->Status & Manage->Server menu<br><br>For each MP server:<br><br>• Select the MP server.<br>• Select the Restart button.<br>• Answer OK to the confirmation popup. Wait for the message which tells you that the restart was successful.<br><br>POLICY AND CHARGING DRA INSTALLATIONS: You may continue to see alarms related to ComAgent until you complete PCA configuration by finishing Procedure 30.</td>
</tr>
<tr>
<td>11<br>☐</td>
<td>PCA Only<br><br>Execute the virtual SBR tuning script</td>
<td>1. Obtain a terminal session to the active NOAMP server and execute the virtual SBR performance tuning script.<br><br>]$ cd /usr/TKLC/psbr/bin<br>]$ ./VirtualSBRPerformanceTuning.sh<br><br>2. From the NOAMP GUI, select the Main menu->Status & Manage->Server menu<br><br>For each SBR MP server:<br><br>• Select the MP server.<br>• Select the Restart button.<br>• Answer OK to the confirmation popup. Wait for the message which tells you that the restart was successful.</td>
</tr>
</table>

## 4.4 Signaling Network Configuration

**Procedure 15. Configure the Signaling Networks**

**S T E P**

This procedure will provide the steps to configure the Signaling Networks.

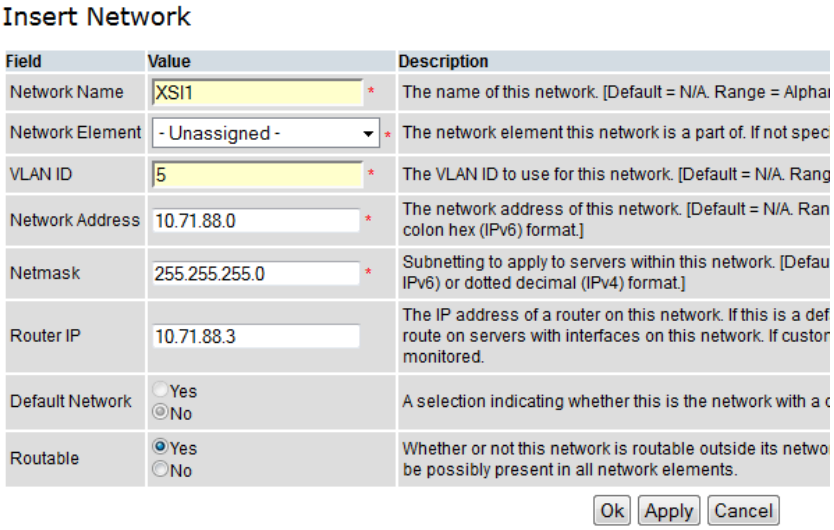
**Note:** Screenshots displayed are for example purposes only. Actual data in your installation may vary.

Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

If this procedure fails, contact **Resource Profile**

| VM Name | VM Purpose | vCPUs Lab | RAM (GB) Lab | vCPUs Production | RAM (GB) Production | Storage (GB) Lab and Production | Notes |
|---|---|---|---|---|---|---|---|
| DSR NOAM | Network Operation, Administration, and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DSR SOAM | Site Operation, Administration and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DA MP | Diameter Agent Message Processor | 2 | 9 (24 for IWF) | 8 | 16 (24 for IWF) | 60 | The 24 G RAM requirem is a minimun the DA-M VM will used wi the IWF |
| IPFE | IP Front End | | | 4 | 16 | 60 | |
| SS7 MP | SS7 Message Processor for MAP Diameter | | | 8 | 24 | 60 | The 24 G RAM requirem is a har minimu for SS7 |
| SBR(s) | Subscriber Binding Repository (session) for Policy DRA | | | 12 | 16 | 60 | To suppo 5M session |
| SBR(b) | Subscriber Binding Repository (binding) for Policy DRA | | | 12 | 16 | 60 | |
| iDIH Application | Integrated Diameter Intelligence Hub web server | | | 4 | 8 | 64 | |
| iDIH Mediation | Integrated Diameter Intelligence Hub mediation server | | | 4 | 8 | 64 | |
| iDIH DB | Integrated Diameter Intelligence | | | 4 | 8 | 120(system) + 100 (DB) | Storage DB Dis may be |

**Procedure 15. Configure the Signaling Networks**

| | | |
|---|---|---|
| 1 ☐ | **Establish GUI Session on the NOAMP VIP** | Establish a GUI session on the NOAMP by using the XMI VIP address. Login as user ***guiadmin***. |
| 2 ☐ | **NOAMP VIP:** Navigate to Signaling Network Configuration Screen | Navigate to **Main Menu -> Configuration -> Network**<br>Click on **Insert** in the lower left corner. |
| 3 ☐ | **NOAMP VIP:** Add Signaling Networks | You will see the following screen:<br>  <br><br>Enter the **Network Name**, **VLAN ID**, **Network Address**, **Netmask**, and **Router IP** that matches the Signaling network<br><br>**Note:** Even if the network does not use VLAN Tagging, you should enter the correct VLAN ID here as indicated by the NAPD<br><br>• **IMPORTANT:** Leave the Network Element field as **Unassigned**.<br>• Select **No** for Default Network<br>• Select **Yes** for Routable.<br><br>Press **OK.** if you are finished adding signaling networks ***-OR-***<br>Press **Apply** to save this signaling network and repeat this step to enter additional signaling networks. |

**Procedure 16. Additional Servers to Network Mapping (PCA Only)**

| S T E P # | This procedure details other operations that should happen once the NOAM/SOAM sites have been configured and after PCA is activated.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | ***(PCA Only), Optional**<br><br>**Define SBR DB Replication Network** | **(*) Note:** Execute this step only if you are defining a separate, dedicated network for SBR Replication.<br><br>Navigate to **Main Menu -> Configuration -> Network**<br><br>Click on **Insert** in the lower left corner **.**<br><br>You will see the following screen:<br>Insert Network<br><br>Field / Value / Description<br>Network Name: XSI1 * — The name of this network. [Default = N/A. Range = Alpha<br>Network Element: - Unassigned - * — The network element this network is a part of. If not spec<br>VLAN ID: 5 * — The VLAN ID to use for this network. [Default = N/A. Rang<br>Network Address: 10.71.88.0 * — The network address of this network. [Default = N/A. Ran colon hex (IPv6) format.]<br>Netmask: 255.255.255.0 * — Subnetting to apply to servers within this network. [Defau IPv6) or dotted decimal (IPv4) format.]<br>Router IP: 10.71.88.3 — The IP address of a router on this network. If this is a def route on servers with interfaces on this network. If custor monitored.<br>Default Network: Yes / No — A selection indicating whether this is the network with a<br>Routable: Yes / No — Whether or not this network is routable outside its netwo be possibly present in all network elements.<br>Ok Apply Cancel<br><br>Enter the **Network Name**, **VLAN ID, Network Address**, **Netmask**, and **Router IP** that matches the SBR DB Replication network<br><br>• **IMPORTANT:** Leave the Network Element field as **Unassigned**.<br>• Select **No** for Default Network<br>• Select **Yes** for Routable.<br><br>Press **Ok.** if you are finished adding signaling networks ***-OR-***<br>Press **Apply** to save this signaling network and repeat this step to enter additional signaling networks. |

**Procedure 16. Additional Servers to Network Mapping (PCA Only)**

<table>
<tr>
<td>2<br>☐</td>
<td>(PCA Only) Perform Additional Services to Networks Mapping</td>
<td>Log Into Active NO GUI as guiadmin user.<br><br>Navigate to Main Menu -> Configuration -> Services.<br><br>Select the Edit button and set the Services as shown in the table below:<br><br>
<table>
<tr><th>Name</th><th>Intra-NE Network</th><th>Inter-NE Network</th></tr>
<tr><td>Replication_MP</td><td><IMI Network></td><td><SBR DB Replication Network>*</td></tr>
<tr><td>ComAgent</td><td><IMI Network></td><td><SBR DB Replication Network>*</td></tr>
</table>
<br>Note: It is recommended that dual-path HA heartbeats be enabled in support of geo-diverse SBRs. This requires participating servers to be attached to at least two routable networks.<br><br>Note: For “HA_MP_Secondary” it is recommended the “Inter-NE Network” be set as the XSI network (configured in Error! Reference source not found.) and “Intra-NE Network” be set as the IMI network.<br><br>Select the Ok button to apply the Service-to-Network selections.</td>
</tr>
<tr>
<td>3<br>☐</td>
<td>(PCA Only) Restart SBR servers</td>
<td>Navigate to Status & Manage -> Server<br>Select the SBR servers and click the Restart Button.</td>
</tr>
</table>

**Procedure 17. Configure the Signaling Devices**

**S T E P**

This procedure will provide the steps to configure the Signaling Devices.

**Note:** The site specific HW configuration will affect which steps need to be executed:

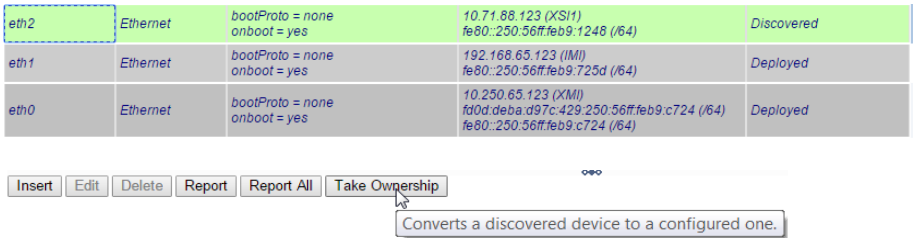
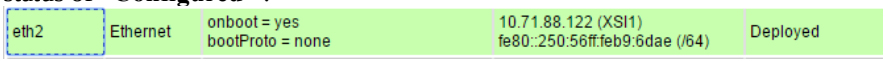
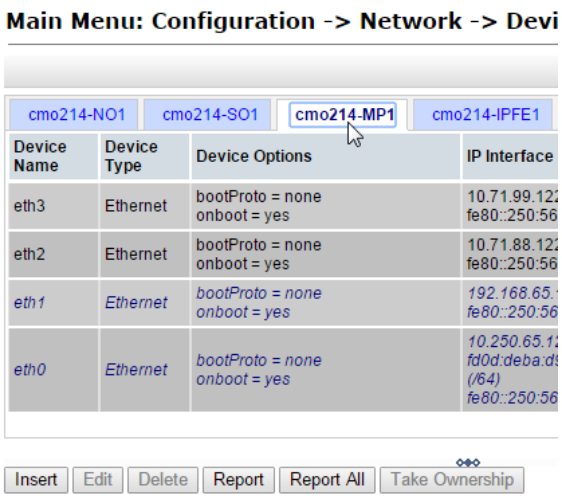
| Questions: | How many pairs of switches are in the enclosure? | Will the MP use a bonded interface? |
|---|---|---|
| Possible Execution Scenarios: | Single | N/A |
| | Multiple | Yes |
| | Multiple | No |

Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.

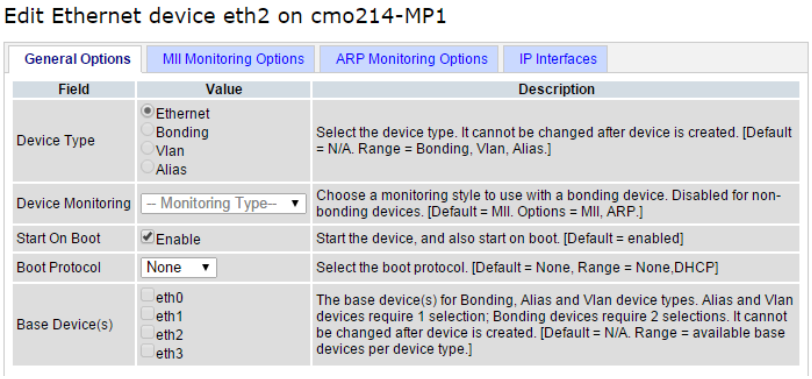
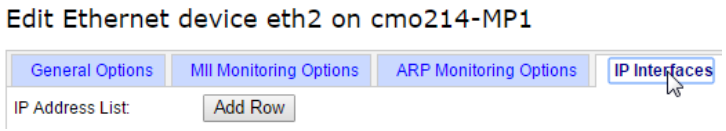
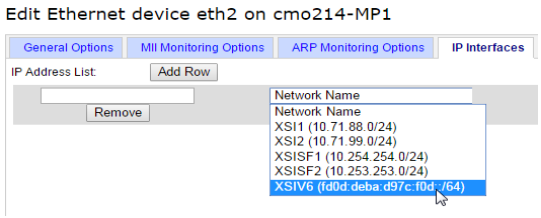
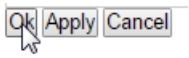
If this procedure fails, contact **Resource Profile**

| VM Name | VM Purpose | vCPUs Lab | RAM (GB) Lab | vCPUs Production | RAM (GB) Production | Storage (GB) Lab and Production | Notes |
|---|---|---|---|---|---|---|---|
| DSR NOAM | Network Operation, Administration, and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DSR SOAM | Site Operation, Administration and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DA MP | Diameter Agent Message Processor | 2 | 9 (24 for IWF) | 8 | 16 (24 for IWF) | 60 | The 24 G RAM requirem is a minimun the DA-M VM will used wi the IWF |
| IPFE | IP Front End | | | 4 | 16 | 60 | |
| SS7 MP | SS7 Message Processor for MAP Diameter | | | 8 | 24 | 60 | The 24 G RAM requirem is a har minimu for SS7 |
| SBR(s) | Subscriber Binding Repository (session) for Policy DRA | | | 12 | 16 | 60 | To supp 5M session |
| SBR(b) | Subscriber Binding Repository (binding) for Policy DRA | | | 12 | 16 | 60 | |
| iDIH Application | Integrated Diameter Intelligence Hub web server | | | 4 | 8 | 64 | |
| iDIH Mediation | Integrated Diameter | | | | | | |

**Procedure 17. Configure the Signaling Devices**

| | | |
|---|---|---|
| 1 ☐ | **NOAMP VIP:** Make Signaling Devices Configurable | Login to the NOAMP VIP console ***guiadmin***.<br><br>Navigate to **Main Menu -> Configuration -> Network -> Devices**<br><br>You should see several tabs each representing a server in the system. Click on the tab representing the first MP Server.<br><br>You should see a list of network devices installed on the MP.<br><br>Select all Ethernet devices that will be signaling interfaces *and* have ***"Discovered"*** as their Configuration Status. Next, press the **Take Ownership** button.<br><br>  <br>After a brief moment, the selected devices configured for IPv4 should now show a Configuration Status of **"Deployed"**, if device is configure IPv6 only it will show a status of **"Configured"** .<br>  |
| 2 ☐ | **NOAMP VIP:** Configure the Signaling Interfaces of the first MP | Navigate to **Main Menu -> Configuration -> Network -> Devices**<br><br>You should see several tabs each representing a server in the system. Click on the tab representing the first MP Server.<br><br>  |

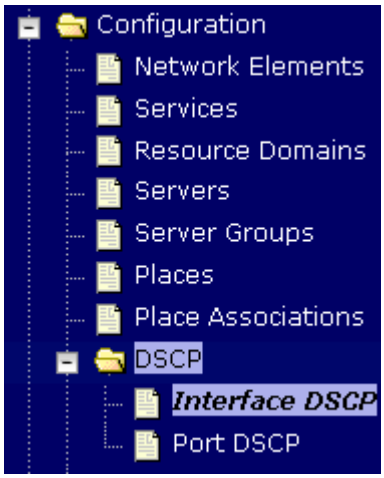
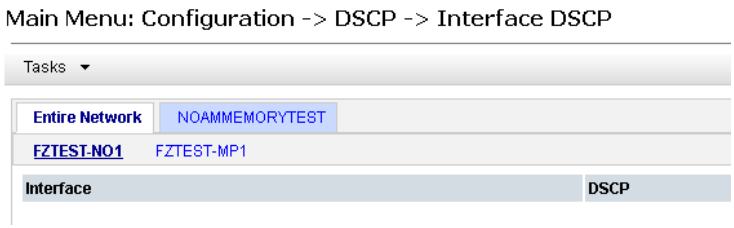
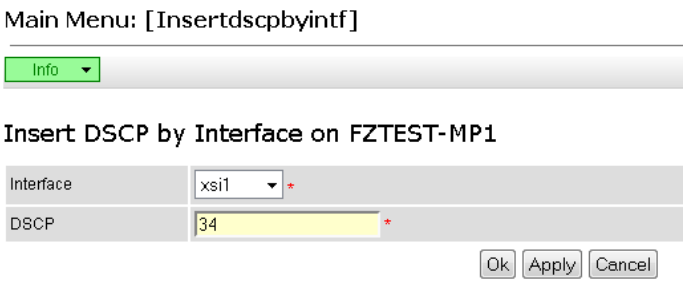
**Procedure 17. Configure the Signaling Devices**

| | | |
|---|---|---|
| 3 ☐ | **NOAMP VIP:** Configure the Signaling Interfaces of the MP | Click on **Insert**. The following screen should be displayed. Verify that the server name on the top corresponds to the MP.<br>  <br>Click on the ***IP Interfaces*** tab as shown below.<br>  <br>Now Click on **Add Row**, the following will be displayed<br>  <br>Select the first Signaling Network from the drop down menu.<br>If configuring an **IPv4**, the previous step will auto-discover and update the IP Interfaces list.<br>If configuring an **IPv6** address:<br>• If an IPv4 already exists, click on **Add Row** and enter the IPv6 address.<br>• If an IPv4 doesn't exist, simply enter the IPv6 address.<br>Click on **OK** at the bottom of the screen.<br>  <br>To add additional Signaling Interfaces, click on Insert again and repeat this step, otherwise continue with the next step. |
| 4 ☐ | **NOAMP VIP:** Configure the Interfaces of the other MPs. | **Repeat this procedure to configure the signaling devices of all other MPs.** |

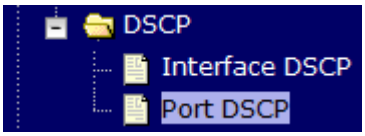
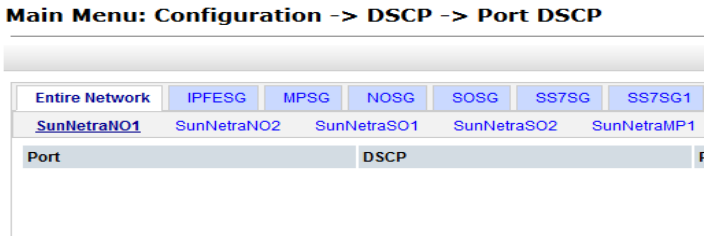
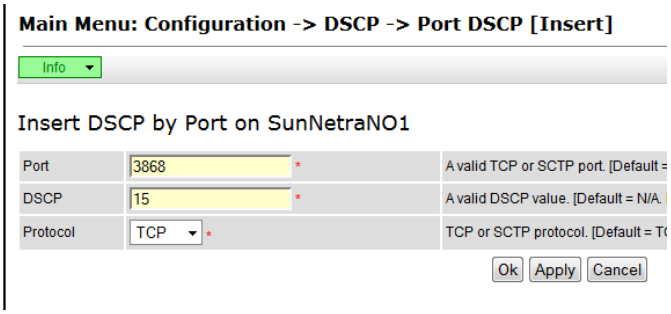
**Procedure 18. Configure DSCP Values for Outgoing Traffic (Optional)**

| S T E P | This procedure will provide the steps to configure the DSCP values for outgoing packets on servers. DSCP values can be applied to an outbound interface as a whole, or to all outbound traffic using a specific TCP or SCTP source port. This step is optional and should only be executed if has been decided that your network will utitlize packet DSCP markings for Quality-of-Service purposes.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1 ☐ | **Establish GUI Session on the NOAMP VIP** | Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin***. |

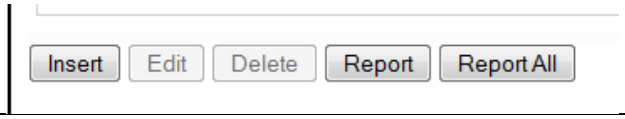
**Procedure 18. Configure DSCP Values for Outgoing Traffic (Optional)**

| | | |
|---|---|---|
| 2 ☐ | **NOAMP VIP:** Option 1: Configure Interface DSCP | **Note:** The values displayed in the screenshots are for demonstration purposes only. The exact DSCP values for your site will vary.<br><br>Navigate to **Main Menu -> Configuration -> DSCP -> Interface DSCP**<br><br>  <br><br>Select the server you wish to configure from the list of servers on the 2nd line. (You can view all servers with ***"Entire Network"*** selected; or limit yourself to a particular server group by clicking on that server group name's tab).<br><br>Click **Insert**<br><br>  <br><br>Select the network interface from the drop down box, then enter the *DSCP value* you wish to have applied to packets leaving this interface.<br><br>  <br><br>Click **OK** if there are no more interfaces on this server to configure, or **Apply** to finish this interface and continue on with more interfaces by selecting them from the drop down and entering their *DSCP values*. |

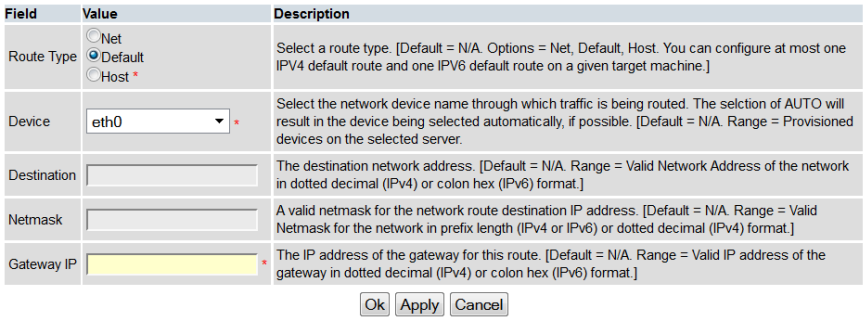
**Procedure 18. Configure DSCP Values for Outgoing Traffic (Optional)**

| | | |
|---|---|---|
| 3 ☐ | **NOAMP VIP:** Option 2: Configure Port DSCP | **Note:** The values displayed in the screenshots are for demonstration purposes only. The exact DSCP values for your site will vary.<br><br>Navigate to **Main Menu -> Configuration -> DSCP -> Port DSCP**<br><br>  <br><br>Select the server you wish to configure from the list of servers on the 2nd line. (You can view all servers ***with "Entire Network"*** selected; or limit yourself to a particular server group by clicking on that server group name's tab).<br><br>Click **Insert**<br><br>  <br><br>Enter the source port, *DSCP value*, and select the transport protocol.<br><br>  <br><br>Click **OK** if there are no more port DSCPs on this server to configure, or **Apply** to finish this port entry and continue entering more port *DSCP mappings*. |
| 4 ☐ | **Repeat for additional servers.** | **Repeat** Step 2-3 for all remaining servers. |

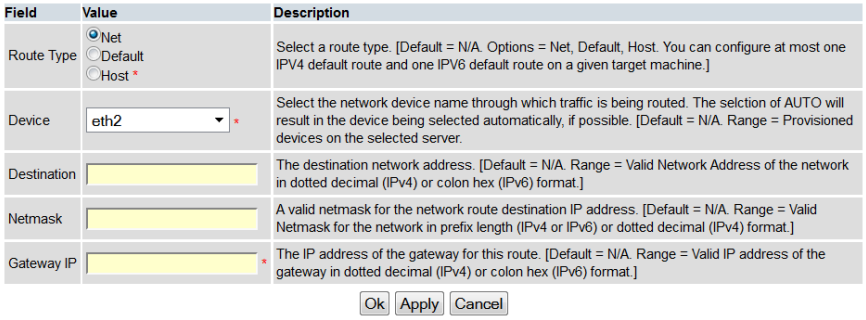
**Procedure 17. Configure the Signaling Network Routes**

| S T E P | | |
|---|---|---|
| | This procedure will provide the steps to configure Signaling Network Routes on MP-type servers *(DA-MP, IPFE, SBR, SS7-MP, etc)*<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
| 1<br>☐ | **Establish GUI Session on the NOAMP VIP** | Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin***. |
| 2<br>☐ | **NOAMP VIP:** Navigate to Routes Configuration Screen | Navigate to **Main Menu -> Configuration -> Network -> Routes**<br><br>Select the first MP Server you see listed on the first row of tabs as shown, then click the ***"Entire Server Group"*** link. Initially, no routes should be displayed.<br><br>  <br>Entire Network \| BuenosAires_IPFE_SG1 \| BuenosAires_IPFE_SG2 \| BuenosAires_MP_SG \| BuenosAires_NO_SG<br>BuenosAires-NO2 \| BuenosAires-NO1 \| BuenosAires-SO1 \| BuenosAires-SO2 \| BuenosAires-DAMP1 \| BuenosAire<br>Route Type \| Destination \| Netmask \| Gateway \| Device Name \| Route Scope \| Configuration Status<br>default \| 0.0.0.0 \| \| 10.240.20.1 \| eth0 \| Server \| Discovered |
| 3<br>☐ | **NOAMP VIP:** Add Route | Click on **Insert** at the bottom of the screen to add additional routes.<br><br>  <br>Insert \| Edit \| Delete \| Report \| Report All |

**Procedure 17. Configure the Signaling Network Routes**

| | | |
|---|---|---|
| 4 ☐ | **NOAMP VIP:** **(Optional)** Add Default Route for MPs Going Through Signaling Network Gateway | ****OPTIONAL** - Only execute this step if you performed **(OPTIONAL) Delete Auto-Configured Default Route on MP and Replace it with a Network Route via the XMI Network** -- which removed the XMI gateway default route on MPs ***<br><br>If your MP servers no longer have a *default route*, then you can now insert a *default route* here which uses one of the signaling network gateways.<br><br>Insert Route on BuenosAires-DAMP1<br>  <br>**Route Type:** **Default**<br>**Device:** **Select the signaling device that is directly attached to the network where the XSI default gateway resides.**<br>**Gateway IP:** **The XSI gateway you wish to use for default signaling network access.**<br><br>Select **OK** |

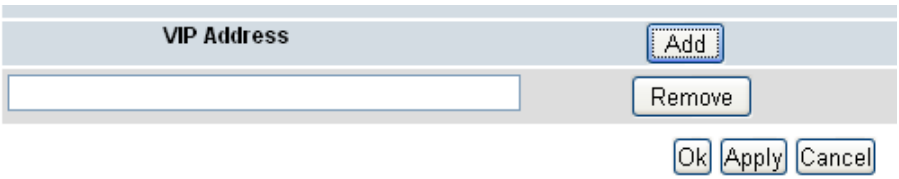
**Procedure 17. Configure the Signaling Network Routes**

| | | |
|---|---|---|
| 5<br>☐ | **NOAMP VIP:** Add Network Routes for Diameter Peers | Use this step to add IP and/or IPv6 routes to *diameter* peer destination networks. The goal here is to ensure that diameter traffic uses the gateway(s) on the signaling networks.<br><br>Insert Route on BuenosAires-DAMP1<br>  <br>Field / Value / Description<br>Route Type: Net / Default / Host * — Select a route type. [Default = N/A. Options = Net, Default, Host. You can configure at most one IPV4 default route and one IPV6 default route on a given target machine.]<br>Device: eth2 * — Select the network device name through which traffic is being routed. The selction of AUTO will result in the device being selected automatically, if possible. [Default = N/A. Range = Provisioned devices on the selected server.<br>Destination — The destination network address. [Default = N/A. Range = Valid Network Address of the network in dotted decimal (IPv4) or colon hex (IPv6) format.]<br>Netmask — A valid netmask for the network route destination IP address. [Default = N/A. Range = Valid Netmask for the network in prefix length (IPv4 or IPv6) or dotted decimal (IPv4) format.]<br>Gateway IP * — The IP address of the gateway for this route. [Default = N/A. Range = Valid IP address of the gateway in dotted decimal (IPv4) or colon hex (IPv6) format.]<br>Ok Apply Cancel<br><br>**Route Type:** `Net`<br>**Device:** `Select the appropriate signaling interface that will be used to connect to that network`<br>**Destination:** `Enter the Network ID of Network to which the peer node is connected to.`<br>**Netmask:** `Enter the corresponding Netmask.`<br>**Gateway IP:** `Enter the IP of the customer gateway.`<br><br>If you have more routes to enter, Press **Apply** to save the current route entry and repeat this step to enter more routes<br><br>If you are finished entering routes, Press **OK** to save the latest route and leave this screen. |
| 6<br>☐ | Repeat steps 2-5 for all other MP server groups. | The routes entered in this procedure should now be configured on *all* MPs in the server group for the first MP you selected. If you have additional MP server groups, repeat from 2, but this time, select an MP from the next MP server group. Continue until you have covered all MP server groups. |

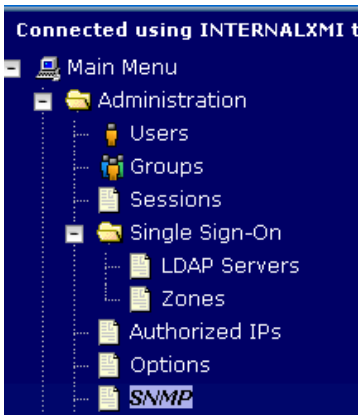
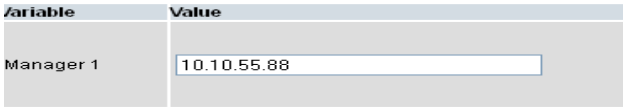
**Procedure 18. Add VIP for Signaling Networks (Active/Standby Configurations ONLY)**

| | |
|---|---|
| **S<br>T<br>E<br>P<br>#** | This procedure will provide the steps to configure the VIPs for the signaling networks on the MPs.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |

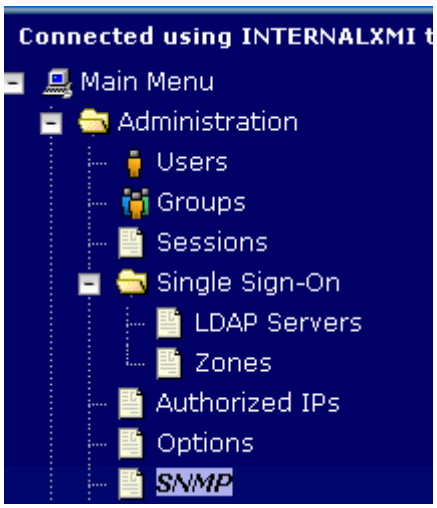
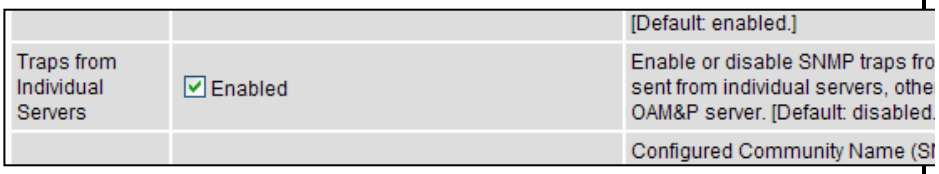
**Procedure 17. Configure the Signaling Network Routes**

| | | |
|---|---|---|
| 1 ☐ | **Edit the MP Server Group and add VIPs**<br><br>**(ONLY FOR 1+1)** | **IF YOUR MPs ARE IN A DSR MULTI-ACTIVE CLUSTER SERVER GROUP CONFIGURATION (N+0), THEN SKIP THIS STEP**<br><br>From the GUI **Main Menu->Configuration->Server Groups**, select the MP server group, and then select **Edit**<br><br>Click on **Add** to add the VIP for XSI1<br>Enter the VIP of int-XSI-1 and click on **Apply**<br>Click on **Add** again to add the VIP for XSI2<br>Enter the VIP of int-XSI-2 and click on **Apply**<br>If more Signaling networks exists, add their corresponding VIP addresses .<br>Finally Click on **OK**.<br><br>  |

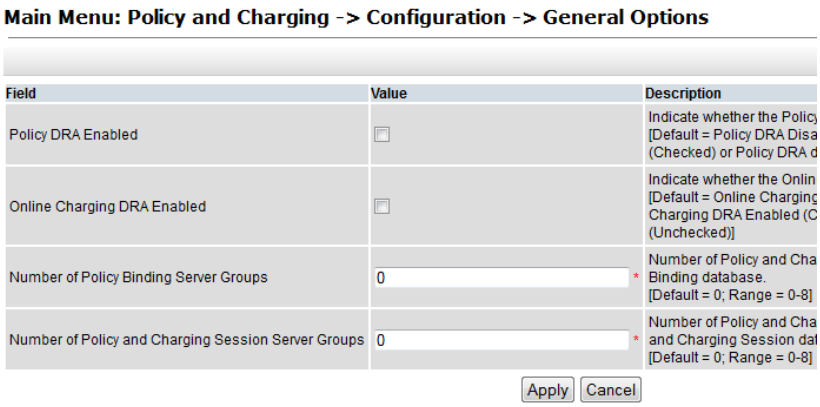
**Procedure 19. Configure SNMP Trap Receiver(s) (OPTIONAL)**

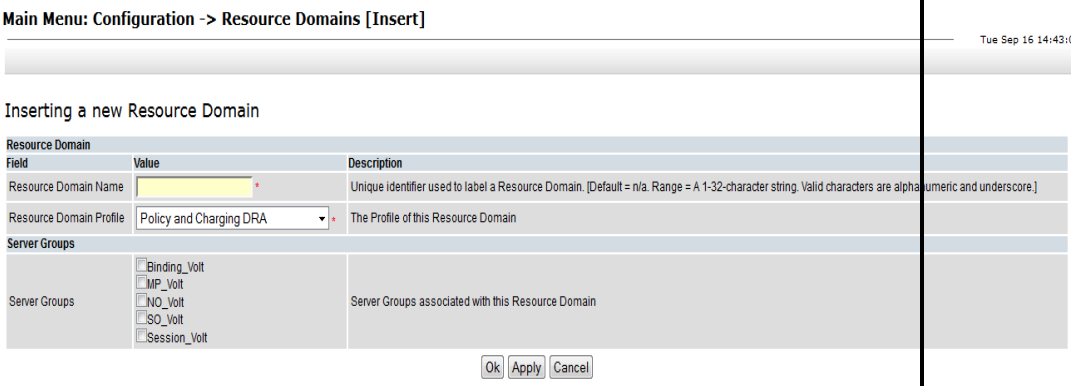
| S T E P # | This procedure will provide the steps to configure forwarding of SNMP.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **NOAMP VIP:**<br>Configure System-Wide SNMP Trap Receiver(s) | Using a web browser, log onto the NOAMP VIP as ***guiadmin*** user. Navigate to **Main Menu** -> **Administration** -> **SNMP**<br><br>  <br><br>Verify that ***"Traps Enabled"*** is checked:<br><br>  <br><br>Fill in the *IP address* or *hostname* of the Network Management Station *(NMS)* you wish to forward traps to. This IP should be reachable from the the NOAMP's "XMI" network.<br><br>Continue to fill in additional secondary manager IPs in the corresponding slots if desired.<br><br>  <br><br>Enter the "***SNMP Community Name"***:<br><br>  <br><br>Leave all other fields at their default values.<br><br>Press **OK** |

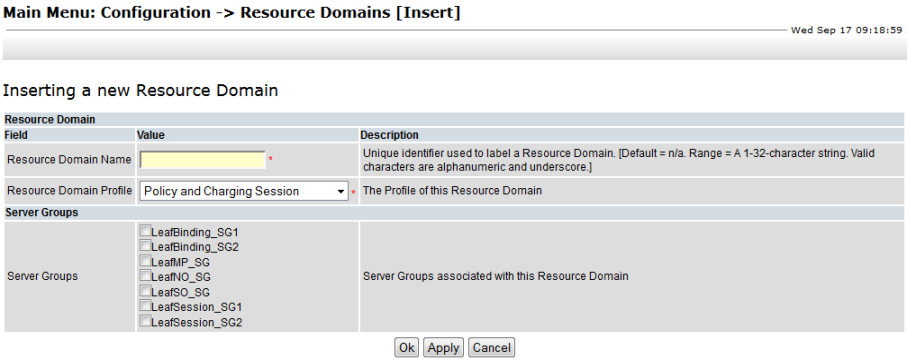
**Procedure 19. Configure SNMP Trap Receiver(s) (OPTIONAL)**

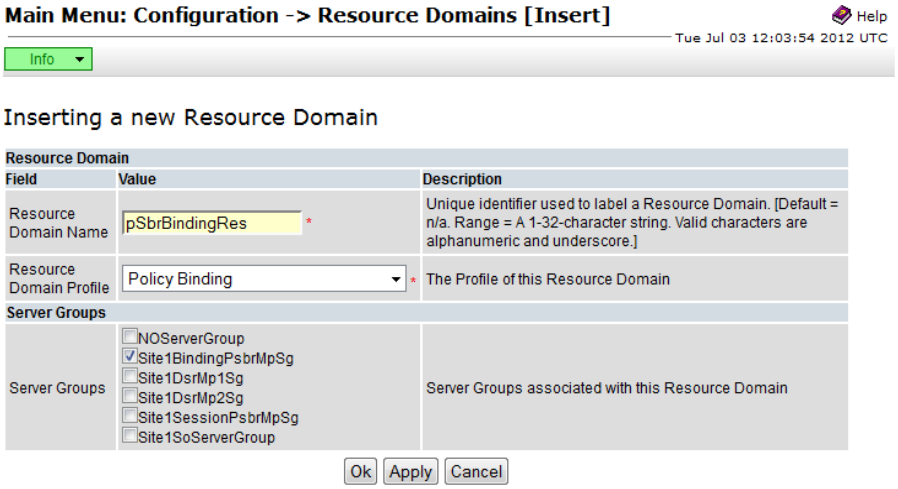
| | | |
|---|---|---|
| 2 ☐ | **NOAMP VIP:** Enable Traps from Individual Servers **(OPTIONAL)** | **Note**: By default snmp traps from MPs are aggregated and then displayed at the active NOAMP. If instead, you wish for every server to send its own traps directly to the NMS, then execute this procedure.<br><br>This procedure requires that all servers, including MPs, have an XMI interface on which the customer SNMP Target server *(NMS)* is reachable.<br><br>----------<br><br>Using a web browser, log onto the NOAMP VIP as ***guiadmin*** user. Navigate to **Main Menu** -> **Administration** -> **SNMP**<br><br>  <br><br>Make sure the checkbox next to ***"Enabled"*** is checked, if not, check it as shown below<br><br>  <br><br>Then click on **Apply** and verify that the data is committed. |

**Procedure 20: PCA Resource Domain Configuration (PCA Only)**

| S T E P # | This procedure configures the Resource Domain**. It should be executed for PCA Installations ONLY.**<br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br>**Prerequisite:** PCA feature is already activated (**Procedure**).<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1 ☐ | **NOAMP VIP:** Establish GUI Session | Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin***. |
| 2 ☐ | **NOAM VIP**: Navigate to General Options Screen | Navigate to **Main Menu -> Policy and Charging -> Configuration -> General Options** Screen.<br>  |
| 3 ☐ | **NOAM VIP:** Configure the number of SBR Server Groups | 1. Enter the required Number of Policy Binding Server Groups throughout the network<br>2. Enter the required Number of Policy and Charging Session Server Groups per Mated Site<br>Click **Apply**. |
| 4 ☐ | **NOAMP VIP:** Navigate to Resource Domain Screen | Navigate to **Main Menu -> Configuration -> Resource Domains** |

| | | |
|---|---|---|
| 5 ☐ | **NOAM VIP:** Add Policy and Charging DRA Resource Domain | Click on **Insert** in the lower left corner.<br>You will see a screen similar to:<br>  <br>1. Enter the Resource Domain Name<br>2. Select ***"Policy and Charging DRA"*** as the Resource Domain Profile<br>3. Select the Server Groups to associate with the Resource Domain<br>4. Click **Ok.**<br><br>**Note:** For Mated DSR sites, create only one Policy and Charging DRA Resource Domain and add the DA-MP Server Groups from both sites into this Policy and Charging DRA Resource Domain.<br><br>For non-mated pair DSRs and standalone DSR: Configure a Policy and Charging DRA Resource Domain per Site. |
| 6 ☐ | **NOAM VIP:** Restart the Servers | Navigate to **Main Menu -> Status & Manage -> Server** screen.<br>Select the Servers just added to the Resource Domain and click **Restart** button. |
| 7 ☐ | **NOAM VIP:** Navigate to Resource Domain Screen | Navigate to **Main Menu -> Configuration -> Resource Domains** Screen. |

| | | |
|---|---|---|
| 8 ☐ | **NOAM VIP:** Add Session Resource Domain | Click on **Insert** in the lower left corner.<br><br>You will see a screen similar to:<br>  <br><br><br>1. Enter the Resource Domain Name<br>2. Select ***"Policy and Charging Session"*** as the Resource Domain Profile<br>3. Select the Server Groups to associate with the Resource Domain<br>4. Click **Ok.**<br><br>**Note:** For Mated DSR sites, create only one Policy and Charging Session Resource Domain and add all the Policy and Charging Session Server Groups from both sites into this Policy and Charging Session Resource Domain.<br><br>For non-mated pair DSRs and standalone DSR: Configure a Policy and Charging Session Resource Domain per Site. |
| 9 ☐ | **NOAM VIP:** Add other Session Resource | Repeat **Step 8** for all other Session Resource Domains that are to be added. |
| 10 ☐ | **NOAM VIP:** Restart the Servers | Navigate to **Main Menu -> Status & Manage -> Server** screen.<br><br>Select the Servers just added to the Resource Domain and click **Restart** button. |

| | | |
|---|---|---|
| 11 ☐ | **(Optional-Policy DRA Function) NOAMP VIP:** Add Binding Resource Domain | **Note:** This step is required only if you are configuring PCA feature Policy DRA Function<br><br>Click on **Insert** in the lower left corner.<br><br>  <br><br><br>1. Enter the Resource Domain Name<br>2. Select ***"Policy Binding"*** as the Resource Domain Profile<br>3. Select the Server Groups to associate with the Resource Domain<br>4. Click **Ok**.<br><br>**Note:** Create only one Policy Binding Resource Domain and add the Policy Binding Server Groups from all the sites in the network into this Policy Binding Resource Domain |
| 12 ☐ | **NOAM VIP:** Restart the Servers | Navigate to **Main Menu -> Status & Manage -> Server** screen.<br><br>Select the Servers just added to the Resource Domain and click **Restart** button. |
| 13 ☐ | **NOAM VIP:** Verify Alarms | If Com-Agent related alarms have not cleared, **STOP** and contant Oracle Technical Support. |

**Procedure 21. PCA Functions Enabling (PCA Only)**

| S T E P # | This procedure enables Policy DRA function or Online Charging DRA function of the PCA**. It should be executed for PCA Installations ONLY.**<br><br>**Prerequisite:** PCA feature is already activated (**Procedure**).<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |
|---|---|
| 1 ☐ | **Establish GUI Session on the NOAMP VIP** — Establish a GUI session on the NOAMP by using the NOAMP VIP address. Login as user ***guiadmin*** user |

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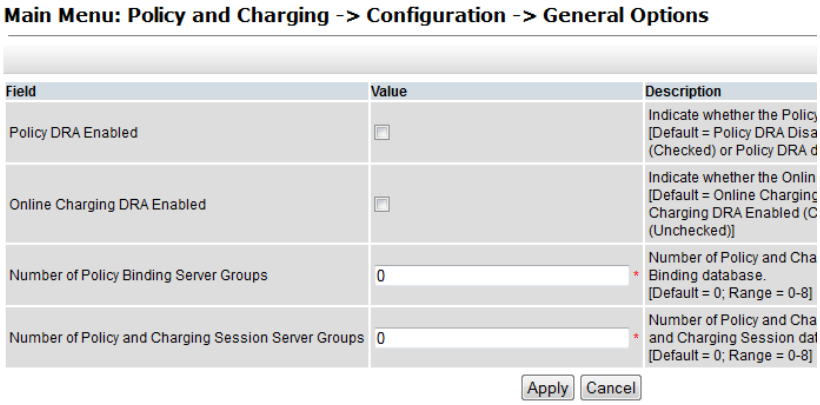
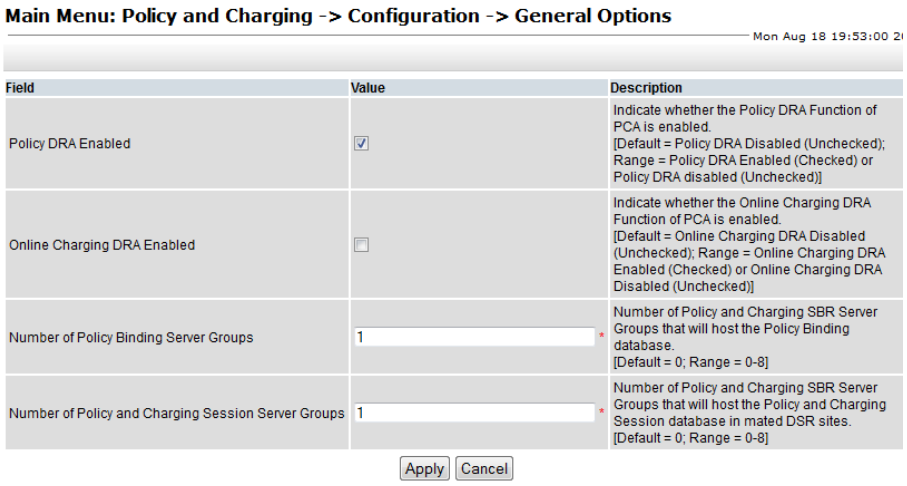
| 2<br>☐ | **NOAM VIP**:<br>Navigate to General Options Screen | Navigate to **Main Menu -> Policy and Charging -> Configuration -> General Options** Screen.<br>  |
| 3<br>☐ | **(OPTIONAL- Policy DRA Function)**<br>**NOAM VIP:**<br>Enable the Policy DRA function | **Note:** This step is required only if you are configuring PCA feature Policy DRA Function<br>Navigate to **Main Menu -> Policy and Charging -> Configuration -> General Options** Screen.<br>  <br>1. Check the Policy DRA Enabled box<br>2. Click **Apply.** |

| | | |
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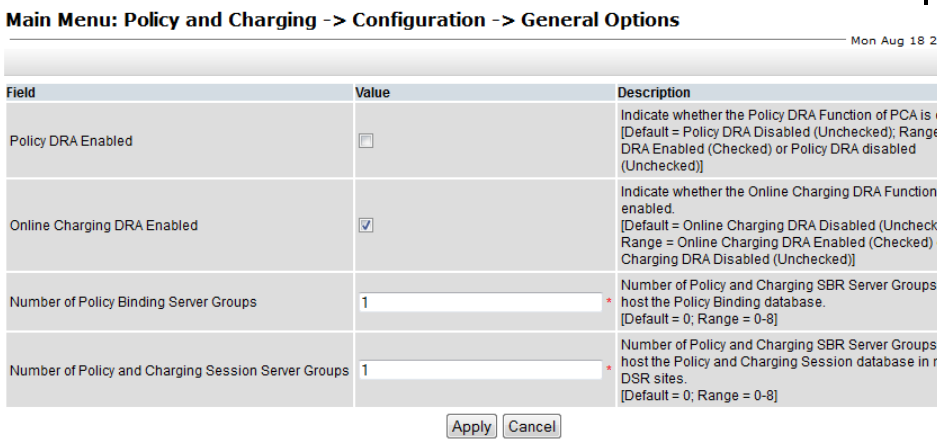
| 4<br>☐ | **(OPTIONAL- Online Charging DRA Function) NOAM VIP:** Enable the Online Charging DRA function | **Note:** This step is required only if you are configuring PCA feature Online Charging DRA Function<br><br>Navigate to **Main Menu -> Policy and Charging -> Configuration -> General Options** Screen.<br><br>  <br><br><br>1. Check the Online Charging DRA Enabled box<br><br>2. Click **Apply.** |

**Procedure 22. IP Front End (IPFE) Configuration**

| S T E P # | This procedure will provide the steps to configure IP Front End (IPFE), and optimize performance.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **NOAMP VIP:** Determine whether the Appworks update Script needs to be executed | Login to the NOAMP VIP GUI as ***guiadmin*** user.<br><br>If you converted a ***"Discovered"*** device to a ***"Configured"*** device on the **Configuration -> Network -> Devices** GUI screen and are using the converted device for an IPFE XSI interface, complete this procedure. **Otherwise, skip to step 4.**<br><br>**Note:** If you do not recall whether any IPFE devices were converted, complete the following step. |
| 2<br>☐ | **Active NOAMP**: Execute the AppWorks update Scripts. | Login to the Active NOAMP as ***admusr*** user.<br><br>Execute the following command:<br>$ `sudo ipfeAppworksUpdate.sh` |
| 3<br>☐ | **NOAMP VIP:** Verify the Appworks update Script ran. | Login to the NOAMP VIP GUI as ***guiadmin*** user.<br><br>Select **Configuration -> Network -> Devices**<br><br>Select the tabs for the **IPFE**.<br><br>Verify that, for devices that were converted to ***"Configured"*** from ***"Discovered"***, the following information is seen in the Device Options column:<br><br>**"ethtoolOpts = --set-ring <ethX> rx 4078; --offload <ethX> gro off gso off"**<br><br>**`Note: ethX is the defined signaling device. I.E. eth0/eth1/eth2`** |
| 4<br>☐ | **1st IPFE:** Execute the ipfeNetUpdate script. | Login to the **1st IPFE server** as ***admusr*** user.<br><br>Execute the following command:<br>$ `sudo ipfeNetUpdate.sh` |
| 5<br>☐ | **1st IPFE:** Reboot the 1st IPFE Server. | Execute the following command to reboot the **1st IPFE server**:<br>$ `sudo init 6` |
| 6<br>☐ | **1st IPFE:** Verify the ipfeNetUpdate script ran. | After the server reboots, login to the **1st IPFE server** as ***admusr*** user.<br><br>Execute the following command:<br>$ `sudo cat /etc/sysconfig/network`<br><br>You will see the following output:<br>**IPV6FORWARDING=yes**<br>**IPV6_AUTOCONF=no**<br><br>Execute the following command: |

**Procedure 22. IP Front End (IPFE) Configuration**

| | | |
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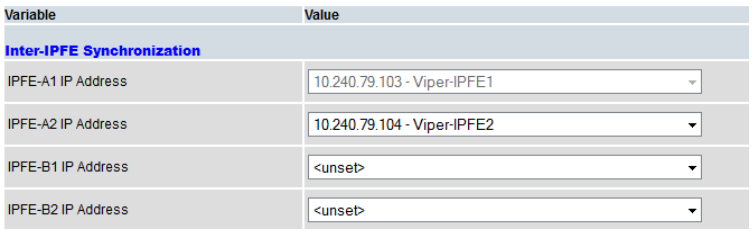
| | | $ **sudo cat /etc/modprobe.d/bnx2x.conf**<br><br>You will see the following output:<br><br>Execute the following command:<br>$ **sudo cat /etc/sysconfig/network-scripts/ifcfg-<ethX>**<br>**options bnx2x num_queues=10**<br><br>You will see the following output:<br>**ETHTOOL_OPTS="--set-ring <ethX> rx 4078; --offload eth01 gro off gso off**<br><br>**Note: ethX is the defined signaling device. I.E. eth0/eth1/eth2** |
| 7<br>☐ | **Additional IPFE servers:** Repeat for additional IPFE Servers. | Repeat **steps 4-6** for additional IPFE servers. |
| 8<br>☐ | **SOAMP VIP:** Configuration of replication IPFE association data. | Login to the **SOAMP VIP** GUI as ***guiadmin*** user.<br><br>Select **Main Menu -> IPFE -> Configuration -> Options**<br><br>Enter the IP address of the **1st IPFE** in **the IPFE-A1 IP Address** field and the IP address of the **2nd IPFE** in the **IPFE-A2 IP Address** field<br><br>If applicable, enter the address of the **3rd** and **4th** IPFE servers in **IPFE-B1 IP Address** and **IPFE-B2 IP Address** fields.<br><br>  <br><br><br>**Note:** It is recommended that the address reside on the **IMI (Internal Management Interface)** network.<br><br>**Note: IPFE-A1** and **IPFE-A2** must have connectivity between each other via these addresses. The same applies with **IPFE-B1** and **IPFE-B2**. |
| 9<br>☐ | **SOAMP VIP:** Configuration of IPFE Target sets. | Login to the **SOAMP VIP** GUI as ***guiadmin*** user.<br><br>Select **Main Menu -> IPFE -> Configuration -> Target Sets**<br><br>Select either **Insert IPv4** or **Insert IPv6** button, depending on the IP version of the target set you plan to use.<br><br>This screen will display the following configurable settings:<br><br>**Protocols**: protocols the target set will support.<br><br>**Delete Age:** Specifies when the IPFE should remove its association data for a connection. Any packets presenting a source IP address/port combination that had been previously stored as association state but have been idle longer than the **Delete Age** configuration will be treated as a new connection and will not automatically go to the same application server. |

| | | |
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| | | **Load Balance Algorithm:** ***Hash*** or ***Least Load*** options<br>• **Note:** In order for the IPFE to provide Least Load distribution, **Main Menu -> IPFE -> Configuration -> Options**, Monitoring Protocol must be set to ***Heartbeat*** so that the application servers can provide the load information the IPFE uses to select the ***least-loaded*** server for connections.<br>• **Note:** The Least Load option is the default setting, and is the recommended option with exception of unique backward compatability scenarios.<br>• **(Optional):** If you have selected the ***Least Load algorithm***, you may configure the following fields to adjust the algorithm's behavior:<br>o **MPS Factor** – Messages per Second (MPS) is one component of the least load algorithm. This field allows you to set it from 0 (not used in load calculations) to 100 (the only component used for load calculations). It is recommended that IPFE connections have Reserved Ingress MPS set to something other than the default, which is 0. To configure ***Reserved Ingress MPS***, go to **Main Menu -> Diameter -> Configuration -> Configuration Sets -> Capacity Configuration**. If you choose not to use ***Reserved Ingress MPS***, set ***MPS Factor*** to 0 and ***Connection Count Factor***, described below, to 100.<br>o **Connection Count Factor** – This is the other component of the ***least load*** algorithm. This field allows you to set it from 0 (not used in load calculations) to 100 (the only component used for load calculations). Increase this setting if connection storms (the arrival of many connections at a very rapid rate) are a concern.<br>o **Allowed Deviation** - Percentage within which two application server's load calculation results are considered to be equal. If very short, intense connection bursts are expected to occur, increase the value to smooth out the distribution.<br>**Primary Public IP Address:** IP address for the target set<br>• **Note:** This address must reside on the XSI (External Signaling Interface) network because it will be used by the application clients to reach the application servers. This address MUST NOT be a real interface address (that is, must not be associated with a network interface card).<br>**Active IPFE:** IPFE to handle the traffic for the target set address.<br>**Secondary Public IP Address:** If this target set supports either ***multihomed SCTP*** or Both ***TCP*** and ***SCTP***, provide a **Secondary IP Address**.<br>• **Note**:A secondary address is required to support ***SCTP multihoming***. A secondary address can support ***TCP***, but the ***TCP*** connections will not be multihomed.<br>• **Note:** If ***SCTP multihoming*** is to be supported, select the ***mate*** IPFE of the Active IPFE for the Active IPFE for **secondary address** to ensure that SCTP failover functions as designed.<br>**Target Set IP List:** Select an IP address, a secondary IP address if supporting ***SCTP multihoming***, a description, and a weight for the application server.<br>• **Note:**The IP address must be on the XSI network since they must be on the same network as the target set address. This address must also match the IP version of the target set address (IPv4 or IPv6). If the ***Secondary Public IP*** |

**Procedure 22. IP Front End (IPFE) Configuration**

| | | |
|---|---|---|
| | | ***Address*** is configured, it must reside on the ***same*** application server as the first IP address.<br>• **Note:** If all application servers have an equal **weight** (e.g., 100, which is the default), they have an equal chance of being selected. Application servers with larger **weights** have a greater chance of being selected.<br>Click the **Add** button to add more application servers (*Up to 16*)<br>Click the **Apply** button. |
| 10<br>☐ | **SOAMP VIP:**<br>Repeat for additional Configuration of IPFE Target sets. | Repeat for **step 9** for each target set (Up to 16).<br>At least one target set must be configured. |

## 4.5 Create iDIH Virtual Machines

**Procedure 23. Create iDIH Oracle, Mediation and Application VMs (Optional)**

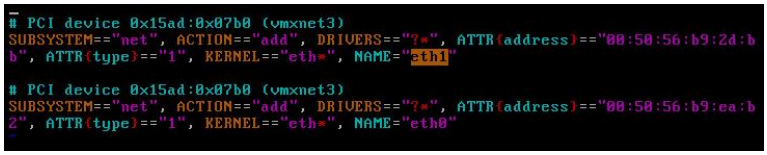
| **S T E P #** | This procedure will create the iDIH Oracle, Mediation and Application guest.<br><br>**Needed material:**<br>- iDIH Oracle OVA, iDIH Mediation OVA and iDIH Application OVA<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Add the iDIH Oracle OVA to VMware** | 1. Launch the VMware client of your choice.<br>2. Add the **iDIH Oracle OVA** image to the VMware catalog or repository. Follow the instructions provided by the Cloud solutions manufacturer. |
| 2<br>☐ | **Create the Oracle VM, from the OVA image.** | 1. Browse the library or repository that you placed the **iDIH Oracle OVA** image.<br>2. Deploy the **OVA Image** using **vSphere Client** or the **vSphere Web Client**.<br>3. Name the **iDIH Oracle VM** and select the datastore. |
| 3<br>☐ | **Configure resources for the iDIH Oracle VM.** | 1. Configure the **iDIH Oracle VM** per the Resource Profile in **Appendix D** for the **iDIH Oracle VM** using the vSphere Client or the vSphere Web Client.<br>2. Record the Ethernet addresses associated with each interface and the virtual network it is associated with. |
| 4<br>☐ | **Power on the iDIH Oracle VM.** | 1. Use the vSphere client or vSphere web client to Power on the **iDIH Oracle VM**. |

**Procedure 23. Create iDIH Oracle, Mediation and Application VMs (Optional)**

| | | |
|---|---|---|
| 5<br>☐ | **Procedure Overview** | 1. Repeat Steps 1 through 4 for the following VMs. Use Unique labels for the VM Names:<br>**iDIH Application**<br>**iDIH Mediation** |

## 4.6 Configure iDIH Virtual Machines

**Procedure 24. Configure iDIH VM Networks (Optional)**

| S T E P # | This procedure will provide the steps to configure the iDIH guest VM external management networks.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Log into the Oracle VM Console as root.** | 1. Access the **iDIH Oracle VM console** via the vSphere client or vSphere web client.<br>2. Login as **admusr**. |
| 2<br>☐ | **Trigger net rules file creation.** | 1. Run the udevadm command to recreate net rules file.<br>`$ sudo udevadm trigger --action=add /class/net/eth0`<br>2. Reboot the guest<br>`$ sudo init 6` |
| 3<br>☐ | **Modify the Ethernet interface names in the net rules file.** | 1. Login to the **iDIH Oracle VM** console as **admusr**.<br>2. Update the net rules file replace the default interfaces names ethX with xmi and int interfaces names. Be sure to use the MAC addresses recorded in the previous procedure to determine which interfaces should be named xmi and int. The mediation guest will also require the user to rename a third interface ethX as imi.<br>`$ sudo vi /etc/udev/rules.d/70-persistent-net.rules`<br>  <br><br>  <br><br>3. Reboot the guest.<br>`$ sudo init 6` |

**Procedure 24. Configure iDIH VM Networks (Optional)**

| | | |
|---|---|---|
| 4 ☐ | **As admusr on the Oracle VM configure the xmi and int networks with netAdm.** | 1. Login to the **iDIH Oracle VM** console as **admusr**.<br>2. Configure the xmi network ip address and netmask.<br>`$ sudo netAdm add --device=xmi --address=<IP Address in External Management Network> --netmask=<Netmask> --onboot=yes --bootproto=none`<br>3. Configure the default gateway.<br>`$ sudo netAdm add --route=default --gateway=<gateway address for the External Management Network> --device=xmi`<br>4. Configure the int network ip address and netmask.<br>`$ sudo netAdm add –device=int –address=10.254.254.2 –netmask=255.255.255.224 –onboot=yes –bootproto=none`<br>**Note:** oracle guest internal ip=10.254.254.2, the mediation guest internal ip = 10.254.254.3 and the application internal ip address= 10.254.254.4. The netmaks for all is 255.255.255.224. |
| 5 ☐ | **As admusr on the Oracle VM configure NTP and the Oracle VM hostname.** | 1. On the Oracle VM console launch the platform configuration menu.<br>`$ sudo su – platcfg`<br>2. From the platform configuration menu configure ntpserver1 with the ip address supplied for NTP<br>**Network Configuration -> NTP ->Edit->ntpserver1**<br>3. Exit the network configuration menu.<br>4. Configure the Oracle VM hostname.<br>**Server Configuration -> Hostname ->Edit**<br>Note: typically we select hostname identify the host as iDIH application, iDIH mediation and iDIH oracle.<br>Exit the platform configuration menu. |
| 6 ☐ | **Procedure Overview** | 1. Repeat Steps 1 through 3 for the following VMs. Use Unique labels for the VM Names:<br>**iDIH Mediation**<br>**iDIH Applation** |

**Procedure 25. Run Post Installation scripts on iDIH VMs (Optional)**

| | |
|---|---|
| **S T E P #** | This procedure will provide the steps to run post installation scripts on the iDIH VMs.<br><br>**Prerequisite**: **Procedure** has been completed.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |

**Procedure 25. Run Post Installation scripts on iDIH VMs (Optional)**

| | | |
|---|---|---|
| 1 ☐ | **Log into the iDIH Oracle VM Console as root.** | 1. Access the **iDIH Oracle VM console** via the vSphere client or vSphere web client.<br>2. Login as **admusr**. |
| 2 ☐ | **Run the iDIH Oracle post installation script.** | Wait for the software upgrades to complete on all iDIH Virtual machines.<br>As **admusr** on the **iDIH Oracle VM** console run the Oracle post installation script.<br>`$ sudo /opt/xIH/oracle/configureOracle.sh`<br>**Note:** The Oracle post installation script will run for an Hour or longer depending on the Oracle version and patch level. Wait for it to complete before the next step is executed. |
| 3 ☐ | **Log into the iDIH Mediation VM Console as admusr.** | 1. Access the **iDIH Mediation VM console** via the vSphere client or vSphere web client.<br>2. Login as **admusr**. |
| 4 ☐ | **Configure the iDIH Mediation VM imi network.** | 1. Login to the **iDIH Mediation VM** console as **admusr**.<br>2. Configure the Mediation internal management network.<br>`$ sudo netAdm set --device=imi --address=<IP Address in Internal Management Network> --netmask=<Netmask> --onboot=yes --bootproto=none` |
| 5 ☐ | **Run the iDIH Medation VM post installation script.** | The Oracle post installation script must come to completion before the Medation post installation script is run.<br>As **admusr** on the **iDIH Medation VM** console run the Medation post installation script.<br>`$ sudo /opt/xIH/mediation/install.sh`<br>**Note:** The Mediation post installation script will run for 15 minutes. Wait for it to complete before the next step is executed. |
| 6 ☐ | **Log into the iDIH Application VM Console as admusr.** | 1. Access the **iDIH Application VM console** via the vSphere client or vSphere web client.<br>2. Login as **admusr**. |
| 7 ☐ | **Run the iDIH Application post installation script.** | The Mediation post installation script must come to completion before the Application post installation script is run.<br>As **admusr** on the **iDIH Application VM** console run the Application post installation script.<br>`$ sudo /opt/xIH/apps/install.sh`<br>**Note:** The Application post installation script will run for 45 minutes. Wait for it to complete before the next step is executed. |

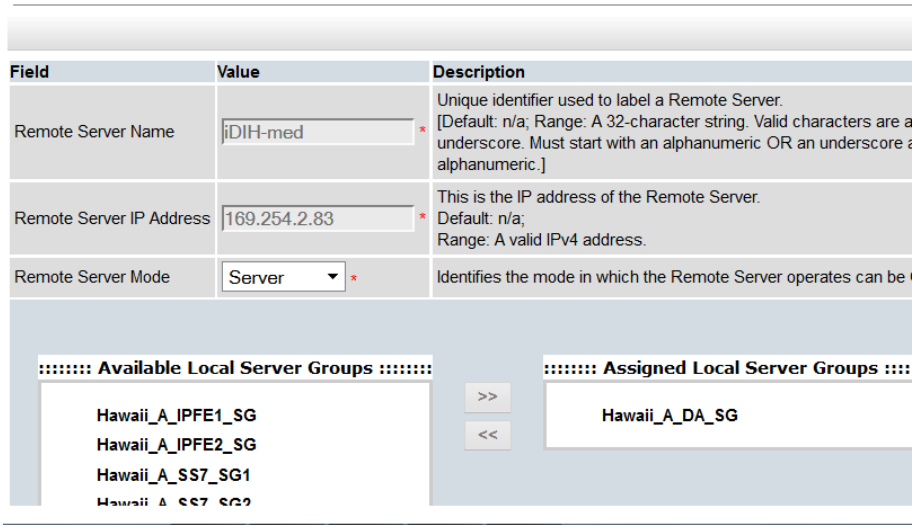
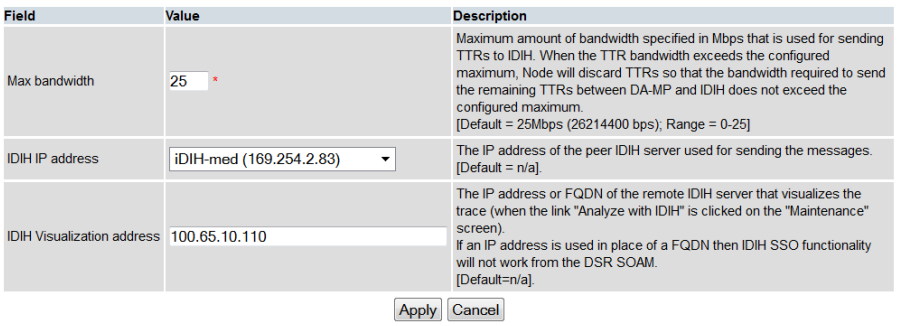
**Procedure 25. Run Post Installation scripts on iDIH VMs (Optional)**

| | | |
|---|---|---|
| 8 ☐ | **Restart each of the iDIH guests from their consoles.** | The Application post installat script must come to completion before the any of the Virtual Machines are restarted.<br>As **admusr** on the **iDIH Mediation VM** run init command to **restart** the MediationVirtual Machine.<br>`$ sudo init 6`<br>As **admusr** on the **iDIH Application VM** run the init command to **restart** the Application Virtual Machine.<br>`$ sudo init 6`<br>As **admusr** on the **iDIH Oracle VM** run the init command to **restart** the Oracle Virtual Machine.<br>`$ sudo init 6` |
| 9 ☐ | **Run the iDIH healthcheck script on each of the iDIH virtual machines.** | Once all of the iDIH Virtual Machines have restarted. Run the healtcheck scripts on each iDIH Virtual Machine.<br>As **admusr** on the **iDIH Oracle VM** console run the **healthcheck script** and verify the results. Ignore the NTP message stating the **tvoe-host** is **not integrated**.<br>`$ sudo /usr/TKLC/xIH/plat/bin/analyze_server.sh -i`<br>As **admusr** on the **iDIH Application VM** console run the **healthcheck script** and verify the results. Ignore the NTP message stating **tvoe-host** is not **integrated**.<br>`$ sudo /usr/TKLC/xIH/plat/bin/analyze_server.sh -i`<br>As **admusr** on the **iDIH Medation VM** console run the **healthcheck script** and verify results. Ingnore the NTP message stating tvoe-host is not integrated.<br>`$ sudo /usr/TKLC/xIH/plat/bin/analyze_server.sh -i`<br>**Note:** Ignore NTP message stating the **tvoe-host** is **not integrated.** |

**Procedure 26. Integrate iDIH into DSR (Optional)**

| | |
|---|---|
| **S T E P #** | This procedure will configure the iDIH connections to DSR.<br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. |

**Procedure 26. Integrate iDIH into DSR (Optional)**

| | | |
|---|---|---|
| 1 ☐ | **Configure the iDIH comAgent connection on the NOAM.** | On the NOAM under "Communication Agent -> Configuration -> Remote Servers" add the "imi iDIH mediation guest address", select "Server" and "MPGroup".<br><br>**Main Menu: Communication Agent -> Configuration -> Remote Servers**<br>  |
| 2 ☐ | **Configure the Troubleshooting with IDIH on the SOAM.** | On the SOAM under " Diameter->Troubleshooting with IDIH -> Configuration -> Options" select iDIH (192.168.xx.xx) and enter the "iDIH application guest xmi address".<br><br>**Main Menu: Diameter -> Troubleshooting with IDIH -> Configuration -> Options**<br>Tue Jun 02 12:24:59<br>IDIH Configuration<br>  |

**Procedure 27. iDIH Application final configuration (Optional)**

| S T E P # | This procedure will provide the steps to finalize iDIH Configuration.<br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1 ☐ | **Log into the Application Virtual Machine Console as admusr.** | 1. Access the **iDIH Application VM** console via the **VMware** client of your choice.<br>Login as **admusr**. |
| 2 ☐ | **As admusr on the Application VM sudo to the tekelec user. And run trda configuration script.** | 1. Sudo to the the tekelec user.<br>[admusr@thunderbolt-app ~]$ **sudo su - tekelec**<br>/usr/TKLC/xIH/profiles/xih-apps.sh<br>Loading component profile /usr/TKLC/xIH/profiles/xih-apps.sh...<br>2. As tekelec user execute the trda-config.sh script and supply the xmi vip address for the SOAM when prompted.<br>thunderbolt-app:/usr/TKLC/xIH **./apps/trda-config.sh**<br>dos2unix: converting file /usr/TKLC/xIH/bea/user_projects/domains/tekelec/nsp/trace-refdata-adapter.properties to UNIX format ...<br>**Please enter DSR SOAM server VIP address:** |

## 4.7 Post-Install Activities

**Procedure 28. Activate Optional Features**

| S T E P # | This procedure will provide instruction on how to install DSR optional components once regular installation is complete.<br><br>**Prerequisite:** All previous DSR installation steps have been completed.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Refer to Activation Guides for Optional Features** | Refer to 3.3 **Optional Features** for a list of feature activation documents whose procedures are to be executed at this moment. |
| 2<br>☐ | **Multi-Site Feature Activation** | To activate optional features in multi-site configurations for Spare SOAM servers, follow **Appendix C.**<br><br>**Note:**If the following configuration conditions apply, execute this step, otherwise skip this step:<br><br>1) Spare SOAM configurations where the preferred spare was inserted into the server group BEFORE the active/Standby SOAM servers. |

**Procedure 29. Configure ComAgent Connections**

| S T E P # | This procedure will provide instruction on how to configure ComAgent connections on DSR for use in the FABR application.<br><br>**Prerequisite:** FABR application is activated.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Configure ComAgent** | Refer to [14] for the steps required to configure **ComAgent** |

**Procedure 30. Complete PCA Configuration (Optional)**

| S T E P # | This procedure will provide instruction on how to complete PCA configuration.<br><br>**Prerequisite:** PCA application is activated.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **Complete PCA Configuration** | Refer to Section "PCA Configuration" of [2] for the steps required to complete PCA configuration. |

# SAMPLE NETWORK ELEMENT AND HARDWARE PROFILES

In order to enter all the network information for a network element into an Appworks-based system, a specially formatted XML file needs to be filled out with the required network information. The network information is needed to configure both the NOAMP and any SOAM Network Elements.



It is expected that the maintainer/creator of this file has networking knowledge of this product and the customer site at which it is being installed. The following is an example of a Network Element XML file.

The SOAM Network Element XML file needs to have same network names for the networks as the NOAMP Network Element XML file has. It is easy to accidentally create different network names for NOAMP and SOAM Network Element, and then the mapping of services to networks will not be possible.

**Example Network Element XML file:**

```
<?xml version="1.0"?>
<networkelement>
    <name>NE</name>
    <networks>
        <network>
            <name>XMI</name>
            <vlanId>3</vlanId>
            <ip>10.2.0.0</ip>
            <mask>255.255.255.0</mask>
            <gateway>10.2.0.1</gateway>
            <isDefault>true</isDefault>
        </network>
        <network>
            <name>IMI</name>
            <vlanId>4</vlanId>
            <ip>10.3.0.0</ip>
            <mask>255.255.255.0</mask>
            <nonRoutable>true</nonRoutable>
        </network>
    </networks>
</networkelement>
```

\

The server hardware information is needed to configure the Ethernet interfaces on the servers. This server hardware profile data XML file is used for Appworks deployments. It is supplied to the NOAMP server so that the information can be pulled in by Appworks and presented to the user in the GUI during server configuration. The following is an example of a Server Hardware Profile XML file.

**Example Server Hardware Profile XML file – Virtual Guest on TVOE:**

```
<profile>
    <serverType>DSR ESXI Guest</serverType>
    <available>
        <device>eth0</device>
        <device>eth1</device>
        <device>eth2</device>
        <device>eth3</device>
        <device>eth4</device>
    </available>
    <devices>
        <device>
            <name>eth0</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth1</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth2</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth3</name>
            <type>ETHERNET</type>
        </device>
        <device>
            <name>eth4</name>
            <type>ETHERNET</type>
        </device>
    </devices>
</profile>
```

# LIST OF FREQUENTLY USED TIME ZONES

This table lists several valid timezone strings that can be used for the time zone setting in a CSV file, or as the time zone parameter when manually setting a DSR timezone.

Appendix B

**Table 3. List of Selected Time Zone Values**

| Time Zone Value | Description | Universal Time Code (UTC) Offset |
|---|---|---|
| ***America/New_York*** | Eastern Time | UTC-05 |
| ***America/Chicago*** | Central Time | UTC-06 |
| ***America/Denver*** | Mountain Time | UTC-07 |
| ***America/Phoenix*** | Mountain Standard Time - Arizona | UTC-07 |
| ***America/Los_Angeles*** | Pacific Time | UTC-08 |
| ***America/Anchorage*** | Alaska Time | UTC-09 |
| ***Pacific/Honolulu*** | Hawaii | UTC-10 |
| ***Africa/Johannesburg*** | | UTC+02 |
| ***America/Mexico_City*** | Central Time - most locations | UTC-06 |
| ***Africa/Monrovia*** | | UTC+00 |
| ***Asia/Tokyo*** | | UTC+09 |
| ***America/Jamaica*** | | UTC-05 |
| ***Europe/Rome*** | | UTC+01 |

| | | |
|---|---|---|
| ***Asia/Hong_Kong*** | | UTC+08 |
| ***Pacific/Guam*** | | UTC+10 |
| ***Europe/Athens*** | | UTC+02 |
| ***Europe/London*** | | UTC+00 |
| ***Europe/Paris*** | | UTC+01 |
| ***Europe/Madrid*** | mainland | UTC+01 |
| ***Africa/Cairo*** | | UTC+02 |
| ***Europe/Copenhagen*** | | UTC+01 |
| ***Europe/Berlin*** | | UTC+01 |
| ***Europe/Prague*** | | UTC+01 |
| ***America/Vancouver*** | Pacific Time - west British Columbia | UTC-08 |
| ***America/Edmonton*** | Mountain Time - Alberta, east British Columbia & westSaskatchewan | UTC-07 |
| ***America/Toronto*** | Eastern Time - Ontario - most locations | UTC-05 |
| ***America/Montreal*** | Eastern Time - Quebec - most locations | UTC-05 |
| ***America/Sao_Paulo*** | South & Southeast Brazil | UTC-03 |
| ***Europe/Brussels*** | | UTC+01 |
| ***Australia/Perth*** | Western Australia - most locations | UTC+08 |

| | | |
|---|---|---|
| ***Australia/Sydney*** | New South Wales - most locations | UTC+10 |
| ***Asia/Seoul*** | | UTC+09 |
| ***Africa/Lagos*** | | UTC+01 |
| ***Europe/Warsaw*** | | UTC+01 |
| ***America/Puerto_Rico*** | | UTC-04 |
| ***Europe/Moscow*** | Moscow+00 - west Russia | UTC+04 |
| ***Asia/Manila*** | | UTC+08 |
| ***Atlantic/Reykjavik*** | | UTC+00 |
| ***Asia/Jerusalem*** | | UTC+02 |

# MULTI-SITE FEATURE ACTIVATION

**Procedure C.1 Multi-Site Feature Activation**

| S T E P # | This procedure will activate optional features in multi-site configurations for Spare SOAM servers.<br><br>Check off (√) each step as it is completed. Boxes have been provided for this purpose under each step number.<br><br>If this procedure fails, contact **My Oracle Support (MOS)**, and ask for assistance. | |
|---|---|---|
| 1<br>☐ | **ACTIVE SOAM:**<br>Prepare SOAM for optional feature activation | Establish an SSH session to the Active SOAM, login as ***admusr.***<br>Execute the following command:<br><br>`$ irem DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"`<br><br>**Note:** Before running the irem command, collect information on which DSR applications are already activated. |
| 2<br>☐ | **ACTIVE SOAM:**<br>Verify preparation | Execute the following command to verify preparation of optional feature activation:<br><br>`$ iqt -z -h -p -fname DsrApplication where "name in ('RBAR','FABR','PCA','MD-IWF','DM-IWF','CPA','GLA')"`<br><br>**Note:** There should be no output of this command, if there is, verify the correct entry of the command in **step 1**. |
| 3<br>☐ | **ACTIVE NOAM:**<br>Activate Optional Features | Establish an SSH session to the Active NOAM, login as ***admusr.***<br>Execute the following command:<br><br>Follow references [2], [3], [4], [5] and [7] to activate any features that were previously activated. |

Appendix D.

## RESOURCE PROFILE

| VM Name | VM Purpose | vCPUs Lab | RAM (GB) Lab | vCPUs Production | RAM (GB) Production | Storage (GB) Lab and Production | Notes |
|---|---|---|---|---|---|---|---|
| DSR NOAM | Network Operation, Administration, and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DSR SOAM | Site Operation, Administration and Maintenance | 2 | 4 | 4 | 6 | 60 | |
| DA MP | Diameter Agent Message Processor | 2 | 9 (24 for IWF) | 8 | 16 (24 for IWF) | 60 | The 24 GB RAM requirement is a minimum if the DA-MP VM will be used with the IWF. |
| IPFE | IP Front End | | | 4 | 16 | 60 | |
| SS7 MP | SS7 Message Processor for MAP Diameter | | | 8 | 24 | 60 | The 24 GB RAM requirement is a hard minimum for SS7 |
| SBR(s) | Subscriber Binding Repository (session) for Policy DRA | | | 12 | 16 | 60 | To support 5M sessions |
| SBR(b) | Subscriber Binding Repository (binding) for Policy DRA | | | 12 | 16 | 60 | |
| iDIH Application | Integrated Diameter Intelligence Hub web server | | | 4 | 8 | 64 | |
| iDIH Mediation | Integrated Diameter Intelligence Hub mediation server | | | 4 | 8 | 64 | |
| iDIH DB | Integrated Diameter Intelligence Hub DB server | | | 4 | 8 | 120(system) + 100 (DB) | Storage for DB Disk may be increased |

| VM Name | OAM (XMI) | Local (IMI) | Signaling A (XSI1) | Signaling B (XSI2) | Signaling C (XSI3) | Signaling D (XSI4) | Replication (SBR Rep) | DIH Internal |
|---|---|---|---|---|---|---|---|---|
| DSR NOAM | eth0 | eth1 | | | | | | |
| DSR SOAM | eth0 | eth1 | | | | | | |
| DA-MP | eth0 | eth1 | eth2 | eth3 | eth4 | eth5 | eth6 | |
| IPFE | eth0 | eth1 | eth2 | eth3 | eth4 | eth5 | | |
| SS7 MP | eth0 | eth1 | eth2 | eth3 | eth4 | eth5 | eth6 | |
| SBRB | eth0 | eth1 | | | | | eth2 | |
| SBRS | eth0 | eth1 | | | | | eth2 | |
| iDIH App | xmi | | | | | | | int |
| iDIH Med | xmi | imi | | | | | | int |
| iDIH DB | xmi | | | | | | | int |

Note: The Ethernet interfaces define in the table are there as a guidline. Interfaces can be ordered as preferred. I.E. eth1 or eth2 could be associated with XMI if desired.

# MY ORACLE SUPPORT (MOS)

MOS (*https://support.oracle.com*) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Appendix E.

Call the CAS main number at **1-800-223-1711** (toll-free in the US), or call the Oracle Support hotline for your local country from the list at *http://www.oracle.com/us/support/contact/index.html*.

When calling, there are multiple layers of menus selections. Make the selections in the sequence shown below on the Support telephone menu:

1) For the first set of menu options, select 2, “New Service Request”. You will hear another set of menu options.
2) In this set of menu options, select 3, “Hardware, Networking and Solaris Operating System Support”. A third set of menu options begins.
3) In the third set of options, select 2, “ Non-technical issue”. Then you will be connected to a live agent who can assist you with MOS registration and provide Support. Identifiers. Simply mention you are a Tekelec Customer new to MOS.